City of Clarksville, Tennessee
Downtown Parking and Street Network Study

October 2010

RFM

TSW
TUNNELL-SPANGLER-WALSH & ASSOCIATES

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Executive Summary

Introduction

The downtown parking and street network study for the City of Clarksville is a community-based vision guiding the city on implementation of additional on-street parking in the downtown redevelopment area. It will also assist city departments in making decisions on alternative connections for pedestrian and bike travel.

It calls for doing so by using complete street components. Complete streets are streets designed to enable safe, attractive, and comfortable access and travel for all users. Pedestrians, bicyclists, motorist and public transport users of all ages and abilities are able to safely and comfortably move along and across a complete street.

The area of study is downtown Clarksville bounded by Crossland Avenue on the south, the Cumberland River and Red River on the west and north, University Avenue and College Drive on the east. It includes the Central Business District, Austin Peay State University, and surrounding residential neighborhoods.

Review of Existing Codes, Regulations, Plans and Studies

A thorough review of all master plans and guiding documents was conducted. At every opportunity these prior master plans were followed and reinforced by the current study's recommendations. Among key findings are the following:

- No additional parking was warranted in the downtown area currently especially if there was any cost to construct
- Bike routes and facilities are generally delineated that fall within the current study area
- Existing streetscape design guidelines in terms of tree selections, sidewalk treatments, and others that should be recognized
- Road diets and streetscape improvements to benefit bikers, pedestrians and on-street parking are recommended
- Austin Peay State University expansion should bring additional students and faculty
- Marina and Fairgrounds under construction are new investments that should have a positive economic impact to the study area
- The Zoning Ordinance makes no mention of on-street parking requirements and does not define any parking requirement for new development occurring within the CBD
- Title 12 of the City Code states that sidewalks shall be mandatory within any new development along newly constructed public roads except for M-2 and M-3 industrial
- Title 9 of the City Code states that no driver of a motor vehicle shall make a "U" turn upon any street of the city, clarification of this ordinance may be required if medians are introduced
- The entire length of Kraft Street is planned to be widened (2016)
- College Street from Riverside Drive to 2nd Street is planned to be widened (2035)
- The 2035 traffic models project that traffic volumes within the study area will remain generally consistent
- The consultant team acquired traffic count information from the 2009 TDOT ADT Book

Review of Existing Conditions

A walking inventory was completed by the Planning Team in June 2010. Generally, each street was inventoried on a per block basis. The prevailing or most common cross-section was inventoried per block. The planning process also reviewed existing conditions beyond the physical dimensions of the street and its characteristics. Key findings based on opportunities and issues are that:

- Clarksville has a mix of land uses, which offers an opportunity for parking efficiency
- The CBD is a grid which disperses traffic by allowing multiple options
- College Street and Riverside Drive have segments that are congested during peak traffic
- Clarksville's marked on-street parking was utilized at a rate of approximately 50% of capacity during the periods of peak parking demand
- Approximately 85% of the marked on-street parking has a metered limit of two hours
- On-street parking outside of the CBD is mostly unmarked and unmetered except on Marion Street in APSU campus where parking is marked on both sides
- Sidewalks are critical to healthy urban areas, and Clarksville's provision of a sidewalk network within the study area is adequate for the most part
- The most significant lack of sidewalks is found in the neighborhood east of 8th Street
- There are numerous intersections where pedestrian crosswalks striping and signage could be added for greater pedestrian comfort and safety
- Pedestrian signal heads and mid-block crossings could also be employed where volumes are high
- There are numerous intersections where pedestrian crosswalks striping, signage, and ped heads in high traffic areas are lacking
- Street trees only exist on several streets in the CBD
- Significant grade affects many street characteristics from the appropriateness of on-street parking, cross-slope on sidewalks and drainage
- There are several National Registered Historic Places in the downtown redevelopment area
- A photo inventory and description of all the streets in the study area was created

Public Involvement

The public participation process for the Clarksville Downtown Parking Study used a variety of tools. These include stakeholder interviews, an image preference survey, a series of public meetings and a workshop. These allowed for a broad spectrum of stakeholders to contribute to the effort and its vision.

Downtown Redevelopment Area Parking Design Recommendations

The recommendations will guide Clarksville towards complete streets, which can be distilled into the following:

- Maximize on-street parking to prepare for future development and to help create a pedestrian environment
- Back-in or reverse-in diagonal parking should be used to maximize parking and for safety
- There are numerous intersections where pedestrian crosswalks striping and signage should be added
- Pedestrian signal heads and mid block crossings should be employed where volumes are high
- Sidewalks should be added at Kraft Street and Red River Street where CTS serves this predominately industrial area and other residential areas per the street standards
- Bike lanes and shared lane markings should be built per the recommended bike route map and street standards
- Street trees should be used in future streetscapes
- Medians should be used in certain street sections to reduce lane width or converting center turn lanes to a median with left turn lanes at intersections per the street standards
- Road diets should be implemented per the street standards
- A wayfinding master plan should be created to make it easier for downtown users to find public parking lots, garages, on-street parking, and bike facilities
- Bioswales should be incorporated with new parking and retrofitted per the sustainability standards
- Shared parking should be promoted and coordinated within the study area to increase efficiency
- Carpooling spaces should be incorporated into the study area at locations that have high parking demands such as the Franklin Street area
- Adopt bicycle parking requirements and retrofit existing streets

Community Workshop

1. Introduction

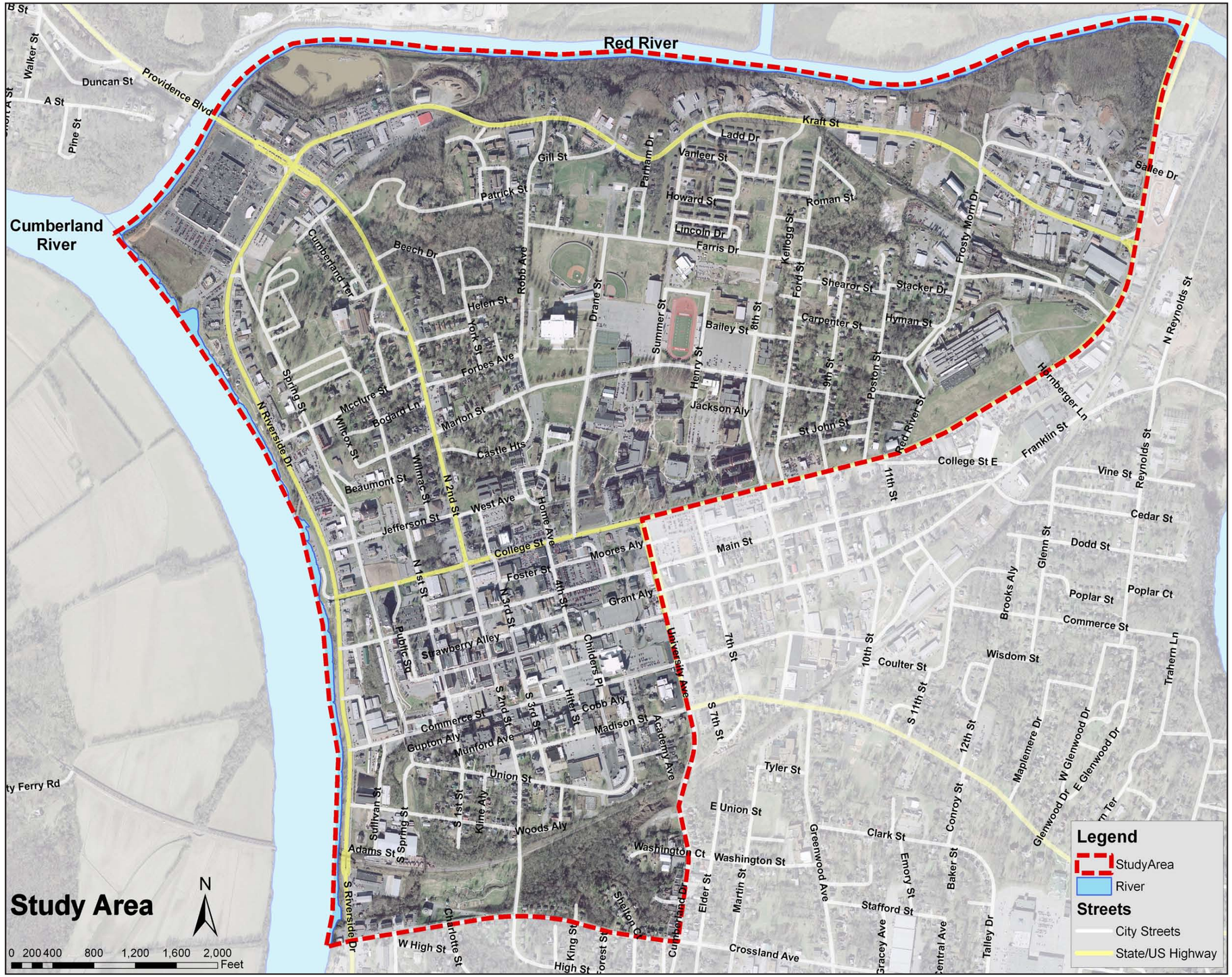
1.1 Study Area

The area of study is downtown Clarksville bounded by Crossland Avenue on the south, the Cumberland River and Red River on the west and north, University Avenue and College Drive on the east. It includes the Central Business District, Austin Peay State University, and surrounding residential neighborhoods. The map on the right shows the study area. The yellow lines indicate State and US highways, and the whites depict city streets.

1.2 Study Purpose

This study focuses on street network and parking in downtown Clarksville. The primary goal is to determine the best use of the existing Right-of-Way for automobiles, pedestrians, bicycles, and on-street parking. The combination of all the components previously stated including sustainability is what creates a complete street, which is a goal of the City of Clarskville.

Based on the inventory and evaluation of existing roadway conditions, parking supplies and potential needs to accommodate future growth, this study is intended to assist the city in the development of a set of standards to guide the implementation of additional on-street parking in the City of Clarksville downtown redevelopment area. It will also assist city departments in making decisions on alternative connections for pedestrian and bike travel.



Map 1.1 Study Area Map

2. Review of Existing Codes, Regulations, Plans and Studies

Tunnell-Spangler-Walsh & Associates and RPM Transportation Consultants are familiar with Downtown Clarksville and the history of planning there. Both firms have worked on numerous projects over the years within this study area resulting in a good working knowledge of it. Even so, a thorough review of all master plans and guiding documents was conducted. At every opportunity these prior master plans were followed and reinforced by the current study's recommendations. Below is a summary of the review.

The most recent and technical within the group, especially as parking is concerned, is the ***Desman Associates Parking Study completed in April 2009***. It contains significant detail in regards to parking supply/demand, diurnal usages, operations and costs. After careful analysis of these data sets the consultant concluded that no additional parking was warranted in the downtown area currently especially if there was any cost to construct. The main recommendations revolved around, optimizing existing assets, parking operational issues and pricing.

The Greenway Master Plan completed by Lose & Associates in 1999 was also a critical document to reflect with regard to the current study. It's coverage of community demographics, public input, design standards and trail descriptions is helpful. It also contains discussions of what makes an ample trailhead facility and some of the amenities necessary for bikers and walkers such as benches, bike racks, trash receptacles, lights and trees. While there is no discussion of "road-diets" directly, the plan calls for dozens of places where vehicular lane widths should be narrowed to allow for pedestrian and bicycle facilities. There are a number of bike routes and facilities generally delineated within this plan that fall within the current TSW study area. Madison Street is proposed to have a Shared-Use Facility from the current study area eastward. Second Avenue from Kraft to Crossland is proposed to have bicycle facilities as well. A north south bike connector is called for on University and an east west facility on Marion. Extending the RiverWalk south as a multi-use trail is also recommended in this document.

Hodgson and Douglas, LLC completed a ***Central Improvement District Streetscapes Plan in August of 2000***. Our review of this plan indicates that many of the proposed street intersection and urban design improvements are either completed or substantially in progress. The study contains numerous streetscape design guidelines in terms of tree selections, sidewalk treatments, and others that should be recognized and incorporated into the current study.

There are numerous other reports which have informed this study's outcome and proposed changes. Two excellent documents which outline urban design, land use and architectural upgrades for districts within and near the study area are ***Madison Street Corridor Urban Design Overlay*** and the ***Downtown District Partnership Design Guidelines***. Both recommend road diets and streetscape improvements to benefit bikers, pedestrians and on-street parking. The ***Austin Peay State University planning documents*** as well as the ***Marina and Fairground documents*** have helped inform the study by outlining exciting new developments and increased investment coming to downtown Clarksville.

Clarksville's adopted codes contain laws that are notable when considering cross-section changes to public streets. Some of these include:

- *Zoning Ordinance* makes no mention of on-street parking requirements and does not define any parking requirement for new development occurring within the CBD.
- *Title 12 of the City Code* states, "Sidewalks shall be mandatory within any new development along newly constructed public roads and dedicated permanent roadway easements in all zoning districts with the exception of districts zoned M-2 and M-3 Industrial, and shall meet the requirements of this section." (Sec. 12-124) This requires that where sidewalks do not exist and where they are not shown as part of a proposed cross-section within the public right-of-way, any new development must dedicate an easement outside of the right-of-way in which to construct sidewalks.
- *Title 9 of the City Code* states, "No driver of a motor vehicle shall make a "U" turn upon any street of the city." (Sec. 9-445) Clarification of this ordinance may be required if medians are introduced which would require U-turns to access individual properties.

The Neighborhood Traffic Management Program in effect in Clarksville outlines the policy and procedures used to accommodate citizen requests for traffic calming on residential streets. It was not apparent that any street within the study area would benefit from such measures. Furthermore, some of the proposed cross-sections incorporate design features which have been found to inherently calm traffic to appropriate speeds (e.g. on-street parking, narrow lanes, etc.).

The Clarksville Long-Range Transportation Plan (LRTP) also provides some insights worth considering from a longer term perspective. Future improvements to regionally-significant roadways within the study area include:

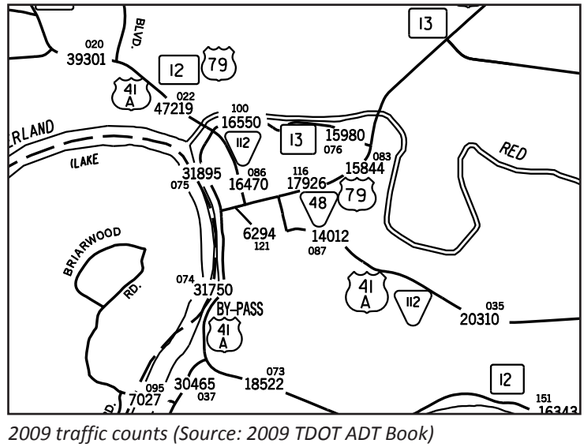
- The entire length of Kraft Street is planned to be widened (2016)
- College Street from Riverside Drive to 2nd Street is planned to be widened (2035)

The travel demand model completed as part of the ***Regional Planning Commission's LRTP*** provides long-term traffic volume estimates based on area demographic changes and planned transportation projects. The 2035 models project that traffic volumes within the study area will remain generally consistent with today's volumes. This is not uncommon in urban areas where full build-out is already realized. This information is especially important when considering changes to mobility-oriented streets. While traffic volumes are not projected to decline, planned roadway improvement projects will maintain generally manageable volumes over the next 25 years.

The consultant team acquired traffic count information from the ***2009 TDOT ADT Book***, which shows traffic counts on major state and US highways affecting the study area (see figure on the right).

Graphics showing recommended improvements at Public Square from the Central Improvement District Streetscape Plan.

Downtown District Partnership Design Guidelines



2009 traffic counts (Source: 2009 TDOT ADT Book)

3. Review of Existing Conditions

3.1 Summary

The Clarksville Downtown Study Area includes a mixture of land uses and street types which combine to provide street users different services and experiences. Certain streets within the study area serve the following roles:

- Allow access to fronting properties (Franklin Street)
- Provide efficient mobility either within or through the study area (College Street)
- Define a particular setting or place (Strawberry Alley)
- Give emphasis to a landmark (University Avenue)
- Serve as parking for residences (S 1st Street)

The type and condition of street features and characteristics help define the role of the street, what activities or services are appropriate, and to what degree the role of the street is realized. In order to evaluate the existing conditions of the streets within the study area, the features of each street were inventoried. The inventory also helped to determine where deficiencies exist, where certain activities (such as parking) are desired, and how street cross-sections might be improved in the future. This section summarizes the findings of the Existing Conditions Inventory.

The walking inventory was completed by the Planning Team in June 2010. Generally, each street was inventoried on a per block basis. In some cases, a street cross-section was consistent over a multi-block segment. In other cases, the cross-section changed several times within the same block. In all cases, the prevailing or most common cross-section was inventoried per block. The features collected and measured on both sides of the street are as follows:

- Presence and width of a landscape buffer behind the sidewalk
- Presence and width of a landscape buffer between the curb and sidewalk
- Presence and width of sidewalk
- Type of drainage
- Number and width of marked on-street parking spaces
- Parking where allowed but not marked
- Presence and width of shoulder
- Number and width of travel lanes
- Locations of other features and characteristics (bus routes, bike routes, street trees)

Streets within the study area fall under the jurisdictional control of either the City of Clarksville (local roads) or the Tennessee Department of Transportation (TDOT) (state and federal roads). Although outside of the jurisdiction of the City, state routes have been included within the scope of study due to the significant impact that these roads have on the downtown area of Clarksville. Riverside Drive (SR 12), College Street (SR 48), Kraft Street (SR 13), N 2nd Street (SR 76), Madison Street (SR 76), and University Avenue (SR 112) are all primary routes within the area. Map 3.1 shows the street jurisdictions.

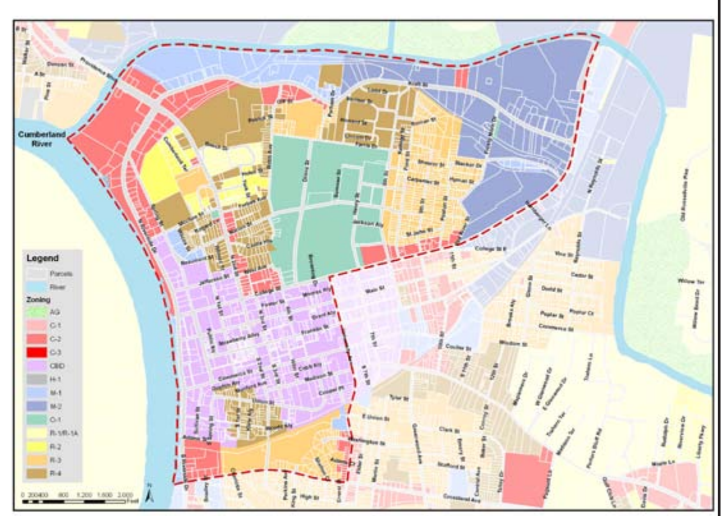
3.2 Land Uses

Land uses and the relationship between them impact the quality of life in a community. Different land uses have varying impacts on transportation and utility systems. The arrangement of land uses and their proximity also support or discourage different modes of transportation, including bicycling and walking; this can directly impact the vehicular system by reducing or increasing traffic.

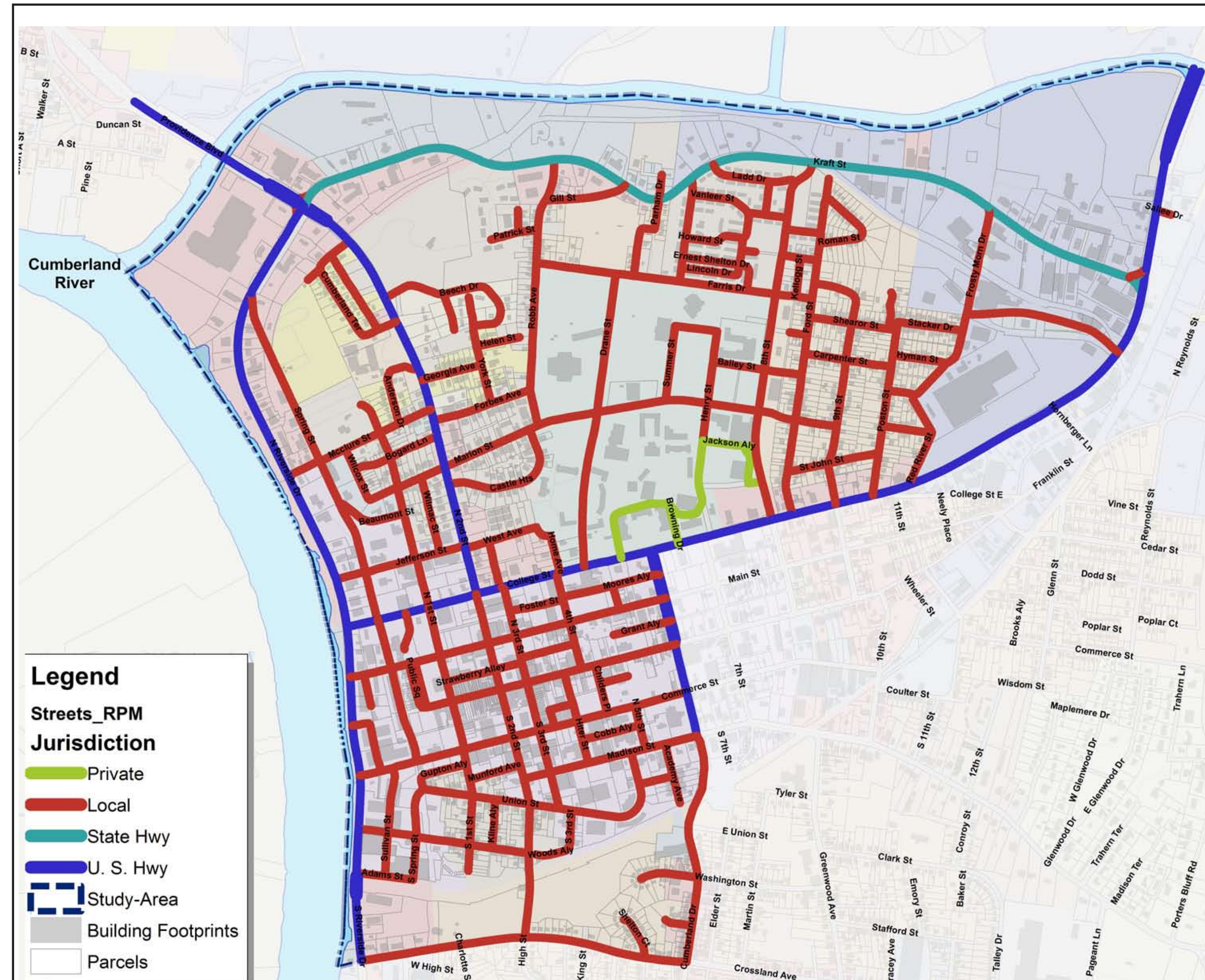
Prior to World War II, towns and cities were traditionally built as mixed-use environments featuring housing, shops, offices, religious institutions, schools, parks, and factories, all within a short walk of one another. As the benefits of mixed-use areas are rediscovered, it is increasingly important to understand the uses that can be supported by pedestrian traffic within an acceptable walking distance. Many uses are compatible, including retail, office, open space, civic, and residential uses. Others, such as industrial and transportation services, are more difficult to reconcile in a mixed-use setting.

The study area contains a mix of land uses, ranging from residential, commercial, mixed-use to institutional and industrial. There are many mixed-use buildings located in the downtown core, especially along Franklin Street, which presents a vibrant city center. Many government and office uses are located in the CBD as well as commercial uses within easy walking distances from each other. As a significant major institutional use, Austin Peay State University is located to the north of CBD. Big box and small conventional commercial developments are mainly along North Riverside Drive, Kraft Street, and part of College Street east of CBD. Most of the residential properties in the study area are located around APSU, with a small portion in the area south of CBD. They are predominately single-family lots with some apartments. Industrial uses occur along the east part of Kraft Street and College Street.

Public parks and greenspaces are lacking in the study area. Except for the linear park between the Cumber-



Map 3.2 Existing Zoning Map



Map 3.1 Street Jurisdiction Map

land River and N. Riverside Drive, there are few other parks in the downtown redevelopment area. There very few well-designed or well-utilized public gathering spots downtown.

The city center are has an exclusive existing zoning category of CBD. Mixed-use development and urban design standards are encouraged in this district to promote traditional urban form. Commercial zoning can be seen along some part of state and US highways with a concentration along N. Riverside Drive. R-3 and R-4 dominate the residential areas.

3.3 Traffic and Circulation

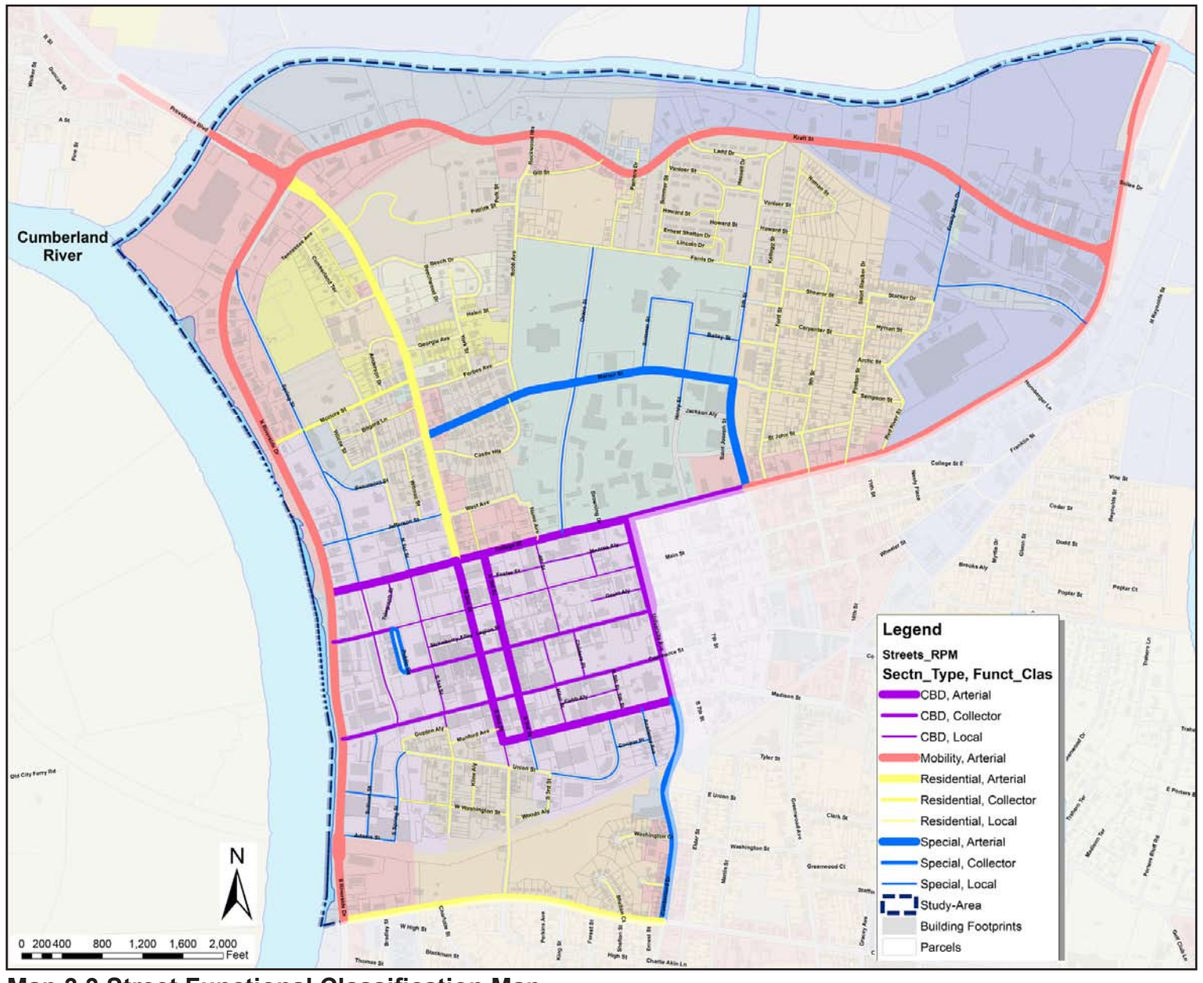
Moving vehicle traffic to and through the study area is a primary role of streets and, regardless of the road's jurisdiction, traffic operations are the responsibility of the City of Clarksville. Twenty traffic signals exist within the study area and the remainder of the intersections operate with stop control. Approximately 2,500 feet of one-way streets also exist, most notably the one-way pair of 2nd and 3rd Streets between College Street and Madison Street.

Functionally, traffic and circulation are generally good within the area. During peak traffic periods, congestion is common on certain segments of College Street and Riverside Drive. Conversely, some streets within the CBD have little more than a few hundred trips per day and never experience delays.

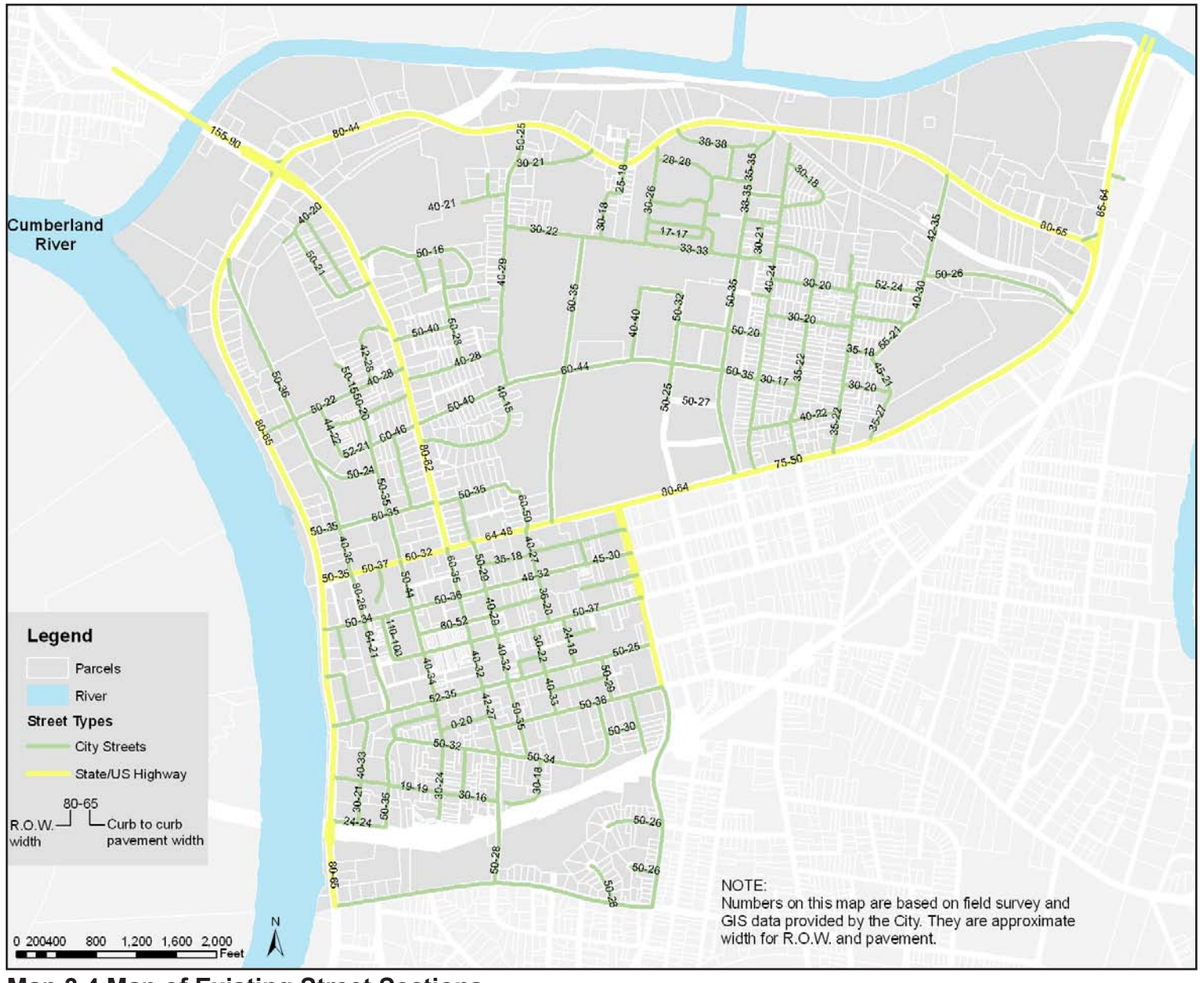
The role of traffic movement and circulation is sometimes defined using the functional classification system of roadways. Functional classifications are typically defined by state Department of Transportations differentiate between arterials (high traffic), collectors (moderate traffic), and local streets (lower traffic). Combining the functional classifications with the land use setting in which each is found provides several different street types (Map 3.3).

3.4 Typical Street Cross-Sections

A "typical" street cross-section within the study area is difficult to define. The street types defined based on land use setting (i.e. context) and functional class have some similarities within each type with respect to cross-sectional elements. However, a comparison of two streets of even the same street type will reveal differences in the presence and/or width of many features of the cross-section. A summary of the existing street types is provided in table 3.1. Map 3.4 below shows approximate existing street configurations, ROW and pavement width, which were collected based on field survey and GIS data analysis.



Map 3.3 Street Functional Classification Map



Map 3.4 Map of Existing Street Sections

Table 3.1 Summary of Existing Roadways

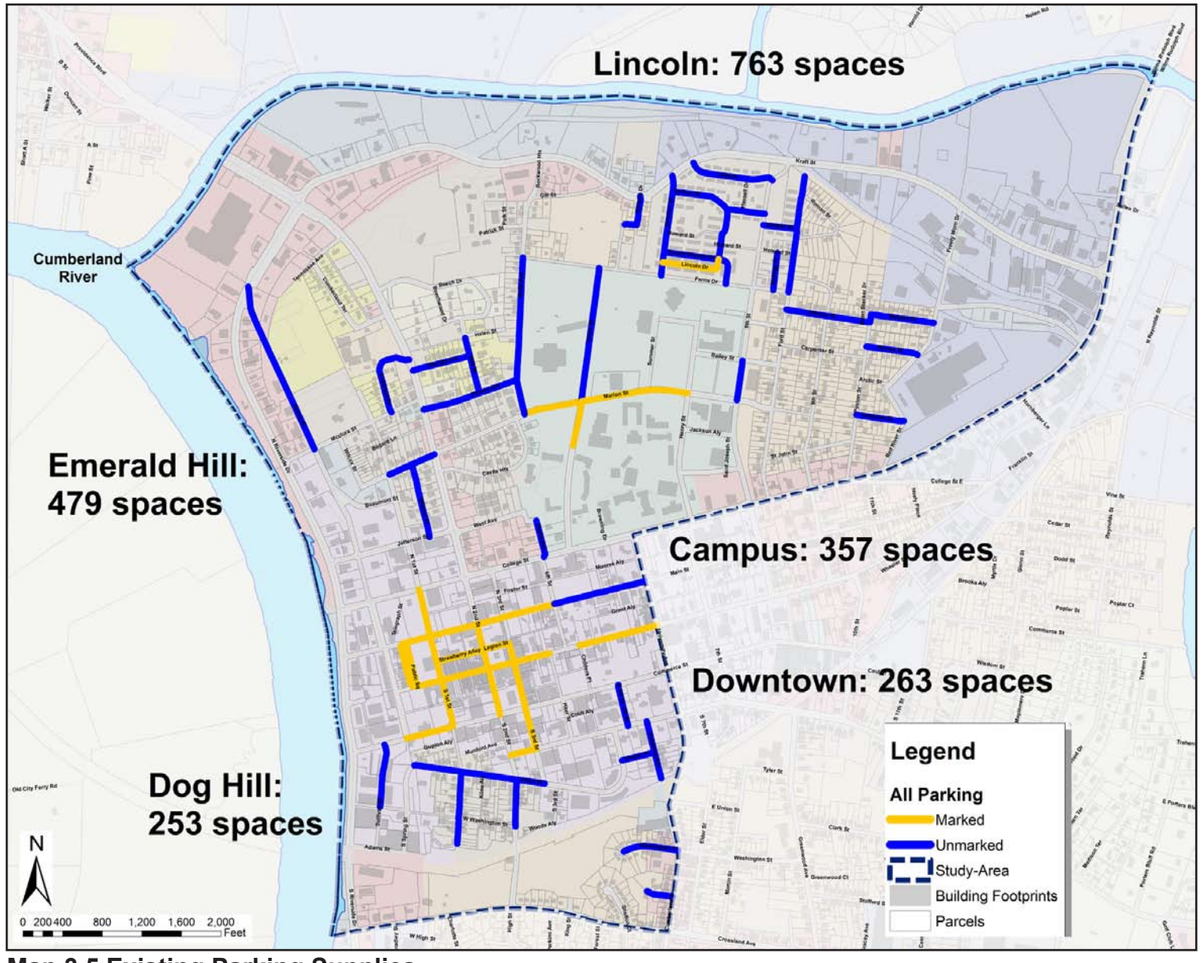
		ARTERIAL STREETS				COLLECTOR STREETS				LOCAL STREETS				
Street Type	**Area Characteristics**	**Street Width**	**On-Street Parking**	**Sidewalks**	**Study Area Streets**	**Street Width**	**On-Street Parking**	**Sidewalks**	**Study Area Streets**	**Street Width**	**On-Street Parking**	**Sidewalks**	**Study Area Streets**	
CBD	Setbacks are minimal if any at all. Significant topography requires retaining walls. Land uses are mixed, but contain little residential or industrial uses. Small parcel size and blocks are generally 400-500 feet long.	26 - 60 feet (2 - 5 lanes)	Some, on 2nd and 3rd Streets	5 - 8 feet, few planting strips	2nd St, College to Madison 3rd St, College to Madison College St, west of 8th Madison St, *entire* University Ave, *entire*	20 - 34 feet (2 lanes)	Some, on Franklin	5 - 8 feet, few planting strips	Commerce St, entire Franklin St, entire Main St, west of Public Square	17 - 34 feet (2 lanes)	Yes, generally parallel, some angled	5 - 16.5 feet, some planting strips	1st St, College to Gupton 4th St 5th St Childers Pl Foster St Hiter St Legion St	Main St, east of Public Sq Spring St, College to Commerce Strawberry Alley Telegraph St
Mobility	There are no unique area characteristics for mobility streets. These streets traverse all types of areas while maintaining relatively similar design and operational elements.	24 - 72 feet (2 - 5 lanes)	None	5 - 6 feet where present, no planting strip	College St, east of 8th Kraft St, *entire* Providence Blvd, *entire* Riverside Dr, *entire*	None exist				None exist				
Residential	Housing condition ranges from very good to blighted and is primarily single family detached. A significant portion is historic.	40 - 60 feet (3 - 5 lanes)	None	4.5 - 8 feet, some planting strips	2nd St, north of College Crossland Ave, *entire*	23 feet (2 lanes)	None	None	2nd St, south of Union	11 - 44 feet (1 - 2 lanes)	None striped, but usually allowed	Highly variable, usually >5' where existing	1st St, south of Commerce 2nd St, south of Union 3rd St, north of College 8th St, north of Farris 9th St Adams Ct Anderson Dr Arctic St Beech Dr Beechwood Dr Bogard Ln Carpenter St Castle Hts Cumberland Terr Ernest Shelton Dr Farris Dr Forbes Ave Ford St Georgia Ave Gill St Hassell Dr Home Ave Howard St Hyman St Kellogg St Ladd Dr	Lincoln Dr Marion St, west of 2nd Parham Dr Patrick St Polk St Poston St Red River St, south of Stacker Robb Ave Rockwood Hts Roman St Sampson St Shearor St Shelton Ct St John St Stacker Dr Summer St Tennessee Ave Union St, Gupton to 3rd Vanleer St W Washington St, east of Spring Washington Ct West Ave Wilcox St York St
Special	Usually larger tracts having varying access needs. May describe campus, industrial, or other land uses.	27 - 44 feet (2 - 4 lanes)	Some, on Marion	5 - 6 feet, no planting strip	8th St, College to Marion Cumberland, *entire* Marion, 2nd to 8th	72 feet (4 lanes)	Yes	5 - 8.5 feet, no planting strip	Public Square	22 - 37 feet (2 lanes)	None striped, but some allowed	Highly variable, usually >5' where existing	1st St, College to Jeffferson 3rd St, Madison to Union 8th St, Marion to Farris Academy Ave Adams St Beaumont St Cooper Pl Drane St Frosty Morn Dr	Jefferson St Red River St, north of Stacker Spring St, north of College Spring St, south of Union Sullivan St Union St, 3rd to Madison W Washington St, west of Spring

3.5 On-Street Parking Supply

As shown in map 3.5, the study area currently has over 2,100 on-street parking spaces. Most (approximately 90%) of these are not marked spaces, but are wide street segments where on-street parking is allowed.

Marked on-street parking exists only within the CBD area. The placement of spaces generally appears to satisfy parking demands. The Downtown Parking Study completed in April 2009 found that Clarksville's marked on-street parking was utilized at a rate of approximately 50% of capacity during the periods of peak parking demand. Approximately 85% of the marked on-street parking has a metered limit of two hours.

On-street parking outside of the CBD is mostly unmarked and unmetered except on Marion Street in APSU campus where parking is marked on both sides. Unmarked parking is found primarily in residential areas and some parts of the Austin Peay campus. Utilization varies from light usage to near capacity, particularly during evening hours when residents are home. The "first come, first served" rule seems to work well for these urban neighborhoods and parking generally is self-regulating. It is noted that many residences in these neighborhoods have no driveways, and on-street parking is a necessity for these properties.



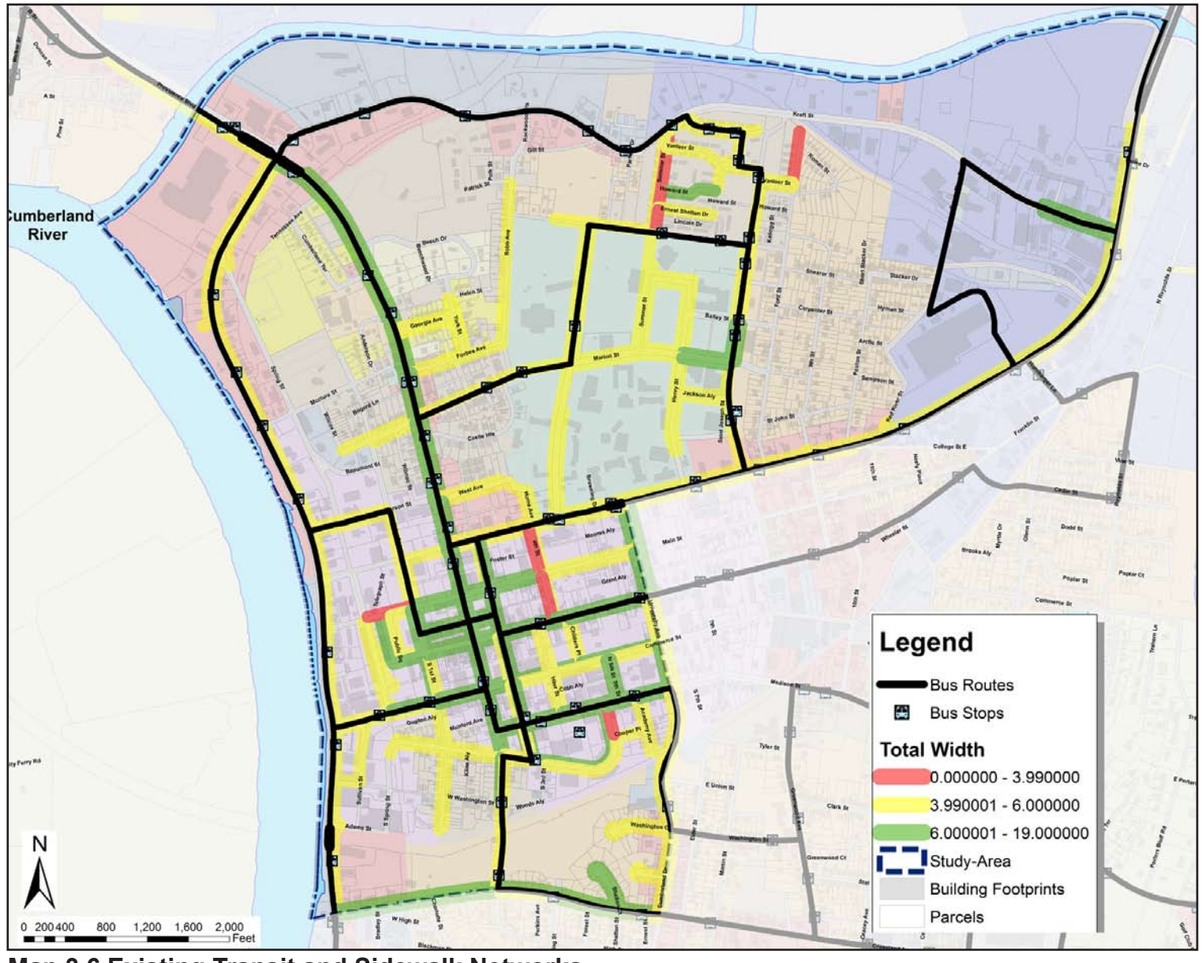
Map 3.5 Existing Parking Supplies

3.6 Pedestrian, Bicycle, and Transit Network

Sidewalks are critical to healthy urban areas, and Clarksville's provision of a sidewalk network within the study area is adequate for the most part. Sidewalk widths are typically at least four feet and do exist on most streets. The most significant lack of sidewalks is found in the neighborhood east of 8th Street. There are numerous intersections where pedestrian crosswalks striping and signage could be added for greater pedestrian comfort and safety. Pedestrian signal heads and mid block crossings are lacking.

Sidewalks are particularly needed where streets serve transit routes. Within the study area, all transit routes are on streets where sidewalks exist. The one exception is along portions of Kraft Street and Red River Street where CTS serves this predominately industrial area. CTS operates fixed route and paratransit service within the study area. No special cross-section features (bus pullouts, etc.) are found within the study area or are required for CTS operation. Map 3.6 shows the transit and sidewalk networks.

There are currently no bicycle facilities within the study area except a short trail along the Cumberland River. Crossland Avenue is signed as a bicycle route, but does not have bike facilities. Given the speed and volume of traffic, many of the study area streets are suitable for bicycle use with no modification. However, many bicyclists will avoid using streets like Riverside Drive, College



Map 3.6 Existing Transit and Sidewalk Networks

Street, or other streets where high traffic volumes, high speeds, and/or a lack of facilities create real or perceived safety problems for bicyclists.

3.7 Significant Street Trees

Street trees only exist on several streets in the CBD, and are generally young (approximately three-inch caliper). The street trees that exist will continue to impact the streetscape more in the future as they mature. Portions of the following streets currently have street trees in the planting strip located between the back of the curb and the sidewalk:

- 1st Street
- 2nd Street
- Commerce Street
- Franklin Street
- Legion Street
- Public Square (in median)
- Spring Street

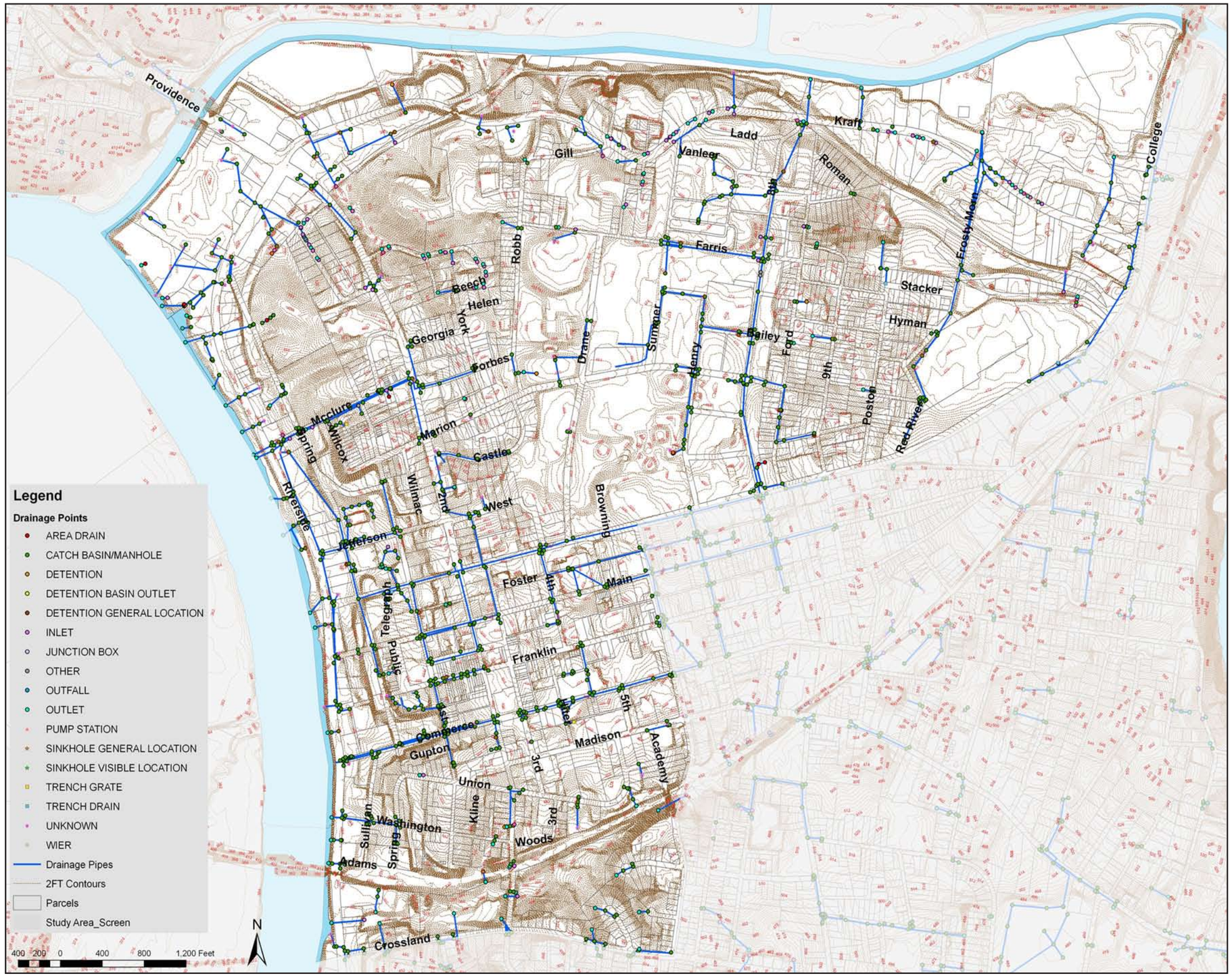
3.8 Stormwater Drainage Constraints

Slopes found within some portions of the study area are significant and have had an impact on the development patterns and streetscapes found there. Significant grade affects many street characteristics from the appropriateness of on-street parking to cross-slope on sidewalks.

Drainage is a street function that is impacted by topography. Special consideration to drainage on some of the steeper streets may be warranted. These streets include:

- Cumberland Terrace
- McClure Street
- Jefferson Street
- College Street
- Main Street
- Franklin Street
- Commerce Street

Grades on these streets are steepest west of 1st Avenue. Drainage inlets are more plentiful in this area as well, though inlets are concentrated at intersections throughout the study area. In general, drainage features currently have little effect on the cross-section or the function



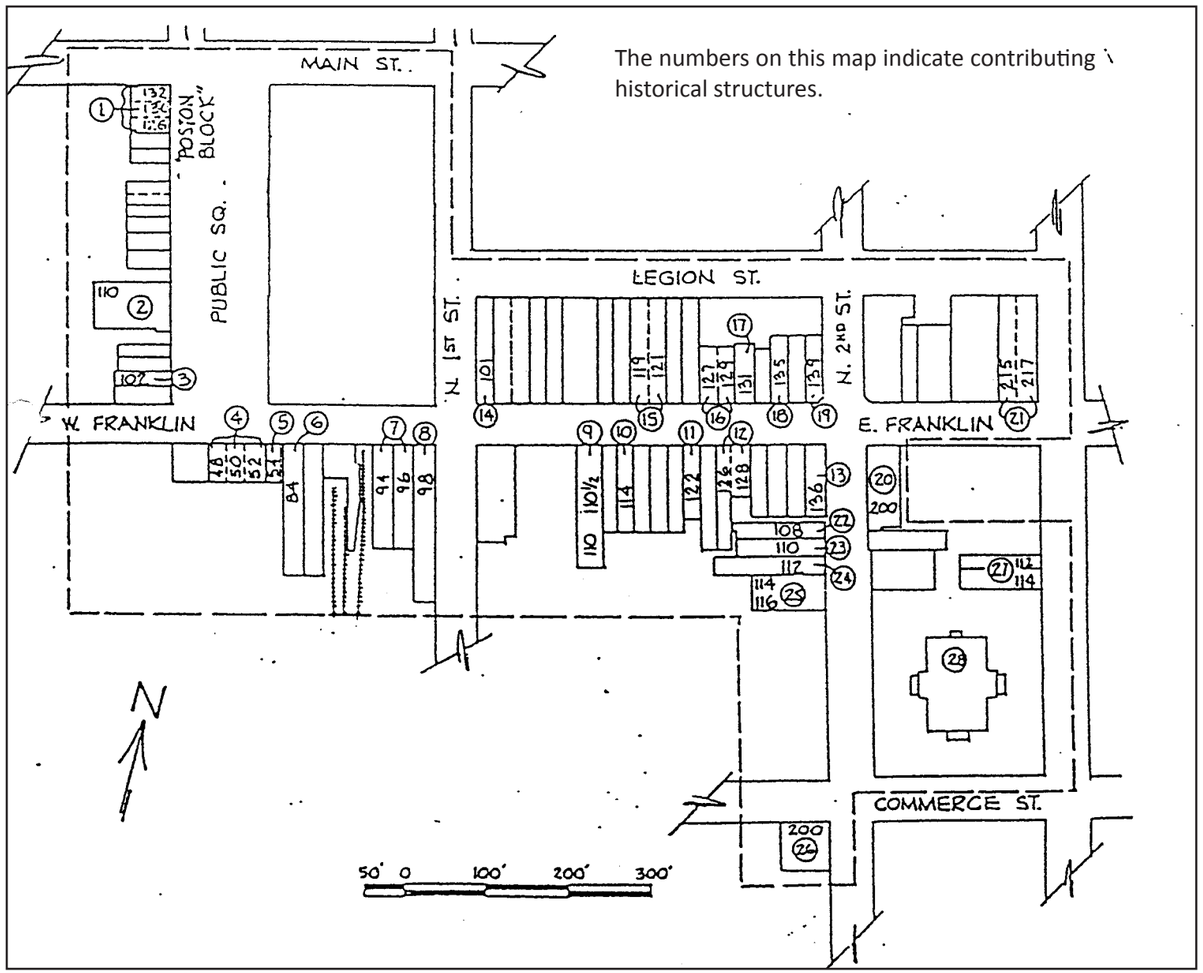
Map 3.7 Topo and Drainage

of the street.

3.9 Important Architecture or Historical Place

There are several National Registered Historic Places in the downtown redevelopment area.

- Clarksville Architectural District
  It includes Public Square, Legion, 3rd, Franklin and Commerce Streets. See map 3.x
- Clarksville Industrial District
  It is bounded by Washington Street, Crossland Avenue, the ICG Railroad, and the Cumberland River.
- Dog Hill Architectural District
  The district is bounded by Munford Avenue, 1st, Union, Madison and 2nd Streets.
- Clarksville Federal Building
  Located at the intersection of Commerce and 2nd Street, it is a Queen Anne style building.
- Clarksville Foundary and Machine Works Office, 96 Commerce Street
- Clarksville Methodist Church, 334 Main Street
- Drane -- Foust House, 319 Home Avenue, on APSU campus (Queen Anne Style)
- Emerald Hill, N. 2nd Street (Greek Revival style)
- First Presbyterian Church, 213 Main Street (Gothic style)
- First Presbyterian Church Manse, 305 Main Street (Italianate style)
- Forbes -- Mabry House, 607 N. 2nd Street (Italianate style)
- Madison Street Historic District
- Madison Street Methodist Chruch, 319 Madison Street (Gothic style)
- Northington -- Beach House, 512 Main Street (Colonial revival style)
- Old Post House, north of Clarksville on US 41A
- Poston Block, a group of three buildings at Public Square and Main Street
- Rexinger, Samuel House, current president house at APSU, 703 E. College Street (Italianate style)
- Robb, Alfred A. House, 529 York Street (Italianate style)
- Smith, Christopher H. House, Spring and McClure Streets (Italianate style)
- St. Peter African Methodist Church, 518 Franklin Street (Gothic style)
- Trinity Church and Rectory, 317 Franklin Street (Gothic style)



Map 3.9 Map of Architectural Historic District

Poston Building

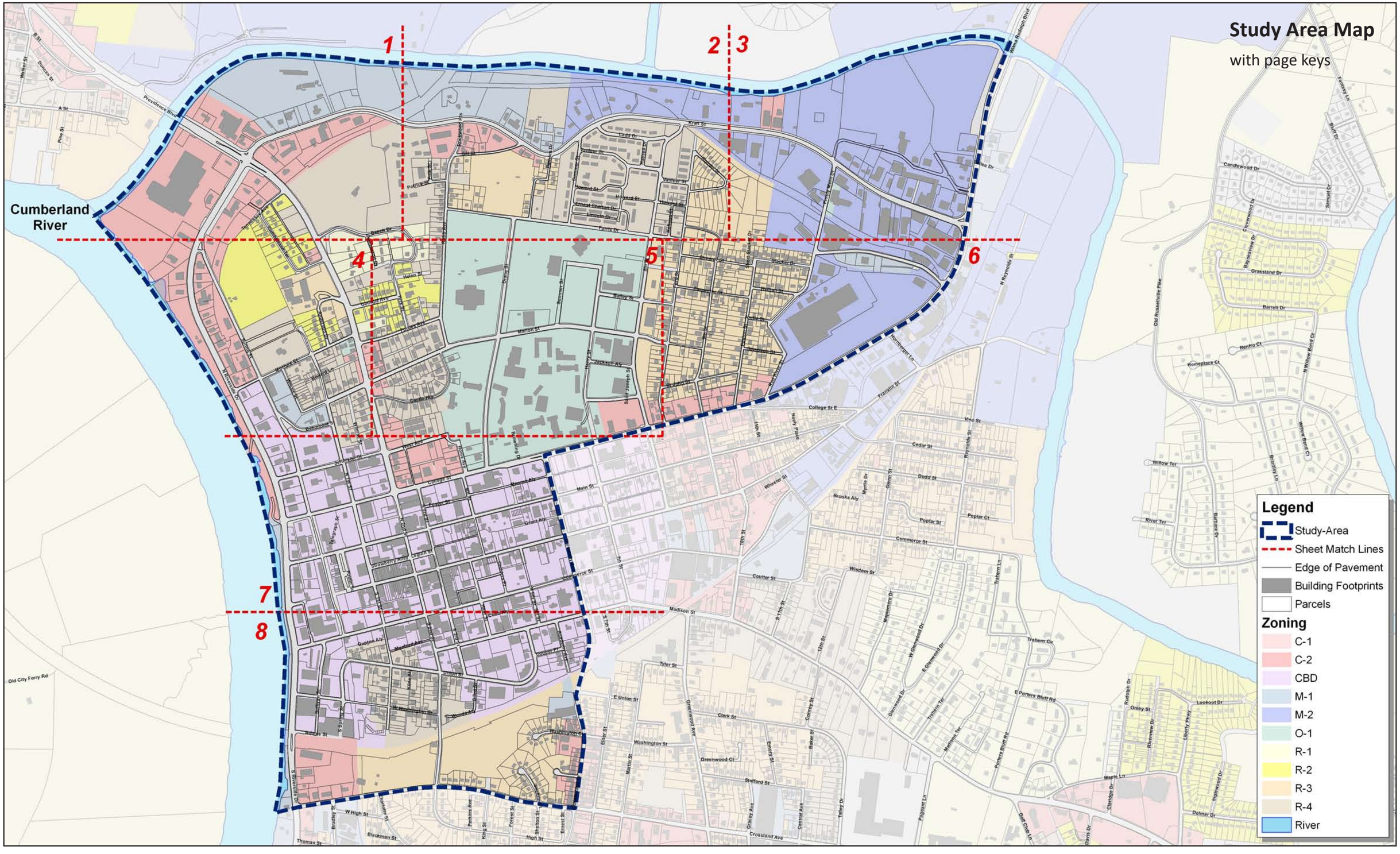
3.9 Photo Inventory

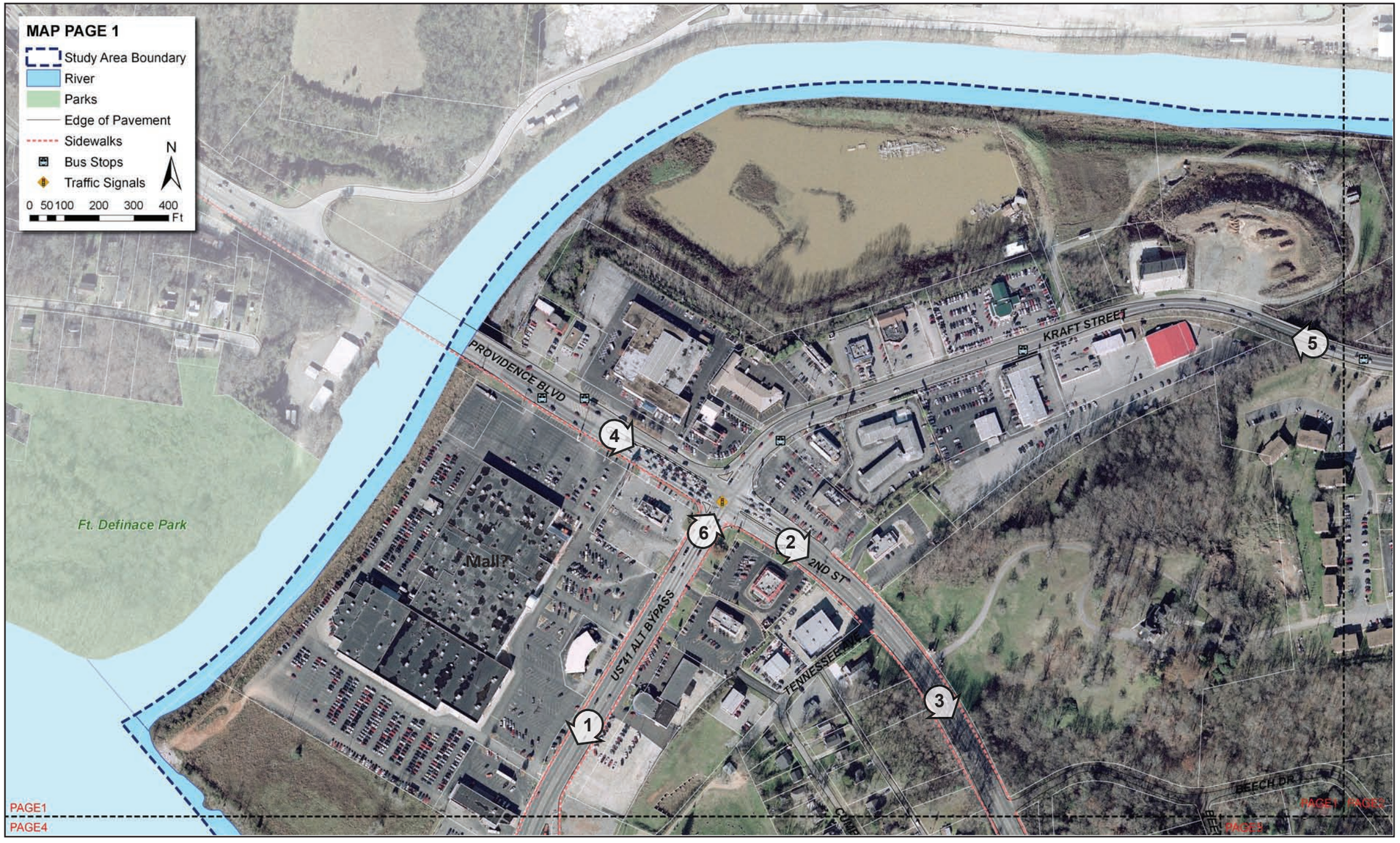
The following is a study area map that depicts the pages divided by match lines. The following pages indicate points, where photos were taken with a GPS camera. The points have arrows that indicate the direction the photo was taken. Each point has a number that relates to a photo and description. The team has characterized the streets into four types: mobility, CBC, special and residential. (See Table 3.1 for characteristics).

Customs House Museum

Study Area Map

with page keys





4. Providence Boulevard

US Highway with two travel lanes in each direction and a center turn lane.

5. Kraft Street

Two-lane state highway entering a commercial area.

1. N. Riverside drive/ US 41 ALT bypass.

This is a five-lane US Highway that bypasses downtown Clarksville.

2. N. 2nd Street

US Highway with two travel lanes on each direction and a center turn lane. This photo is taken just beyond a commercial area.

3. N. 2nd Street

Same street as number 2 on this sheet as it passes through a residential area.

6. N 2nd and N. Riverside Drive Intersection located in a commercial area.

1. Kraft Street

Two-lane state highway.

2. Robb Avenue

Two-lane local residential street.

3. Ford Street

Two-lane local residential street

4. Summer Street

Two-lane local street in mutifamily area.

5. 8th Street

Two lane local street runs through a multifamily area to the east side of APSU.

4. College Street

Four-lane US highway traveling through an industrial area.

1. Frosty Morn Drive

Two-lane local street in an industrial area.

2. Kraft Street

Two-lane state highway traveling through an industrial area.

3. Kraft Street

Changing from four lanes to two lanes passing through an industrial area.

1. N. Riverside Drive

US highway with two travel lanes going each direction and a center turn lane.

2. N 2nd Street

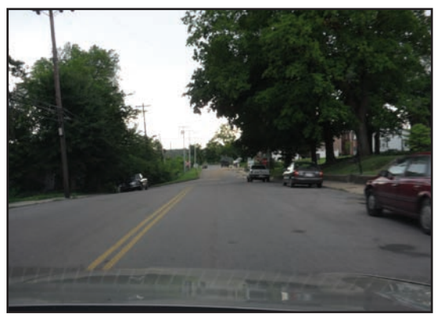
Four-lane US highway entering downtown.

3. N Spring Street

Two-lane local street traveling through a mix of uses.

4. Marion Street

Local street connecting to APSU.



4. Marion Street

Two-lane street traveling through APSU.

1. Robb Avenue

Two-lane local street traveling through APSU and a residential neighborhood

2. 8th Street

Two-lane local street abutting APSU.

3. Ford Street

Two-lane local street traveling through a residential area.

1. 9th Street

Two-lane residential street traveling through a residential area.

2. College Street

US highway with two travel lanes in each direction and a center turn lane.

3. Red River Street

Local two-lane streettraveling through a residential area and industrial zone.

4. Red River Street

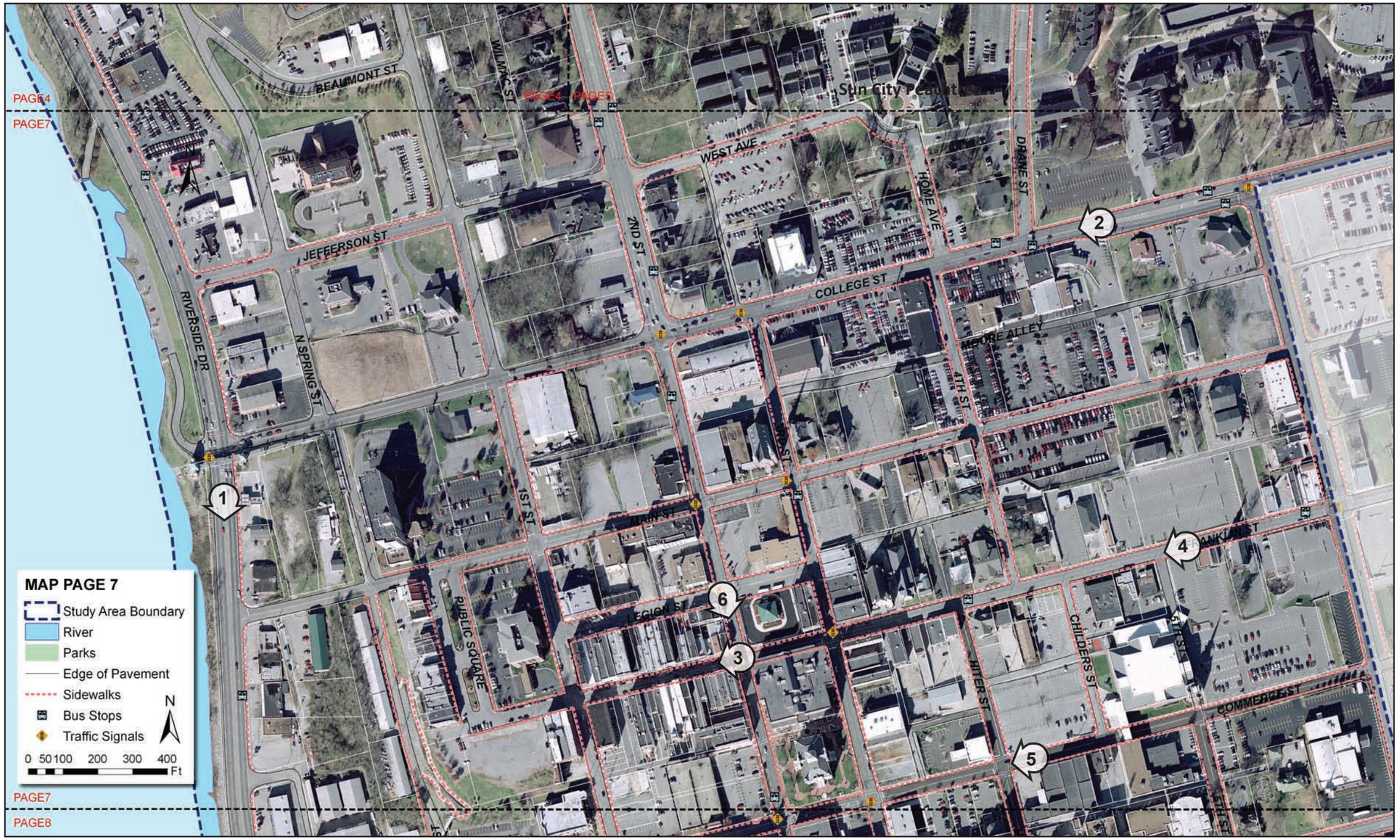
Local two-lane street traveling through an industrial area.

5. Carpenter Street

Local two-lane residential street traveling through a residential area.

6. St John Street

Local two-lane traveling through a residential area.



4. Franklin Street

Two-lane street traveling through the CBD.

5. Commerce Street

Two-lane CBD street with no dedicated on street parking in most sections.

6. S. 2nd Street

One-way CBD street with two travel lanes and on-street parking on the west side.

1. S. Riverside Drive

US highway with two travel lanes in each direction and a center turn lane.

2. College Street

Four-lane US highway that changes into a two-lane street west of N. 2nd Street.

3. Franklin Street

Two-lane CBD street with on-street parking on both sides. There are bulbouts between S. 1st and S. 3rd street.

1. S. Riverside Drive

US highway with two travel lanes each direction and a center turn lane.

2. S. 1st Street

Local street south of CBD traveling through a residential area.

3. S. Spring Street

Two-lane street south of CBD traveling through an industrial area.

.

4. Union Street

Two-lane street linking CBD and residential area south of CBD.

5. Madison Street

Three-lane street with two travel lanes and a center turn lane traveling through the CBD.

6. Washington Court

Local two-lane street traveling through a residential area.

4. Public Involvement

The public participation process for the Clarksville Downtown Parking Study used a variety of tools. These include stakeholder interviews, an image preference survey, a series of public meetings and a workshop. These allowed for a broad spectrum of stakeholders to contribute to the effort and its vision.

4.1 Stakeholder Interviews

At the onset of the process invitations for confidential interviews were extended to over 40 stakeholders. These interviews were conducted in person or by telephone and allowed the respondents the opportunity to share their thoughts about existing challenges in parking, walking and biking in Downtown Clarksville, as well as their ideas for the future. Interviewees ranged from residents and business owners to representatives of non-profit organizations, government agencies, developers, and local institutions.

A few of the main ideas that surfaced from the Stakeholder interviews are shown below. They were generally agreed upon by all participants.

- The experience of public parking in downtown Clarksville could be greatly enhanced by implementing a thorough and effective signage and wayfinding program. This would aid drivers and visitors in finding parking decks and other areas of public parking more easily.
- There are a number of facilities lacking in most street configurations currently. Bike lanes and sidewalks were named most often, other ideas that were named less frequently were street trees and on-street parking. Many people cited it was difficult to safely navigate very far from downtown on foot or bicycle.
- The quality of life in Downtown Clarksville could be improved with general streetscape improvements. Many cited a lackluster and poor appearance to the majority of streets, citing a shortage of trees, benches, visible crosswalks, lighting, greenery and color.
- It would be a great step forward if Riverside Drive could undergo a "road diet." The speeds were cited as too fast. Many people felt that opportunities near the river were wasted by the way the road functioned.
- Outdoor dining was a popular idea if space were available or could be found within the sidewalk area.

4.2 Image Preference Survey

An in-person image preference survey was also used to solicit initial ideas about the appropriate future character of Clarksville's streets. Over 60 participants ranked images of streets, both from within the study area and outside of it. The popularity or unpopularity of these images allowed the planning team to better understand stakeholder's vision for the future of the area.

Most of the images selected as appropriate showed places with a blend of transportation options. The most popular images were of human-scaled streets, vibrant public spaces, tree-lined sidewalks, and streets that contained parking. This suggested a community desire to have a pedestrian-friendly downtown. Images deemed inappropriate often lacked parking or were more auto oriented.

The images on the right show example results of the survey.

4.3 Public Meetings

A series of public meetings provided opportunities for the public to not only inform themselves about the master plan, but also shape the vision for Clarksville. Public meetings were as follows:

A Public Workshop was held at the Customs House Museum on June 15, 2010. Approximately 27 people attended this event to learn about the planning process and give detailed input into 7 different street designs.

Consultant giving presentation at the public workshop

The public ranked highly this image which shows reverse-in angled parking with on street bike lanes.

The public felt 90-degree angled parking is not appropriate for streets in Clarksville.

This image of Franklin Street with on street parking and bulbouts ranked high in the survey.

This particular street with on-street parking on both sides was ranked low.

This image was the most favored by participants because it shows bike lanes, on-street parking, and wide sidewalks.

This street ranked lowest because it has neither pedestrian facilities nor parking.

5. Downtown Redevelopment Area Street Design Recommendations

Of the thousands of miles of streets and roads constructed in the United States each year, the vast majority are designed exclusively for motor vehicles. Comfortable and safe spaces for pedestrians, including adequate sidewalks and crosswalks, are often lacking, as are spaces for bicyclists and public transportation. While some streets in Downtown Clarksville do accommodate all needs, this study makes suggestions to improve them and the many streets that are incomplete.

Americans expect a variety of choices, and a multi-modal system of "complete streets" provides alternatives to driving as well as safety for all travelers. Recent opinion polls found that 52% of Americans want to bicycle more, and 55% would prefer to drive less and walk more. More than half of older adults who reported an inhospitable walking, bicycling, and transit environment outside their homes said they would walk, bicycle and ride transit more if the streets were improved.

It is estimated that about one-third of Americans do not drive and therefore are not served well by current street designs. Complete streets help provide safe access for people who use wheelchairs, have vision impairments, and for older people and children. Additionally, more than one quarter of all trips are one mile or less—and almost half are under five miles. Most of those trips are now made by car. Streets that provide travel choices give people the option to avoid traffic jams and increase the overall capacity of the transportation network.

This Downtown Clarksville study, in an effort to balance the needs of all road users, will suggest numerous areas where streets can become more complete and thereby enhance the livability of downtown. After hearing from numerous stakeholders including downtown businesses, downtown residents, politicians, planners, developers, and college affiliates, a clear voice emerged in favor of better conditions for walking and biking. There was much positive discussion regarding bike lanes and wider sidewalks, street trees and convenient on-street parking. It was stated that a more livable downtown is a more viable and sustainable downtown from a social, economic, and civic perspective.

Complete streets play an important role in livable communities, where all people—regardless of age, physical ability, or mode of transportation—feel safe and welcome in Clarksville's downtown streets. A safe walking and bicycling environment is an essential part of improving public transportation and creating a friendly, walkable community. Complete streets provide benefits to Clarksville in many ways, by improving public health, lowering transportation costs for families, increasing people-moving capacity, and improving mobility for all the traveling public.

Complete streets are sound financial investments that will provide long-term savings to Clarksville. An existing transportation budget can incorporate complete streets projects with little to no additional funding, accomplished through re-prioritizing projects and allocating funds to projects that improve overall mobility. In a balanced and fiscally sound transportation system, complete street facilities should not be treated as additional costs to a project. Implementing complete streets allows for an efficient and optimal use of limited resources: time, fuel, land, public health, the environment, and money. Many of the designs proposed do not move the curbs and thus will be easy to implement with simple lane restriping.

5.1 Street Design Toolkit

Below is a discussion of the tools used to achieve successful parking, biking, and walking solutions for streets within Downtown Clarksville. In every instance, solutions are tailored to the context by addressing many factors, including existing and historic traffic volumes, existing road characteristics and available right-of-way, adjacent land uses and neighborhoods, future redevelopment and growth, topography, bicycle network opportunities, and stakeholder input. This group of factors leads to solutions for almost a dozen streets that mix and match the tools below to create the most appropriate street design.

On-Street Parking

On-street parking creates many benefits for urban areas such as Downtown Clarksville. It provides convenient access for those who drive to shops, businesses, and destinations, but it also enhances the pedestrian experience by slowing vehicular traffic and may likely reduce the width of or number of lanes of traffic that pedestrians have to cross. Parking also provides a buffer between motor vehicle traffic and those on the sidewalk. In addition, businesses that rely on on-street parking as opposed to parking lots are more likely to orient their

> *"Indeed, there is a growing body of evidence suggesting that the inclusion of trees and other streetscape features in the roadside environment may actually reduce crashes and injuries on urban roadways. Naderi (2003) examined the safety impacts of aesthetic streetscape enhancements placed along the roadside and medians of five arterial roadways in downtown Toronto. Using a quasi-experimental design, the author found that the inclusion of features such as trees and concrete planters along the roadside resulted in statistically significant reductions in the number of mid-block crashes along all five roadways, with the number of crashes decreasing from between 5 and 20% as a result of the streetscape improvements. While the cause for these reductions is not clear, the author suggests that the presence of a well defined roadside edge may be leading drivers to exercise greater caution."*
>
> Safe Streets, Livable Streets, by Eric Dumbaugh *Journal of the American Planning Association*, Vol. 71, No. 3, Summer 2005.

A complete street with on-street parking, wide sidewalks, curb extensions, and well-marked crosswalks

Complete streets encourage multiple modes of travel

Complete streets provide a safe environment for pedestrians

On-street parking is common in traditional urban environments

building toward the sidewalk and those on foot, which will help create the vibrant pedestrian commercial environment envisioned for Downtown.

Diagonal on-street parking has been indicated for some downtown streets to provide more spaces than is possible with parallel parking, and to further slow drivers. Diagonal parking may require more attention to improve visibility at crossings and intersections, and it should not be used on high-speed or busy streets. Back-in or reverse-in diagonal parking is also an option to strongly consider, and it may be preferred by those who fear the "back-out-into-traffic" aspect of conventional diagonal parking.

Parking can create a visual barrier between cars and pedestrians crossing the street, especially children and those in wheelchairs. Curb extensions (also called bulb-outs) should be built where pedestrians are expected to cross in order to provide some separation between parked cars and approaches to crosswalks, reduce pedestrian crossing distances, and increase visibility by safely bringing pedestrians further into the intersection. The removal of parking spaces near intersections can also help emergency vehicles make turns more easily. Curb extensions should be designed carefully in order to accommodate storm water runoff. They can serve as perfect places for bio-filters and other sustainable infiltration or treatment methods, as will be shown elsewhere in this report.

Pedestrians

Sidewalks are critical to healthy urban areas, and Clarksville's provision of a sidewalk network within the study

Clearly striped bike lanes can help improve safety for bicyclists

> *"Our goal is to build livable communities, where safe, convenient and affordable transportation is available to all people, regardless of what mode they use. For the past 50 years, most government investment in transportation has undermined this goal." Ray LaHood, Secretary of Transportation, June 16, 2009*

area is adequate for the most part.

- There are numerous intersections where pedestrian crosswalks striping and signage could be added
- Pedestrian signal heads and mid block crossings should also be employed where volumes are high
- Sidewalks should be added at Kraft Street and Red River Street where CTS serves this predominately industrial area and other residential areas per the street standards

Bicycle Lanes

Bike lanes allow for a clear and consistent separation between cyclists and motor vehicles. They also provide further separation between moving cars and parked cars or pedestrians on the sidewalk. Bicycle lanes make the movements of both motorists and bicyclists more predictable and "better accommodate bicyclists where insufficient space exists for comfortable riding on existing streets. This may be accomplished by reducing the width of vehicular lanes," according to the ***AASHTO Guide for the Development of Bicycle Facilities***. Shared lane markings or sharrows are painted arrows in lanes shared between motor vehicles and bicycles; they are appropriate for denoting bike routes and have some applications in Downtown Clarksville, but should only be used where there is not enough street width for a dedicated bike lane. On-street parking can create conflicts with bicyclists, but sufficient lane width can help ensure safety.

When bike lanes are appropriate:

- Where there are significant numbers of inexperienced bicyclists
- Where speed differential is high
- Where volume of bicyclists is high

When wide curb lanes (sharrows) are appropriate:

- Where speed differential is low
- Where bicycle volume (all types) is moderate to low
- Low-speed or congested urban roadways
- Residential streets

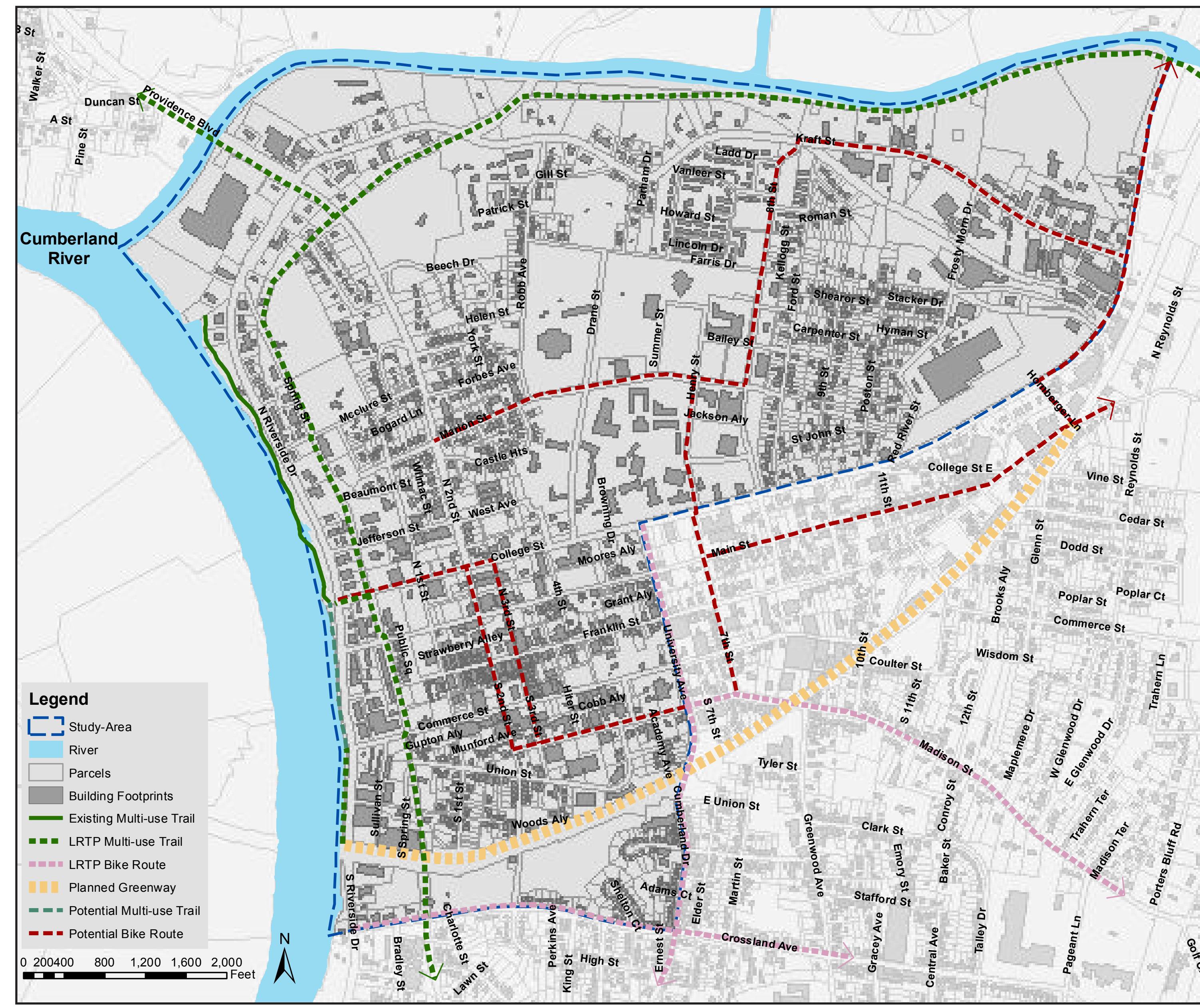
Based on previous plans and existing street conditions in the study area, potential bike routes and multi-use trails are identified. See map 5.1 for detail.

Street Trees

Street trees in urban areas help provide shade and beauty, clean the air, reduce the urban heat island effect, increase property values, and capture carbon from the atmosphere. Their benefits far outweigh the cost of planting and maintenance, as certain streets in Downtown Clarksville already show.

An often overlooked benefit of street trees is how they enhance pedestrian safety. Trees near the curb psychologically narrow a street and cause drivers to slow down. Studies show that fewer crashes occur on streets with trees, and those crashes that do occur are less severe. Trees can also deflect or stop cars that leave the roadway in order to protect the lives of pedestrians. Trees also enhance public safety by encouraging walking, which helps reduce crime by ensuring the informal supervision that comes from an active sidewalk.

The aesthetic values of urban trees should not be understated, because they provide visual relief from the hard surfaces of streets and buildings, create attractive patterns of light and shade, suppress noise pol-



Map 5.1 Potential Bike Routes

lution, and increase adjacent property values and retail sales by making streets more attractive and green.

Shade is another significant benefit of trees, for more than aesthetic reasons. Protection from the hot summer sun can encourage biking, walking, on-street parking, and sidewalk shopping. Shade can also increase asphalt and roadway longevity. Deciduous trees can also reduce air conditioning and heating costs by shading buildings in the summer and allowing sunlight to penetrate in winter. The relatively higher temperatures found in cities compared to surrounding areas are due to a phenomenon called the urban heat island effect, which can be significantly ameliorated by street trees and their shade.

The environmental benefits of an urban tree canopy go beyond shade. Trees clean pollution from the air, capture carbon from the atmosphere, and slow or absorb rain water, which lessens demand on municipal piping systems that drain to the Cumberland River.

Medians

Medians are a beneficial and welcome addition to many existing streets. In Downtown Clarksville, medians are proposed to be inserted in places by reducing lane widths or converting center turn lanes to a median with left turn lanes at intersections. Medians enhance safety by slowing cars, providing pedestrian refuges, and reduce the number of potential vehicle conflicts and therefore crashes. And by reducing the number of points of conflict they can serve to decrease congestion. Access to all businesses is maintained by allowing safe U-turns where direct left-turn access is restricted and in some cases this, surprisingly, can result in improved access. Median plantings can also enhance aesthetics, property values, and the natural environment for the reasons explained above.

Speed

Moderate traffic speeds maximize street capacity, increase safety and comfort for pedestrians and cyclists, make on-street parking easier, and increase retail viability. Tools to calm traffic in Downtown Clarksville include narrower lanes and the addition of on-street parking, bicycle lanes, bulbouts, and street trees. The usefulness of these measures vary according to context, but each can contribute to slower traffic speeds and more pleasant streets.

The vision for Clarksville's historic downtown, reinforced by scores of community stakeholders and master plans, is to be the live-work-play center for the county and region. Speeding traffic downtown discourages this and often reflects an inefficient use of valuable right-of-way. Road capacity is highest when traffic is moving at around 30 miles per hour, because the gap between cars can safely decrease and because turning movements are more freely made at this speed. Rather than arbitrary speed limits, the design of downtown streets should be tailored to promote this ideal speed.

Road Diets

A road diet involves allocating excess street width to uses such as bike lanes, sidewalks, or parked cars. A four-lane street with two lanes in each direction, for example, may be converted to a three-lane street with a center turn lane, or to a two-lane street with a center median. These narrower streets are almost equivalent to four-lane streets in terms of traffic capacity because they operate more efficiently and remove left-turning vehicles from the flow of traffic, and because they accommodate a wider variety of users.

Road diets are also safer, as documented in a 1999 Transportation Research Board paper by Thomas Welch. Three-lane roads are inherently safer because the speed is set by the most prudent driver, because there is only a single lane of on-coming traffic to monitor when turning left, and because the two directions are separated by a center turn lane or median. Well-engineered three-lane sections routinely carry up to 20,000 vehicles per day. They are quieter than their four-lane counterparts and may contribute to increased property values.

One of the streets in the study area that is appropriate to consider road diet is Crossland Avenue at the southern edge. It could be reconfigured into a three-lane section with potential bike lanes.

One Way Streets

Modifying existing two-way streets to become one-way is an option that can result in positive benefits for a district but can also have negative impacts as well. While it can help to alleviate traffic congestion at intersections and along road segments it can also encourage speeding and other agressive driver behavior not befitting an urban area. Removing a travel lane in one direction can free up road width for bike lanes, parking or other features but without a very strong demand on the traffic or parking aspects the need and purpose for new one-way streets is not justified. There are other studies that suggest retail viability as well as way-finding are hampered by sporadically employed one-way streets.

In the absence of a coordinated plan where the need for additional traffic capacity or other street amenities is clearly demonstrated, no new one-way streets are recommended within the study area.

5.2 Parking Requirements

Parking is an important component to any downtown area. In downtown Clarksville a balanced design has been proposed with transit, pedestrian and bicycle facilities that results in a sustainable system. According to the downtown parking study by Desmond Associates the downtown Clarksville doesn't currently have a shortage of publicly available parking. The stakeholders wanted more parking that is accessible to Franklin Street and surrounding area. The following recommendations are based on input from the community stakeholders.

- Increase on-street parking in the CBD at South 2nd, South 3rd, Commerce Street and others per the framework plan to create convenient parking for commercial users.
- A wayfinding master plan should be created to make it easier for downtown users to find public parking lots, garages, on-street parking, bike facilities and highlight gateways, vehicular circulation, destinations, pedestrian connections and informational hubs.
- Street trees should be installed according to the street standard sections in some cases to define parking spaces. Landscaping should be used to buffer existing

Marion Street -- before

Marion Street -- after

Riverside Drive -- before

Riverside Drive -- after

surface lots and to complement the street trees.

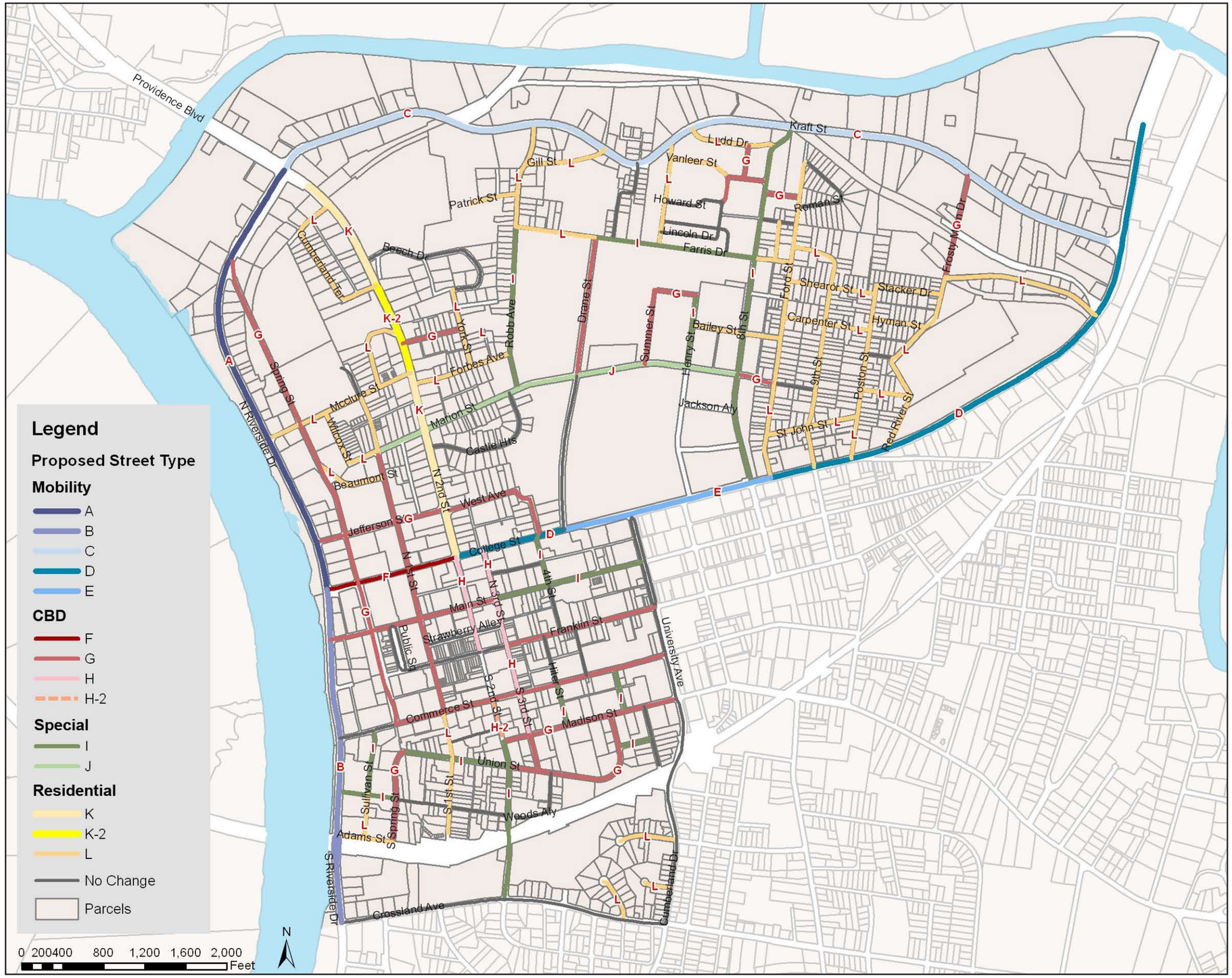
- Bioswales should be incorporated with new parking and retrofitted per the sustainability standards.
- Shared parking should be promoted and coordinated within the study area to increase efficiency. An example of shared parking is a tavern allowing a church to use its parking on Sundays.
- Adopt bicycle parking requirements and retrofit existing streets. Bicycle parking can encourage new people to commute and shop by bike, in addition to being a benefit to existing cyclist. Because bicycle parking takes up less space than car spaces, it can encourage a more compact urban form and reduce stormwater runoff.

5.3 Street Standards

On the right is a street framework plan that should guide the city on future street standards that promote pedestrian friendly streets. The streets were designed with features such as on-street parking, bike routes, street trees, pedestrian scaled lights, crosswalks, sidewalks, multi-use trails and bioswales. Having such a plan can be instrumental in communicating to property owners why adding parking, building sidewalks, sharing access points and other ideas will be important in the future.

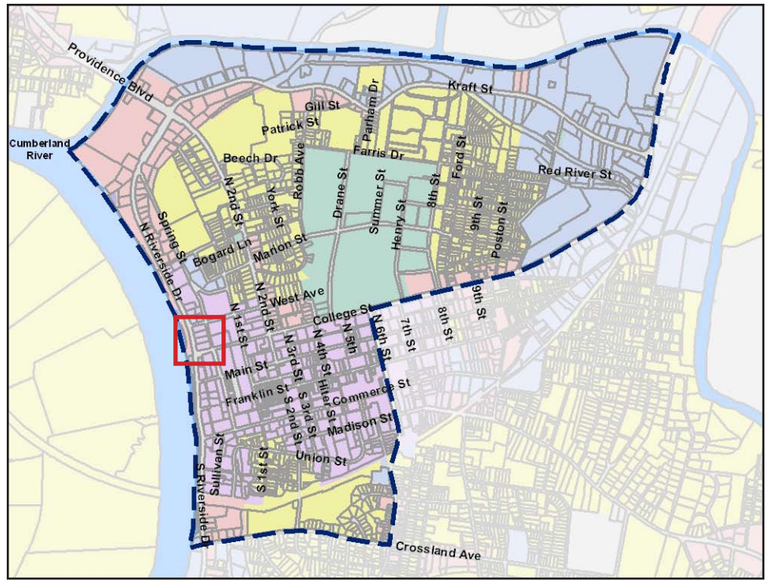
The framework plan uses four types of streets, which are listed in the legend to the right. The first type of street is mobility which means streets that are designed to move traffic. The second is CBD which are designed to support retail and office uses in the downtown area. Another type is special, which means the streets have a unique feature such as a bike lane. The last is Residential, which means the street has predominately residential land uses. Then these categories are further divided into thirteen different street standards. Most streets within the study area have a recommended street standard, however a few streets are recommended to remain as is.

The recommended street standards are general and should be calibrated during the design phase. The proposed standards try to accommodate the changes within existing pavement width with no need to move curbs in most cases. However, exceptions do exist since some streets' widths vary. Detailed survey should be conducted when implementation happens.

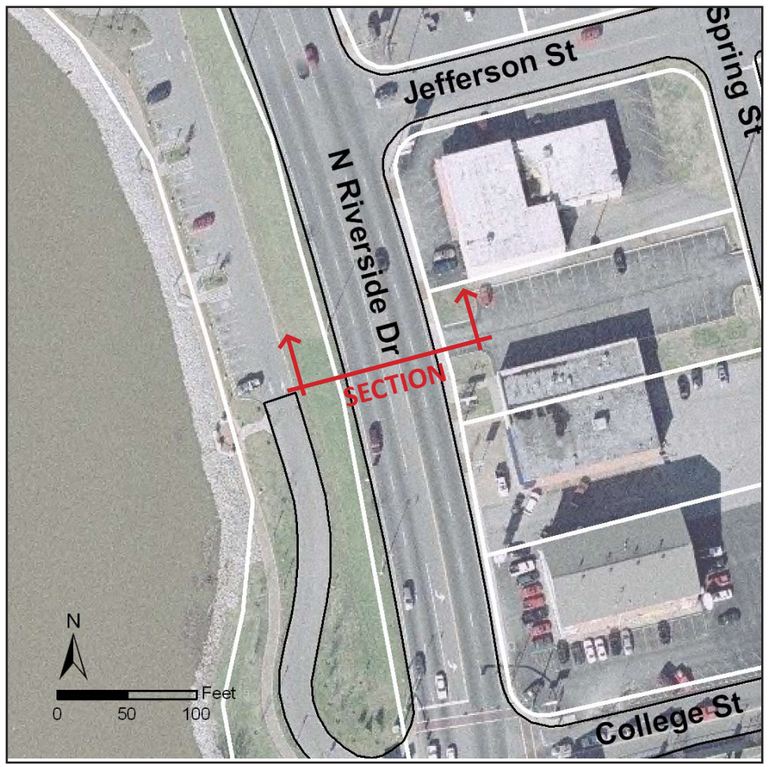


Map 5.2 Recommended Street Section Types

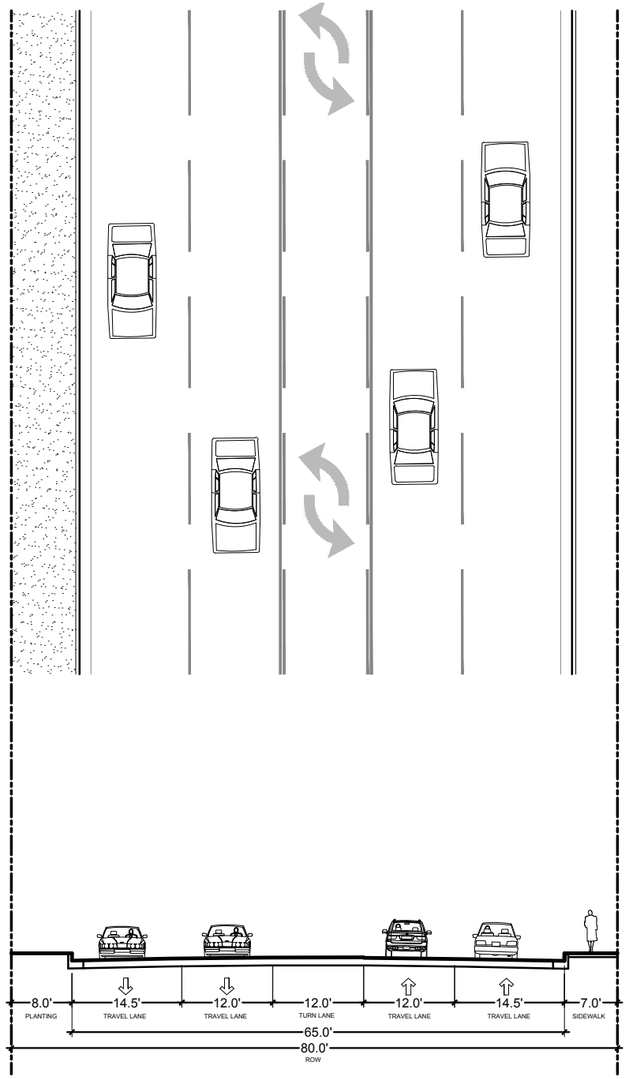
MOBILITY STREET - N. Riverside Drive A



Section Key Map

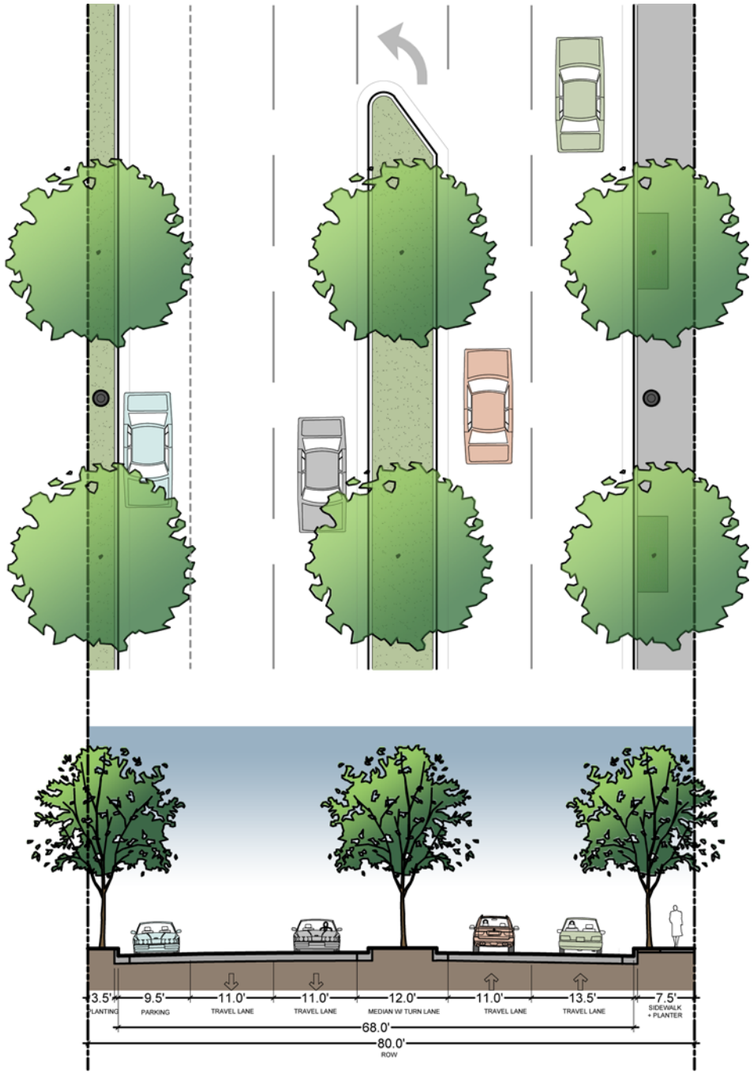


Aerial Photo



Existing Cross Section

- Five-lane US highway
- Two travel lanes going each direction with a center turn lane.
- Existing sidewalk on the east side

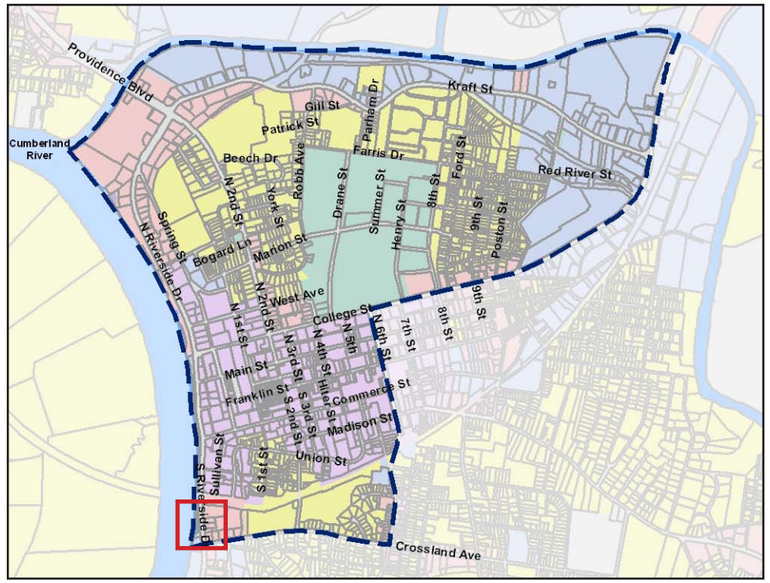


Proposed Section

- On-street parking lane on west side to serve park along the river
- Median with 12’ left turn pockets at intersections & pedestrian refuges
- Two 11’ travel lanes in each direction in urban context
- Need extra 3’ pavement comapre to existing curb to curb width

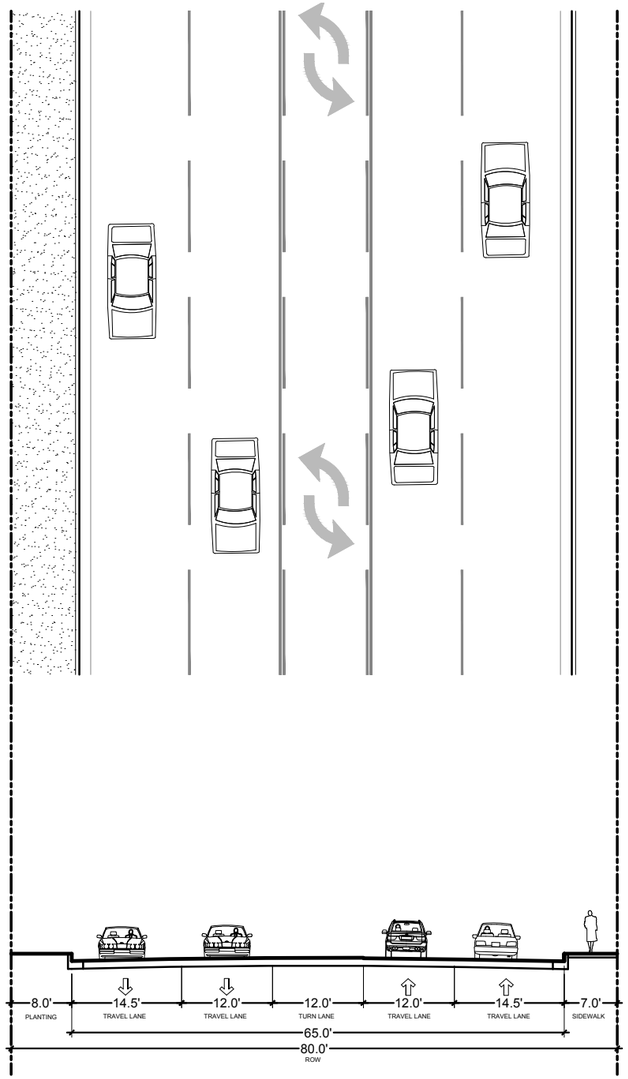
Note: Further study may be required to address questions by the street department and TDOT on all state routes.

MOBILITY STREET - S. Riverside Drive B



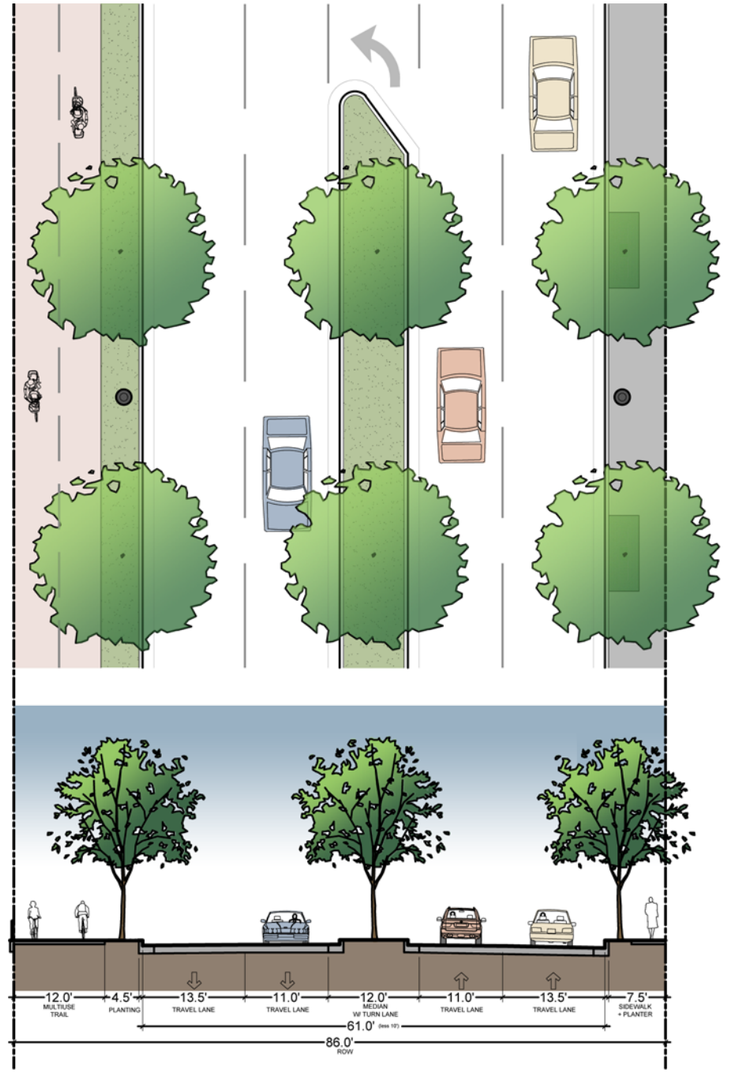
Section Key Map

Aerial Photo



Existing Cross Section

- Five lane US highway,
- two travel lanes on each direction with one center turn lane.
- Existing sidewalk on east side.

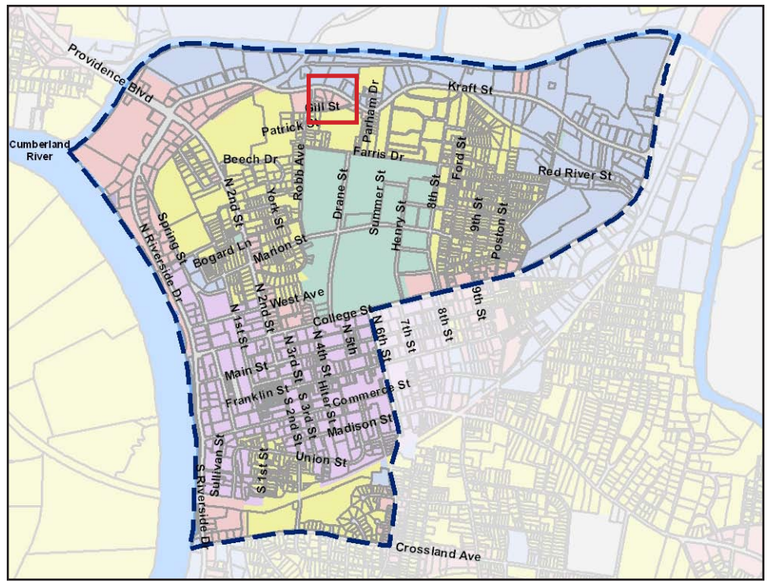


Proposed Section

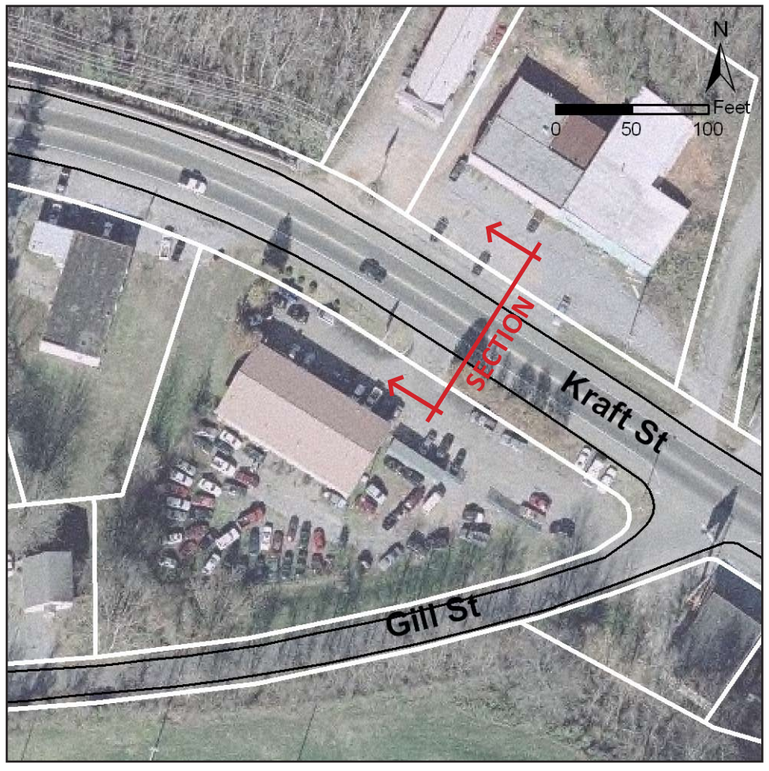
- Multi-use trail along west side of the street
- Median with 12’ left turn pockets at intersections & pedestrian refuges
- Two travel lanes in each direction in urban context
- Narrow curb-to-curb width to allow room for south Riverwalk extension on the west side with guard rails
- Additional right-of-way is needed to accommodate the proposed section

Note: Further study may be required to address questions by the street department and TDOT on all state routes.

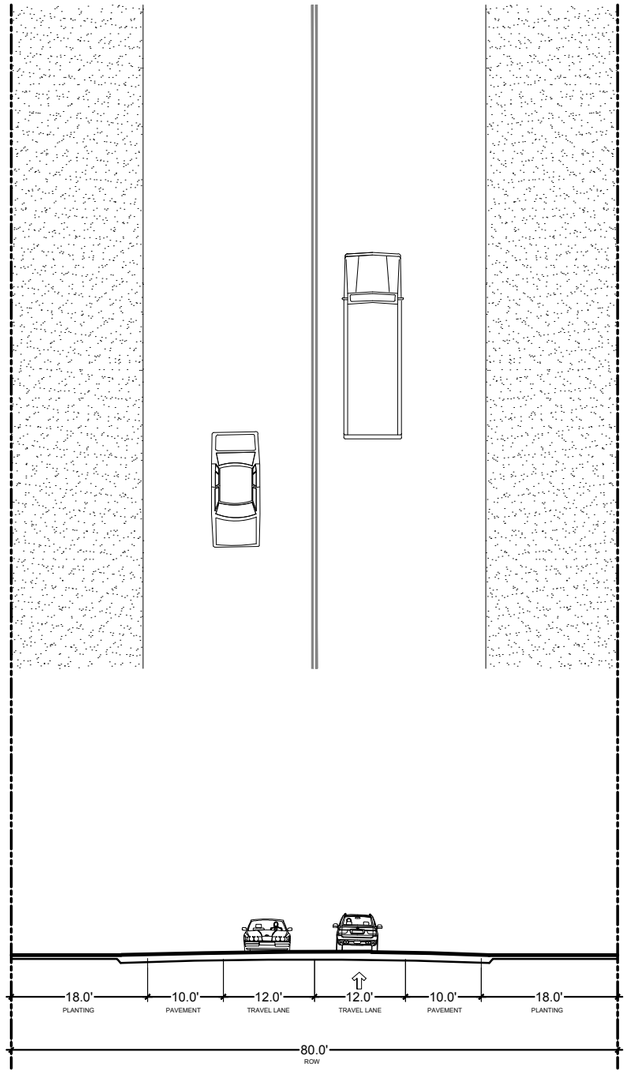
MOBILITY STREET - Kraft Street C



Section Key Map

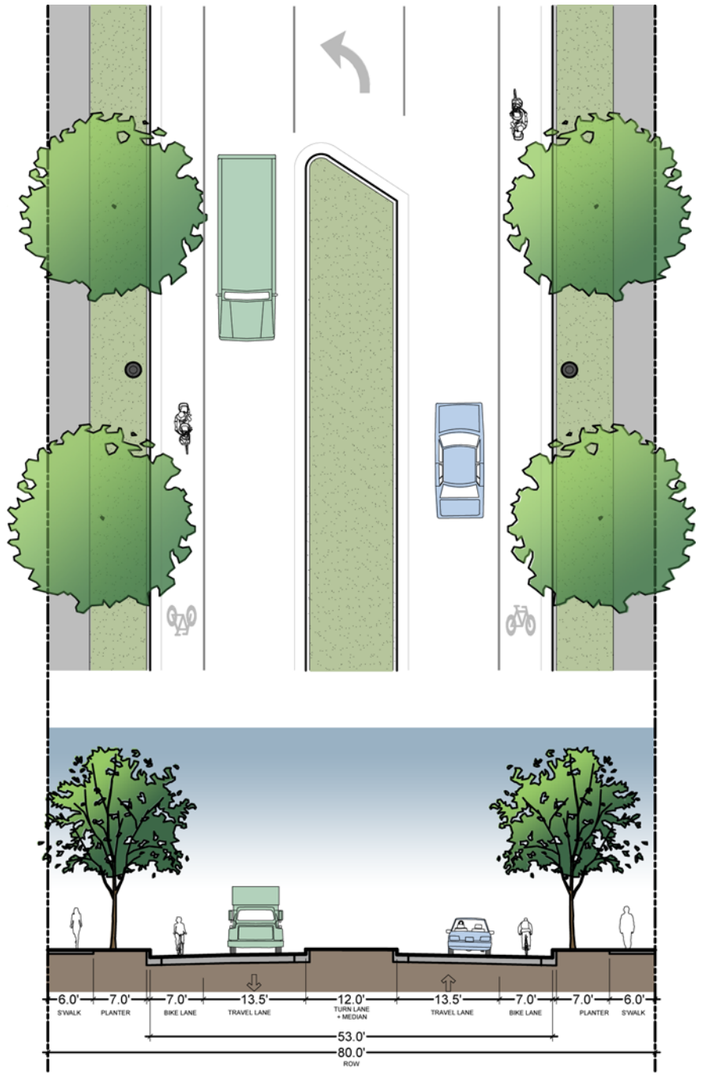


Aerial Photo



Existing Cross Section

- Two-lane state route
- Wide pavement
- No sidewalks

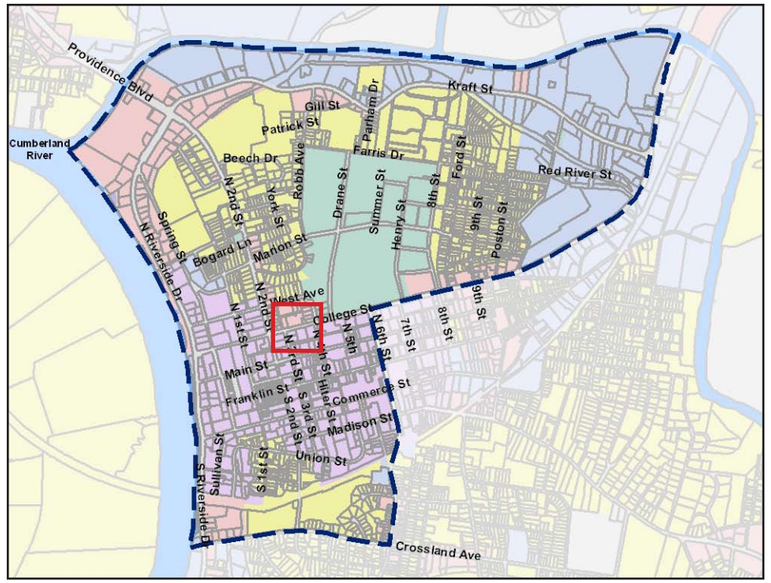


Proposed Section

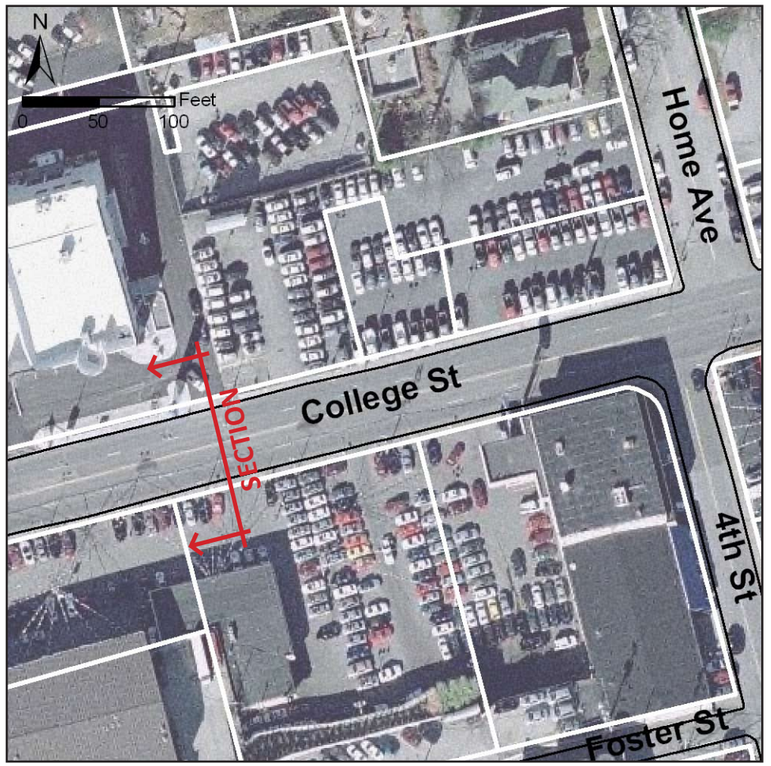
- Median with left turn pockets at intersections & pedestrian refuges
- Striped bike lanes
- Improve sidewalk with planting strip and trees
- One travel lane on each direction
- The City should consider amending existing ordinance to allow U-turns

Note: Further study may be required to address questions by the street department and TDOT on all state routes.

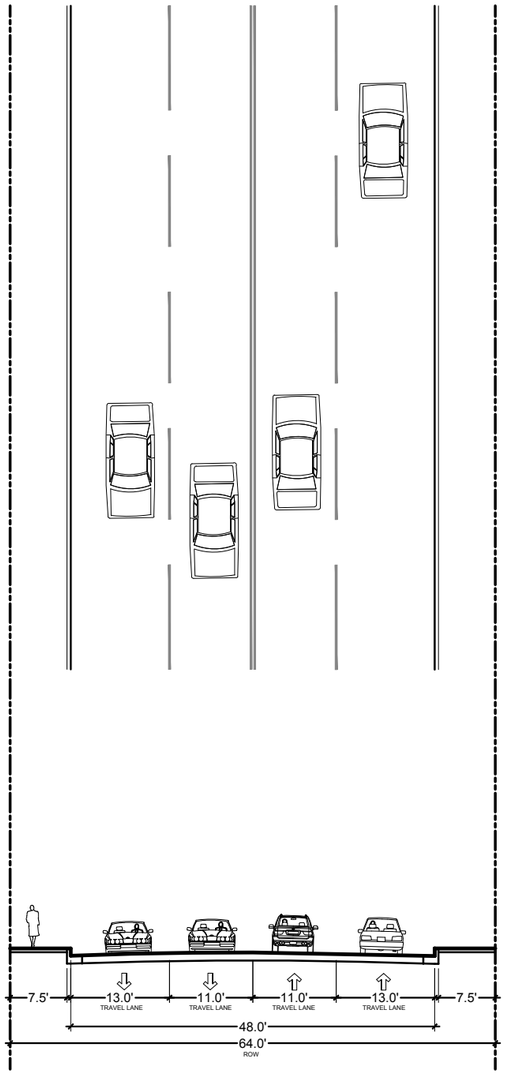
MOBILITY STREET - College Street (Four lanes) D



Section Key Map

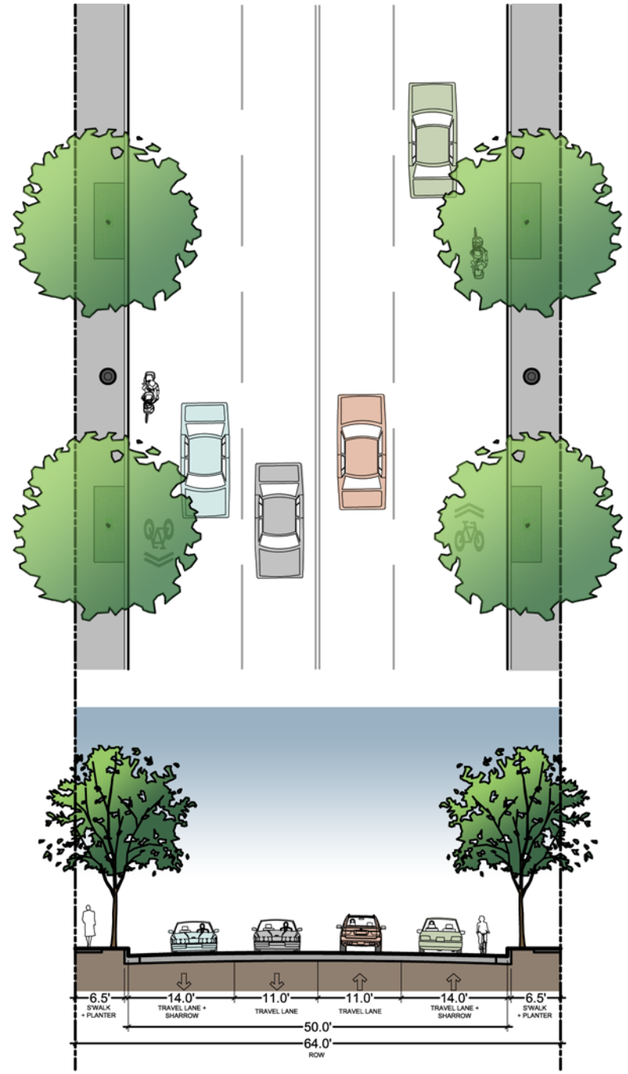


Aerial Photo



Existing Cross Section

- Existing four-lane US highway.
- This section represents the sections between N 2nd and Drane Streets, and east of Ford Street.

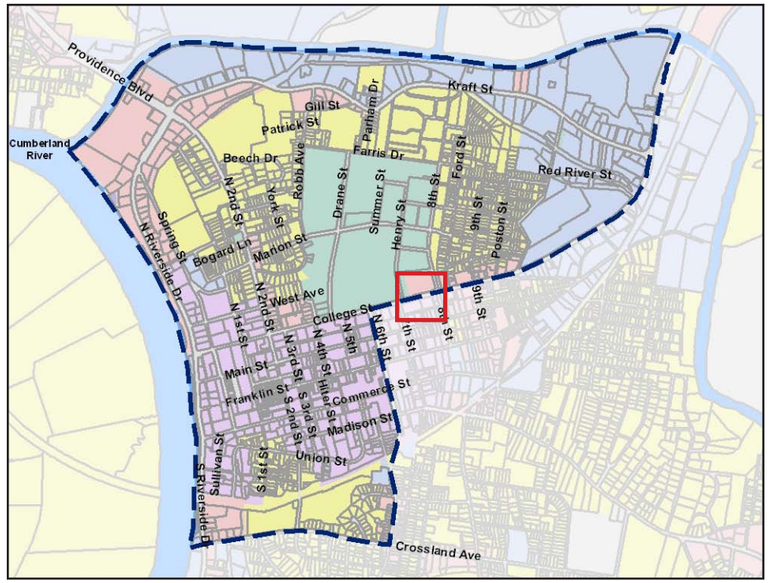


Proposed Section

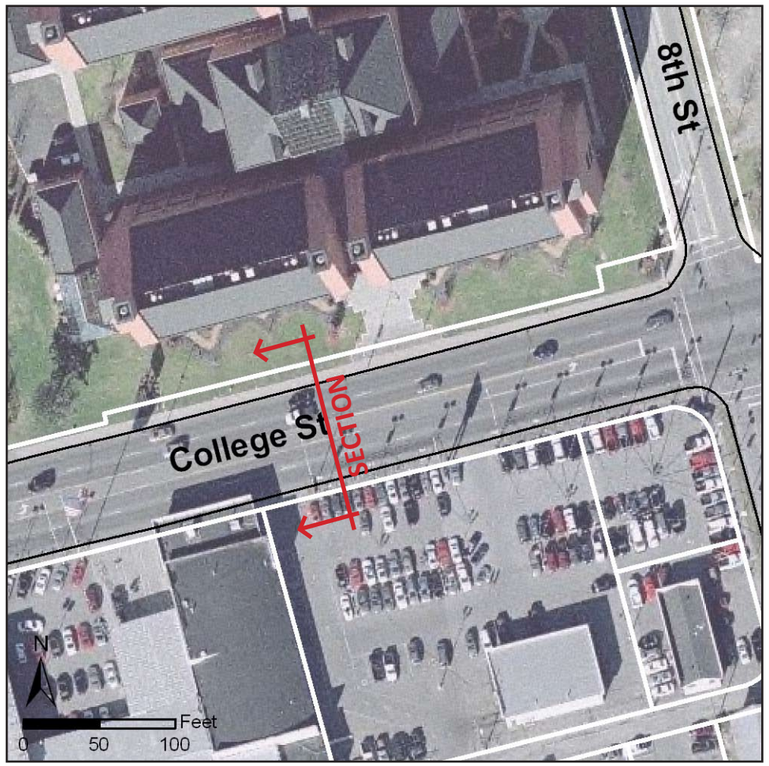
- Shared outside lanes for bicycles and automobile travel with sharrow marking
- 11’ inside travel lanes
- Improve sidewalks with planters and street trees

Note: Further study may be required to address questions by the street department and TDOT on all state routes.

MOBILITY STREET - College Street (Five lanes) E



Section Key Map



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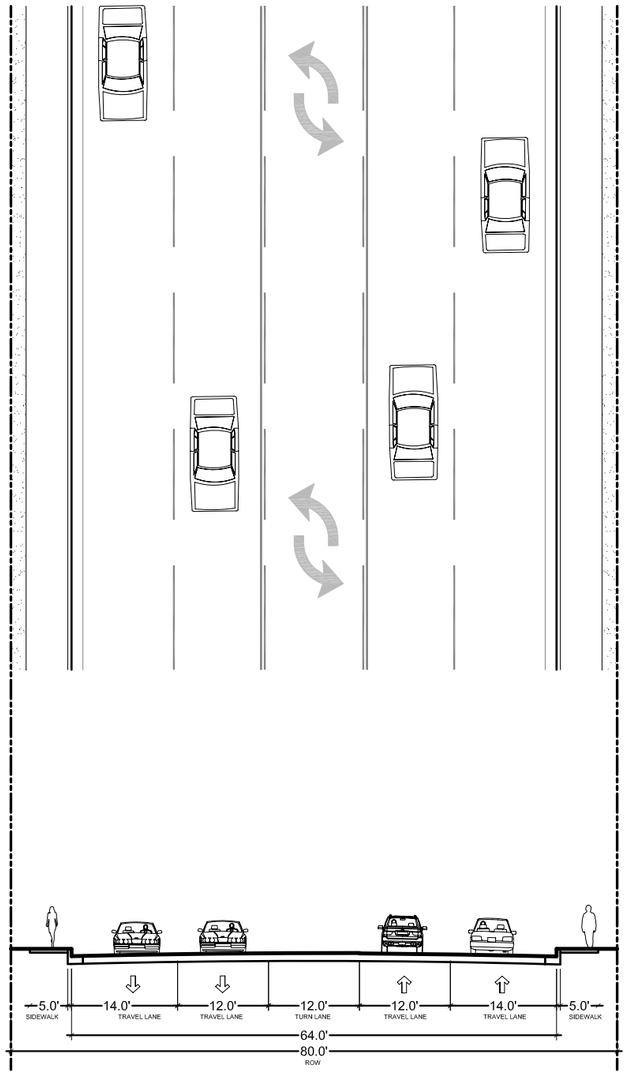
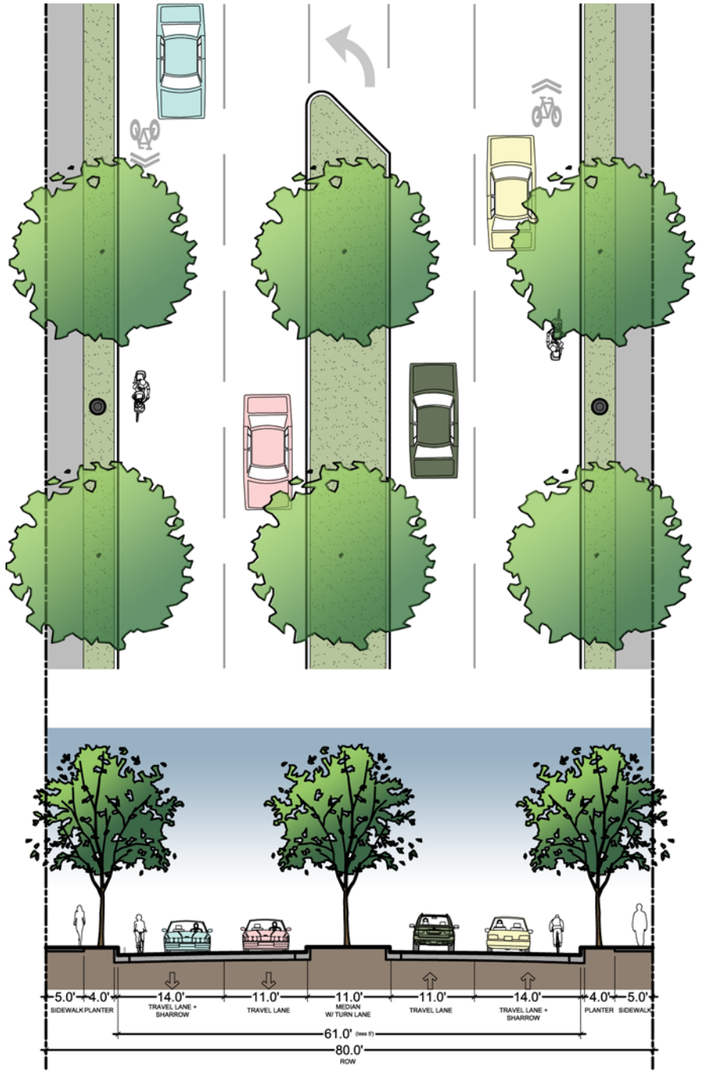


Existing Cross Section

- This five-lane section appears between Drane and Ford Street.
- Two travel lanes in each direction with a center turn lane.

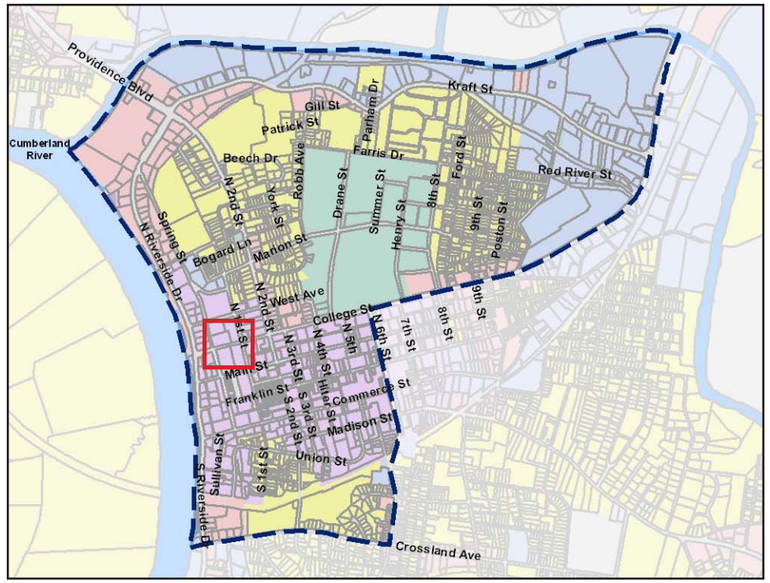


Proposed Section

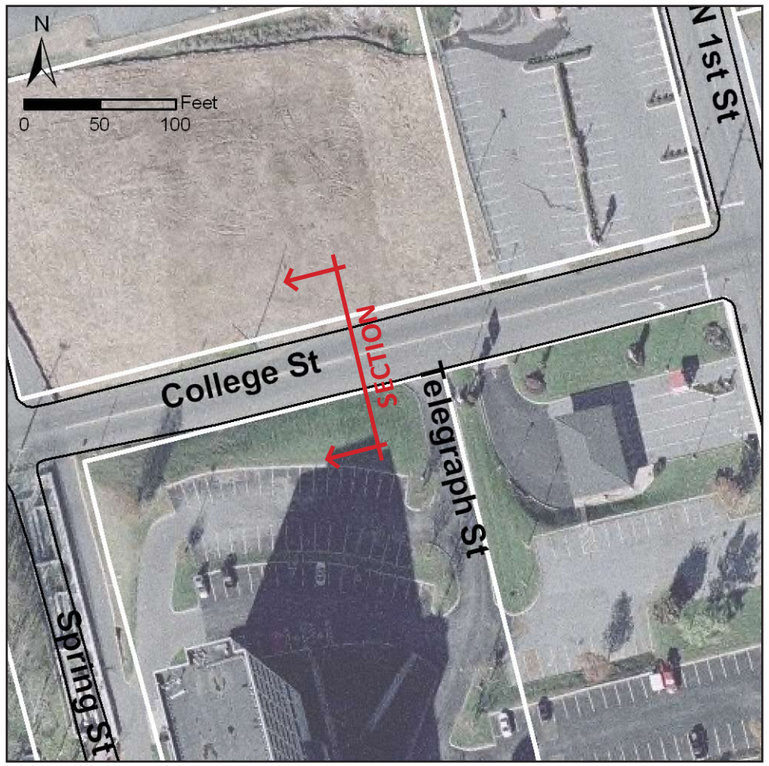
- Curb-to-curb narrows slightly to accomodate pedestrian zone and new street trees
- 11’ inside travel lanes, shared outside lanes for bicycles and automobile travel with sharrow marking
- Improve sidewalk with planting strip and trees
- Median with left turn pockets at intersections & pedestrian refuges

Note: Further study may be required to address questions by the street department and TDOT on all state routes.

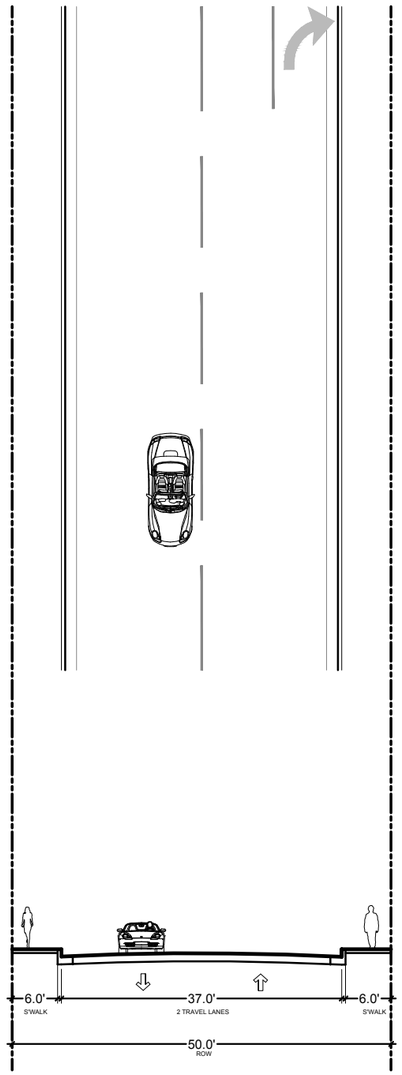
CBD STREET - College Street (Two lanes) F



Section Key Map

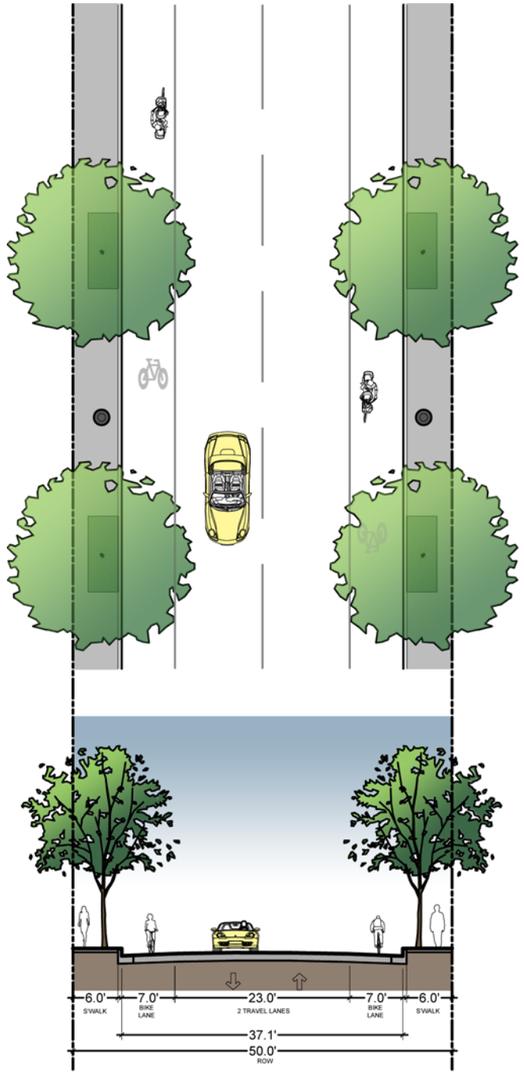


Aerial Photo



Existing Cross Section

- This section appears between the Cumberland River and N. 2nd Street.
- Two lane road too steep for on-street parking. Generous travel lanes.

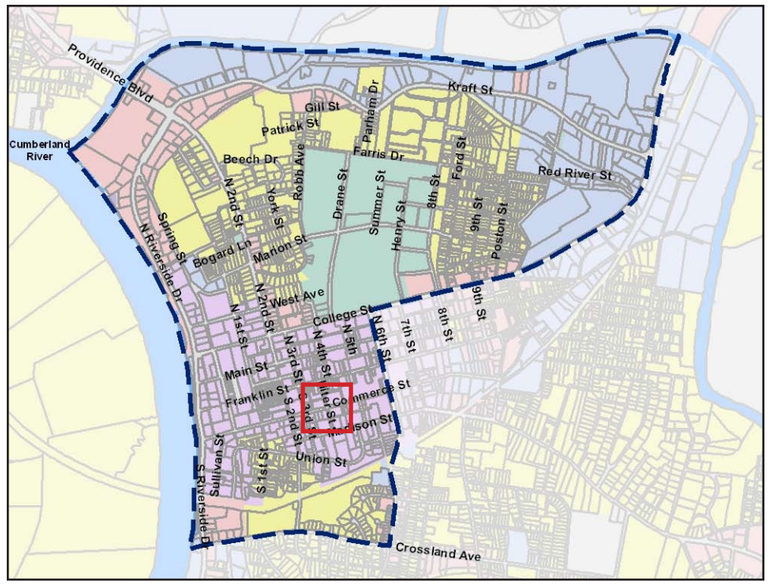


Proposed Section

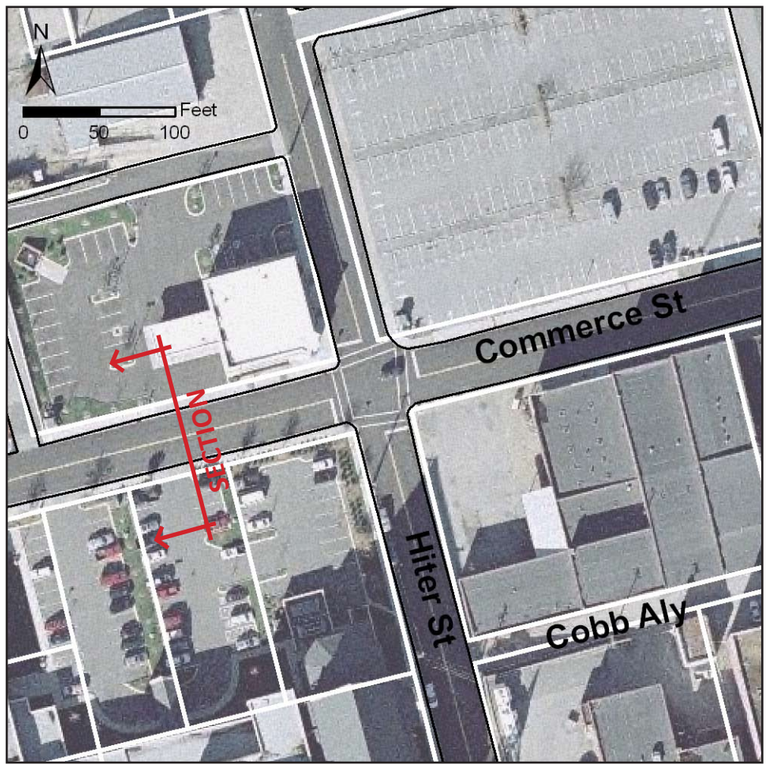
- Striped bike lanes on both sides
- Improve sidewalks with planters and street trees
- The Long-Range Transportation Plan calls for widening this road in 2035, at that time the design should reflect Section D

Note: Further study may be required to address questions by the street department and TDOT on all state routes.

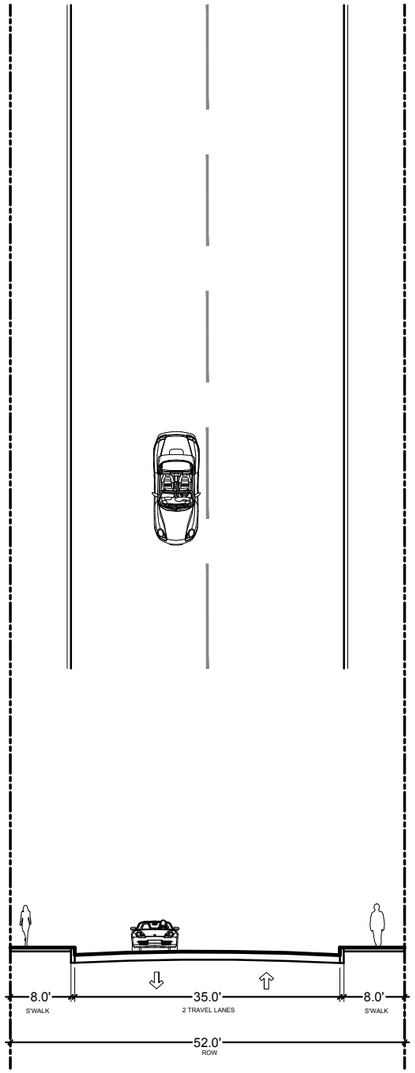
CBD STREET - Commerce Street G



Section Key Map

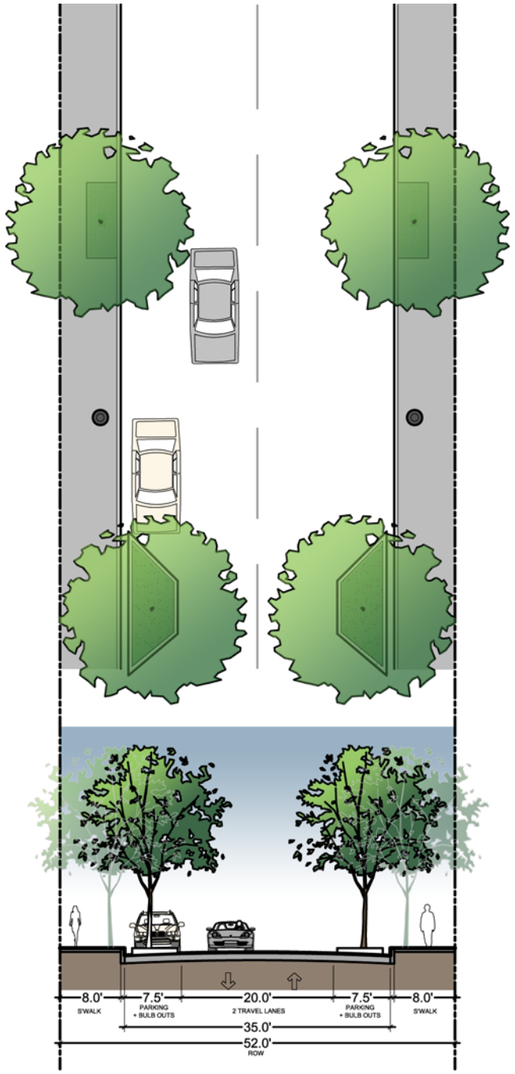


Aerial Photo



Existing Cross Section

- Most section of Commerce Street has no marked on-street parking.
- Approximate 35’ pavement for two travel lanes
- One of the major CBD streets

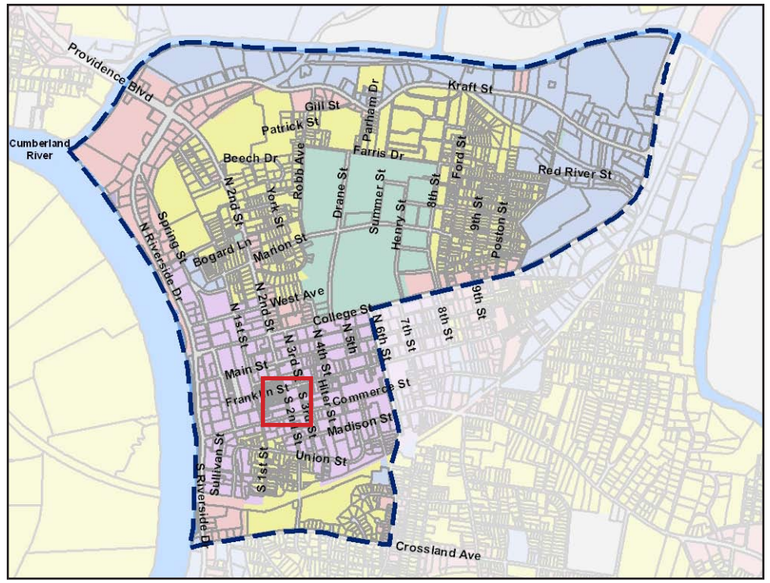


Proposed Section

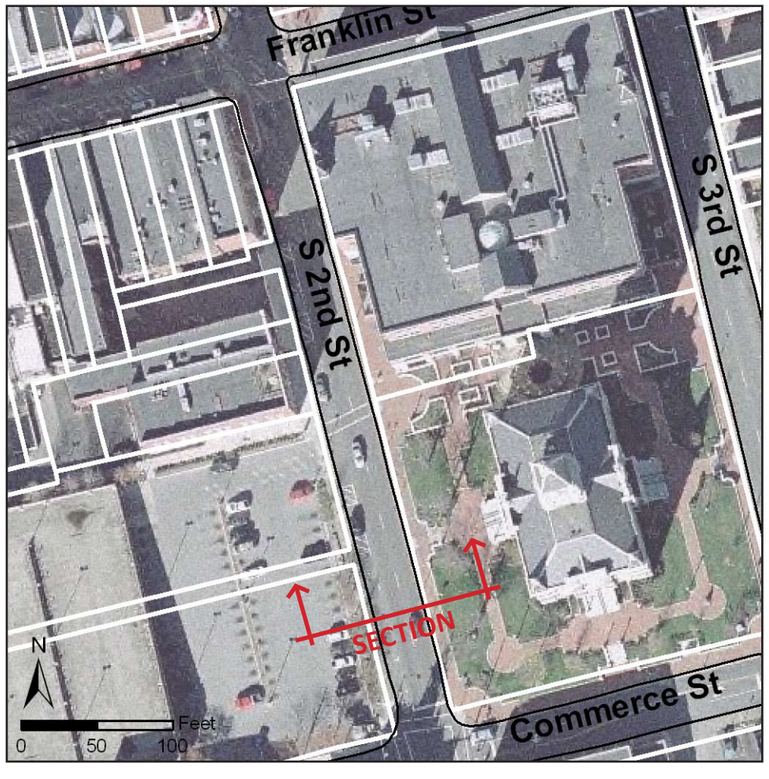
- Marked on-street parking on both sides, with tree well bulbouts every 44’ and pedestrian curb extensions at intersections
- This section also applies to some other CBD streets, including Madison Street, Jefferson Street, Main Street west of N 2nd, Union Street east of S 2nd, most part of Spring Street and part of N 1st Street, etc.

CBD STREET - S. 2nd Street

H



Section Key Map



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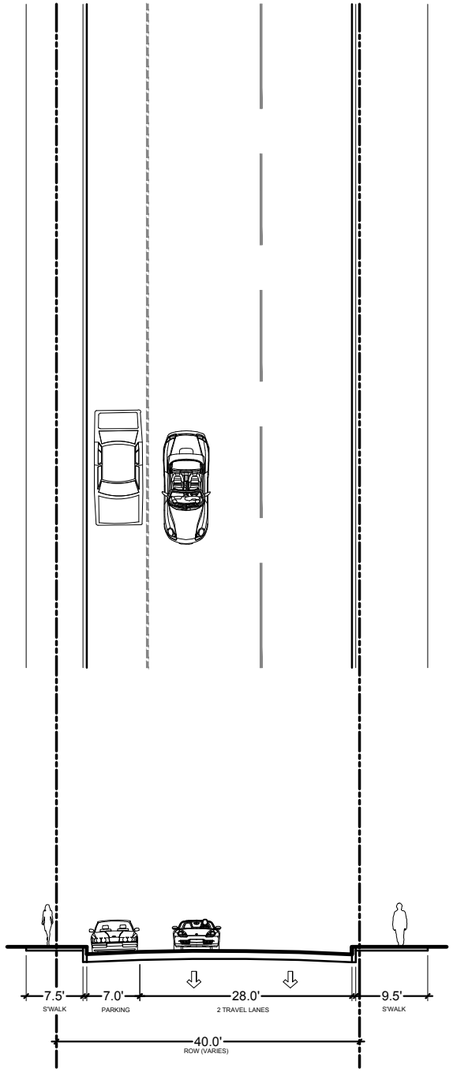
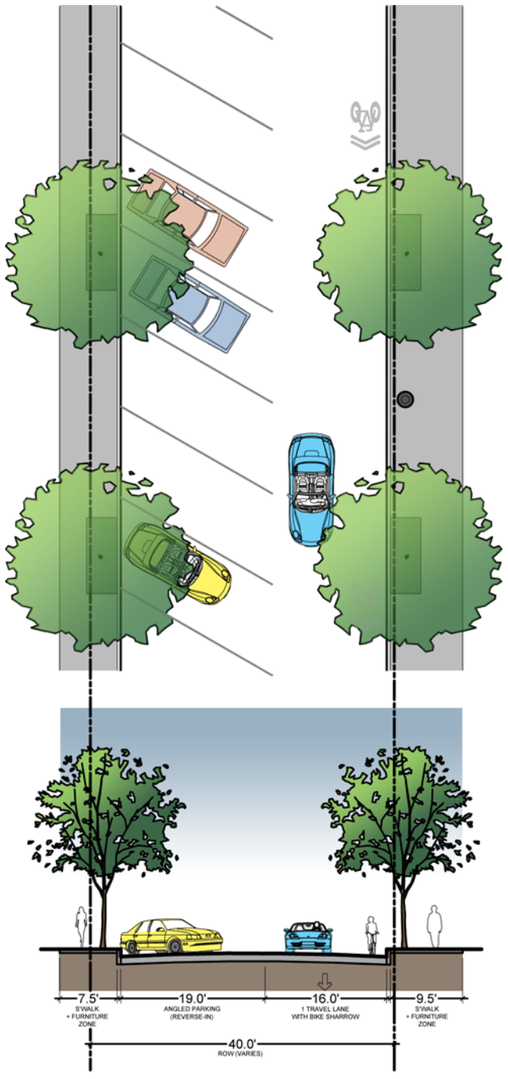


Existing Cross Section

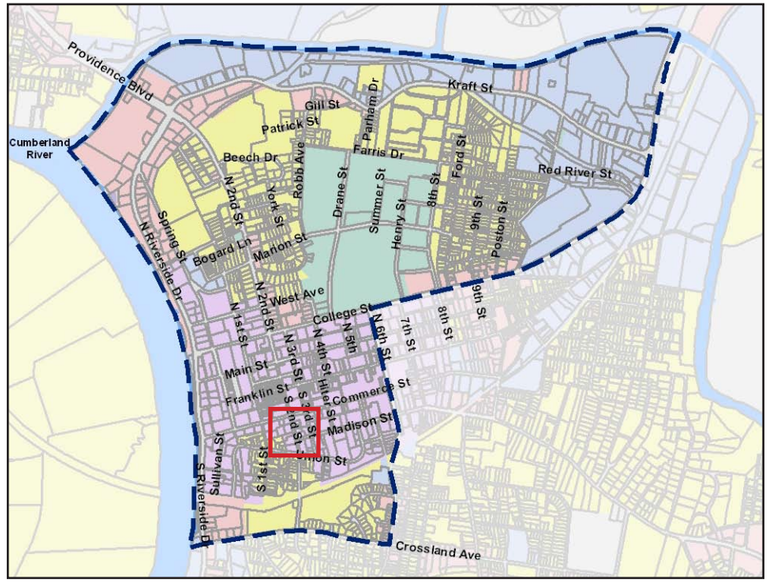
- Existing one-way street in CBD.
- Two travel lanes (total 28’ in width) with on-street parking on west side.



Proposed Section

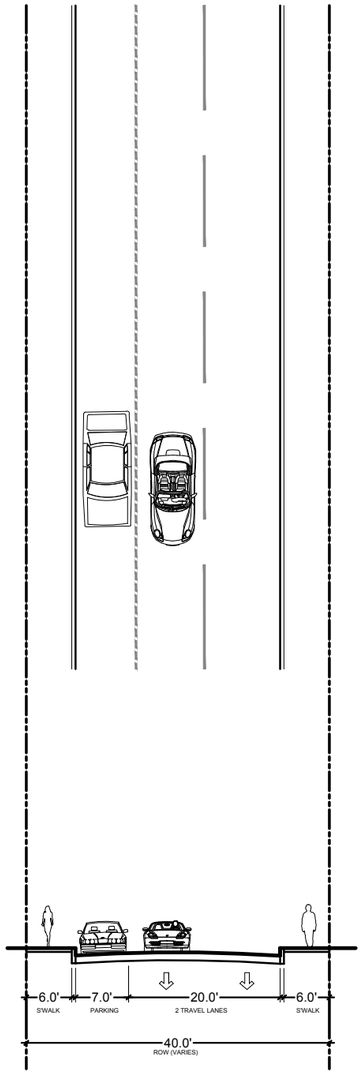
- One shared automobile and bicycle lane (16’) with sharrow marking
- Reverse-in angle parking on west side
- Sidewalk on private property
- Improve sidewalk with street trees in tree wells

CBD STREET - S. 2nd Street H-2



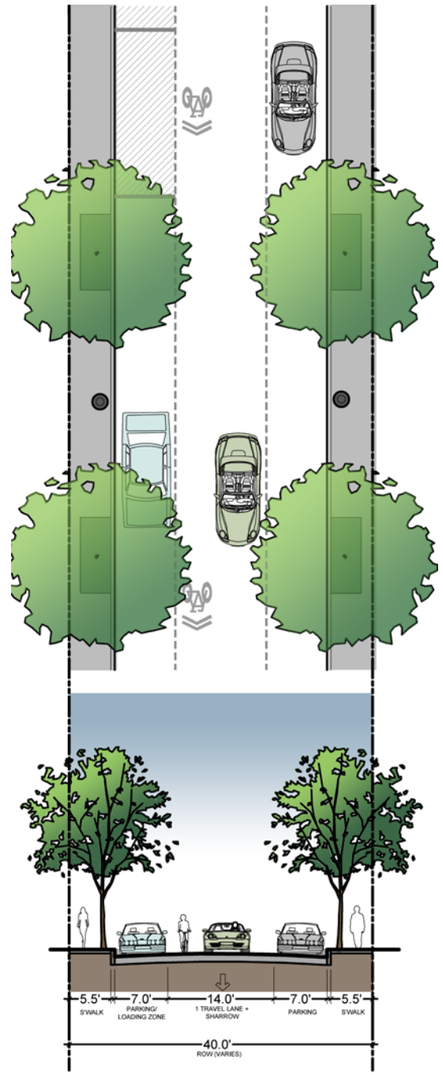
Section Key Map

Aerial Photo



Existing Cross Section

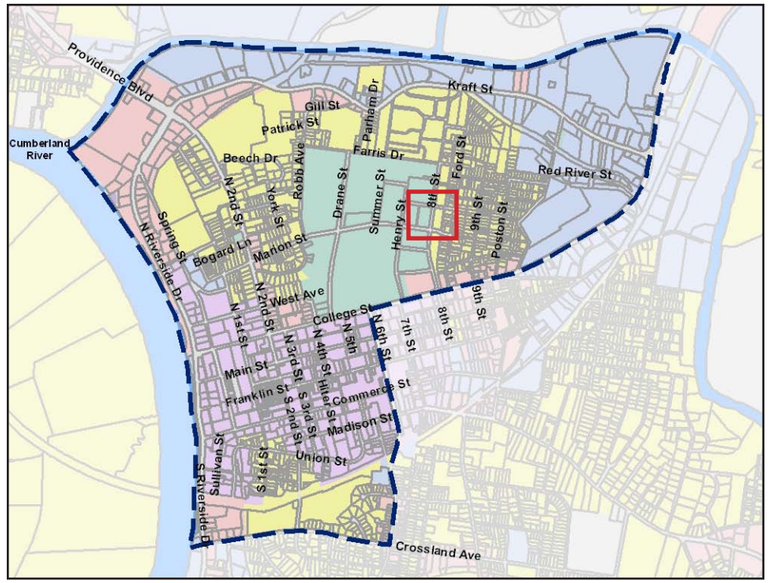
- Existing one-way street in CBD.
- Two travel lanes (total 20’ in width) with on-street parking on west side.



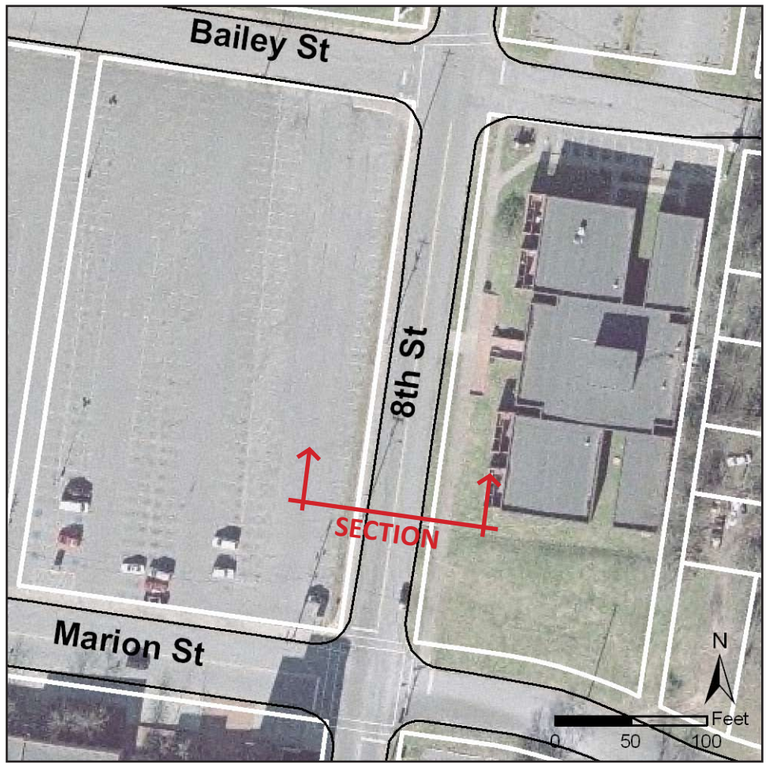
Proposed Section

- One shared automobile and bicycle lane (14’) with sharrow marking
- Parking and loading zone on west side
- Sidewalks on both sides
- Improve sidewalks with street trees in tree wells

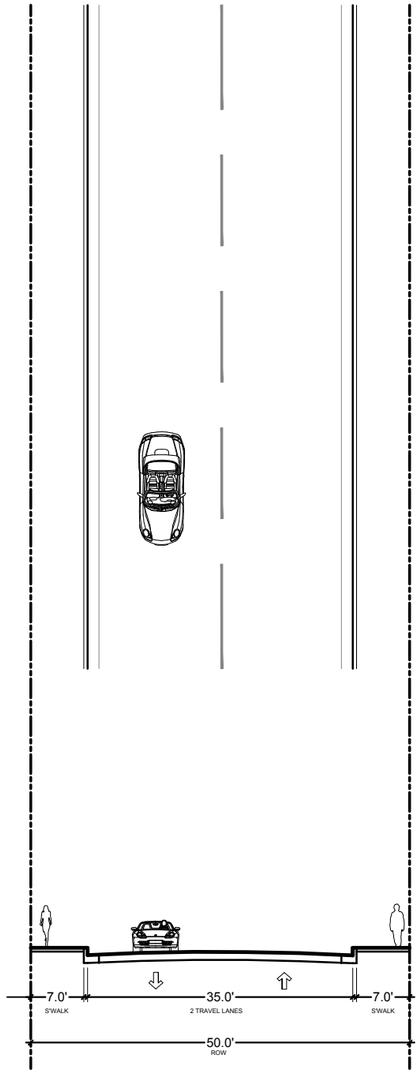
SPECIAL STREET - 8th Street I



Section Key Map

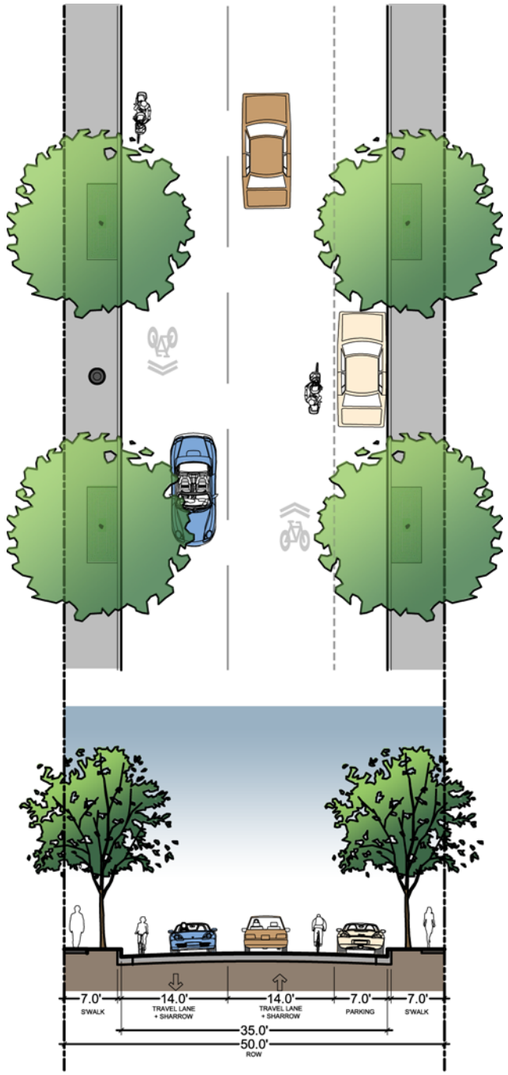


Aerial Photo



Existing Cross Section

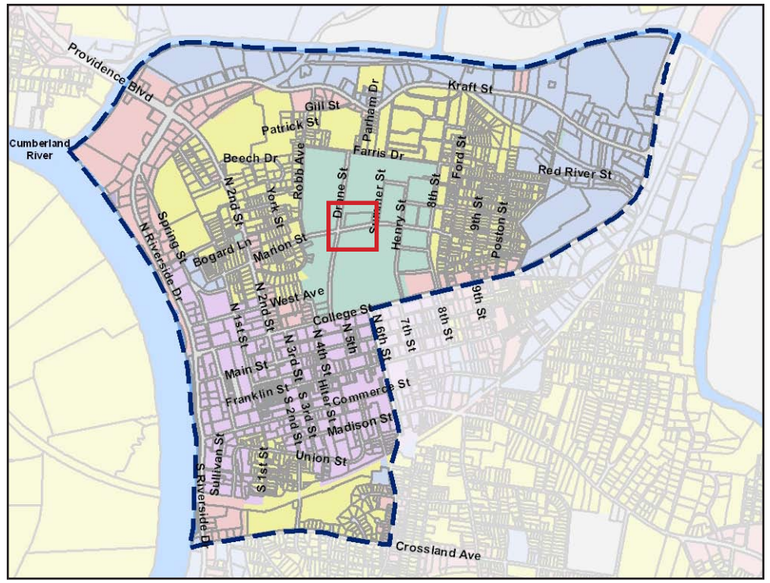
- Two-lane local street with wide pavement.



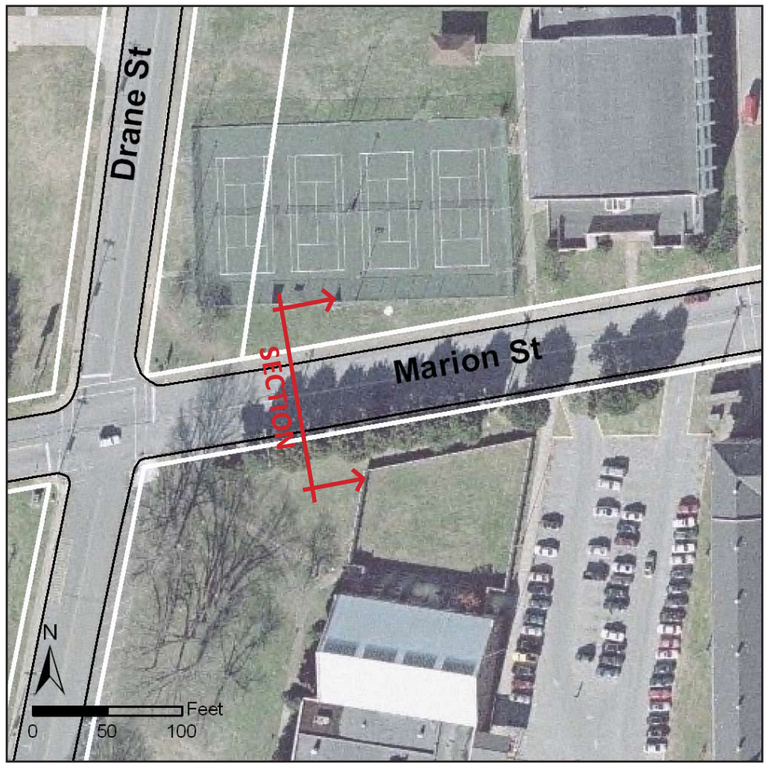
Proposed Section

- On-street parking on east side
- 14’ shared automobile and bike lanes with sharrow marking
- Improve sidewalk with street trees in tree wells
- This section can apply to several other streets. These streets include S 2nd street south of Commerce, Union Street west of 2nd, most of Farris Street and Robb Avenue (see map 5.2). In the case where there is not enough space, the shared automobile/bike lanes can be replaced with normal 11’-12’ travel lanes.

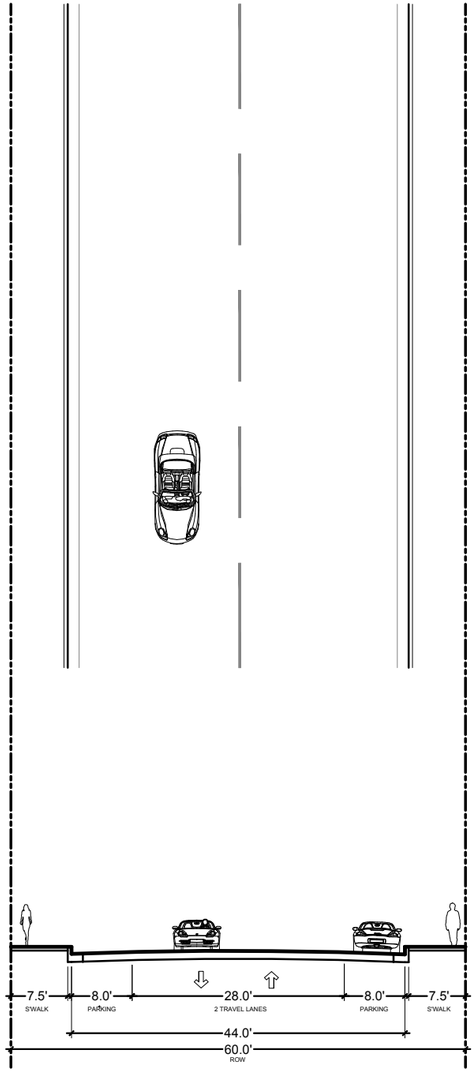
SPECIAL STREET - Marion Street J



Section Key Map

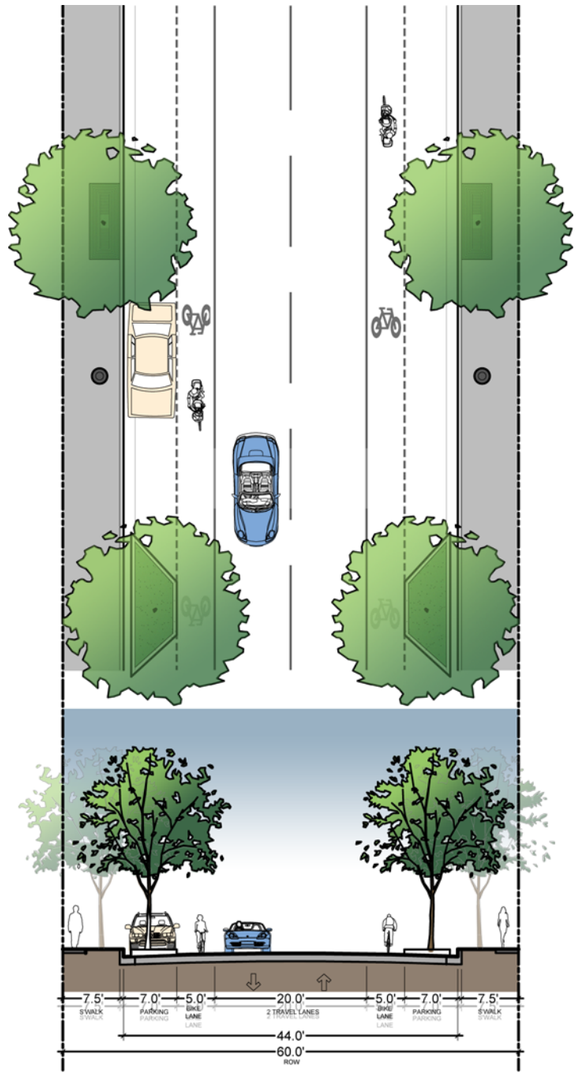


Aerial Photo



Existing Cross Section

- Existing two-lane road with on-street parking on both sides.
- Travels through APSU
- Section profile varies in residential area on the west.

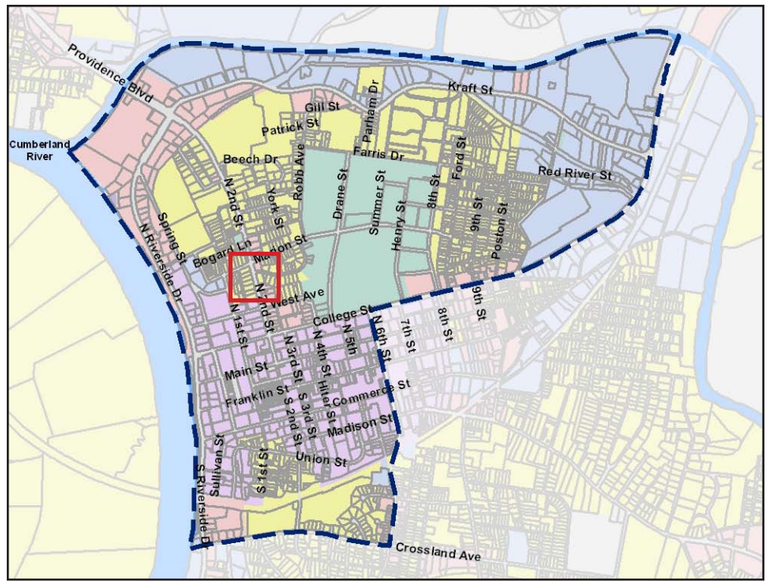


Proposed Section

- Marked on-street parking on both sides, with tree well bulbouts every 44’ or 66’ and pedestrian curb extensions at intersections
- Reduce travel lane width, add striped bike lanes
- Improve sidewalk with street trees in new saw-cut tree wells and in bulb-outs

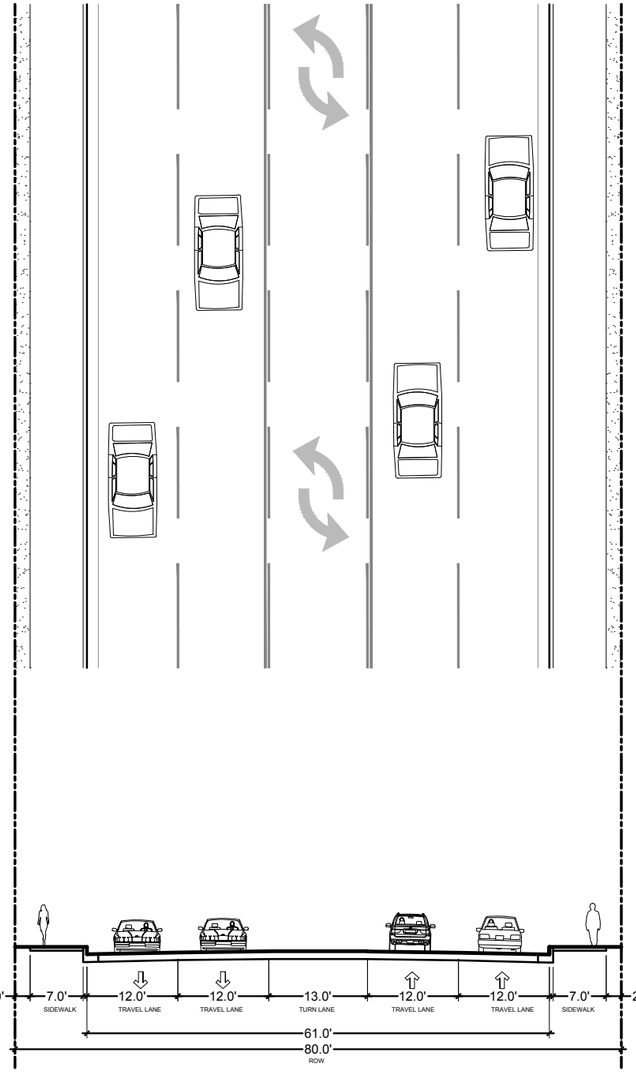
RESIDENTIAL STREET - N. 2nd Street

K



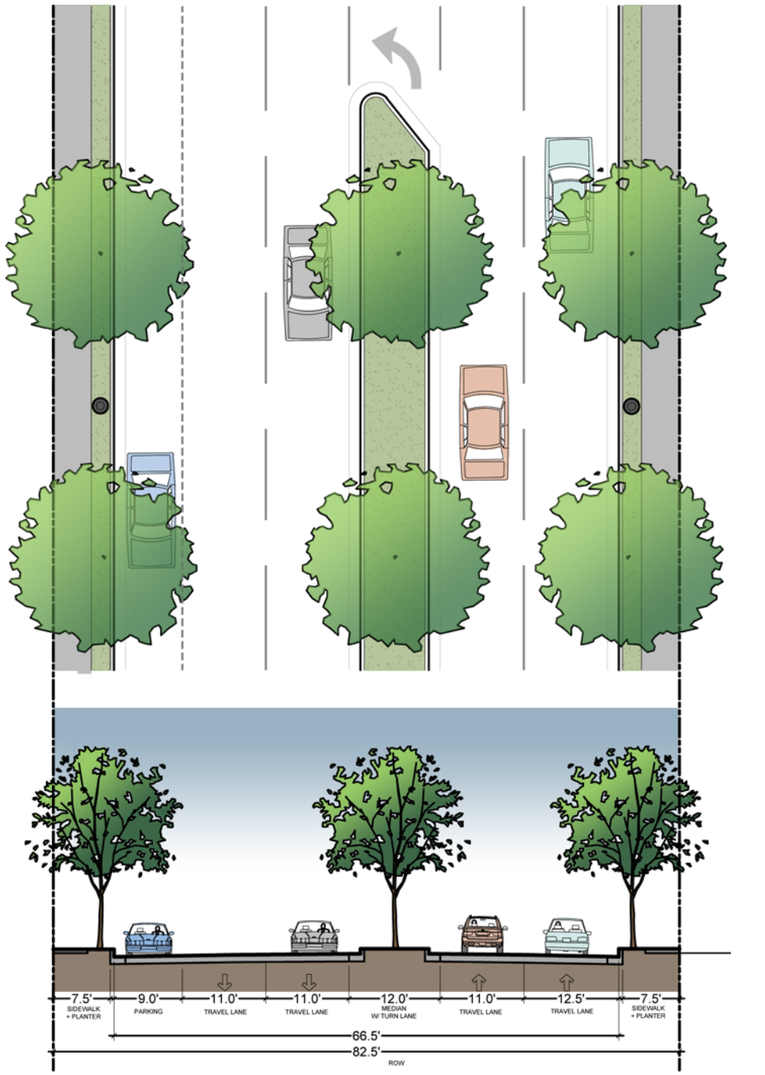
Section Key Map

Aerial Photo



Existing Cross Section

- US highway going through mostly residential area
- Two travel lanes in each direction with a center turn lane
- Existing sidewalks on both sides

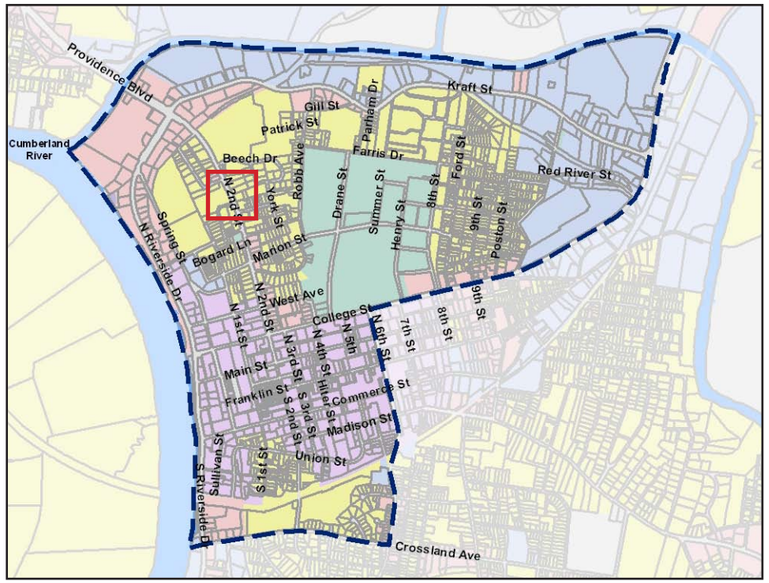


Proposed Section

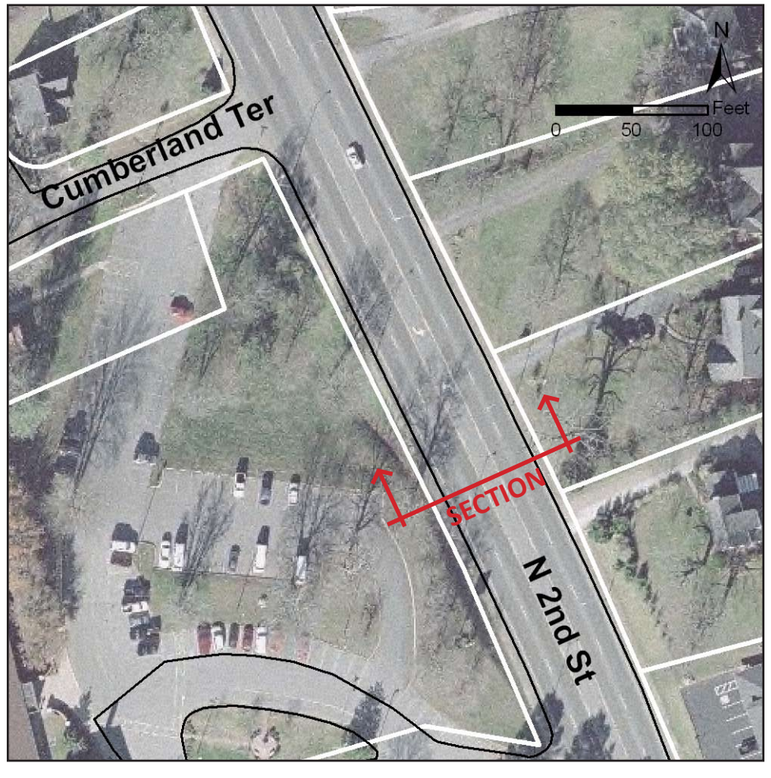
- Median with left turn pockets at intersections & pedestrian refuges.
- Two travel lanes in each direction narrowed in urban context
- On-street parking on west side
- Improve sidewalk with planting strip and trees
- This section applies between McClure Street and Jefferson Street and north of Cumberland Terrace

Note: Further study may be required to address questions by the street department and TDOT on all state routes.

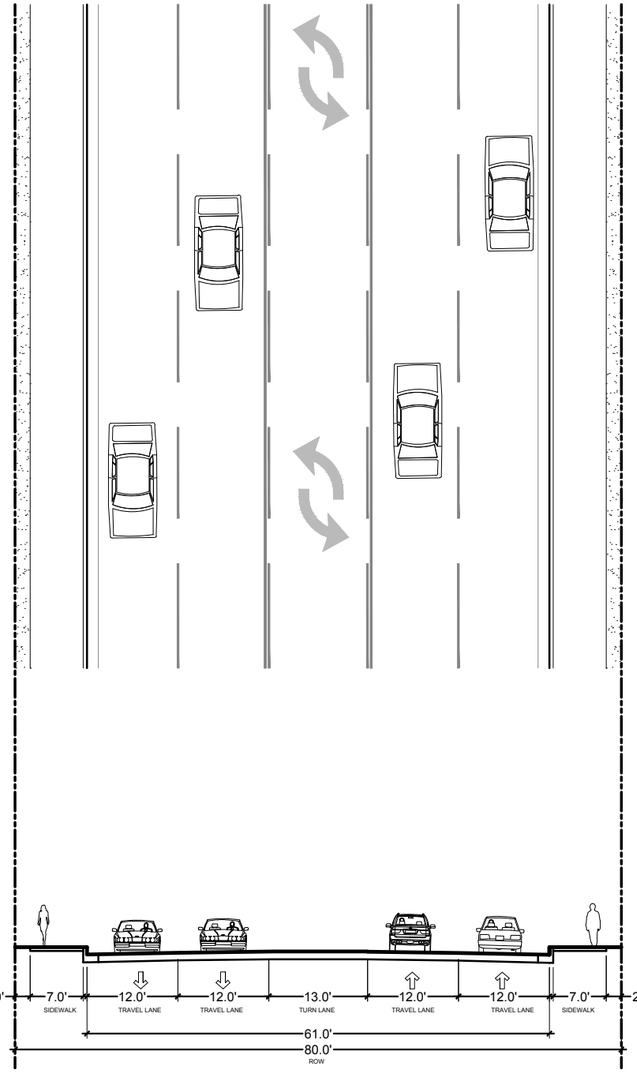
RESIDENTIAL STREET - N. 2nd Street K-2



Section Key Map

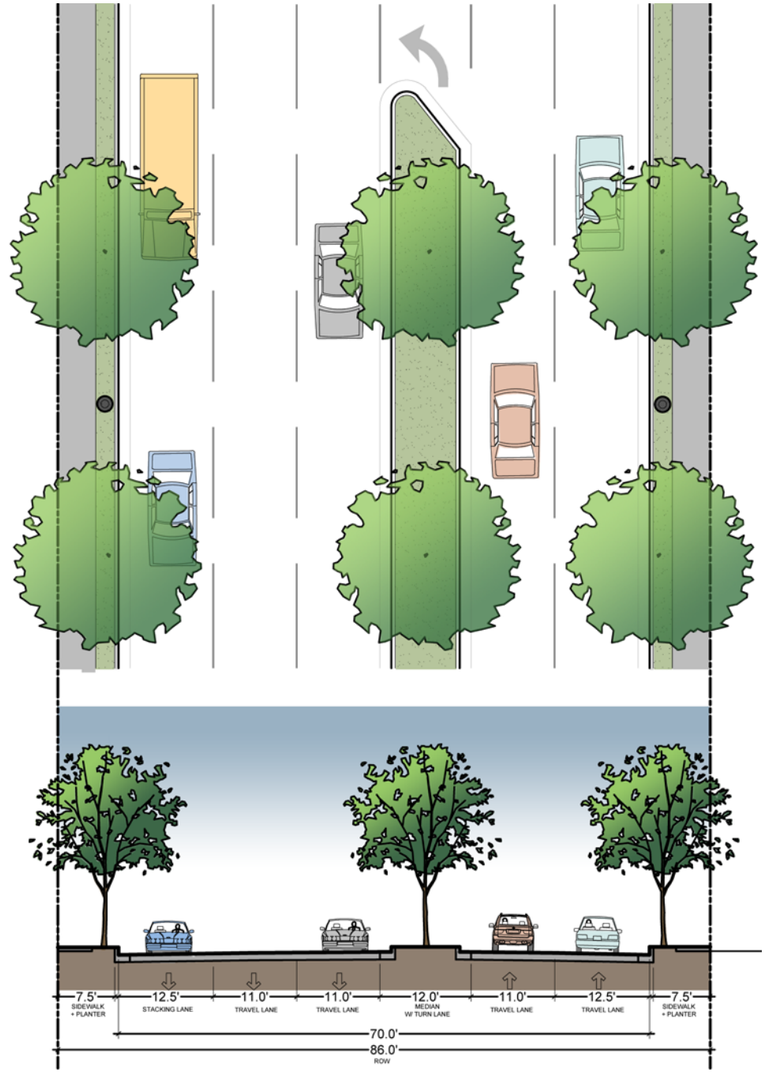


Aerial Photo



Existing Cross Section

- US highway going through mostly residential area
- Two travel lanes in each direction with a center turn lane
- Existing sidewalks on both sides

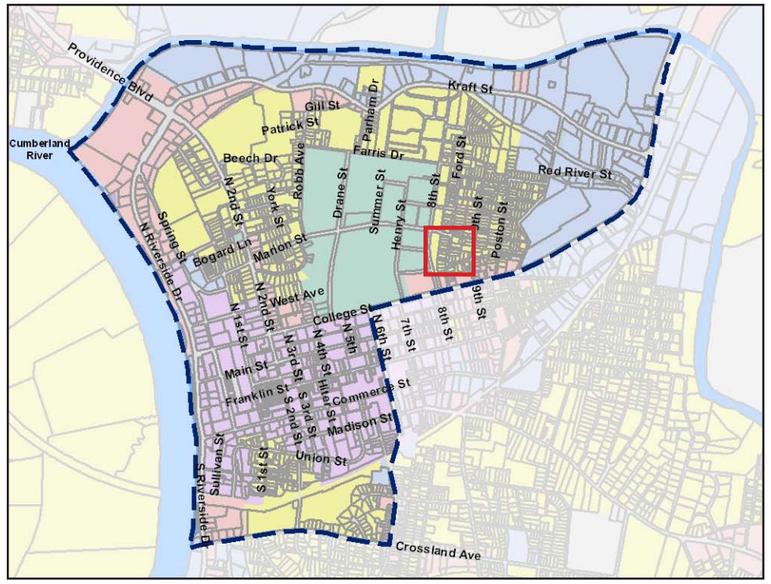


Proposed Section

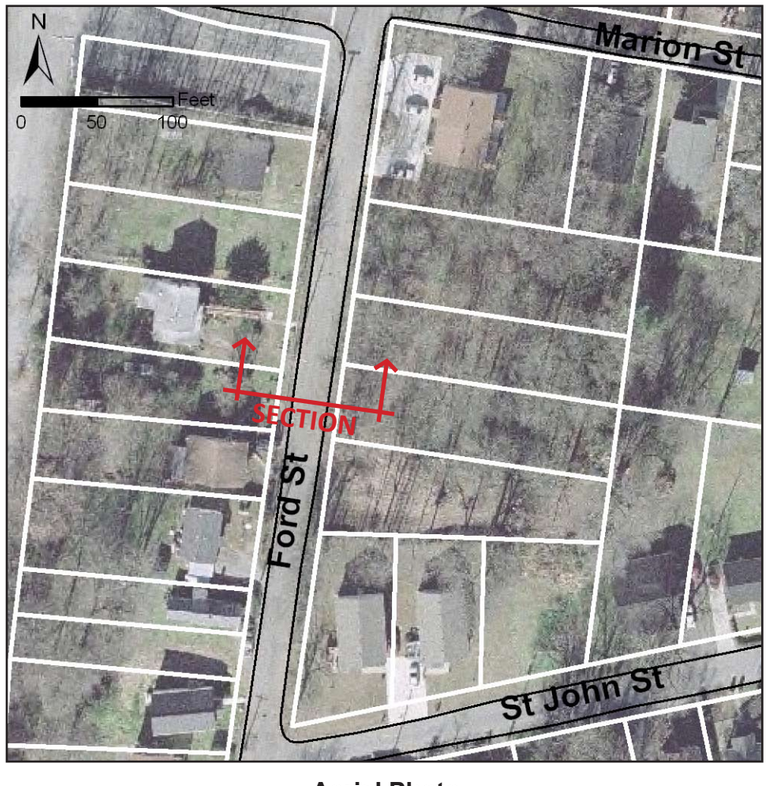
- Median with left turn pockets at intersections & pedestrian refuges.
- Two travel lanes in each direction narrowed in urban context
- Stacking lane on west side where school is located
- Improve sidewalk with planting strip and trees
- This section applies between Cumberland Terrace and McClure Street

Note: Further study may be required to address questions by the street department and TDOT on all state routes.

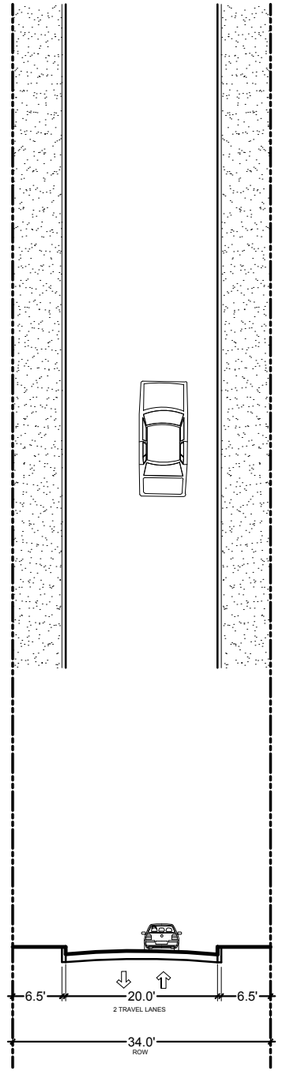
RESIDENTIAL STREET - Local street L



Section Key Map

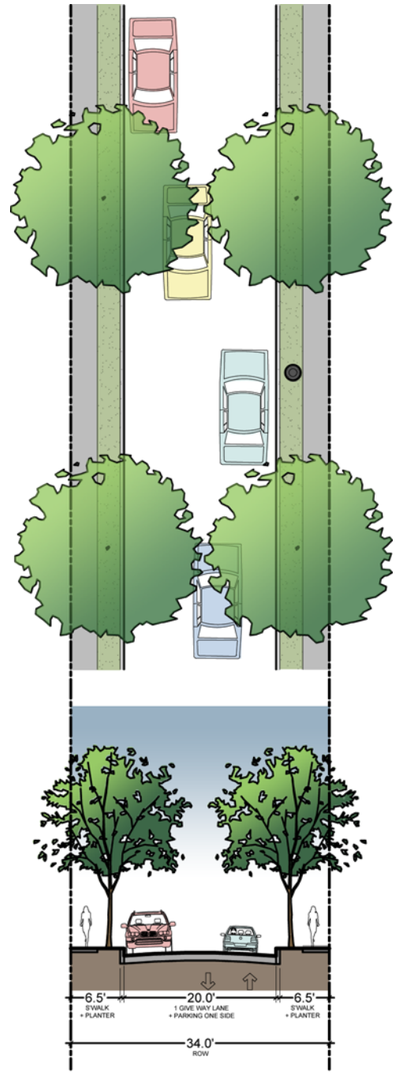


Aerial Photo



Existing Cross Section

- Most are residential streets
- 20’ to 28’ pavement width, various ROW widths



Proposed Section

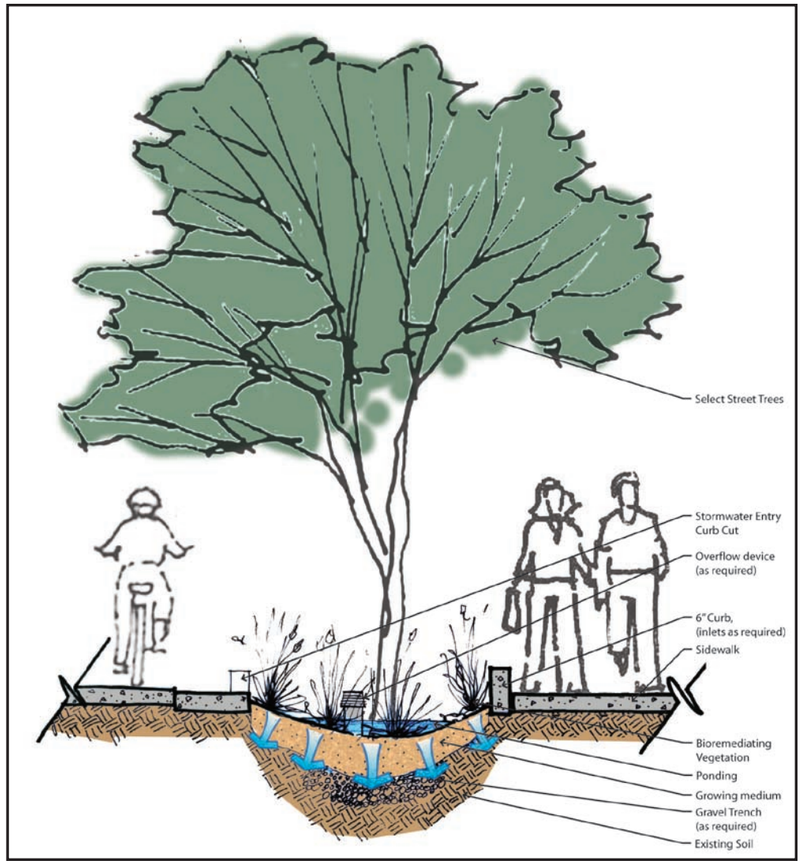
- Two-way “give-way” street
- Allow on-street parking on one side with or without signing
- Sidewalk on at least one side of the street, sidewalks to vary based on ROW availability
- Improve sidewalk with planting strip and trees wherever practical
- This section can apply to streets from 20’ to 28’ wide

5.4 Sustainability Recommendations

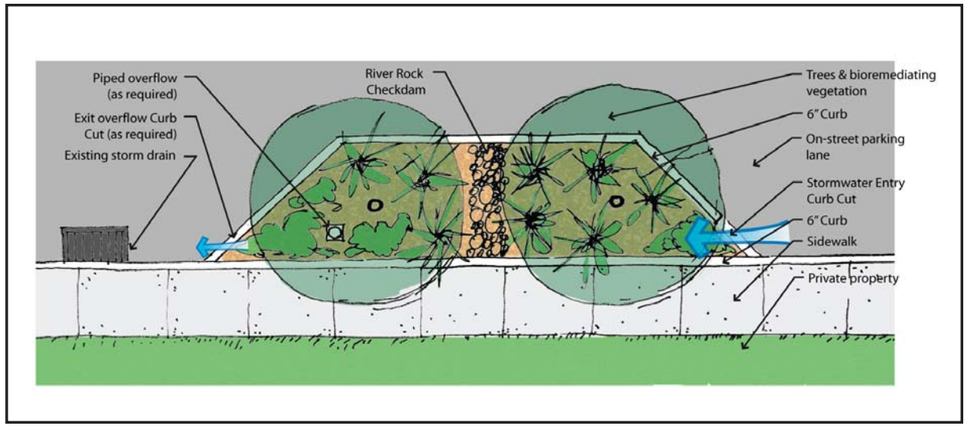
The cross-section and plans to the right depicts how bioswales should be implemented in the study area. These concepts are primarily retrofits into the existing street fabric that can occur during streetscape projects or as a stand alone project. The use of bioswales will help prevent health hazards for people and wildlife by protecting the Cumberland River and other water bodies. A bioswale is a form of bioretention used to partially treat water quality, attenuate flooding potential and convey stormwater away from critical infrastructure. The purpose of a bioswale is to increase the function of these conveyance systems by integrating features that improve water quality, reduce runoff volume and enhance the aesthetics of the environment.

It is important that the storage capacity and functional integrity of the bioswale be maintained through regular monitoring and maintenance of vegetation, infiltration capacity, and structures. Regular inspections of bioswales should be performed to identify erosion, accumulation of debris around structures and signs of excessive sedimentation.

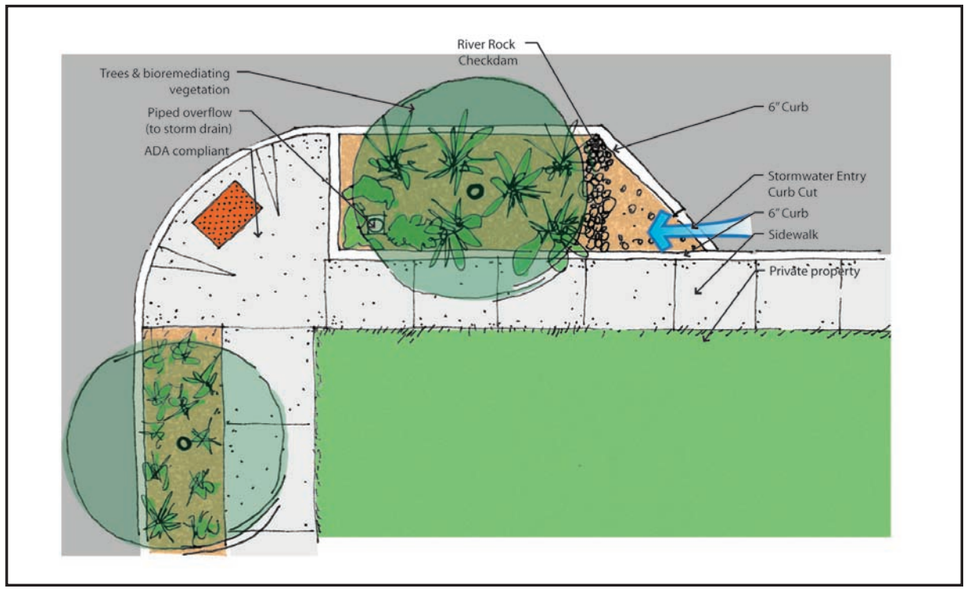
Another sustainable practice that should be implemented where appropriate is the use of pervious surfaces. This practice provides the same benefits as the bioswales. Pervious surfaces, like pervious pavement or pavers, should be used to replace some impervious surfaces like concrete.



Typical section through bioswale



Typical plan of midblock bioswale. A mid-block crosswalk could also be designed into this bulbout.



Typical plan of corner location bioswale. This corner could join two streets with on-street parking or just one.

This bioswale area on the curb collects water in gravel/stone-filled channels on surface, filtering into the ground.

Roadside rain gardens are swale-like planted areas to mitigate stormwater runoff.

Various bioswale treatments.

6. Plan Implementation

6.1 Project Prioritization

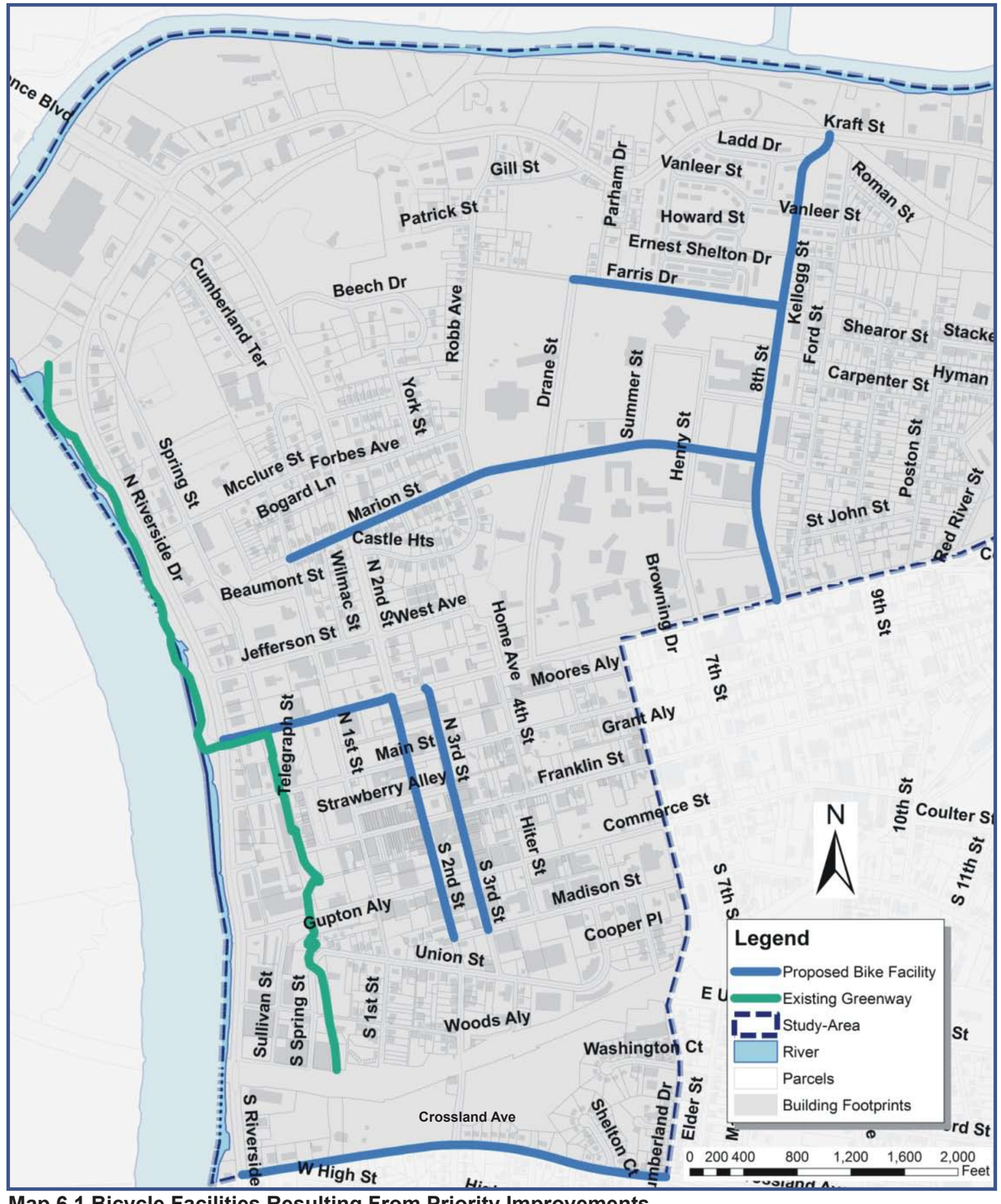
The recommendations made in this study, once implemented, will significantly impact the mobility, access, and livability of Clarksville's downtown districts. Care has been taken to develop the street cross-sections and other features with regard for the existing setting but also in the context of the City's redevelopment potential and ideals. Thoughtful consideration has been given to potential trade-offs in street functions such as the provision of travel mode options, traffic capacity, parking convenience, aesthetics, connectivity, sustainability, maintenance, and access, all with the goal of promoting a desirable form of redevelopment for downtown Clarksville. This section addresses the implementation of these recommendations.

The need for this study was brought about by the desire to redevelop inside of downtown Clarksville. While infill development is critical for the health of cities, it can also be quite challenging, given the constraints of existing infrastructure and the demands of modern development. Another challenge in implementation is the unknown pace of redevelopment activity in the study area. The implementation plan has been developed to give the City flexibility to work with changing growth and development schedules while implementing infrastructure changes in a logical and reasonably timely manner.

Improvement projects are presented in the implementation table as a "Priority" or as a "Future" project. Priority improvements are those which should be completed within the next five years and which may be able to be completed much sooner due to a lesser degree of impact and cost. Future projects are those which have more impact and which may be most efficiently accomplished as part of a larger redevelopment project.

Table 6.1 Priority (Five Year or Less) Improvements

Street	Termini	Project	Cost	Comments
8th Street	College St to Kraft St	Stripe shared lanes for autos and bikes and allow on-street parking on east side (where appropriate).	$34,200	Adding enhanced sidewalks and ADA-compliant tree wells can be done as separate phase.
Farris Drive	Drane St to 8th St	Stripe shared lanes for autos and bikes and allow on-street parking on either north or south side (where appropriate).	$11,300	Adding enhanced sidewalks and ADA-compliant tree wells can be done as separate phase.
2nd Street	College St to Commerce St	Replace western travel lane with angled back-in on-street parking and mark eastern travel lane as shared lane for autos and bikes.	$118,300	Assumes complete overlay of pavement
	Commerce St to Madison St	Replace western travel lane with parallel on-street parking and mark eastern travel lane as shared lane for autos and bikes.	$1,900	Adding parallel on-street parking on east side of street can be done as future phase.
3rd Street	Madison St to Commerce St	Replace eastern travel lane with angled back-in on-street parking and mark western travel lane as shared lane for autos and bikes.	$36,000	Assumes complete overlay of pavement
	Commerce St to College St	Restripe to include parallel on-street parking on east side, one northbound travel lane, and a 5' bike lane.	$6,400	
College Street	2nd St to Riverside Dr	Stripe 7' bike lane on both sides.	$5,600	Future improvements would include enhanced sidewalks.
Marion Street	1st St to 8th St	Stripe 4' bike lane on both sides.	$19,400	On-street parking to remain.



Map 6.1 Bicycle Facilities Resulting From Priority Improvements

Table 6.2 Future (More than Five Years) Improvements

Project	Description	Limits	Responsible Party	Comments
Residential sidewalks	Construct/reconstruct sidewalk on residential streets where none exist	All	Private, City	May be implemented by comprehensive plan or redevelopment regulation.
Franklin Streetscape	Construct bulbouts with trees	3rd to University	Private, City	
Main Streetscape	Construct sidewalk (Riverside to 1st), add bulbouts with trees and/or bioswales (Public Sq to 2nd)	Riverside to 2nd	Private, City	
Commerce Streetscape	Construct bulbouts with trees (Spring to 3rd)	Riverside to 3rd	Private, City	
Commerce Streetscape	Implement cross-section with on-street parking and sidewalks	3rd to University	Private, City	
Madison Streetscape	Construct bulbouts with trees and/or bioswales	2nd to 3rd	Private, City	
Spring Streetscape	Implement cross-section with on-street parking and sidewalks	Adams to Union, Commerce to Riverside	Private, City	Require rear access to Spring for parcels from College to McClure
Jefferson/West/Home Streetscape	Implement cross-section with on-street parking and sidewalks	Riverside to College	Private, City	
1st Streetscape	Implement cross-section with on-street parking and sidewalks	Commerce to Franklin, College to Marion	Private, City	
1st Streetscape	Construct bulbouts with trees and/or bioswales	Franklin to College	Private, City	
Union Streetscape	Implement cross-section with on-street parking and sidewalks	2nd to Madison	Private, City	
N 2nd Streetscape	Implement cross-section with median construction, lane modifications	Jefferson to Riverside	City, State	Development of proposed improvements will require significant construction including ROW acquisition on and relocating curb and drainage infrastructure.
Riverside Streetscape	Implement cross-section with median construction, lane modifications	Crossland to Kraft	City, State	Development of proposed improvements will require significant construction including ROW acquisition and relocating curb and drainage infrastructure.
Kraft Streetscape	Reconstruct roadway including median and urban curb-and-gutter drainage with bike lanes and sidewalks.	College to Riverside	City, State	Reconstruction to transform Kraft from a rural to an urban street.
College Streetscape	Implement cross-section with wide outside lanes.	Ford to 2nd	City, State	Curb relocation required in four-lane section

6.2 Project Funding

The recommendations of this corridor plan account for likely and intended development within the study area over time. The proposed improvements may be constructed over time and with developer participation as redevelopment activities occur, or they may be constructed with public funds as incentive for redevelopment of strategic areas. Various public and development-related funding sources are provided respectively in Tables 6.3 (some of which may not be eligible for all streetscape enhancements) and 6.4. Development-related implementation strategies are further described in the following paragraphs.

Table 6.3 Public (Federal) Funding Strategies

Federal Programs	Description	Funding Ratio
CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)	Provides funding for transportation projects in air quality non-attainment or maintenance areas. CMAQ projects are designed to contribute toward meeting the national ambient air quality standards.	80% Federal, 20% Non-Federal
TRANSPORTATION ENHANCEMENT SET ASIDE OF THE STP (TE)	Provides funding for 12 exclusive activities such as pedestrian facilities, rehabilitation and restoration of historic transportation related structures, and environmental mitigation to address water pollution due to highway runoff.	80% Federal, 20% Non-Federal
NATIONAL HIGHWAY SYSTEM (NHS)	Provides funding for major roads including the Interstate System, a large percentage of urban and rural principal arterials, the Strategic Defense Highway Network (STRAHNET), and strategic highway connectors.	80% Federal, 20% Non-Federal
SAFE ROUTES TO SCHOOL (SRTS)	Provides funding to the States to substantially improve the ability of primary and middle school students to walk and bicycle to school safely.	100% Federal
SURFACE TRANSPORTATION PROGRAM (STP or S-STP)	Provides funding for roads functionally classified as rural major collector and above. Funds may be utilized on projects in Rural Areas, Urbanized Areas, Small Urban Areas, Enhancement, Safety and Rail-Highway Crossings.	80% Federal, 20% Non-Federal
LOCAL-SURFACE TRANSPORTATION PROGRAM (L-STP)	Provides funding to areas of 5,000 to 50,000 in population for improvements on routes functionally classified urban collectors or higher.	80% Federal, 20% Non-Federal
FEDERAL TRANSIT ADMINISTRATION	Several sources exist - one example is Section 5307, a formula grant program for urbanized areas providing capital, operating, and planning assistance for mass transportation. These may be eligible for pedestrian accommodations.	80% Federal, 20% Non-Federal (Capital)

Table 6.4 Development-Related Implementation Strategies

Implementation Strategy	Allowable By	Initiation	Transportation Infrastructure
Central Business Improvement District (CBID)	State Statute	Property Owners	Eligible
Tax Increment Financing (TIF)	State Statute	Local Government	Eligible
Development Impact Fee (DIF)	State Statute	Local Government	Eligible
Development Taxes	State Statute	Local Government	Eligible, but usually competitive
Developer Exactions	State Statute	Local Government	Eligible, but with restrictions
Associated Improvements	Required Maintenance	Entity making improvement	Eligible, but usually limited in scope

A **central business improvement district (CBID)** is an effective tool for financing improvements that directly enhance property values by allowing property owners to determine how funds are spent in their area. A CBID is a geographically defined district in which commercial property owners vote to impose a self-tax. CBIDs are funded by a self-imposed and self-regulated ad valorem real estate tax on commercial properties within the district. CBIDs rely on an active and visionary board of community leaders to develop and execute its plans and programs.

Tax increment financing (TIF) is an effective tool used to pay for infrastructure and other improvements in underdeveloped or blighted areas so that the property becomes productive and enhances the surrounding neighborhoods. TIF districts use the anticipated tax growth from rising property values in designated geographical areas to finance new infrastructure or other public improvements that will lead to private-sector investments in the community. TIF districts work by allowing jurisdictions to issue debt to fund capital improvements and/or to support other public or private sector investments in an area, and use the anticipated increase in property values from this investment to finance the debt. TIF generally requires the development of a plan for specific improvements within the TIF district.

Development impact fee (DIF) is defined as payment of money imposed upon development as a condition to development approval to pay for a proportionate share of the cost of system improvements needed to serve growth and development. Through impact fees, the funding to provide system improvements to service new development is collected concurrently with the growth, so local governments have the funds in hand when they are needed as opposed to having to wait for tax revenues to make up the difference. In Tennessee, development impact fees may only be imposed by either public or private ordinance passed by the local government. Fees are based upon a standard formula and a pre-determined fee schedule and must not exceed a proportional fair share of the cost of serving the new development.

Development taxes (adequate facilities taxes) are levies on the development industry that are intended to raise revenue for general government purposes. Unlike impact fees, they are primarily a tool for raising revenue instead of financing facilities for specific developments, they do not have to be earmarked or accounted for separately, and their use is not restricted - they can be used for pre-existing deficiencies or for operation and maintenance.

Developer Exactions are the most flexible form of paying for the costs of infrastructure expansion and improvement. Localities can adopt an “Adequate Public Facilities Ordinance” or similar law which allows for the case-by-case negotiation of developer concessions. In the case of the Downtown Parking and Street Network Study, exactions could consist of road reconstruction, sidewalk reconstruction, right-of-way dedication, or payment for the same.

Associated Improvements can be used to implement the recommendations of the Downtown Parking and Street Network Study. The primary example of this is using routine resurfacing as an opportunity to restripe downtown streets in accordance with the ideals of the study. This allows enhancements to be made with minimal additional cost. This approach is especially beneficial when taking advantage of TDOT’s paving schedule on state routes to implement improvements.

6.3 Next Steps

In addition to the recommended streetscape enhancements, several policy and programmatic initiatives should be explored to assist in the ongoing implementation steps of this study. These initiatives are generally low or no-cost items that can help institutionalize good urban design both for projects listed in this plan and for other or new streets not addressed.

- Perform detailed pedestrian accommodations study to determine acute sidewalk, signing, striping, and signal needs for pedestrians within the study area.
- Develop wayfinding master plan.
- Investigate opportunities for incorporation of pervious surfaces into infrastructure standards as appropriate.
- Develop standards for bioswale use and construction. Standards may also provide additional guidance to street tree and landscape screening requirements already in effect.
- Consider amending Section 6 of the Zoning Ordinance (Parking, Loading, and Access) to allow parking reductions based on demonstrable shared parking arrangements.
- Consider adding bicycle parking requirements as part of Section 6 of the Zoning Ordinance (Parking, Loading, and Access).
- Complete a traffic study to further evaluate the feasibility of the proposed cross-sections given for the state routes.