

A HISTORY OF CONNECTION



Final Report
April 2007

Cumberland Avenue Corridor Plan
Knoxville, Tennessee

Table of Contents

Table of Contents

Acknowledgements

1.0 Introduction

Purpose of this Plan	1-1
Executive Study Area	1-1
Organization of this Plan	1-1
Study Area	1-2
Process	1-3
A History of Connection	1-4

2.0 Context Analysis

Major Stakeholders	2-1
Built Environment	2-2
Parking	2-3
Street Network & Signalized Intersections	2-4
Traffic Volumes	2-5
Open Space & Bicycle Comfort Levels	2-6
Transit	2-6
Transit Routes	2-7
Existing Land Use	2-8
Existing Zoning	2-9
Topography	2-10
Existing Street Sections	2-11
Cumberland Avenue-West of Rail Bridge	2-11
Cumberland Avenue-22nd Street to 17th Street	2-12
Cumberland Avenue- East of 17th Street	2-13
Clinch Avenue	2-14
17th Street	2-15
Lake Avenue and White Avenue	2-16
Commercial Business	2-17
Major Property Owners	2-18
Cumberland Avenue Block Data	2-19

3.0 Issues & Challenges

Traffic Operations	3-1
Safety	3-1
Service & Deliveries	3-1
Hospitals & University	3-2
Transit	3-2
Development Standards	3-2
Landmarks	3-3
Parking	3-3
Character	3-3
Vision Statement	3-4

4.0 The Street

Cumberland Avenue Today	4-1
Road Diet Concept	4-1
Cumberland Avenue: Existing & Proposed	4-2
Traffic Analysis	4-4
Proposed Configuration	4-4
Traffic Performance	4-5
Important Conclusion	4-5
Why 30,000 Vehicles can be Carried on a 3-Lane Street	4-6
Traffic Diversion & Future Volumes	4-6
Streetscape Concept Plan	4-7
Streetscape Design Intent	4-10

5.0 The Urban Design Plan

The Urban Design Plan	5-1
The University	5-2
Mountcastle Park	5-3
The Strip	5-4
Development Opportunities	5-5
Key Concepts for Block Development	5-6
Cumberland Avenue: Existing & Proposed	5-7
Cumberland Avenue: Site Section	5-8

6.0 Design Guidelines

Intent	6-1
General Principles	6-1
Frontage Requirements	6-2
Cumberland Avenue Frontage	6-3
Lake Avenue Frontage	6-4
White Avenue- Neighborhood Frontage	6-5
White Avenue- Hospital Frontage	6-6

7.0 Implementation

Cumberland Avenue Corridor Plan Implementation	7-1
Implementation Structure	7-1
Funding	7-1
Cumberland Avenue Streetscape	7-1
Utilities	7-3
Private Redevelopment	7-3
Mountcastle Park Redevelopment	7-4
Parking	7-4

8.0 Public Input

Advisory Committee Input	8-1
Public Brainstorming Input	8-1
Public Charrette Table Session Input	8-3

Supporting Documents

These supporting documents are available as separate documents through the Knoxville-Knox County MPC.

1. Cumberland Avenue Traffic Signal Basic Inventory Report (prepared by URS, November 2006)
2. Cumberland Avenue Traffic Signal Retiming Report (prepared by URS, March 2007)
3. Utility Assessment Memo (prepared by JJG, February 2007)
4. 3-LaneTraffic Analysis Memo (prepared by Glatting Jackson, March 2007)
5. Case Studies: 3-Lane Conversions

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1.0 Introduction

Introduction

Purpose of this Plan

The purpose of this plan is to chart the course for a more attractive, economically successful, vibrant and safe Cumberland Avenue.

This is a distinct challenge because Cumberland Avenue serves as the major transportation facility serving the University of Tennessee, Fort Sanders Regional Medical Center, the East Tennessee Children's Hospital and downtown Knoxville. This state and federally designated highway carries between 24,000 and 32,000 vehicles per day (between West Volunteer and 11th Street), and thousands of pedestrians from the University and hospitals use the corridor day and night.

The planning process examined alternative street design and configuration options for Cumberland Avenue and a supporting long-term urban design vision for the corridor in order to create a mixed-use, pedestrian-friendly environment. The result will be a corridor that serves as an attractive gateway to the University of Tennessee, the hospital campuses and downtown, improves the residential and retail character of the district and balances the movement of pedestrians, motorized vehicles and bicycles.



Cumberland Avenue: Existing

Executive Summary

The following summarizes and highlights the key results, concepts and recommendations of the Cumberland Avenue Corridor Plan.

Streetscape

- **Implement the three-lane reconfiguration.** There is strong public and stakeholder support and the technical analysis suggests that the impact on traffic in the evening peak hour results in an **additional 1 minute of travel time** through the corridor.
- The proposed reconfiguration and streetscape provides **wider sidewalks, street trees**, is more **bicycle friendly**, **accommodates transit and delivery trucks** in pull-out stops, is **safer and slower**, and is attractive and **development supportive**.
- **Estimated Streetscape Cost: \$5.8 million.**
- **Estimated Utility Relocation Cost: \$1.1 million (relocated to alleys) or \$2.3 million (relocated underground).**

The Urban Design Plan

- While a market analysis has not been conducted for this study to determine its development potential, the urban design plan calculated the potential for more than **1,400 new housing units and 130,000 square feet of ground floor commercial** uses in mixed-use redevelopment on key sites likely to redevelop.
- This amount of development, calculated roughly at \$200,000/residential unit and \$200/square foot of commercial use, could conceivably result in more than **\$280 million in new private investment**.
- **Rewrite the C-7 Design District Regulations.** These regulations are outdated and do not support the type of redevelopment envisioned in the urban design plan. Use a form-based code model (Knoxville South Waterfront) as the basis for developing a specific Cumberland Avenue Design District Development Code.
- **Reconfigure Mountcastle Park** to create an important open space and development connection between the University, Cumberland Avenue, the hospitals and the Fort Sanders neighborhood.
- Support the development of a **public parking resource** in the corridor. Further study is required, but it is clear that there is a need for an organized public parking resource. There is an opportunity to **work with the hospitals and the University to develop shared parking resources** as part of their long-term parking plans.

Organization of this Plan

1.0 Introduction – Introduces the study goals, planning area, public process and the area's historic context.

2.0 Context Analysis – Summarizes the key aspects of the area's physical context that influence its existing character and shape its future vision.

3.0 Issues & Challenges – Outlines the range of major issues identified by stakeholders and the public that need to be considered in the development of urban design alternatives.

4.0 The Street – Describes and illustrates the recommended street design and reconfiguration of Cumberland Avenue based on traffic analysis and public input.

5.0 The Urban Design Plan – Describes and illustrates the long-term urban design/development vision for the corridor as shaped by public and stakeholder input.

6.0 Design Guidelines – Documents the basic design components that need to be regulated in order to guide private and public investment.

7.0 Implementation – Frames the key actions, steps and implementation options for achieving the goals of the plan.

8.0 Public Input – Documents the public involvement process.



Cumberland Avenue: Proposed



Study Area

The overall study area extends from Neyland Drive on the west, the Tennessee River on the south, Downtown Knoxville on the east and Interstate 40 on the north. The primary focus of the study is on the Cumberland Avenue corridor from Neyland Drive to 11th Street with a specific urban design emphasis on “The Strip” from West Volunteer to 17th Street.

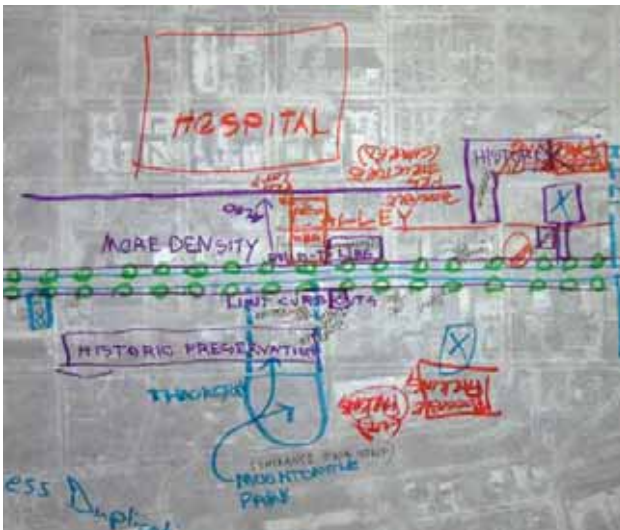
Introduction



Public design table sessions



Table presentation from public design session



Drawing from public design session



Public review of products

Process

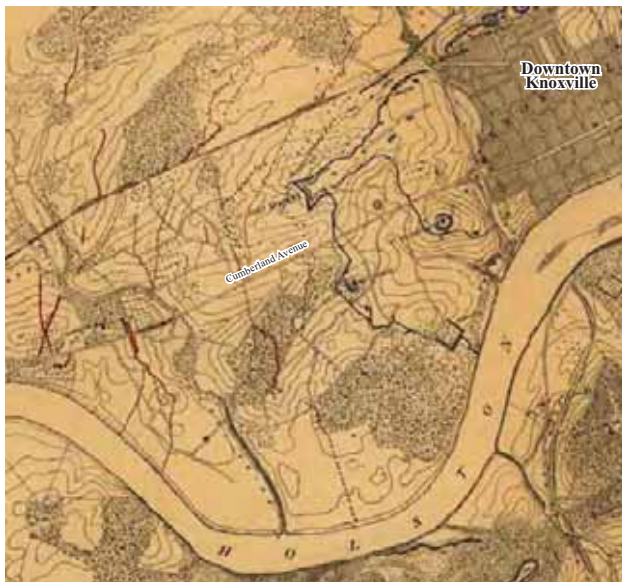
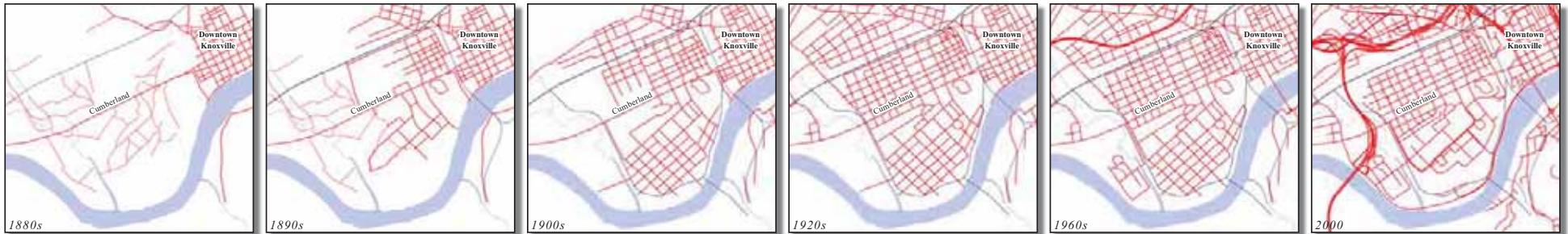
The planning process included a public outreach component that guided the planning and design efforts throughout the project. A key component of the public process is the Advisory Committee, made up of a diverse representation of stakeholders in the corridor. This committee met regularly over the course of the project to provide input and guidance.

The project team also met individually with many other stakeholders, including property owners, developers, neighborhood representatives, business owners, city agencies, emergency service providers and others to gain direct insight into the issues and concerns facing the Cumberland Avenue corridor.

In addition, several public meetings and design sessions were facilitated during the development of design concepts to gain a broader community perspective. These included:

- A public kick-off meeting (November 9th, 2006), which included a public brainstorming session of ideas and vision for the corridor.
- A public design session (December 5th, 2006) in which participants used basemaps to draw a set of specific ideas and design alternatives for the corridor, producing a range of concepts for the project team to incorporate.
- A project design studio (December 5th-7th, 2006) where the project team worked in an open house format at the UT Student Center developing and refining design concepts while meeting with stakeholders to share the evolving ideas.
- A design studio summary presentation (December 7th, 2006) where the alternatives and concepts developed during the design studio were presented for initial public review and comment.

Introduction



Area Map from the 1860s



Aerial from Present Day

A History of Connection

A central theme for the Cumberland Avenue corridor is its evolving function over time and the need to adapt its form and design to meet new roles and purposes.

Cumberland Avenue (historically Kingston Pike) has played a vital role in the history and development of Knoxville, dating back before the Civil War as an important corridor for trade and commerce. Over time, Cumberland Avenue became the transportation spine from which the University of Tennessee, Fort Sanders neighborhood, Fort Sanders Regional Medical Center and East Tennessee Children's Hospital grew westward from downtown.

Today, Cumberland Avenue is no longer the sole transportation corridor in the area but one of several important corridors including Interstate 40, Neyland Drive and Alcoa Highway. In addition, with the growth of the University and hospitals, Cumberland Avenue is now also a place to "go to" in addition to a place to "go through." This new role requires a new attitude, an attitude that balances the street's vehicular transportation role with the area's emerging role as many things: a gateway, a place to live, a place to do business, a place of entertainment, an extension of downtown, a location for redevelopment, etc.

Adapting Cumberland Avenue and its surrounding development pattern to its new role as one of Knoxville's important "places" is the central challenge of this study.

- Kingston Pike connects west from Knoxville and becomes an important corridor.

- First East Tennessee College buildings built on "the hill."

- Battle of Fort Sanders: Union retains control of Knoxville.

- Development of Fort Sanders neighborhood & annexation into City of Knoxville.

- Street car line extends west to suburbs.
- Fort Sanders Regional Medical Center (1919).
- East Tennessee Children's Hospital (1937).

- University & hospital expansion creates a more student oriented area and changes the character from residential to commercial.
- I-40 & I-75 alter regional transportation role.

- Neyland Drive, Alcoa Highway, & And Holt Bridge are built.
- Auto & pedestrian conflicts increase.
- Role of "Strip" questioned.

1700s

1820s

1864

1890s

1900 to 1940

1950s

1960s to Present

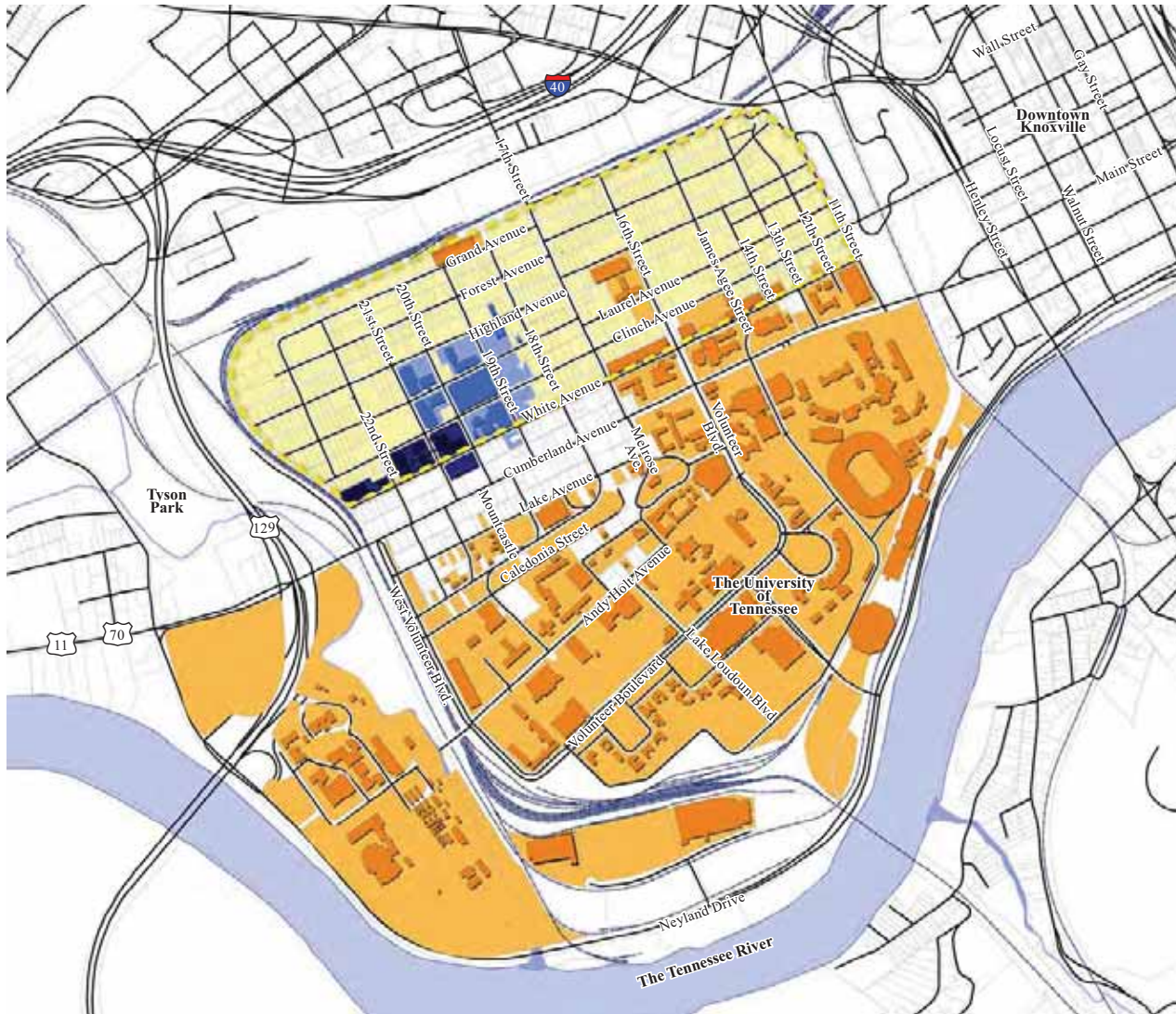
A History of Connection
CUMBERLAND AVENUE CORRIDOR PLAN
Knoxville, Tennessee



2.0 Context Analysis

Existing conditions throughout the Cumberland Avenue area are analyzed in the context analysis. Field surveys, Geographic Information Systems, and stakeholder and advisory committee meetings were used to gather information. This section is both an inventory and an analysis of the physical conditions and the potential for development.

Context Analysis



Fort Sanders Neighborhood University of Tennessee East Tennessee Children's Hospital Fort Sanders Regional Medical Center

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CUMBERLAND AVENUE CORRIDOR PLAN
Knoxville, Tennessee

Major Stakeholders

Cumberland Avenue is surrounded and influenced by a set of major area stakeholders.

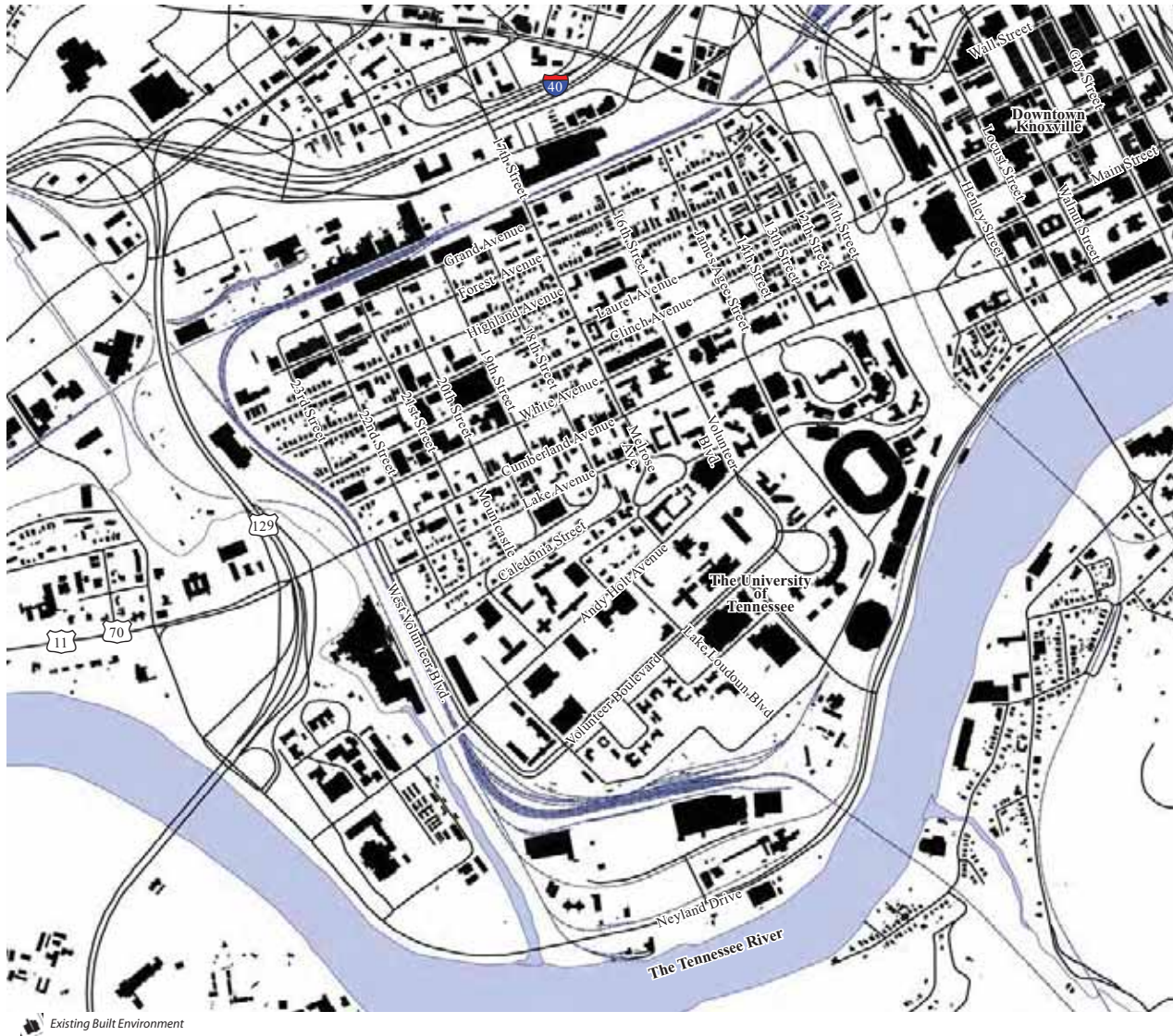
The University of Tennessee – The University's beginnings in the area date back to the 1820s with its first building built on "the hill". The University has experienced significant expansion since the 1950s and is currently planning on accommodating an additional 8,000 students in the coming years.

The Fort Sanders Regional Medical Center – This hospital has been in this location since 1919 and is a major institution and employer in the area. Its growth and expansion continue to serve as an important economic engine for the Cumberland Avenue.

The East Tennessee Children's Hospital – This hospital has been in this location since 1937 and is continuing to grow and expand.

The Historic Fort Sanders Neighborhood – This neighborhood dates back to the area's original urban expansion from downtown after the Civil War with many historic homes dating to the 1890s. It faces the challenge of continued growth of student housing, parking demands and protection of historic resources.

Context Analysis



Built Environment

The built environment reflects a variety of patterns and scales that are sometimes conflicting.

University

- Large-scale built form/buildings
- Large blocks
- Campus inwardly focused

Hospitals

- Large-scale built form/buildings
- Built within the historic block pattern
- Absorbing surroundings for surface and structured parking

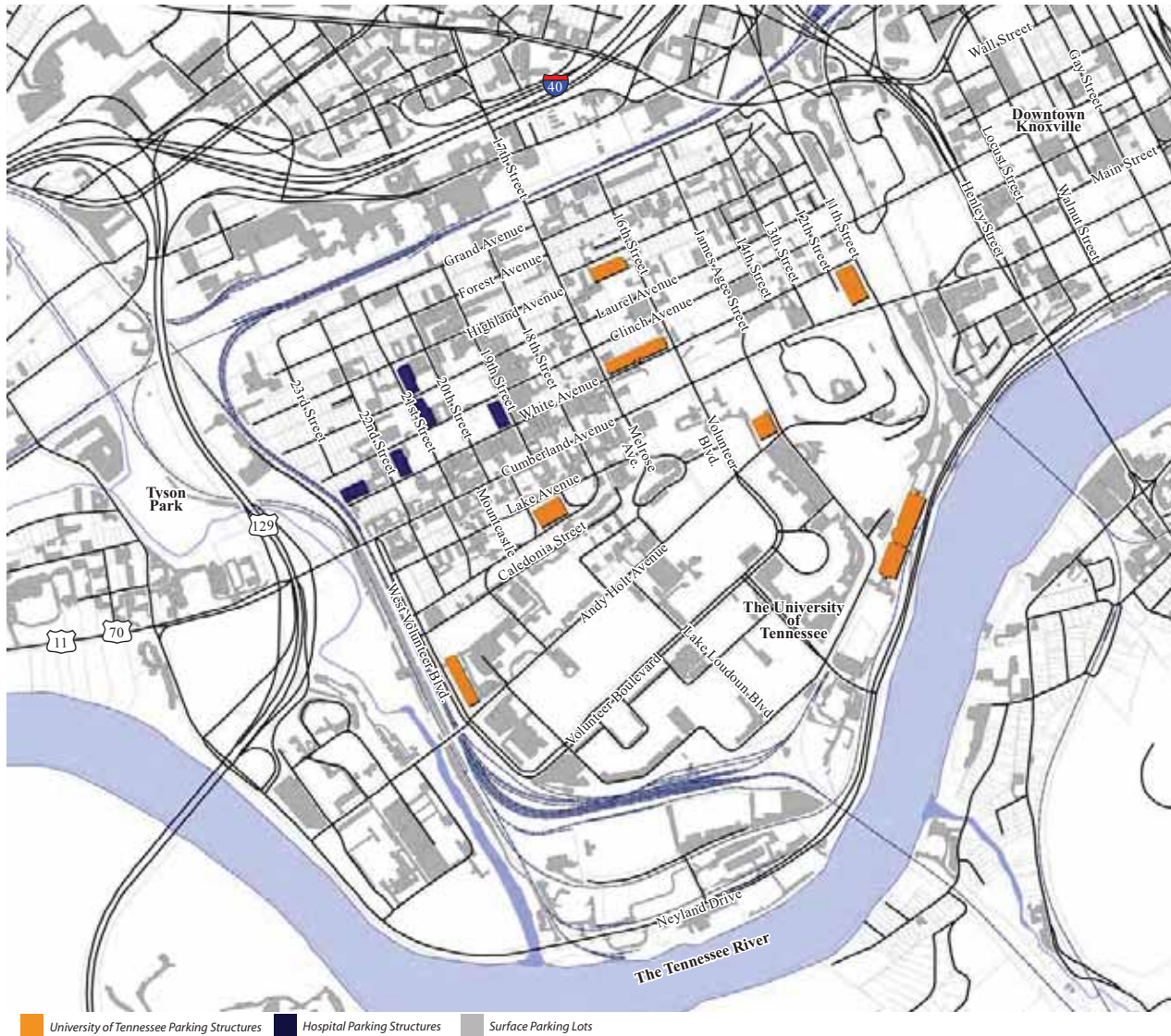
Fort Sanders Neighborhood

- Small-scale built form/buildings
- Built within historic block pattern
- Increasingly encroached upon by University and hospitals
- Transitioning from historic single-family homes to multi-family student housing

Cumberland Avenue Strip

- Small-scale, single-story commercial strip pattern of buildings
- Built within historic block pattern
- Inconsistent building-to-street relationship creates a “missing tooth” pattern along Cumberland Avenue

Context Analysis

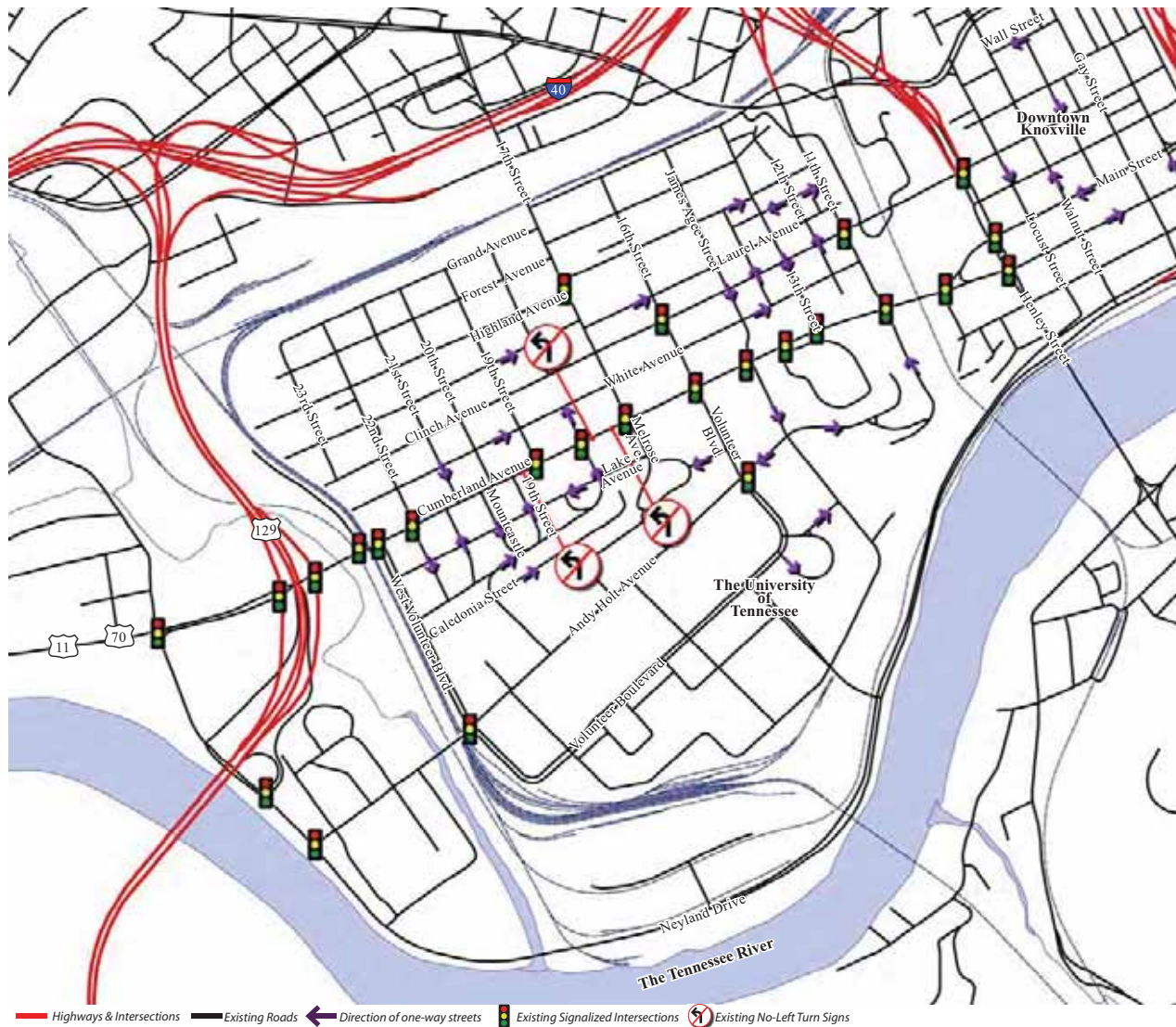


Parking

Parking is a major issue for all the stakeholders along the Cumberland Avenue strip. This diagram highlights the pattern of surface parking lots and structures in the area. Key issues include:

- The University's parking approach has been to locate new parking structures on the "edges" of the campus in order to minimize vehicular traffic in the center.
- The hospitals follow a similar strategy but on a smaller geographic scale with their parking decks located in a 3-4 block area, focused on Highland Ave. and 22nd Street for access.
- A significant amount of land along the Cumberland Avenue strip and around the hospitals is taken up in surface parking lots, owned and managed by many different entities.
- There exists a clear potential to work with the hospitals and the University to strategically plan future parking decks to accommodate shared parking that could serve both the strip and the institutions.

Context Analysis

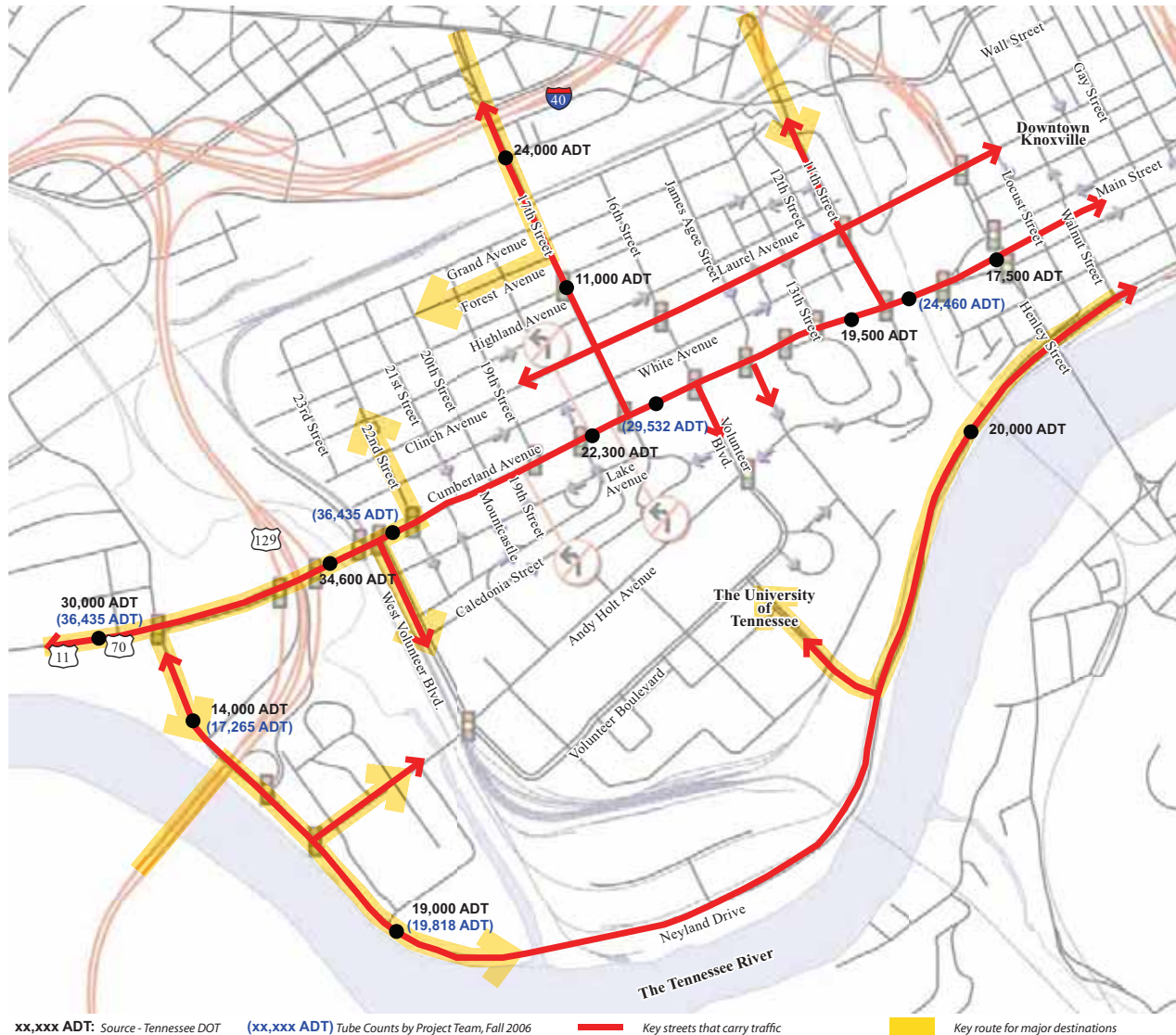


Street Network & Signalized Intersections

The pattern of access and connectivity in the area is a major influence on development and the character of Cumberland Avenue. Key issues include:

- The Tennessee River, railroads and Interstate 40 effectively “box in” the area, limiting connections to surrounding areas. Cumberland Avenue, Neyland Drive, 17th Street, Clinch Avenue and 11th Street are the only streets that connect to outside of the study area.
- The pattern of one-way streets is largely due to the desire to maximize on-street parking, it results in a confusing pattern for visitors and limits the effectiveness of the area’s street network.
- The restricted left turns (17th, 18th, 19th) reflect the lack of a left-turn lane on Cumberland Avenue and add to the area’s confusing way-finding and limit accessibility.

Context Analysis

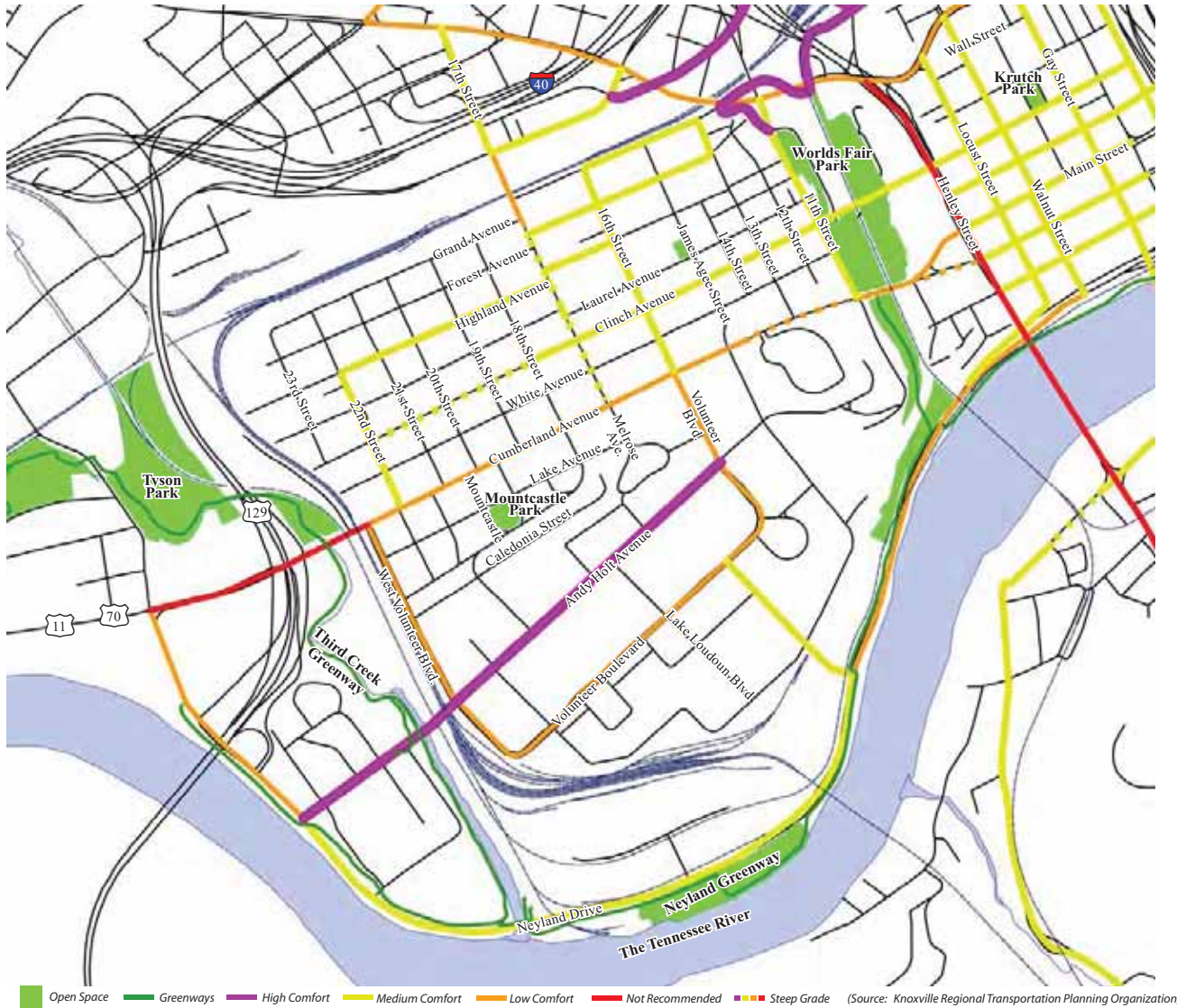


Traffic Volumes

The volume of traffic on key streets reflects how drivers gain access to the destinations of the University and hospitals.

- 17th Street from Interstate 40 decreases in volume, reflecting trips going to the hospitals using Highland Avenue.
- Cumberland Avenue from west of Alcoa Highway decreases in volume reflecting the use of Neyland Drive and West Volunteer as access to the University, and 22nd Street as access to the hospitals.
- The University's parking and transportation strategy will continue to reinforce this pattern with an emphasis on Neyland Drive, major entrances at West Volunteer, and future emphasis on the James Agee Street entrance as the major eastern point of access.
- This volume pattern offers a clue to where critical access routes are and where flexibility exists on Cumberland Avenue to explore lane alternatives (between West Volunteer and 16th Street).

Context Analysis



Open Space & Bicycling Comfort Levels

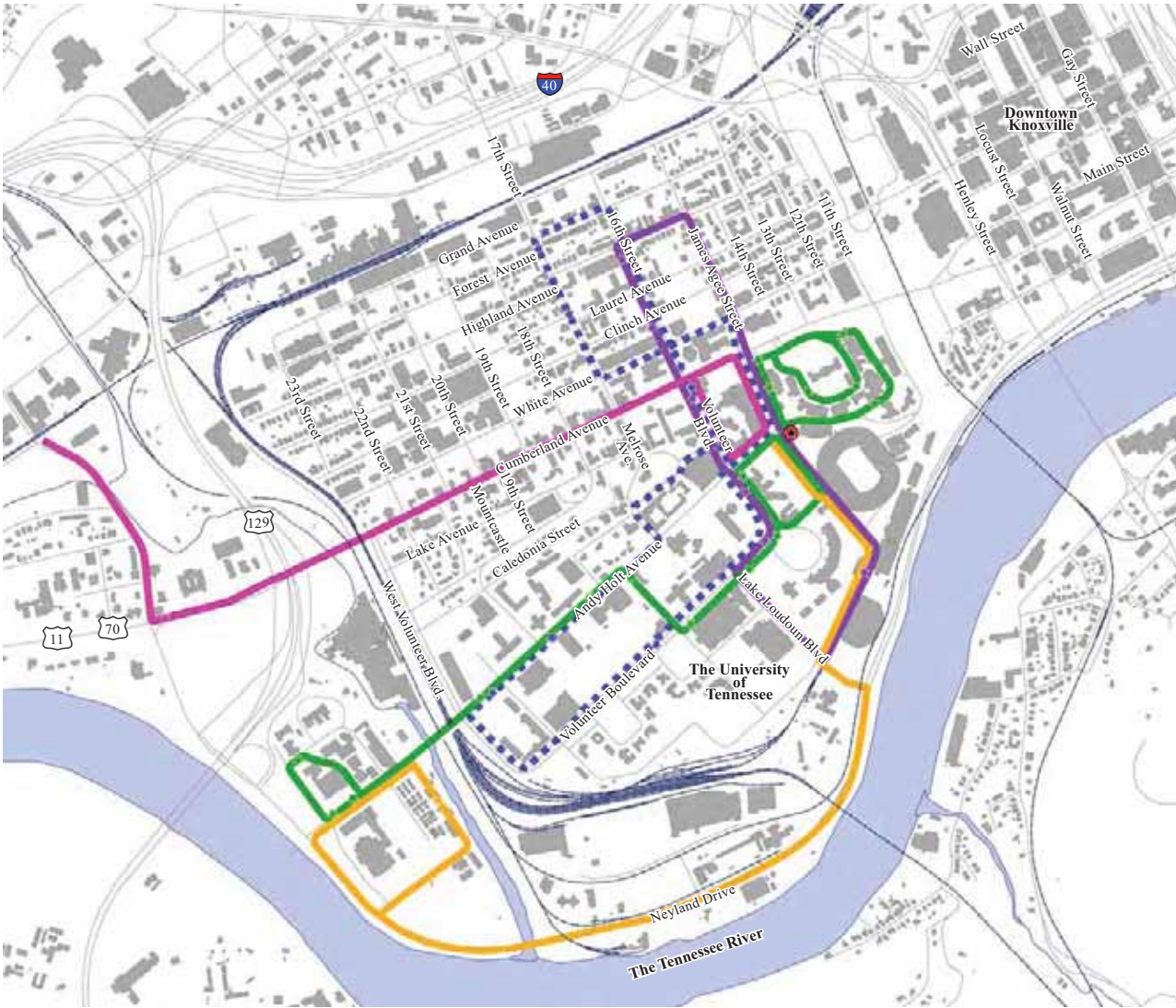
The area is bordered by significant open spaces and greenways, but is limited in its ability to connect these resources to Cumberland Avenue.

- Tyson Park and the Third Creek Greenway run along the western edge of the study area but are disconnected from the Cumberland Avenue strip by the railroad overpass that limits space for sidewalks or bike lanes on Cumberland Avenue. The existing sidewalk is narrow and in disrepair.
- Cumberland Avenue is an important link in the area's bicycle system yet it is designated as a "low comfort" street due to the traffic conditions and lack of bicycle accommodations on the street.

Transit

The Cumberland Avenue corridor is well served by Knoxville Area Transit (KAT), encompassing three distinct services: the T (funded by the University of Tennessee), the Trolley (connecting to downtown), and KAT's fixed routes.

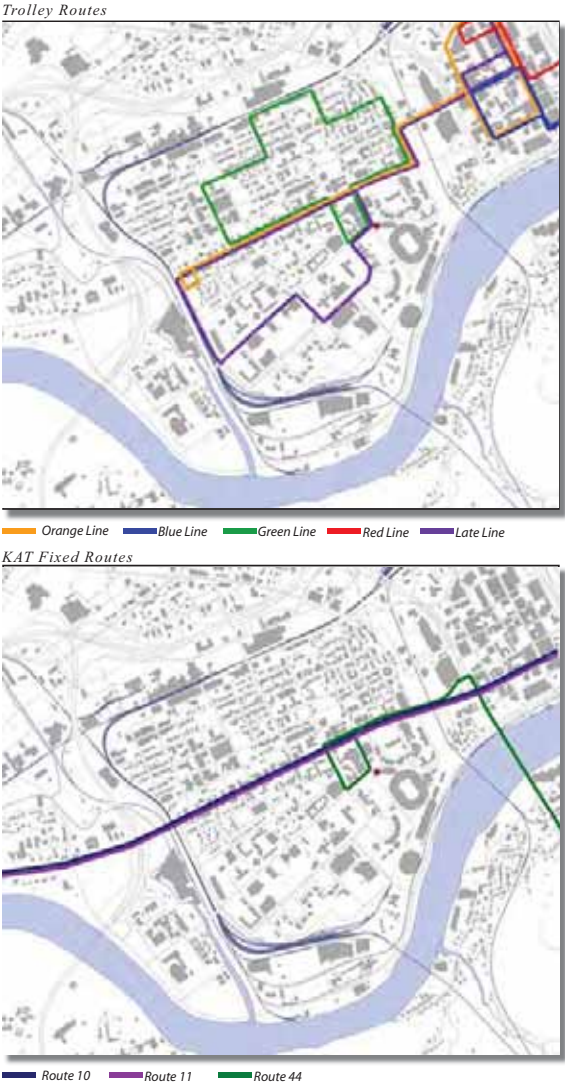
Context Analysis



T-Routes: East-West Route North-South Route The T The T: Late Night Ag Express Route (Source: University of Tennessee Transportation System, July 2006)

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CUMBERLAND AVENUE CORRIDOR PLAN
Knoxville, Tennessee

Transit Routes

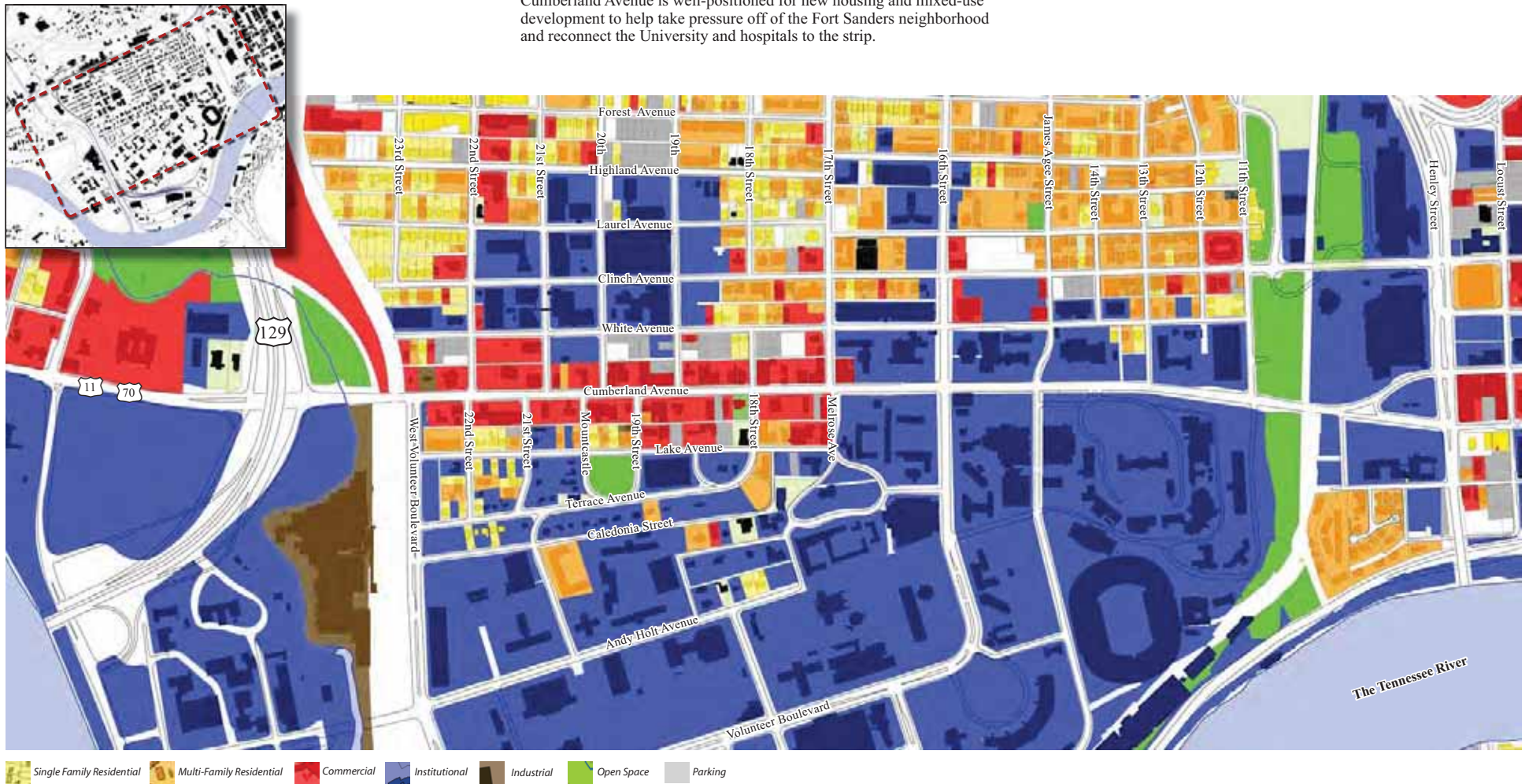


Context Analysis

Existing Land Use

The pattern of existing land use reflects influence of the University and hospitals on the surrounding area. The Cumberland Avenue strip sits clearly in the middle of an expanding pattern of institutional uses and a densifying historic neighborhood.

Cumberland Avenue is well-positioned for new housing and mixed-use development to help take pressure off of the Fort Sanders neighborhood and reconnect the University and hospitals to the strip.

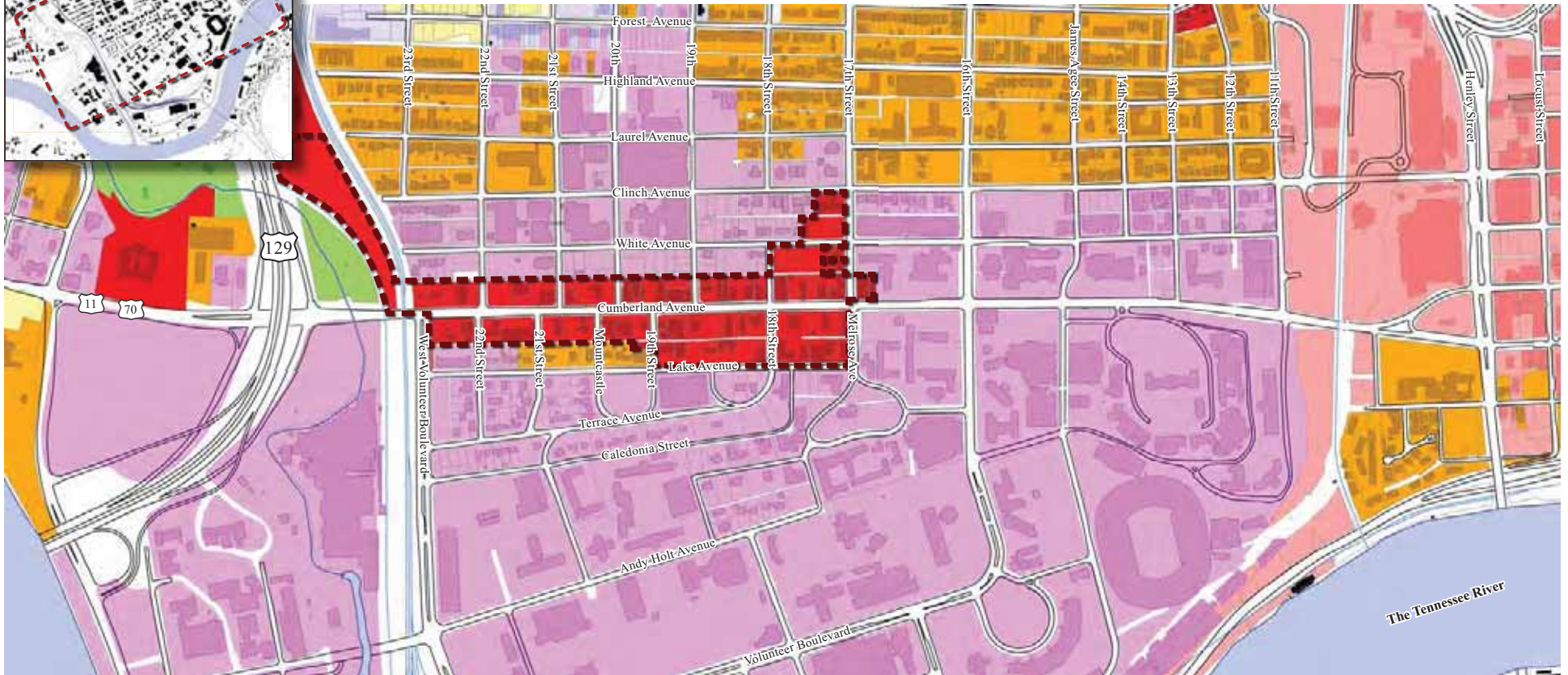


Context Analysis

Existing Zoning

The zoning pattern further reflects and codifies the important role the University and hospitals play in the land use of the area.

A critical issue is the boundary of the commercial (C-7) district that encompasses the Cumberland Avenue strip. The current boundary along the alleys does not recognize either the importance and value of regulating the form and use of the full blocks, or the long-term likelihood that development along Cumberland will get larger in scale and begin to expand to White and Lake Avenues.

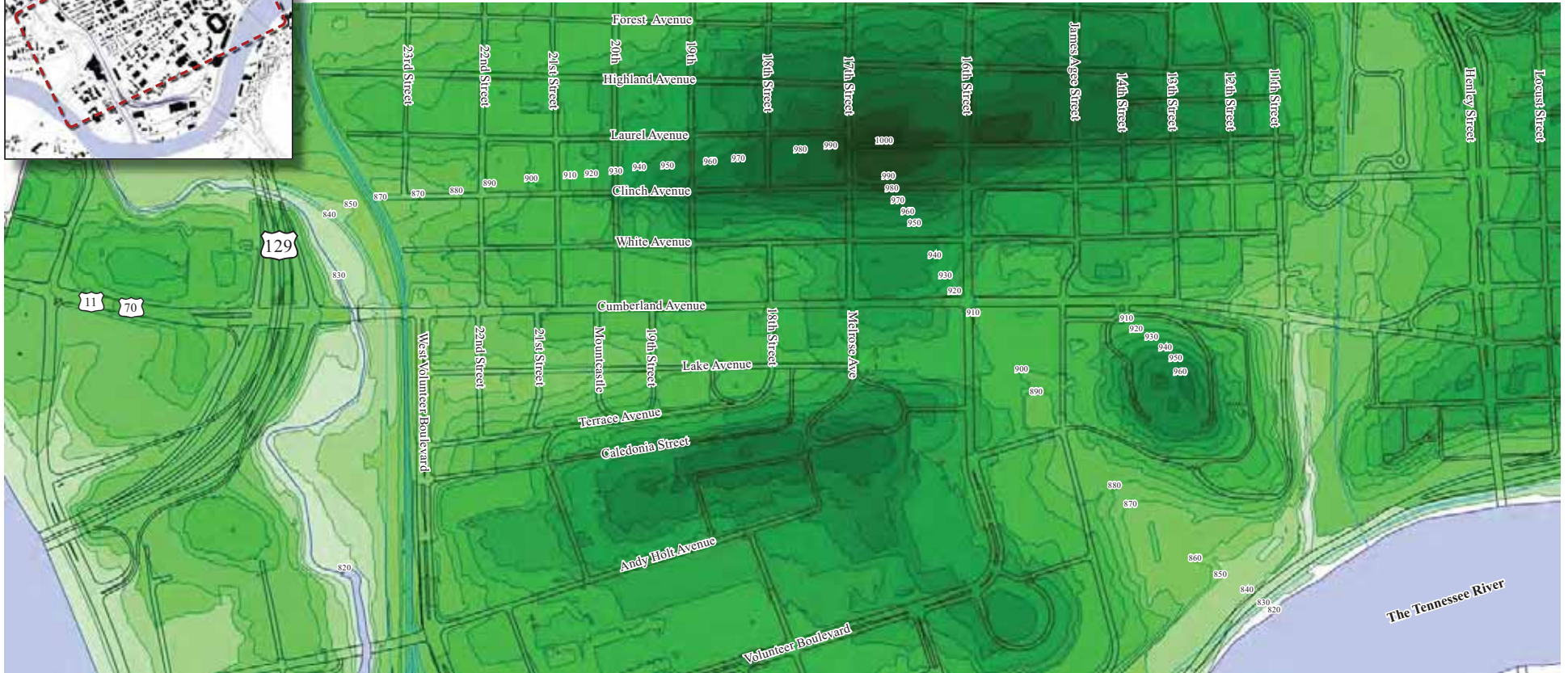


Planned Residential Multifamily Residential Commercial Central Business District Office Light Industrial Open Space C-7 Zoning Boundary (Source: Knoxville-Knox County, Knoxville Utilities Board, Geographic Information System, 08/03/06)

Context Analysis

Topography

The area's topography has been an important factor in its history, including the location of Fort Sanders at the top of what is now 17th Street and the early development of the University of Tennessee on "the hill." This topography influences development today as Cumberland sits on the side of a significant slope, affording the ability to "tuck" development and structured parking into the hill, allowing for more density at potentially less cost and physical height.

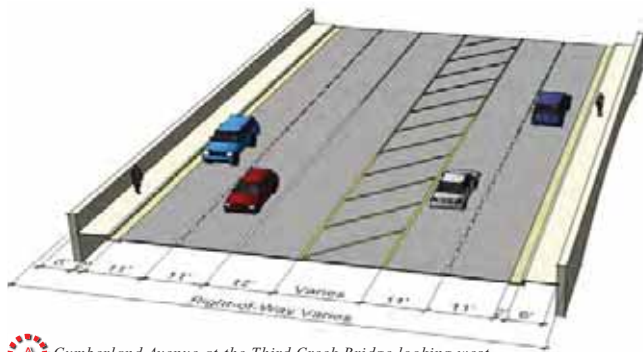


10' Contours

Context Analysis



Key Map



A Cumberland Avenue at the Third Creek Bridge looking west

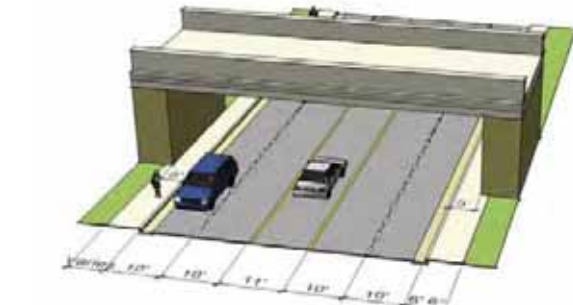
Existing Street Sections: Cumberland Avenue-West of Rail Bridge



Cumberland Avenue at the Third Creek Bridge looking west



Cumberland Avenue at railroad bridge looking east




B Cumberland Avenue at railroad bridge looking east

Context Analysis




Key Map



 Cumberland Avenue at 21st Street looking west



 Cumberland Avenue at 19th Street looking to the east

Existing Street Sections: Cumberland Avenue-22nd Street to 17th Street



60'-0" setbacks along Cumberland Avenue at 21st Street looking west



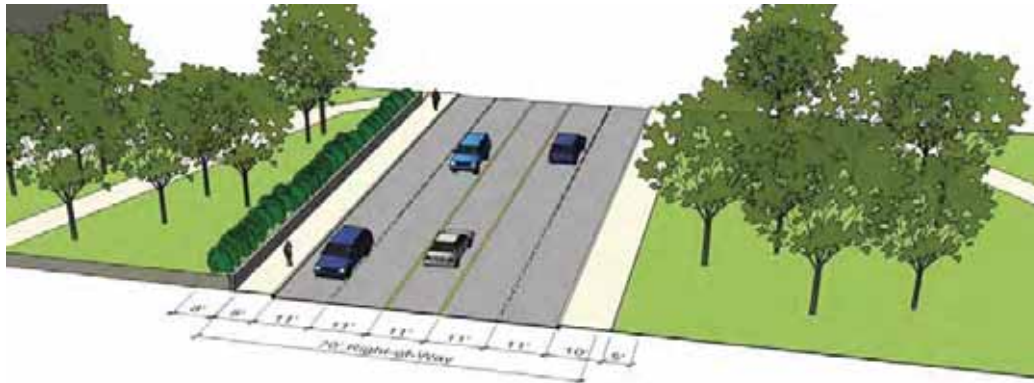
Sidewalk condition along Cumberland Avenue looking east

Context Analysis



Key Map

Existing Street Section: Cumberland Avenue-East of 17th Street



Cumberland Avenue at 16th Street looking west



Approach to 16th Street on Cumberland Avenue looking west

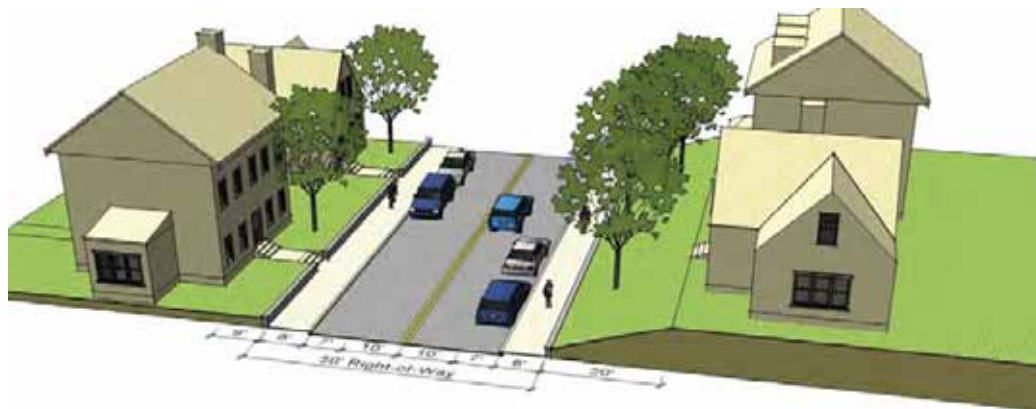


Context Analysis



Key Map

Existing Street Section: Clinch Avenue



 Clinch Avenue at 12th Street

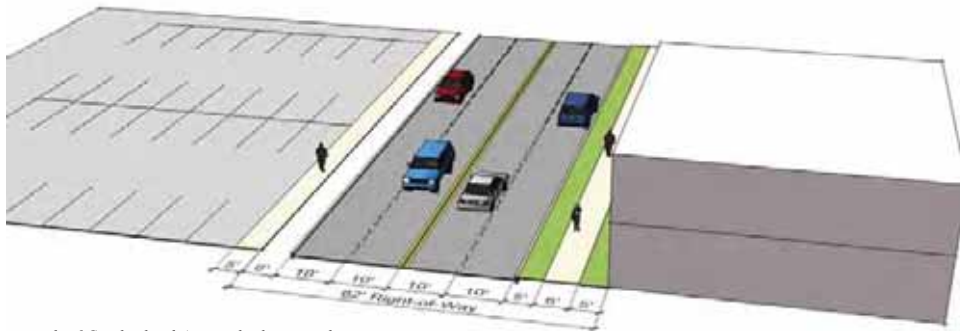


Residential section along Clinch Avenue

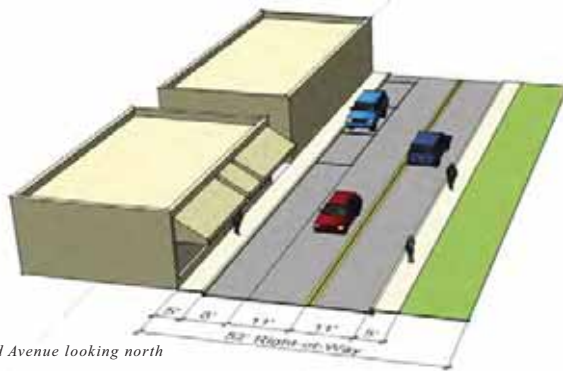
Context Analysis



Key Map



 17th Street north of Cumberland Avenue looking north



 Melrose Avenue south of Cumberland Avenue looking north

Existing Street Sections: 17th Street



17th Street north of Cumberland Avenue

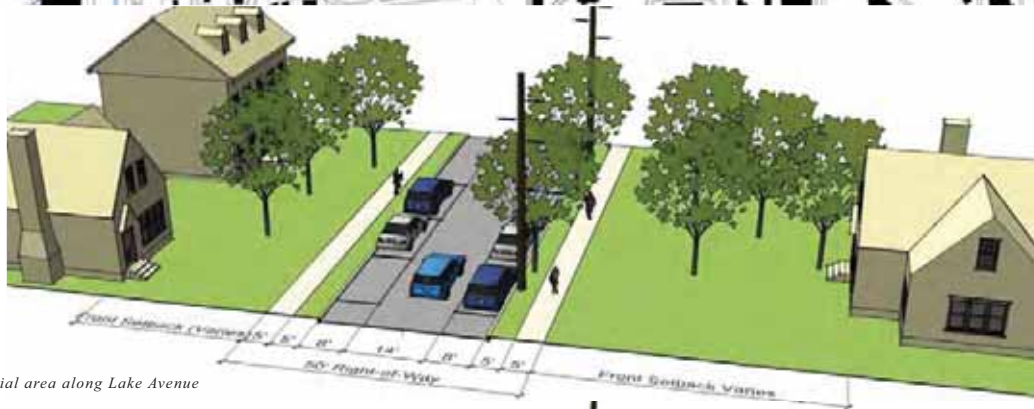


Melrose Avenue south of Cumberland Avenue

Context Analysis



Key Map



Residential area along Lake Avenue



Commercial area along Lake Avenue

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Knoxville, Tennessee

Existing Street Sections: Lake Avenue and White Avenue



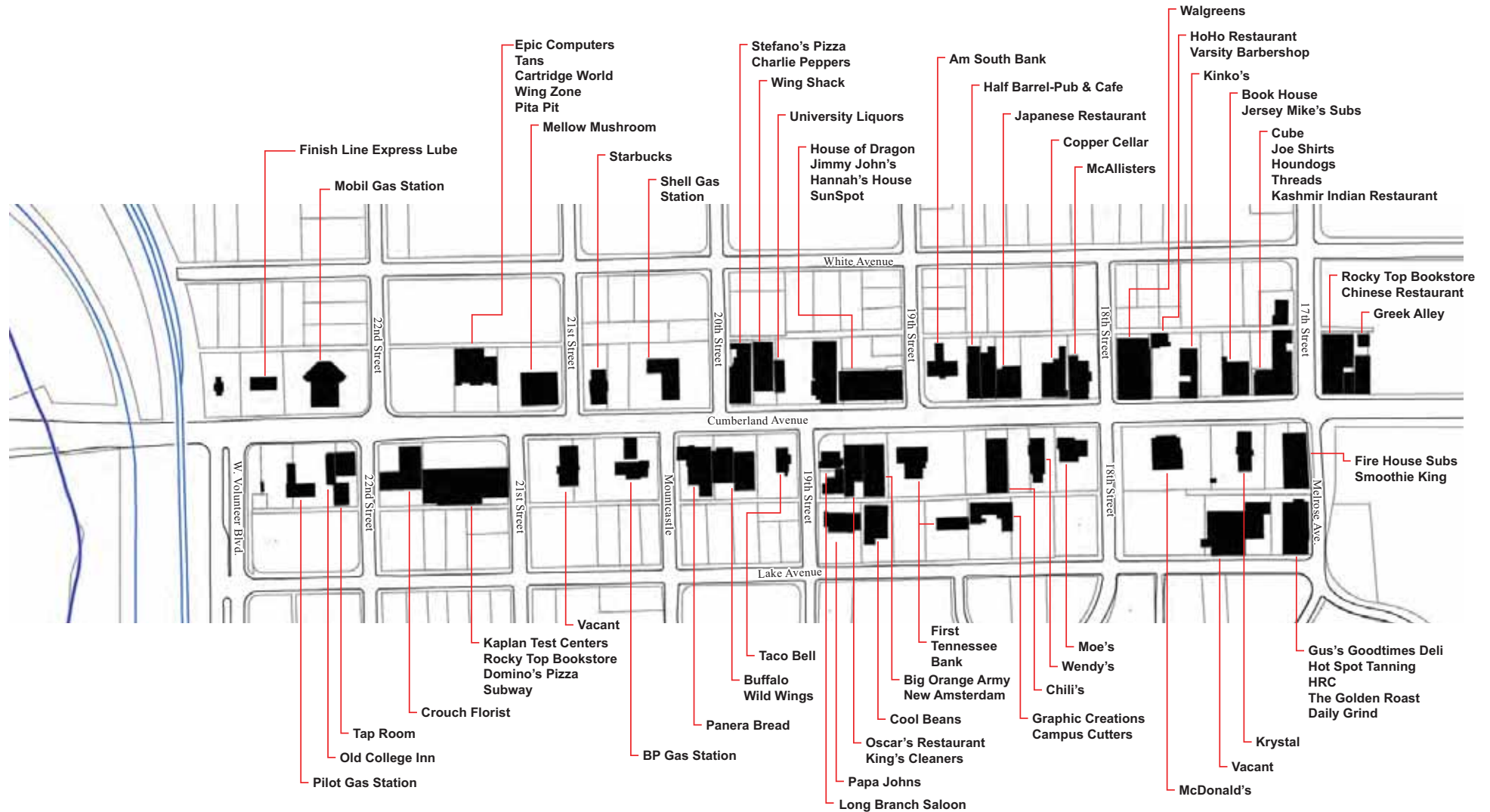
Typical on-street parking along Lake Avenue



Sidewalk condition along Lake Avenue east of 19th Street

Context Analysis

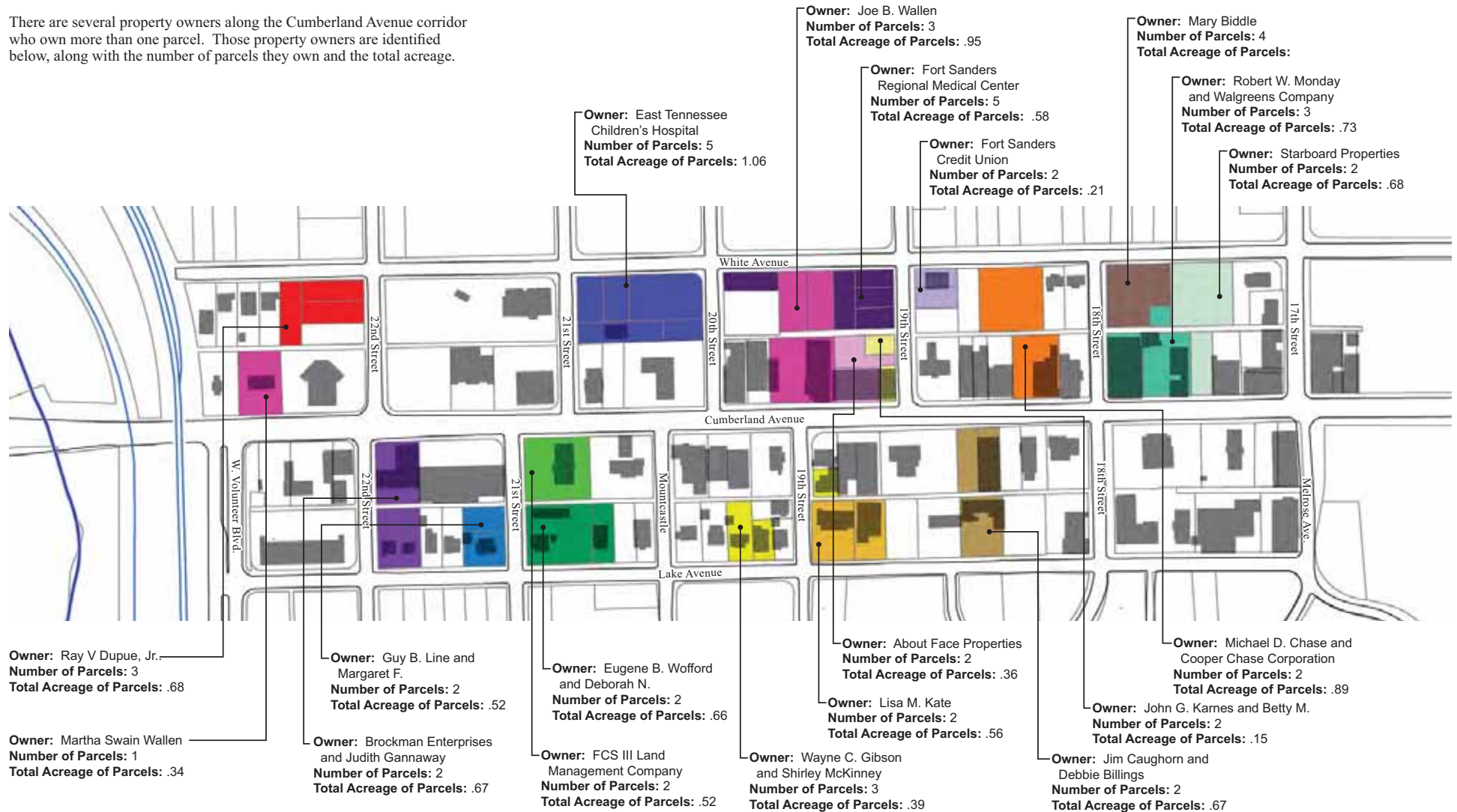
Commercial Business



Context Analysis

Major Property Owners

There are several property owners along the Cumberland Avenue corridor who own more than one parcel. Those property owners are identified below, along with the number of parcels they own and the total acreage.



Context Analysis

Cumberland Avenue Block Data

An analysis of the existing block data reveals the existing condition of parking along the Cumberland Avenue corridor. Public parking in the corridor is limited, there is no shared parking and private parking areas are tightly controlled. The lack of shared parking in the area can be seen during business hours when all available public parking spaces are full while a significant amount of private parking areas are available.

While the area has a typical suburban parking ratio of almost 4 parking spaces per 1,000 square feet of commercial this parking is not open to all visitors in the corridor and much of it is being used by university commuters and hospital staff and visitors.



	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
Block Size	410 X 300	390 X 300	285 X 305	300 X 390	395 X 305	405 X 305	250 X 290	295 X 290	295 X 290	270 X 290	630 X 290	430 X 290	
Building Square Footage	17,076	25,343	10,078	32,542	30,131	40,333	20,277	29,721	26,833	27,479	52,950	48,230	360,992
Parking Count	32	76	114	224	143	171	92	88	86	25	204	119	1,374
# of Spaces Per 1,000 S.F.	1.87	3.00	11.31	6.88	4.75	4.24	4.54	2.96	3.20	0.91	3.85	2.47	3.81



3.0 Issues & Challenges

Issues and challenges were identified through stakeholder interviews, an advisory committee, public meetings, and consultants' analysis. The processes used to gather information included: one-on-one and group interviews, and public brainstorming and table sessions.



Signage along Cumberland Avenue



Traffic Operations

- Difficult to make left turns into driveways and streets
- Restricted left turns
- Unpredictable traffic patterns (avoiding inside lanes because of left turns)
- One-way streets confusing to visitors
- Major destinations needing to be served (University and the hospitals)



Safety

- Lack of left turn lane contributes to crashes (rear-ends)
- High volume of pedestrians crossing street
- Emergency vehicles impeded by inability to pass in congested 4-lane condition
- Sidewalks too narrow for volume of pedestrians
- Difficult to get to Third Creek Greenway from Cumberland (under railroad bridge)
- Lack of space on street to share with bicyclists

Pedestrian, bicycle and vehicular safety along Cumberland Avenue is an issue



Delivery trucks block one lane of traffic along Cumberland Avenue since the alley conditions are not ideal for service



Service & Deliveries

- Alleys too small for large delivery trucks
- Delivery trucks stop in travel lanes on Cumberland and on sidewalks, stopping traffic or blocking pedestrians
- Lack of consistent policy (delivery times & zones)

Issues & Challenges



Potential to continue to build on proximity of institutional uses



Cumberland Avenue's transit options



A mix of development conditions line Cumberland Avenue

Hospitals & University

- Hospitals & University continue to grow
- Desire to create a safe pedestrian environment
- Cut-through traffic speeds through hospital campus
- Students parking in hospital decks
- Safety & security for visitors
- Events (football games) obstruct hospital traffic
- Cumberland Avenue is the “first impression” for visitors

Transit

- Transit stops are not well defined, creating unpredictable pick-up/drop-off traffic pattern
- Improved transit amenities (signs, etc.) get vandalized or stolen
- Good transit service but stops and waiting facilities need to be removed
- Need to consolidate stops to keep traffic flowing smoothly

Development Standards

- Fast food and other drive-throughs inconsistent with desired pedestrian environment
- Desire for more density
- Desire for more mixed-use
- Lack of neighborhood serving businesses
- Current zoning/standards are out-dated and strip-commercial based
- Inconsistent approach to building and parking placement

Issues & Challenges



Landmarks

- Businesses that are part of the history of the strip
- Rocky Top Books, Copper Cellar, Old College Inn, Longbranch Saloon, etc.
- Can they be protected and enhanced?
- Are they compatible with future development?

There are several landmarks located along Cumberland Avenue



Parking

- Lack of public parking deters visitors
- Negative first impression (highly parcelized and regulated)
- No enforcement of on-street parking (old meters, little enforcement)
- Aggressive/Predatory towing (towing with little or no warning)
- No on-street parking on Cumberland Avenue

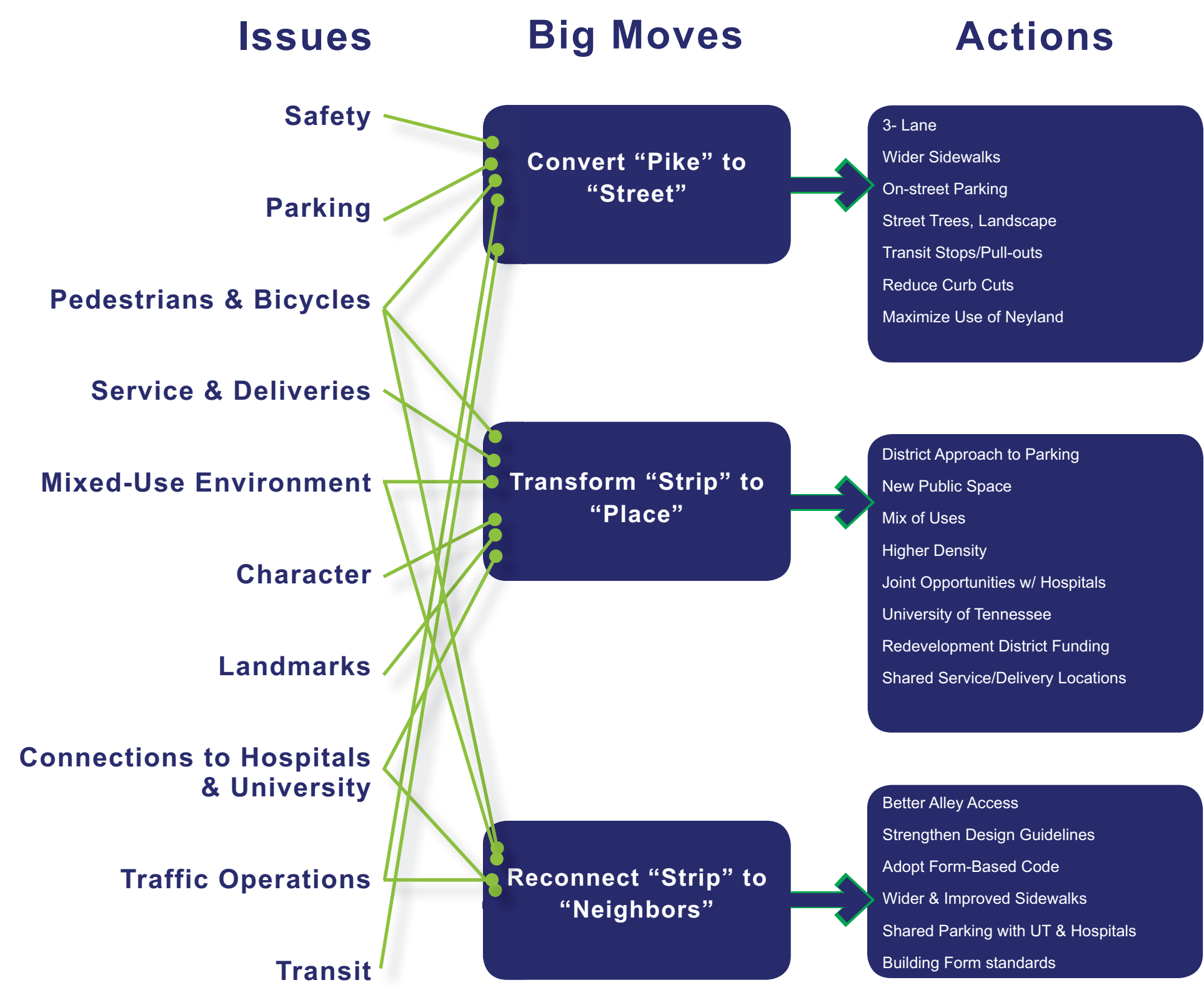


Parking is a concern for the area

View of Cumberland Avenue looking toward Downtown Knoxville

Character

- Cumberland Avenue is seen as “back door”; many businesses orient toward the alleys
- No consistent design of public or private investment
- A motor vehicle-oriented environment viewed as unsafe by both pedestrians and drivers
- Lack of “green” landscape, street trees, etc.



Vision Statement

The "Issues-Big Moves-Actions" diagram illustrates a structure that synthesizes the wide range of Issues facing the corridor into a set of Big Moves and Actions or recommendations to be implemented in the plan. The Issues and Actions are reflective of comments received through the Advisory Committee and public input sessions. The Big Moves are a set of common goals put forth that tie the Issues and Actions together.

The vision statement is a summation of the "Issues-Big Moves-Actions" diagram that describes the corridor's envisioned character and qualities. The vision statement was presented and discussed during the December 5th, 2006 public kick-off presentation and forms the foundation of the Cumberland Avenue Corridor Plan.

Vision Statement:
Cumberland Avenue will be a uniquely attractive and vibrant area that turns a "pike to a street," a "strip to a place," and reconnects to its neighbors.

The Cumberland Avenue Corridor will:

- Be pedestrian-friendly & bicycle-friendly
- Have a range of unique local shops, eateries and public spaces, and a full spectrum of housing options
- Move vehicles safely & effectively without giving up the quality of the pedestrian environment
- Have ample parking, in shared lots and in structures that serve the district
- Be green, clean, uncluttered and inviting
- Be well-connected to its historic and emerging neighborhoods, University, hospitals and Knoxville's downtown
- Have its own special identity



4.0 The Street



View along Cumberland Avenue

Cumberland Avenue Today

It is clear that traffic conditions on Cumberland Avenue are far from ideal. The existing four-lane cross-section coupled with significant pedestrian activity, drive-through businesses, transit service and commercial deliveries, creates an inherently unsafe and hostile environment for pedestrians. The key traffic characteristics along Cumberland Avenue include:

- Delay as through vehicles are trapped behind a vehicle stopped in the left lane waiting to make a left turn.
- Delay caused by traffic flow friction due to lane changing, as drivers seek to avoid being trapped behind left-turning or stopped vehicles.
- Uneven loading of the two lanes in each direction. In some instances, the outer lane is noticeably under-utilized, most likely due to drivers wishing to avoid the close confines of the curb, sidewalk and pedestrians. At other times, the inner lane is noticeably under-utilized, most likely due to drivers avoiding the possibility of being trapped by left-turning vehicles.
- Commercial delivery vehicles stopping in the outer lane of traffic. This not only blocks traffic in the outer lane, but greatly interferes with the flow of the inner lane, as drivers attempt to change lanes to pass the stopped vehicle.
- Transit vehicles stopped in the outer lane, with the same effect on traffic as noted for commercial delivery vehicles (above).

- Turning movements (both right and left turns) into and out of the numerous driveways, particularly those serving drive throughs at restaurants and banks.
- The frayed and disorderly appearance of the commercial segment of Cumberland Avenue, which reinforces the driver's perception that "something is wrong" with the operation of the street.

Road Diet Concept

What can be done? Even before this study began, discussions of Cumberland Avenue's future have included the three-lane concept, or "road diet." The term "road diet" applies to the practice of reducing the number of lanes on a road, typically converting four-lane roads (two lanes in each direction without room for left-turn lanes) into three-lane roads (one lane in each direction with a center lane dedicated to left turns). This is an emerging practice around the country with a growing list of successful conversions (a number of case studies of three-lane conversions are provided in an appendix to this report and available through the MPC).

Why does this work? The significant drawback to four-lane roads is the lack of an exclusive center left-turn lane. The result is that the middle two lanes serve as de facto left-turn lanes, stopping traffic in that lane when a left turn is being attempted. This situation not only reduces the capacity of the road but is unsafe as the opposing left-turning vehicles limit visibility to oncoming traffic and pedestrians. The three-lane configuration resolves this left by creating a dedicated center left-turn lane which pulls the left-turning vehicles out of the flow of traffic and creates safer sight lines for the turning movement.

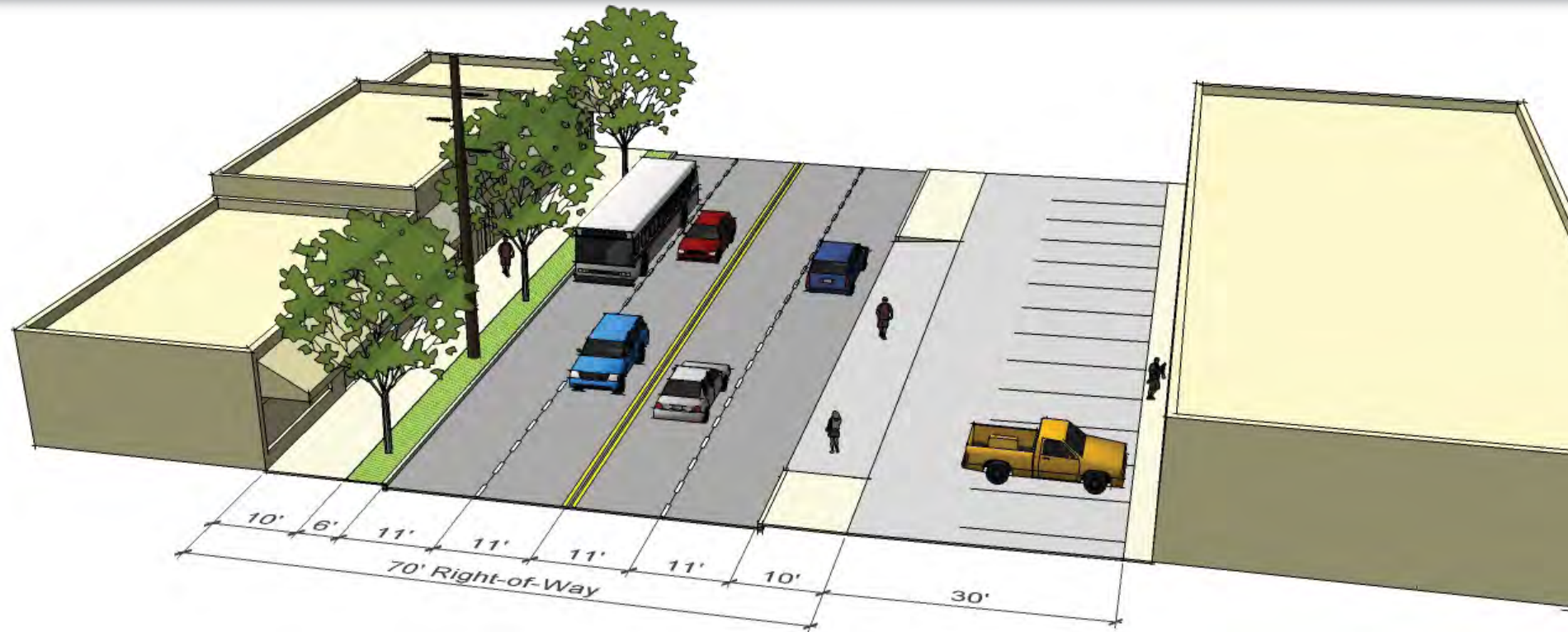
Other results will include slowing traffic down as the one through lane in each direction will not allow for faster cars to pass or change lanes. This reduction in speed will reduce the number and severity of accidents and support a more pedestrian-oriented environment.



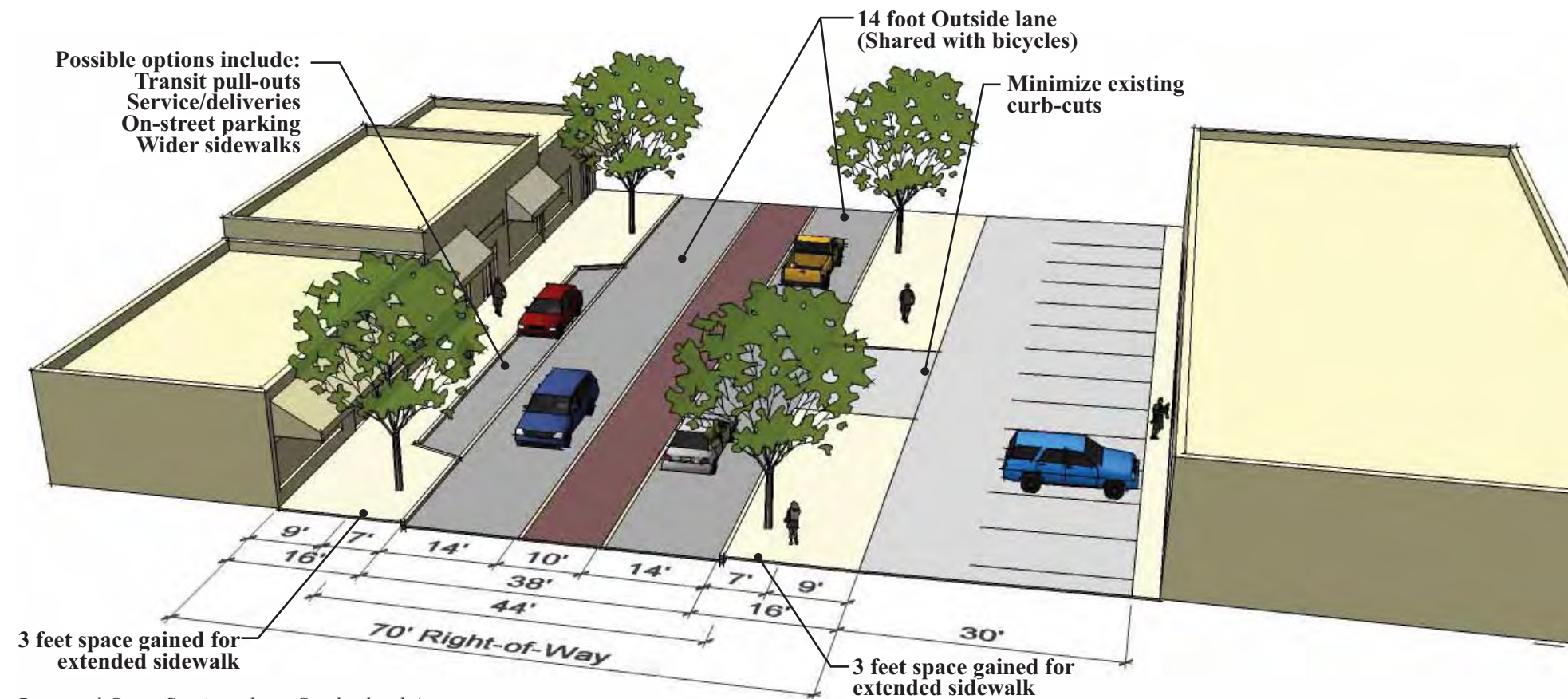
Limited sight lines on a four-lane road



Improved sight lines and visibility on a three-lane road



Existing Cross Section along Cumberland Avenue



Proposed Cross Section along Cumberland Avenue

Cumberland Avenue: Existing & Proposed

Based on public and stakeholder input, there is broad support for the “three-lane” concept on Cumberland Avenue. Yet, the application of a three-lane configuration on Cumberland Avenue will need to balance a number of desires:

- Wider and more attractive sidewalks with consistent design, street trees, pedestrian lighting & street furniture;
- Transit stops in pull-outs that get stopped buses out of the travel lane;
- Bicycle travel in either exclusive lanes or shared travel lanes;
- Potential on-street parking and/or service & delivery areas;
- Accommodation of left turns into existing businesses and driveways;
- Accommodation of emergency vehicles.

The proposed prototypical section illustrates the combination of these features into a new cross section for Cumberland Avenue. The main features include:

- The reconfiguration of the four travel lanes into three (one travel lane in each direction and a continuous center turn lane). The continuous left-turn lane accommodates left turns at all street intersections and existing driveways. As redevelopment occurs, mid-block driveways should be eliminated, minimized, and/or reduced in width.
- The accommodation of emergency vehicles in the center lane to bypass traffic.
- The accommodation of bicycle travel through the use of 14-foot travel lanes that serve as bicycle-friendly, shared lanes. By not including fully striped bike lanes more space is gained in additional sidewalk width.
- The addition of six feet of gained sidewalk space (three feet on each side) to create wider sidewalks and accommodate street trees.
- The adaptability within the sidewalk space to include a seven-foot bay that can be used for transit pull-outs, on-street parking or special service and delivery zones. These bays would be located strategically and where appropriate for their use.
- The center turn lane can be designed with a variety of potential treatments. These treatments range from striped asphalt to textured materials such as pavers or stamped concrete.



Cumberland Avenue: Proposed

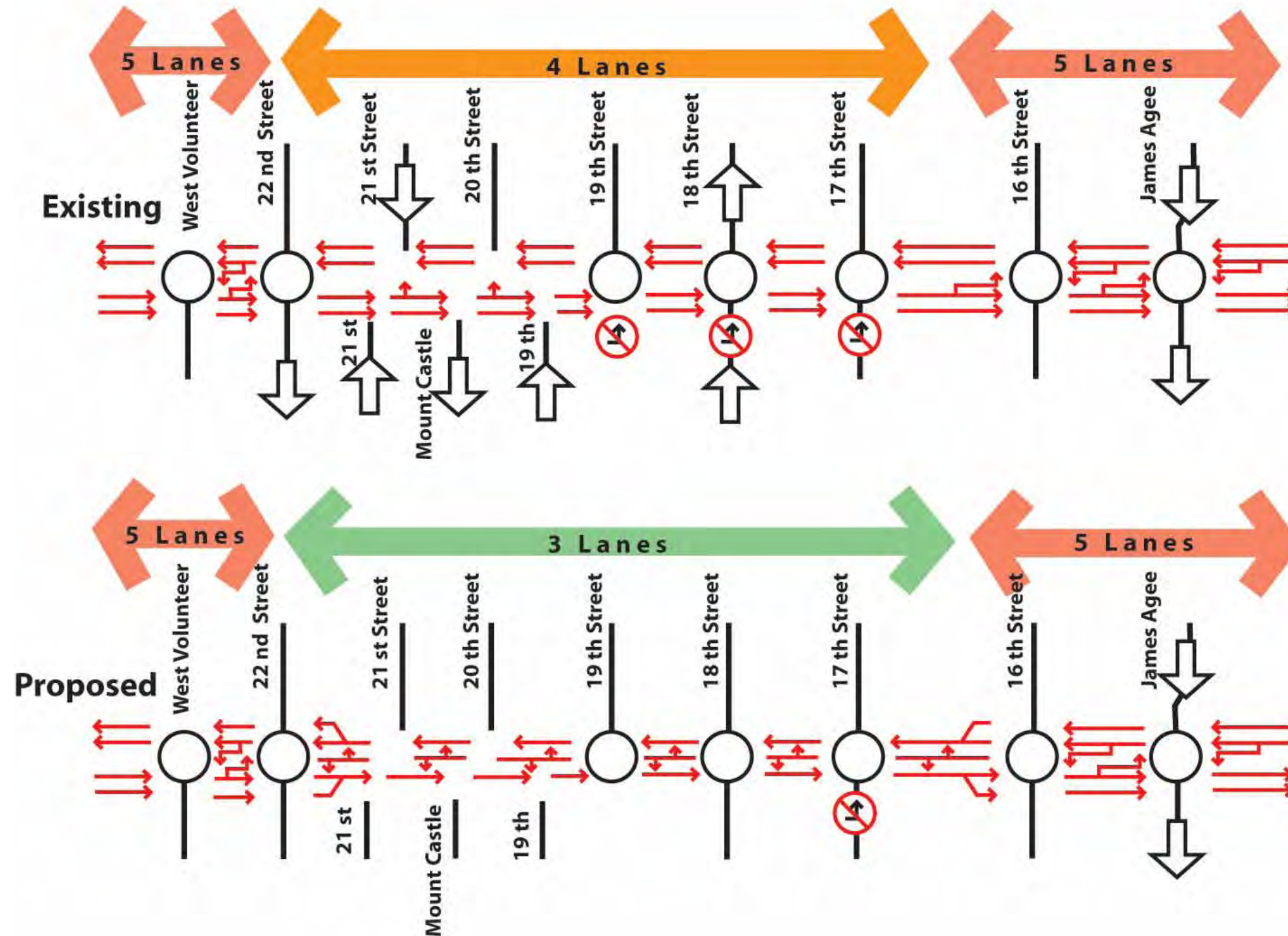
Cumberland Avenue: Existing & Proposed

This illustration conveys the visual impact of the reconfiguration of Cumberland Avenue, including wider sidewalks, street trees, enhanced crosswalks and a center turn lane. The reduced visual width of the road dramatically changes the perception of Cumberland Avenue from a commercial highway to a mixed-use street.

The center turn lane and crosswalks can be designed with a variety of potential treatments. These treatments range from striped asphalt to textured materials such as pavers or stamped concrete. The final details of the streetscape should be determined in the next phase of design and evaluated with further stakeholder comment and review.



Cumberland Avenue: Existing



Traffic Analysis

For the purposes of testing the traffic impact of converting Cumberland Avenue to three-lanes, a traffic simulation model was constructed (using Synchro software). Traffic counts at signalized intersections were collected in the fall of 2006 and used to create a model of the existing four-lane condition that could be compared to potential three-lane alternatives.

Proposed Configuration

Several configurations were initially evaluated, leading to a proposed configuration that was analyzed and compared to the existing four-lane condition. Key features of the proposed configuration include:

- The transition from five lanes to three lanes located between 22nd Street and 21st Street at the western end of the study area, and between 16th Street and 17th Street at the eastern end.
- These transitions leave unchanged the Cumberland Avenue intersections at West Volunteer, 22nd Street and 16th Street, recognizing the importance of these intersections in providing access to the hospital campuses and to the University.
- All turning movement restrictions eliminated, with the exception of the eastbound left turn at 17th Street. The sight distance for this left turn (i.e., the ability to see a westbound vehicle on Cumberland Avenue) is adequate for a permissive left turn (i.e., turn without a protected signal phase). However, this adequacy is not at all apparent to drivers who would be waiting to make a left turn on Cumberland Avenue eastbound, and the experience of making the left turn at a permissive signal would be unnerving for many drivers. The remedy of providing a protected left-turn phase was considered but discarded because of the delay to through vehicles on Cumberland Avenue, the ability to make eastbound left turns at numerous other places, and the desire to diffuse eastbound left turns to a number of locations, rather than concentrating them all at 17th Street.
- Wherever possible, converting the cross street one-way configuration (at 22nd, 21st, Mountcastle, 19th and 18th) to two-way and limiting the street configuration to a single approach lane (accommodating left, through and right-turn movements in that single lane) and thereby maximizing the on-street parking for side streets and minimizing the side-street crosswalk length. This single "LTR" lane is incorporated at 22nd Street northbound, 18th Street northbound and 18th Street southbound.
- Reconfiguration of northbound 17th Street, south of Cumberland Avenue, to include a permissive left turn in addition to a combined through and right.

Table 1: Seconds of Delay and Level of Service (LOS)

	Existing 4 - Lane			Proposed Configuration		
	Cumberland Ave. Sec- onds of Delay		Intersection LOS	Cumberland Ave. Sec- onds of Delay		Intersection LOS
	EB	WB		EB	WB	
W Volunteer Blvd.	13.1	10.4	B	6.2	7.4	B
22nd St.	10.6	22.6	B	2.9	7.0	B
19th St.	13.6	2.0	B	11.8	11.5	B
18th St.	4.7	2.7	A	4.6	10.3	B
17th St.	4.0	9.6	C	22.9	34.8	D
16th St./E Volunteer	18.1	17.9	C	18.1	23.6	C
15th St. /James Agee	2.3	2.9	A	2.6	5.0	A
Total	66.4	68.1		69.1	99.6	

Table 2: Arterial Analysis

	Existing 4-Lane		Proposed Configuration	
	EB	WB	EB	WB
Free Flow Speed	35 mph	35 mph	30 mph	30 mph
Travel Time (seconds):				
Running	110.0	116.5	124.0	132.9
Signal Delay	65.8	72.1	75.2	109.1
Total	175.8	188.0	199.2	242.0
Overall Speed (mph)	15.3	15.0	13.5	11.7

Traffic Performance

The existing four-lane configuration and proposed three-lane configuration are compared for the p.m. peak hour (4:30-5:30) in Table 1, using three evaluation measures:

1. The seconds of delay to traffic on Cumberland Avenue, both east-bound and westbound. This measure of delay most directly defines the performance for through traffic; that is, traffic with neither origin nor destination in our study area. Through traffic performance is important, since a number of stakeholders, including City staff, are concerned that the changes to Cumberland Avenue, no matter how beneficial to the area locally, should not have an adverse impact on traffic through the area.
2. Intersection Level of Service – This measure is correlated to the average seconds of delay for all entering vehicles, not just those on Cumberland Avenue. This is a measure of overall service to all users, local traffic entering/exiting Cumberland Avenue, as well as through traffic with neither origin or destination in the area.
3. Arterial Analysis – This analysis computes the total driving time and speed for travel through the entire seven-intersection study area. The delay component of this analysis correlates very closely with the Cumberland Avenue delay times (measure 1 above), but arterial analysis also adds the useful measure of overall travel time and overall travel speed.

Important Conclusions

- In the peak hour, peak direction (p.m. peak hour westbound), the proposed configuration results in an increment of delay of 31.5 seconds. In the p.m. peak in the minor direction, the delay is 2.7 seconds.
- The increment of delay in the peak hour is greatly outweighed by the ability to make left turns, the relaxation of one-way restrictions, the ability to reclaim part of the street width for uses other than vehicular traffic, and the change in character in the area.
- Traffic level of service at intersections is fully adequate at all of the proposed intersections in the three-lane configuration. At five of the intersections, the overall intersection level of service is unchanged between the existing and the proposed configuration. At these five intersections, the level of service (ranging from LOS “A” to LOS “C”) is acceptable for peak hour service in an urban area. At two of the intersections, the level of service changes by one gradation. At the 18th Street intersection, the proposed configuration results in a change of level of service from LOS “A” to LOS “B.” At the 17th Street intersection, the proposed configuration results in a change of level of service from LOS “C” to LOS “D,” a level of service fully acceptable for an urban arterial street during the peak hour.
- At all intersections under the proposed configuration, the traffic level of service is LOS “D” or better, and therefore more than adequate for an urban arterial such as Cumberland Avenue.
- Overall travel time between James Agee and W. Volunteer in the peak hour will increase by 54.0 seconds westbound and 23.4 seconds east-bound.

Why 30,000 Vehicles can be Carried on a 3-Lane Street

Typical “rule of thumb” guidelines call for widening a street to five lanes as its traffic volume approaches or exceeds 20,000 average daily traffic (ADT). On Cumberland Avenue, by contrast, the existing ADT in the section proposed to be converted is approximately 30,000 (as counted just to the east of 17th Street). How do we reconcile, therefore, the typical guideline of 20,000 ADT with the detailed traffic analysis that shows that the 3-lane section performs well at 30,000 ADT? There are three compelling factors that reconcile these two numbers:

1. **Low Peak Hour to Daily Traffic Ratio** – For the typical arterial street in the greater Knoxville area, the ratio of peak hour traffic to average daily traffic (the “K” factor) is around 8.5 percent (0.085). Within the peak hour, the ratio of peak direction traffic to total peak hour traffic (the “D” factor) is around 55 percent (0.55). For a typical street in Knoxville, with an ADT of 30,000, we would therefore expect a peak hour peak direction flow of 30,000 (0.085 “K” factor) (0.55 “D” factor) = 1,400 hourly vehicles, in the peak direction. However, Cumberland Avenue has only 1,060 vehicles during the peak hour in the peak direction. The actual peak hour of 1,060 vph is 74% of the 1,400 peak hour volume that would be expected, on a 30,000 ADT street under typical Knoxville traffic flow patterns. This unusually low ratio of peak hour to total flow reflects the extended duration of heavy mid-day traffic flows, due to the unique characteristics of the University, hospitals and restaurants. The peak hour peak direction flow of 1,060 vph, under the assumption of typical Knoxville “K” and “D” factors, would amount to an ADT of 22,700, only slightly above the 20,000 ADT guideline.
2. **Low Cross Street Directional Volume** – The typical guideline, for widening to a multi-lane street, of around 20,000 ADT, is based on an assumption that the street in question will intersect with major streets, where traffic signal green time will have to be divided equally between the two streets. Such an equal division of traffic signal green time would diminish the green time available for the street in question. The proposed 3-lane segment of Cumberland Avenue, however, does not intersect with any streets that approach the volume of Cumberland Avenue, thereby requiring a traffic signal green time comparable to Cumberland Avenue. Rather, all of the cross streets in the proposed 3-lane section – 19th Street, 18th Street and 17th Street – are carrying, at most, one-half the traffic of Cumberland Avenue, thereby preserving the great majority of the traffic signal green time for Cumberland Avenue. This factor alone (aside from the peaking factors (above) would raise the “rule of thumb” threshold well above the 20,000 ADT level.

3. **Impact of Continuous Left-Turn Lane** – Typically, the 20,000 ADT guidelines for widening to a multi-lane street is predicated on the base condition being a two-lane street, without turning lanes, or with turning lanes only at major intersections. Without a continuous left-turn lane, the capacity of the street is diminished by left-turning vehicles obstructing the travel lanes at minor intersections and driveways. The typical guidelines for widening, at around 20,000 ADT reflect the constraints on flow due to the absence of the continuous left-turn lane. Provision of a left-turn lane, as called for in the proposed 3-lane configuration of the Cumberland Avenue plan, would in itself call for a reasonable threshold considerably higher than the 20,000 ADT typically cited.

Traffic Diversion & Future Volumes

Another important consideration is the ability of the three-lane configuration to accommodate projected future traffic volumes and the potential diversion of traffic away from Cumberland Avenue. The Metropolitan Planning Commission staff used the Regional Travel Demand Model to test the impact of the three-lane concept relative to potential traffic diversion and project future (2020) traffic volumes. This analysis reflects anticipated impacts including a decrease in volume on Cumberland Avenue with an associated increase in volume on Neyland Drive (which should be noted is consistent with the University’s long-term transportation plan). Key results include:

- A 5-10% decrease in current volume on Cumberland Avenue in the study area with the three-lane configuration
- A 7-10% increase in current volume on Neyland Drive
- Slight increases in current volume on Highland Avenue, 17th Street, and 16th Street
- Projected volume increase by 2020 of 8-11% on Cumberland Avenue
- An overall volume change/diversion pattern in 2020 that decreases on Cumberland Avenue and increases on Neyland Drive, Forest Avenue, and Clinch (between 16th & 17th Street)

Streetscape Concept Plan

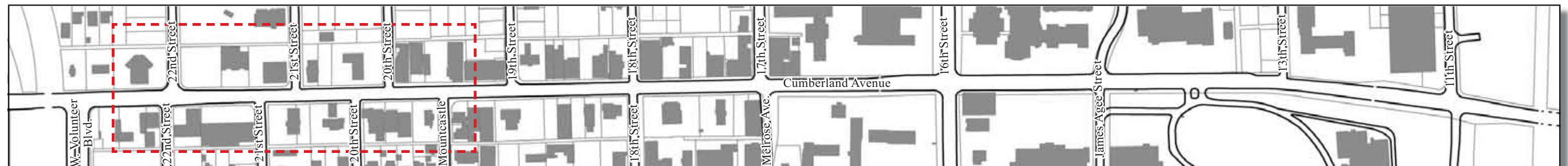
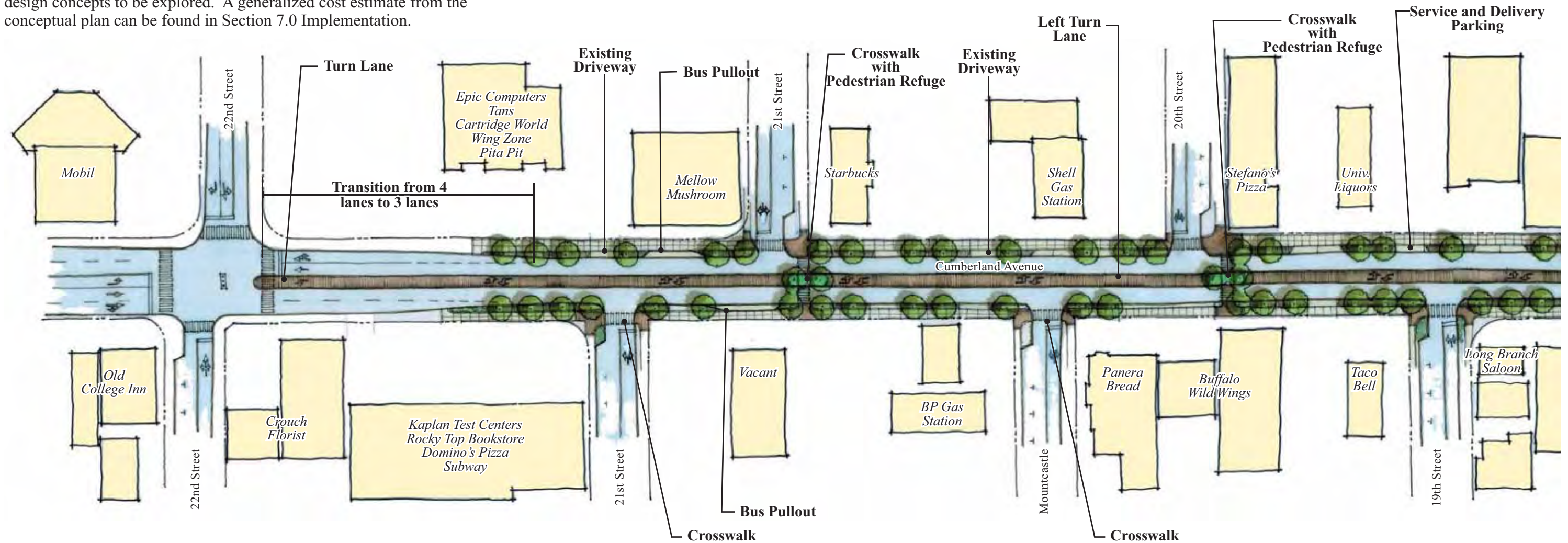
This concept plan applies the three-lane configuration on Cumberland Avenue to illustrate how it could be designed relative to the lane transitions, driveways, bus pull-outs, street trees and 2-way conversion of side streets. This plan represents only a preliminary concept design but it does allow for order-of-magnitude cost estimates to be prepared and initial design concepts to be explored. A generalized cost estimate from the conceptual plan can be found in Section 7.0 Implementation.

Curb Cuts

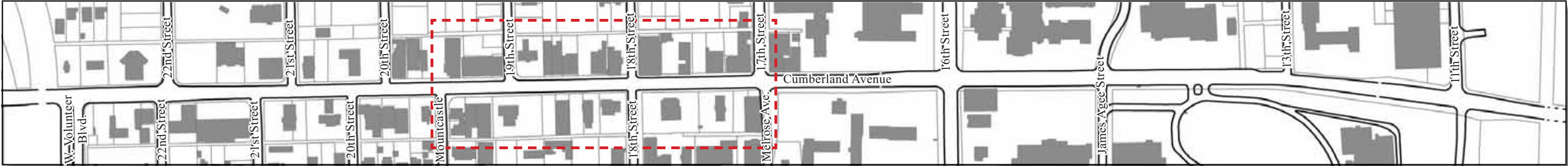
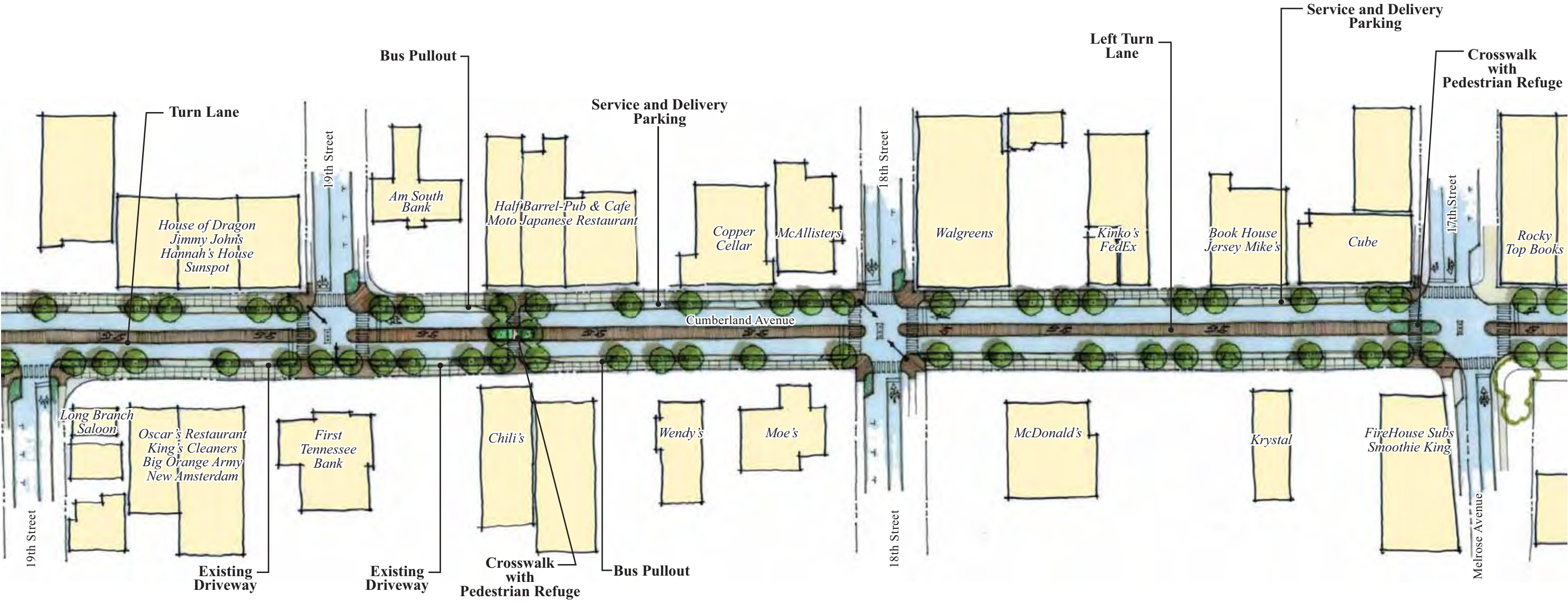
This long-term success of this streetscape plan will require an aggressive approach to reducing and eliminating curb cuts between blocks to reduce the number of pedestrian and vehicle conflicts and reduce the use of the center turn lane for mid-block turning movements.

Bus Pull-Outs & Pedestrian Refuge Islands

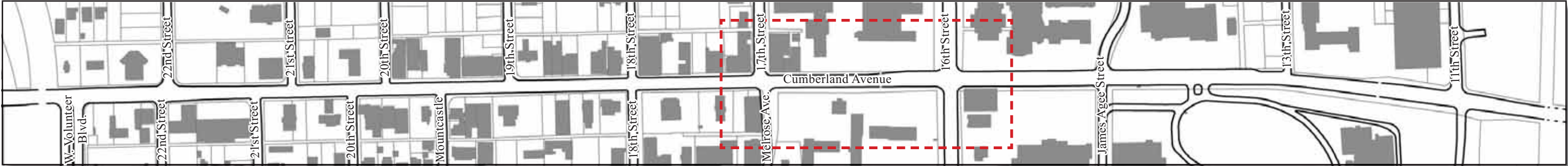
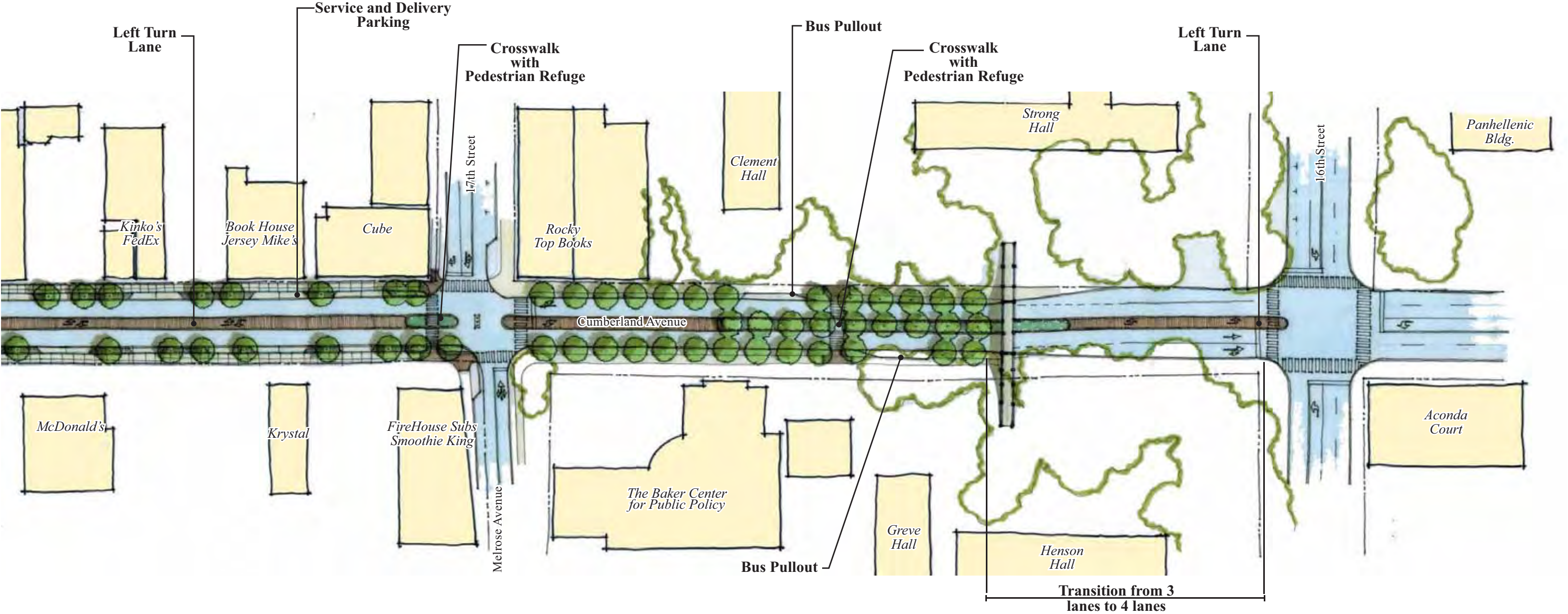
Preliminary locations of bus pull-outs have been suggested in this plan. These locations will need further review and determination by KAT. Pedestrian islands have been illustrated in some locations but may conflict with emergency vehicle access, further review and determination of their possible use will be necessary.



Key Map



Key Map



Key Map

Streetscape Design Intent





5.0 The Urban Design Plan

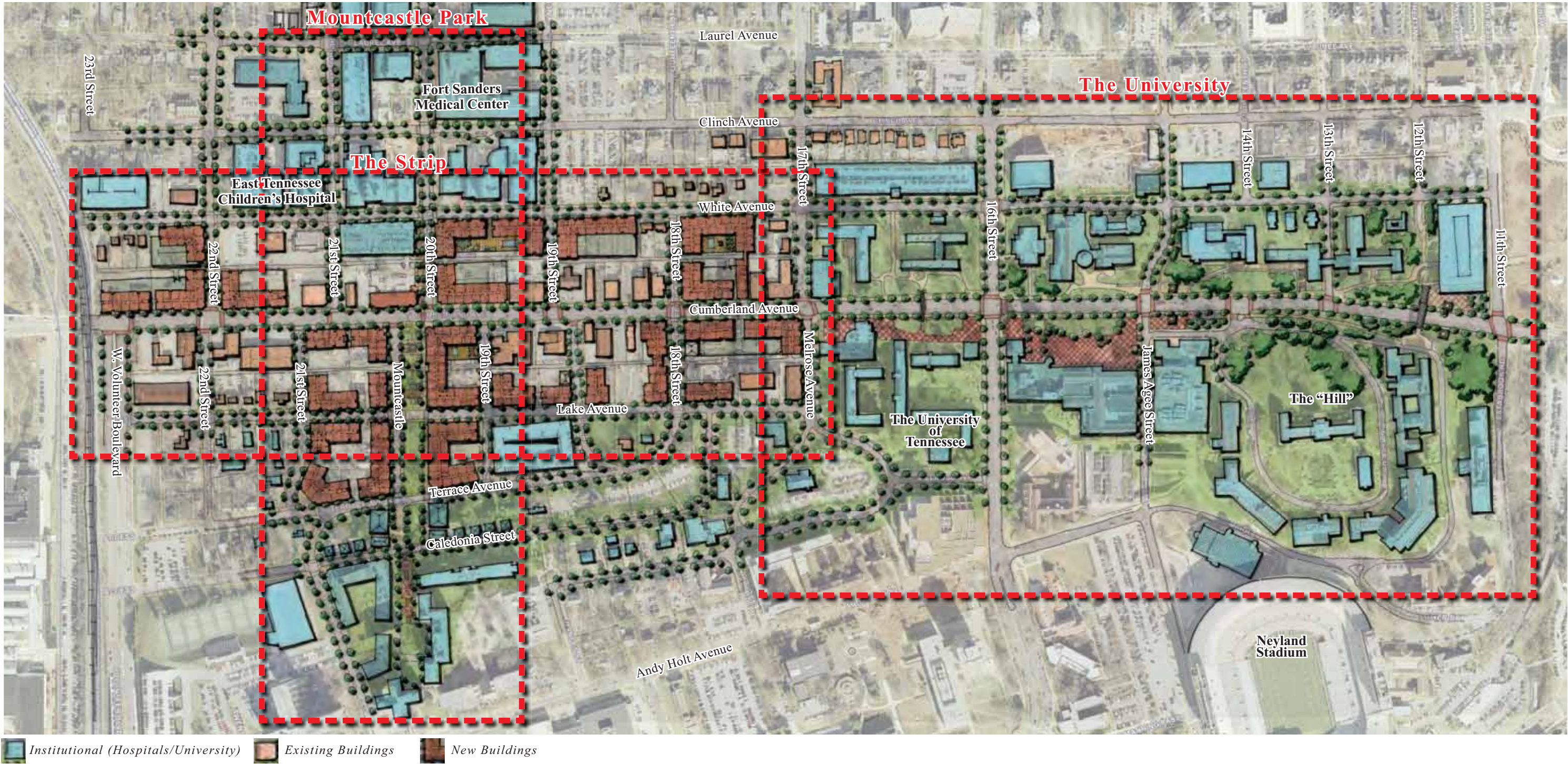
The Urban Design Plan

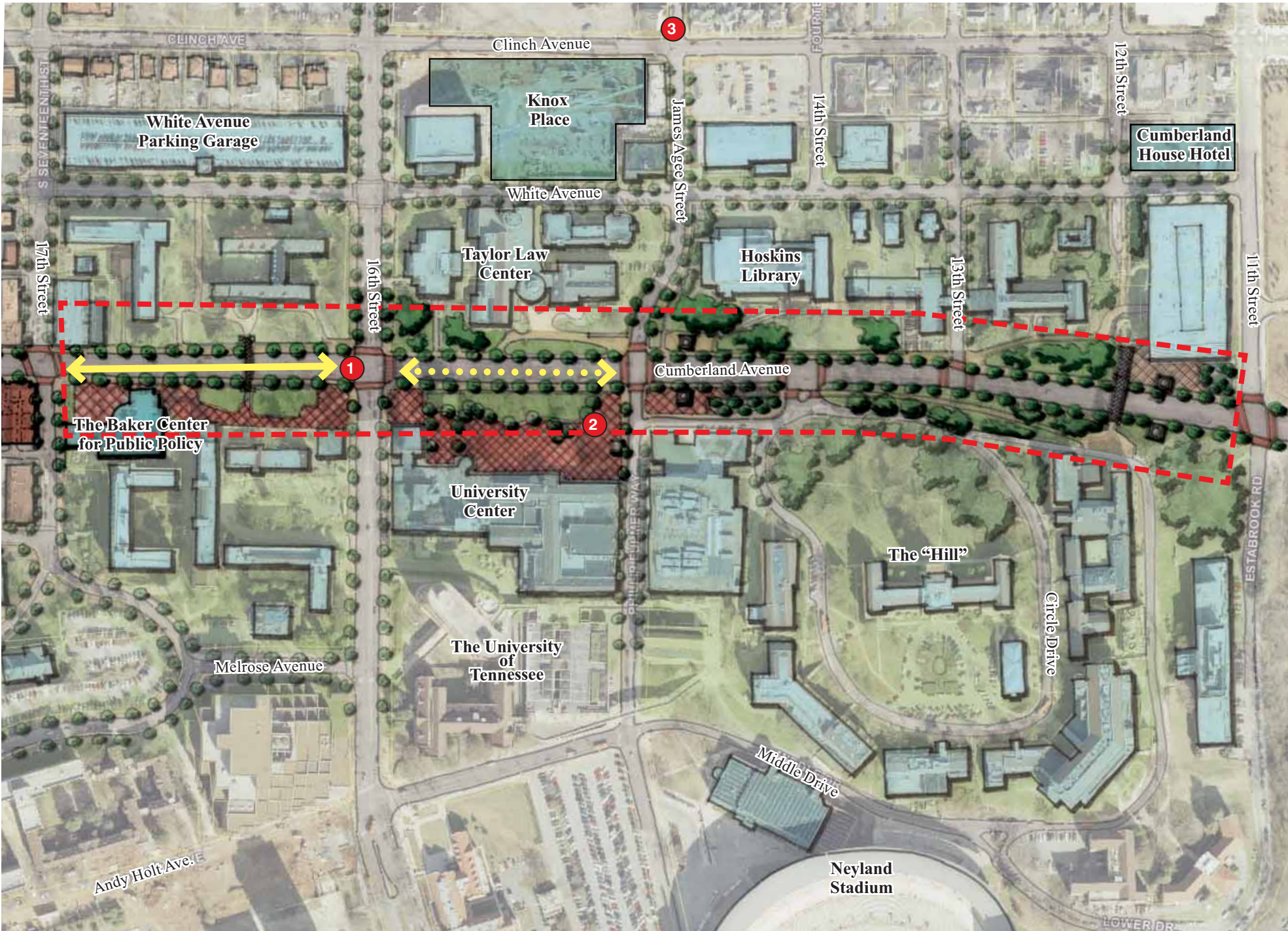
The Urban Design Plan

The urban design plan proposed for Cumberland Avenue is organized into three areas: The University, Mountcastle Park, and The Strip. The urban design plan examines how redevelopment could occur in each of these areas based on the vision statement and current parcel configuration and utilization.

While site specific, the redevelopment scenarios illustrated are just one example of how and where redevelopment will occur and are intended mainly to inform the development of detailed design code that will guide long-term private redevelopment in the corridor. While a market analysis has not been conducted for this study to determine its development potential, the urban design plan illustrates the potential for approximately 130,000 square feet of commercial use (ground floor of mixed-use buildings) and more than 1,400 new residential units.

For the purposes of calculating this redevelopment potential, all necessary parking was estimated conservatively at 4 spaces per 1,000 square feet for commercial uses and 1.5 spaces per unit for residential uses, and all parking was accommodated on-site for each development. This focus on parking illustrates how redevelopment can occur without further impacting the limited public parking in the corridor and does not eliminate the need to determine a comprehensive public parking strategy.





 Institutional (Hospitals/University)  Existing Buildings  New Buildings  Proposed 3-Lane  Potential Extension of 3-Lane

The University

Focused on Cumberland Avenue from 17th Street to 11th Street, this section is envisioned as the University’s “front porch,” creating a clearly defined institutional address to Cumberland Avenue. The plan suggests reinforcing this by:

- Converting Cumberland Avenue from 17th to 16th Street to three-lanes, with the potential to extend to James Agee Street in the long-term. This will help to make the street more pedestrian friendly for students and provide opportunities for more “greening” of the street through planted medians and street trees.
- Maintaining and enhancing the building setback to create public greens and plazas along Cumberland Avenue.

Key Concepts:

- 1 Enhance pedestrian connections across Cumberland Avenue.
- 2 Maintain and enhance University’s “Front Porch” along Cumberland with consistent building setbacks and expanded plazas and green spaces.
- 3 Enhance streetscape to provide better pedestrian connections to James Agee Park.

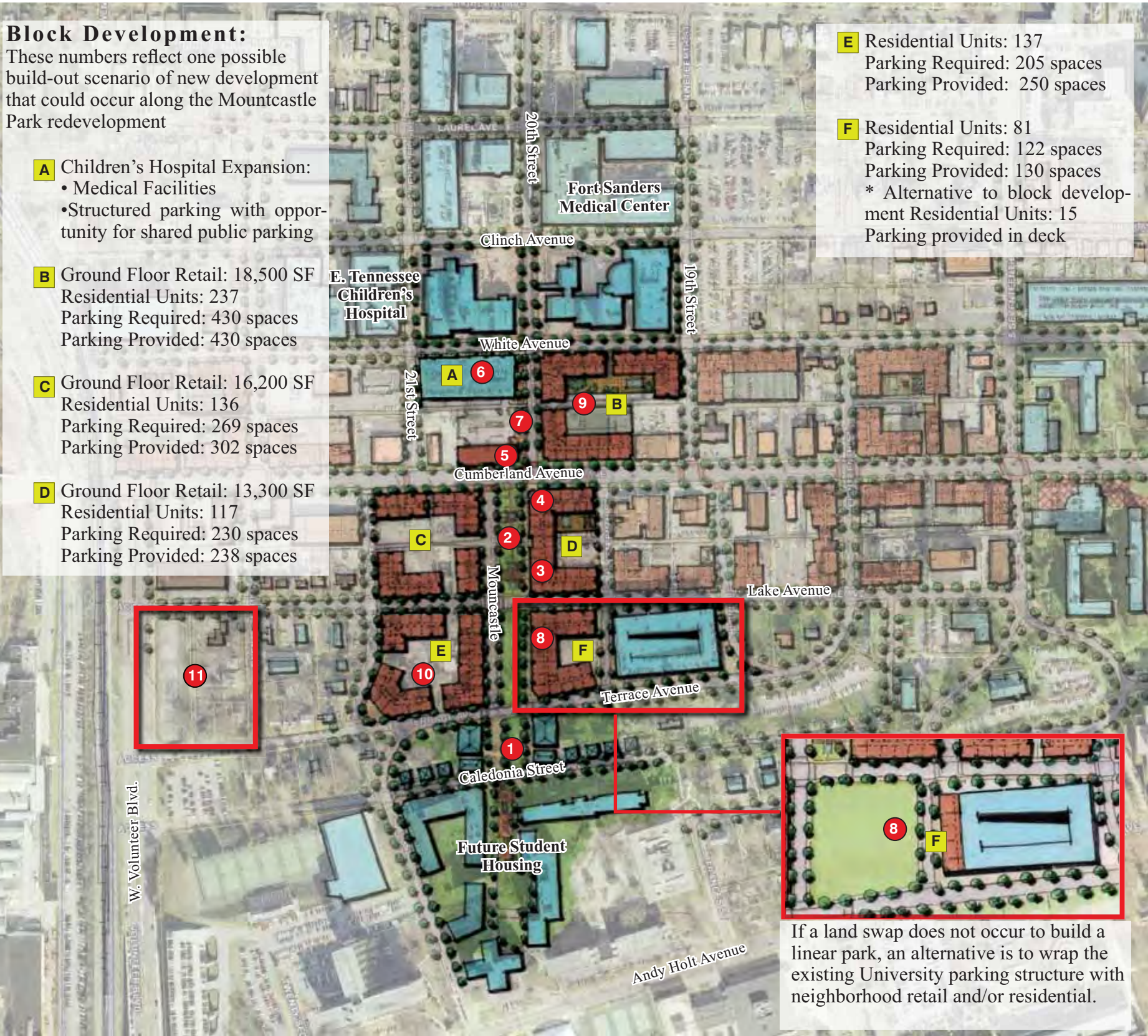
Block Development:

These numbers reflect one possible build-out scenario of new development that could occur along the Mountcastle Park redevelopment

- A** Children's Hospital Expansion:
 - Medical Facilities
 - Structured parking with opportunity for shared public parking
- B** Ground Floor Retail: 18,500 SF
Residential Units: 237
Parking Required: 430 spaces
Parking Provided: 430 spaces
- C** Ground Floor Retail: 16,200 SF
Residential Units: 136
Parking Required: 269 spaces
Parking Provided: 302 spaces
- D** Ground Floor Retail: 13,300 SF
Residential Units: 117
Parking Required: 230 spaces
Parking Provided: 238 spaces

E Residential Units: 137
Parking Required: 205 spaces
Parking Provided: 250 spaces

F Residential Units: 81
Parking Required: 122 spaces
Parking Provided: 130 spaces
* Alternative to block development Residential Units: 15
Parking provided in deck



If a land swap does not occur to build a linear park, an alternative is to wrap the existing University parking structure with neighborhood retail and/or residential.

Mountcastle Park

Focused on “reconnecting the Strip to its neighbors,” this section will create a linear green space between the Strip, University, and hospitals by extending a public open space to Cumberland Avenue and reshaping Mountcastle Park into a linear park.

- This new park will connect the University’s core of existing and future student housing directly to the Strip and up 20th Street to the center of the hospital’s campuses.
- New mixed-use development will include housing, retail, University facilities, and hospital expansion that will orient to and activate this new green space.
- Coordinating new parking structures, planned by the hospitals and University along or adjacent to this green, to include shared public parking for development along the Strip.

Key Concepts:

- 1** Enhance the future student housing development that is planned, as a part of the University Master Plan, to include an open space connection to Mountcastle Park.
- 2** Encourage redevelopment of block to include a linear public green that connects Cumberland Avenue to Mountcastle Park and proposed University expansion.
- 3** Encourage mixed use development along linear park.
- 4** Activate the corner of Cumberland and Mountcastle and Cumberland and 20th with commercial along the ground floor and residential or office above.
- 5** Encourage development of a landmark building at corner of Cumberland and 20th.
- 6** Planned expansion of Children’s Hospital. The proposed structured parking could include dedicated public spaces.
- 7** Enhance streetscape and building setback along 20th Street to provide a visual connection between the hospitals and Cumberland Avenue.
- 8** Create new University development along existing Mountcastle Park to “wrap” existing parking structure and reconfigure the park to get fronting development.
- 9** Utilize alleys as entrances to parking structures.
- 10** Encourage University parking facility to include public spaces.
- 11** Planned future University parking facility could be coordinated to include public spaces.

The Urban Design Plan

The Strip

Focused on Cumberland Avenue from 17th Street to West Volunteer Boulevard, including the blocks between White Avenue and Lake Avenue, this section illustrates the range of possible development. Development could occur at the scale of a single parcel, a half block, or a full block. The vision is to “transform the strip to a place” by:

- Reinforcing the importance of the street by forming buildings along street frontages and locating parking behind (in lots or structures).
- Anticipating the long-term and short-term potential for intensified housing developed in mixed-use projects.
- Strengthening active retail uses along Cumberland Avenue.

Key Concepts:

- 1

Potential exists to take advantage of existing topography throughout the Cumberland area by tucking parking into the hill and beneath buildings.
- 2

Development along Cumberland Avenue should have active street-level uses with residential or office above.
- 3

Alleys should be kept open and be use for access into parking structures and vehicular movement throughout the Cumberland Avenue area.
- 4

Redevelopment can occur at both the full block level and the parcel level.
- 5

Enhance pedestrian connections across Cumberland Avenue to adjacent institutional uses and neighborhoods.
- 6

New parking for development should be placed behind the development with vehicular access from the alleys and pedestrian access from Cumberland.

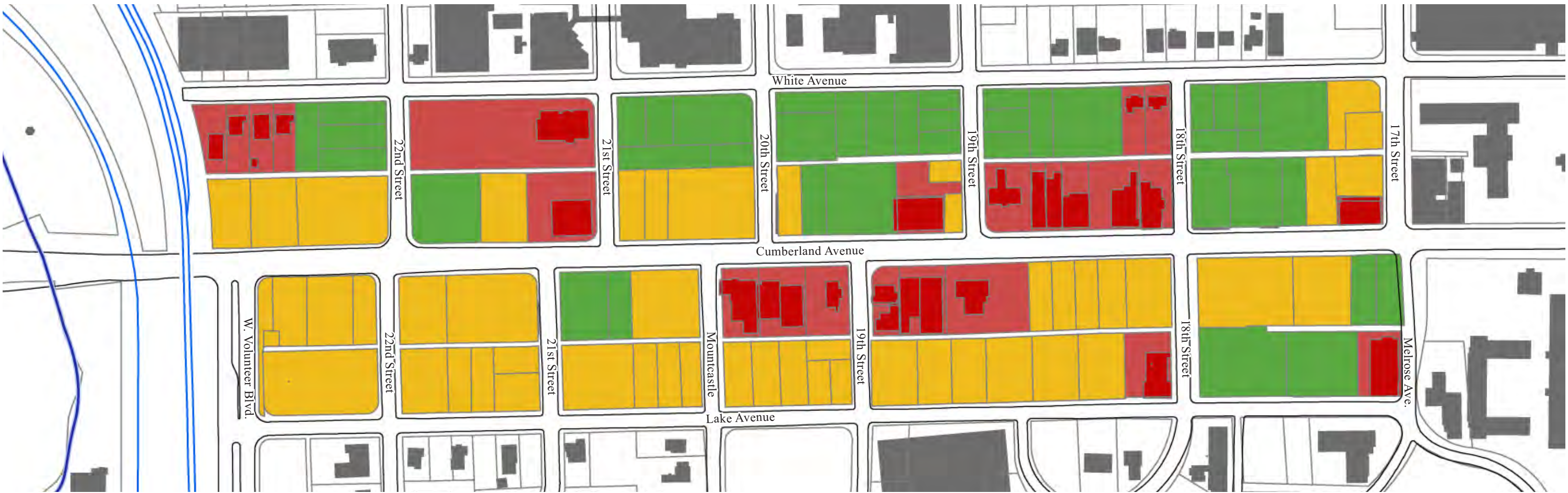


Block Development: These numbers reflect one possible build-out scenario of new development that could occur along Cumberland Avenue.

A Ground Floor Retail: 21,600 SF Residential Units: 160 Parking Required: 326 spaces Parking Provided: 329 spaces	B Ground Floor Retail: 18,600 SF Residential Units: 68 Parking Required: 177 spaces Parking Provided: 208 spaces	C Children’s Hospital Expansion Medical Facilities Structured parking with opportunities for shared public parking	D Ground Floor Retail: 18,500 SF Residential Units: 237 Parking Required: 430 spaces Parking Provided: 430 spaces	E Residential Units: 92 Parking Required: 138 spaces Parking Provided: 144 spaces	F Ground Floor Retail: 13,200 SF Residential Units: 167 Parking Required: 304 spaces Parking Provided: 320 spaces
G Ground Floor Retail: 16,200 SF Residential Units: 136 Parking Required: 269 spaces Parking Provided: 302 spaces	H Ground Floor Retail: 13,300 SF Residential Units: 117 Parking Required: 230 spaces Parking Provided: 238 spaces	I Residential Units: 49 Parking Required: 74 spaces Parking Provided: 76 spaces	J Residential Units: 84 Parking Required: 126 spaces Parking Provided: 126 spaces	K Ground Floor Retail: 19,800 SF Residential Units: 117 Parking Required: 214 spaces Parking Provided: 216 spaces	

Development Opportunities

Based on the context analysis, this diagram reflects the current “snapshot” of opportunities in the Strip. The pattern suggests the importance of a redevelopment strategy that recognizes the varied patterns and scale that future development will take, from the full or half block scale to the single parcel scale.



Parcels Unlikely to Change: represent any recent development or “landmark” businesses.



Parcels with Mid to Long-term Potential to Change: represent uses such as fast food chains and gas stations, and other currently rented or occupied space.



Parcels with Short-term Potential to Change: represent vacant development or current surface parking lots with a high level of immediate redevelopment potential.

Key Concepts for Block Development



Example Scale: Full Block Development



Example Scale: Half-Block Development



Example Scale: Single Parcel Development

Full Block Development:

- Development should have active ground floor uses such as retail and restaurants.
- Parking can be consolidated and shared parking can occur.
- Public access should remain along the alley.
- The existing topography allows for parking to be built into hillside.

Half-Block Development:

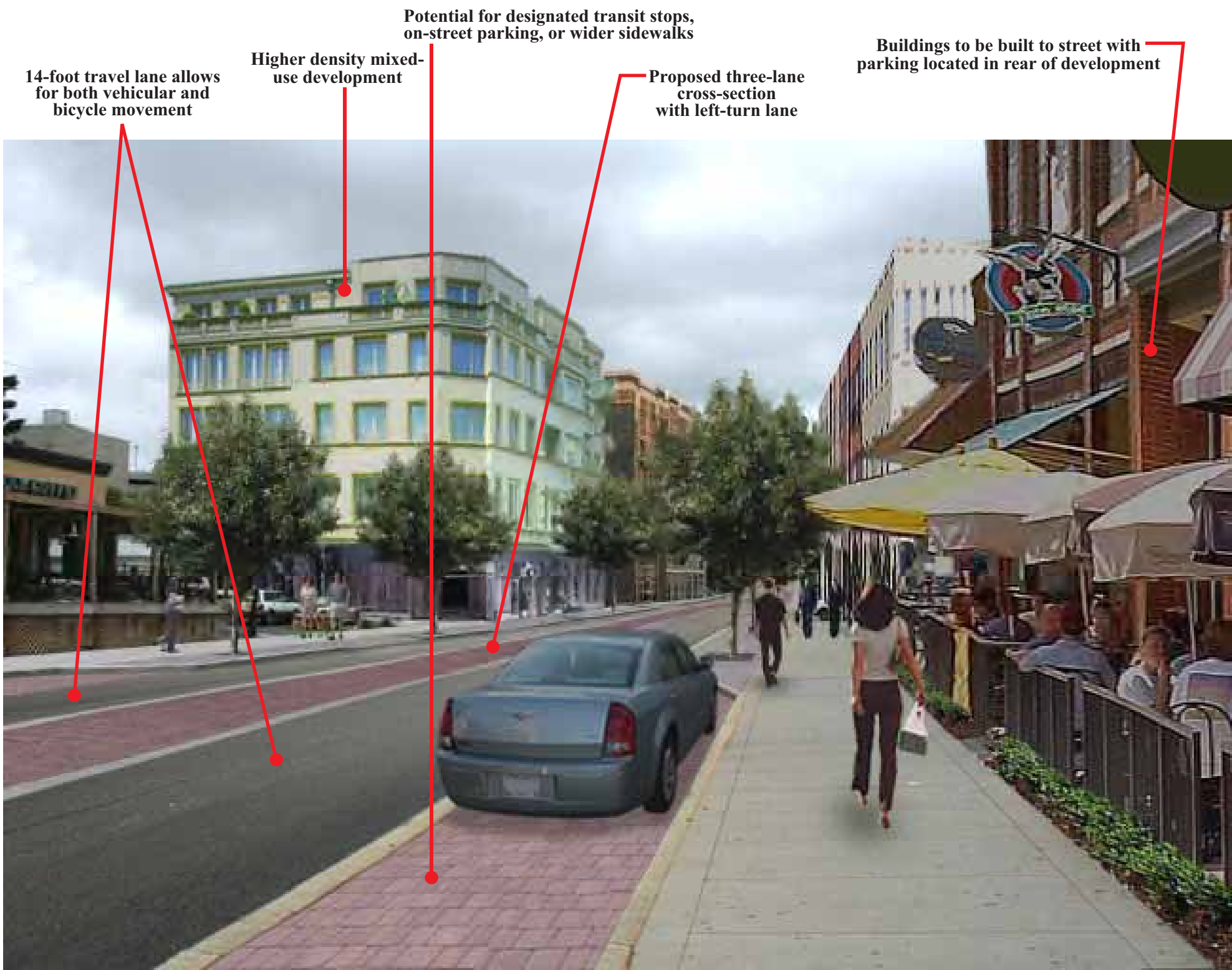
- Consolidate parcels for single development.
- Wrap parking with development. Parking should be accessed via alley.
- Development should reflect adjacent land uses in their height, land use and character.

Single Parcel Development:

- Single parcels have potential for small scale urban development.
- Parking can be surface, placed under new development or shared with an adjacent parking structure or lot.

Cumberland Avenue: Existing & Proposed

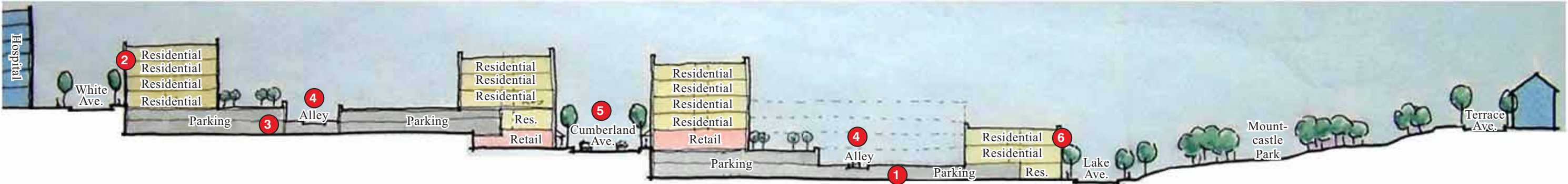
This illustration depicts the transformation of Cumberland Avenue into a “place” where the scale, character and use of proposed development, along with the conversion of Cumberland Avenue into a three-lane street, create a vibrant and pedestrian-friendly environment that is supportive of businesses, the University and the hospitals.



Cumberland Avenue: Proposed



Cumberland Avenue: Existing



Key Map

 Institutional (Hospitals/University)  Existing Buildings  New Buildings

Cumberland Avenue: Site Section

The site section reflects how development could occur along the Cumberland Avenue corridor. Development should take advantage of the natural topography, such as tucking the parking under new development, and respond to the adjacent land uses.

Key Concepts:

- 1 Potential exists to take advantage of existing topography throughout the Cumberland area by tucking parking into the hill and beneath buildings.
- 2 Development along White Avenue should reflect the adjacent land uses of either the University or Fort Sanders neighborhood.
- 3 Take advantage of topography to tuck parking under new development.
- 4 Keep alleys a viable part of the street network by allowing access to parking structures along with vehicular through movement.
- 5 Development along Cumberland Avenue should have active ground floor uses with office or residential above.
- 6 Residential development along Lake Avenue should reflect the surrounding neighborhood in scale and design, and should front the existing Mountcastle Park.



6.0 Design Guidelines

Intent

These Design Guidelines are intended to define the foundation for a more detailed and formal form-based code for the Cumberland Avenue area. Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The regulations and standards in form-based codes, presented in both diagrams and words, are keyed to a regulating plan that designates the appropriate form and scale (and therefore, character) of development rather than only distinctions in land-use types. The regulating plan also defines a set of street frontages from which the code is organized. This is in contrast to conventional zoning’s focus on the segregation of land-use types, permissible property uses, and the control of development intensity through simple numerical parameters (e.g., floor area ratio, dwellings per acre, height limits, setbacks, parking ratios). The City of Knoxville has validated the concept of form-based codes with the adoption of the Knoxville South Waterfront District Code.

This section establishes general concepts that can be refined to create an enforceable form-based code for the Cumberland Avenue area. The general elements addressed are identical to those in the Knoxville South Waterfront code, and it is anticipated that the process would be similar for adoption, implementation and interpretation of this code.

The details of building height, setback, use, frontage requirements, etc. will certainly require more detailed discussion and analysis as part of the development and adoption of a form-based code the Cumberland corridor.

General Principles

Buildings Form the Space of the Street

Buildings are in essence walls that, with the street, create a shared public “room”. The character and scale of the walls determine the character of the room. Continuous building frontage with active uses on a street creates a welcome and attractive space that supports pedestrian and economic activity. Property lines should be physically defined by buildings or street walls in order to clearly define public and private space and ensure that parking lots are located either behind buildings or buffered by street walls.

Building Height

The street will have a more cohesive, pedestrian feel if contiguous buildings are of similar heights. Buildings taller than those that have typically been built in the corridor are encouraged. However, relative uniformity in height will create a more cohesive, comfortable place. In other words, it is better to have two five-story buildings next to each other than a two-story building next to an eight-story building. The current C-7 Pedestrian Commercial District allows building heights of 8 stories or 90 feet. It will be difficult to ultimately create a consistent built form of 90 foot high buildings therefore, these guidelines recommend a lowering the building height with the goal of achieving a more consistent urban form.

Environmental Sustainability

In addition to environmental benefits, “green” buildings can cost less, improve worker productivity, enhance marketing efforts, and help to crate a district identity. Buildings should respond to the site, be efficient in water and energy use, be constructed of sustainable materials, and create healthy environment for the occupants. The Leadership in Energy and Environmental Design (LEED) Reference Guide for New Construction and Major Renovation, Version 2.2 is a valuable resource for guidance on green building techniques, practices and standards.

Parking & Access

Parking, and access to parking, should be located off of the side streets or alleys. Curb cuts along White Street, Cumberland Avenue and Lake Street should be discouraged. Surface parking lots should be screened and separated from public rights-of-way. Surface lots should be located behind or beside buildings. All surface lots should be landscaped and shading maximized.

Service

Service and delivery should be accommodated on side streets, alleys or in designated pull-out locations along Cumberland Avenue. All dumpsters and refuse collection areas should be located off the alley, and screened from public rights-of-way.

Lighting

Building and site lighting should be designed in such a way as to eliminate light trespass and minimize light pollution. The best lighting schemes will generally lower lighting levels, maximize uniformity and eliminate glare. Lighting for pedestrians is an important consideration and should be designed to maximize visibility and comfort. These considerations can decrease first costs, have marked value in life-cycle costs and create a more attractive and comfortable nighttime environment. The Illuminating Engineering Society of North American (IESNA) Recommended Practice Manual: Lighting for Exterior Environments (IESNA RP-33-99) is a valuable resource for guidance on best lighting practices.

Signage

The scale of signage should be designed with pedestrians in mind. Signs on awnings, in windows, and projecting from the face of the building can help create an interesting pedestrian environment.

Landscaping

Street trees are encouraged to augment the public landscape plan. Landscaping should be designed to provide shade for pedestrians and generally improve the aesthetic environment of the corridor. Impervious surfaces should also be shaded to mitigate urban heat island effects. The Knoxville Street Tree Master Plan should be used in selecting appropriate species.

Frontage Requirements

The Cumberland Avenue area, for the purpose of the design guidelines, has been broken up into four distinct frontage areas. Depending on their context, unique frontage requirements have been set forth in the following pages. The guidelines focus on key characteristics related to development and form that encompass building heights, siting requirements, key built elements and uses. Additionally, basic street characteristics are also outlined to complement the built form and create a safe and vibrant urban environment.



The Cumberland Area Frontages

- Cumberland Avenue Frontage
- White Avenue-Neighborhood Frontage
- White Avenue-Hospital Frontage
- Lake Avenue Frontage

Design Guidelines

Cumberland Avenue Frontage

Height

- Maximum height for any portion of the building should be 70 feet above the highest elevation of the property line fronting Cumberland Avenue.
- Minimum height of the building frontage along Cumberland Avenue should be 2 stories or 30 feet above the highest elevation of the property line fronting Cumberland Avenue.
- Ground story finished floor elevation can be no lower than exterior sidewalk elevation in front of building.

Siting

- The building must be built to the property line fronting Cumberland Avenue for at least 80% of total lot frontage.
- Outdoor seating areas in front of a building can be counted as building frontage provided that a street wall of at least 3 feet is included and the principle structure is located no more than 20 feet from the property line for the entire width of the seating area.
- For the remaining portion of the building that does not directly abut the property line, a street wall of at least 3 feet is required along Cumberland Avenue frontage.
- Vehicle parking should be located at least 20 feet away from Cumberland Avenue (except for underground parking floors).

Elements

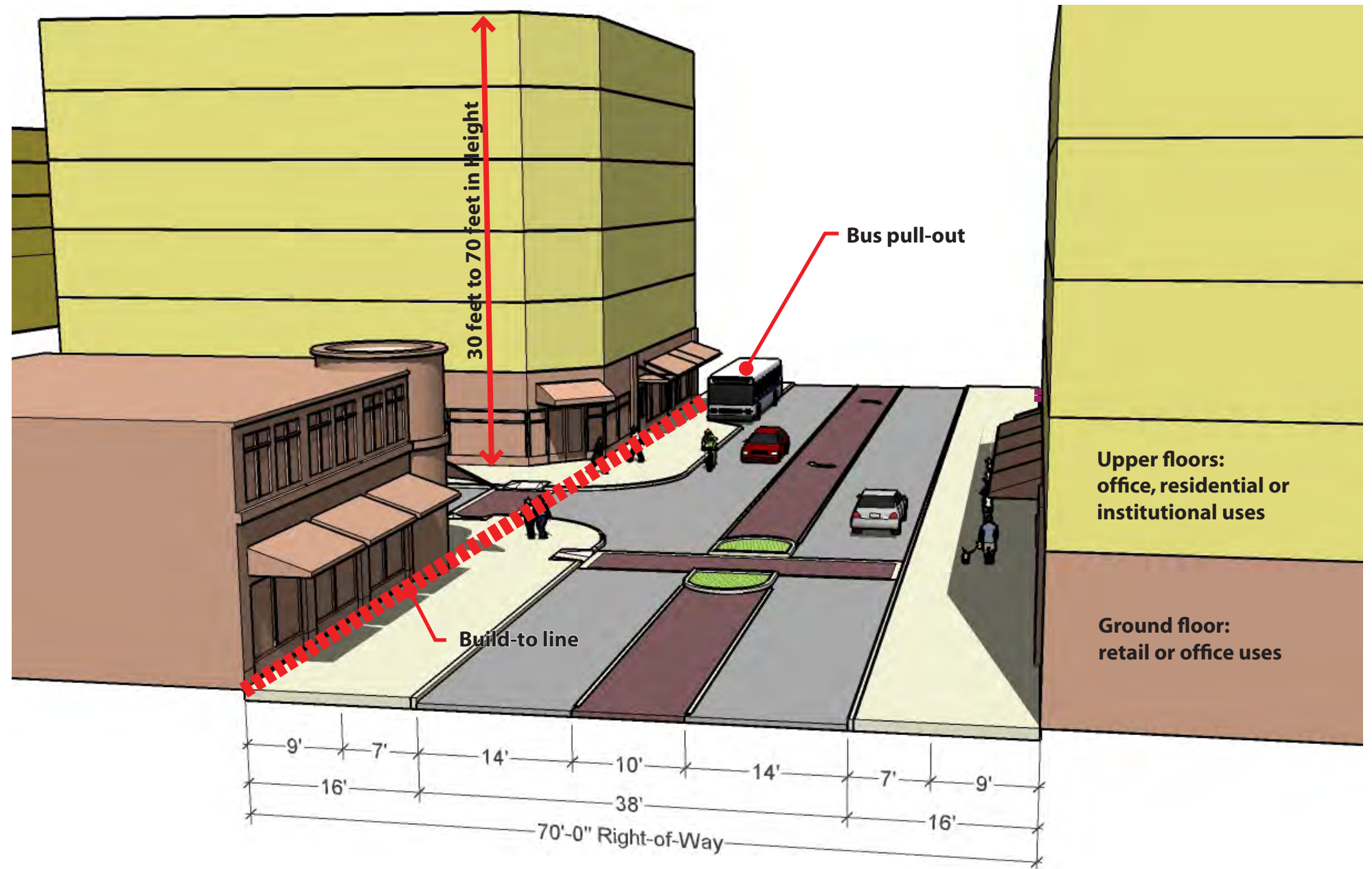
- Blank walls greater than 20 feet in length are prohibited along street frontages.
- Doors, windows and fenestrations should occupy at least 75% of the total ground floor facade area.
- On corner lots, where Cumberland Avenue intersects major streets, at least one building entrance should be located at the corner.
- Parking should be located in the rear of the property with access to parking from the alleys and side streets.
- Structured parking should not exceed the primary structure's height.

Uses

- Ground floor to include retail or office uses.
- Upper stories to include office, institutional and/or residential uses.

Street

- One 14 foot lane, in each direction, which can accommodate both bicycles and motor vehicles.
- 10 foot left-turn lane.
- Pedestrian refuge on Cumberland Avenue crosswalks.
- Options for designated pull-out areas: transit, on-street parking or wider sidewalks.



Design Guidelines

Lake Avenue Frontage

Height

- Maximum height for any portion of the building should be 40 feet above the highest elevation of the property line fronting Lake Avenue.
- Minimum height of the building frontage along Lake Avenue should be 20 feet above the highest elevation of the property line fronting Lake Avenue.
- Height measurements are taken from the highest point of the property line fronting Lake Avenue to the mid-point of the roof.
- Ground story finished floor elevation can be no lower than exterior sidewalk elevation in front of building.

Siting

- The building must be built to the property line fronting Lake Avenue for at least 80% of the total lot frontage.

Elements

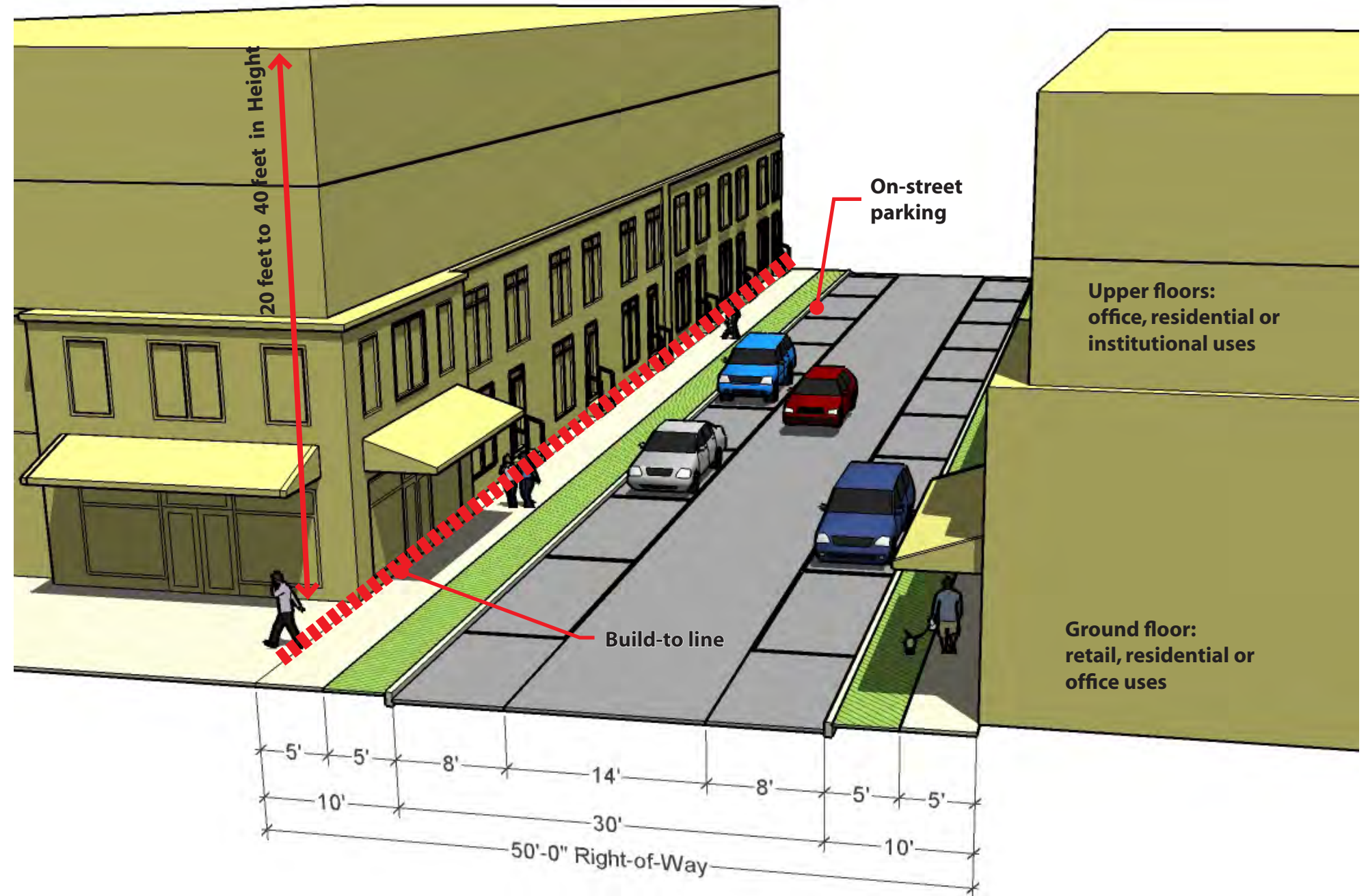
- Blank walls of length greater than 20 feet are prohibited along street frontages.
- Doors and windows should occupy at least 40% of the total ground floor facade area.
- Primary building entrances to be located on Lake Avenue.

Uses

- Ground floor to include retail, office and/or residential uses.
- Upper stories to include office, institutional and/or residential uses.

Street

- Existing on-street parking should remain.
- Pedestrian amenities should be enhanced.



Design Guidelines

White Avenue-Neighborhood Frontage (1700 to 1900 Blocks)

Height

- Maximum height for any portion of the building should be 40 feet above the highest elevation of the property line fronting White Avenue.
- Minimum height of the building frontage along White Avenue should be 20 feet above the highest elevation of the property line fronting White Avenue.
- Height measurements are taken from the highest point of the property line fronting White Avenue to the mid-point of the roof.
- Ground story finished floor elevation can be no lower than the exterior sidewalk elevation in front of the building.

Siting

- The building must be built to the property line fronting White Avenue for at least 80% of the total lot frontage.

Elements

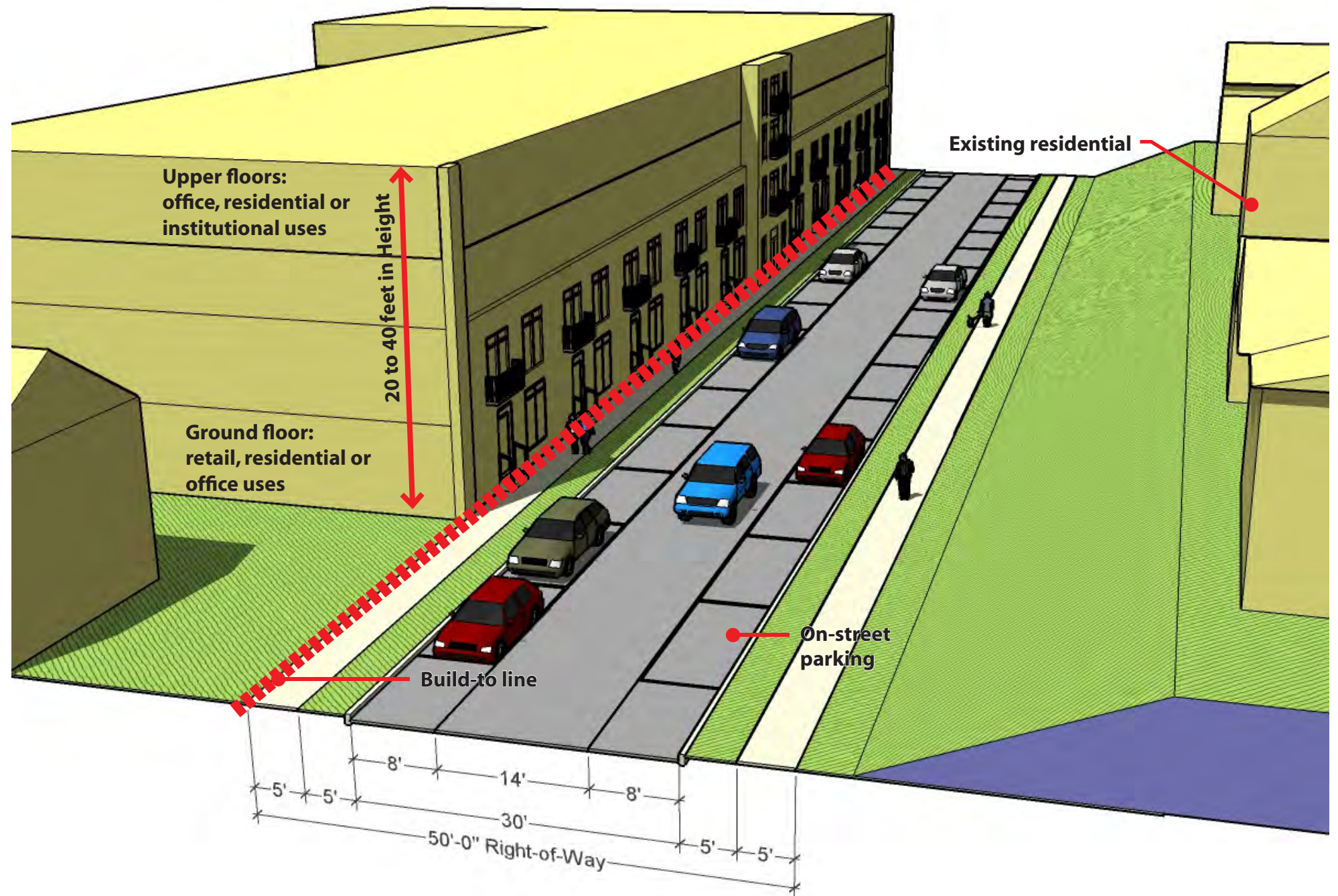
- Primary building entrance to be located on White Avenue frontage.
- Parking areas should be located in the rear of the property.
- Blank walls of length greater than 20 feet are prohibited along street frontages.

Uses

- Ground floor to include retail, office and/or residential uses.
- Upper stories to include office, institutional and/or residential uses.

Street

- Existing on-street parking should remain.
- Improve pedestrian amenities along White Avenue.
- Enhance pedestrian crosswalks.



Design Guidelines

White Avenue-Hospital Frontage (West of 19th Street)

Height

- Maximum height for any portion of the building should be 70 feet above the highest elevation of the property line fronting White Avenue.
- Minimum height of the building frontage along White Avenue should be 20 feet above the highest elevation of the property line fronting White Avenue.
- Height measurements are taken from the highest point of the property line fronting White Avenue to the mid-point of the roof.
- Ground story finished floor elevation can be no lower than the exterior sidewalk elevation in front of the building.

Siting

- Building must be set back 5 feet from the property boundary fronting White Avenue for 80% of the total lot frontage.

Elements

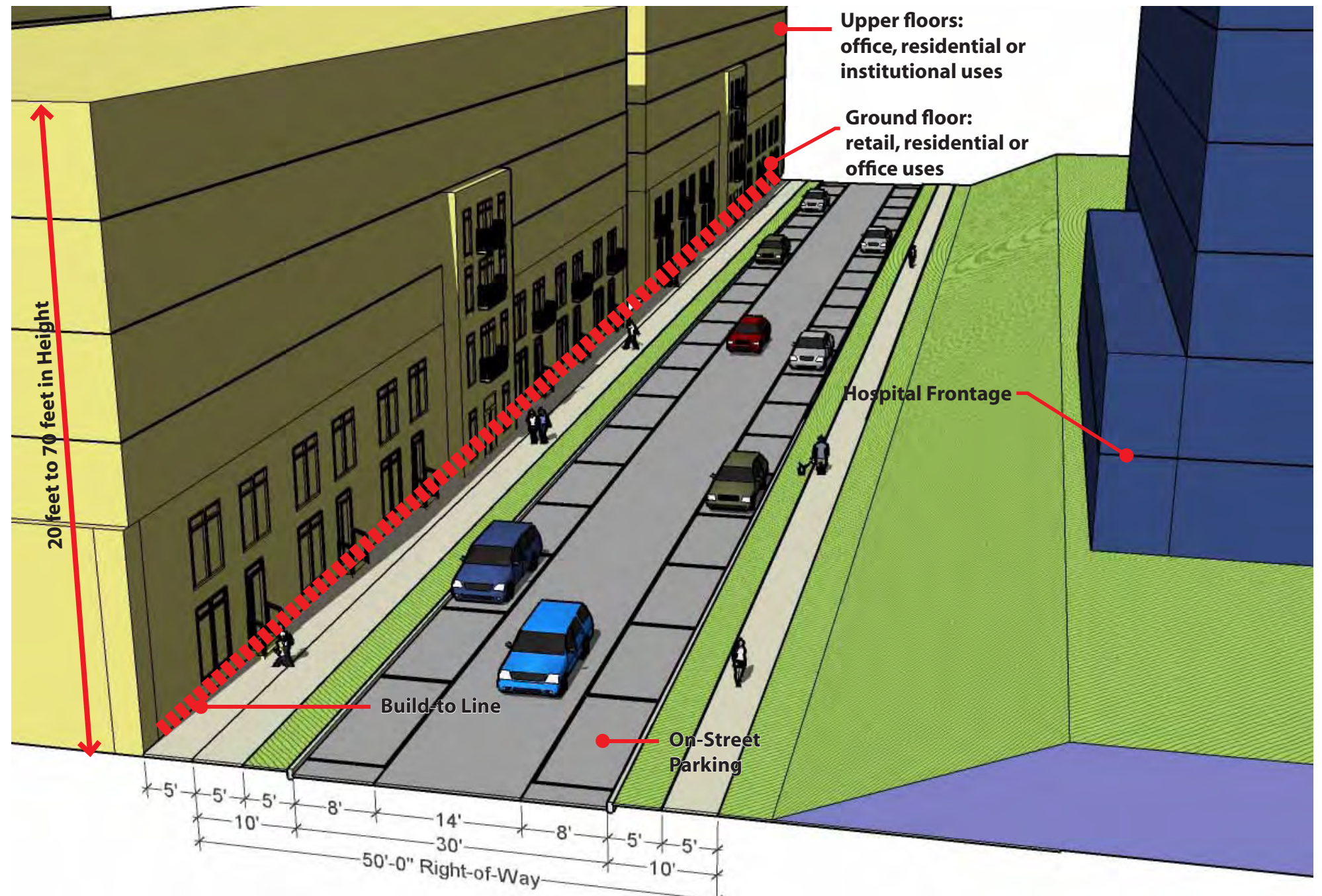
- Primary building entrance to be located on White Avenue frontage.
- Parking areas should be located in the rear of the property.
- Blank walls of length greater than 20 feet are prohibited along street frontages.

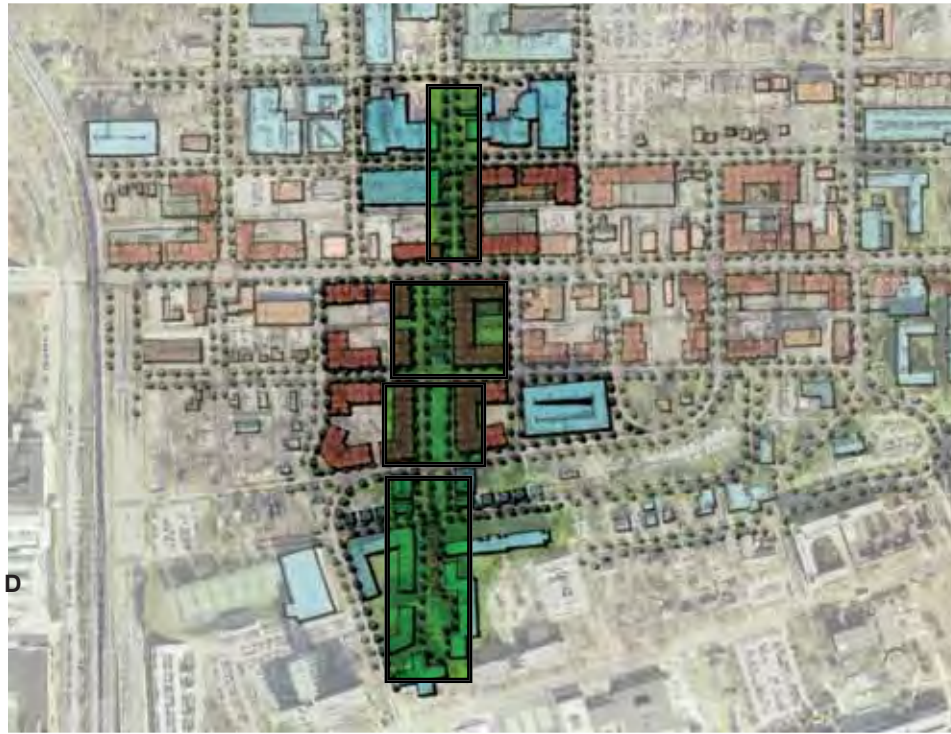
Uses

- Ground floor to include retail, office, institutional and/or residential uses.
- Upper stories to include office, institutional and/or residential uses.

Street

- Existing 14 foot travel lane should remain.
- Improve pedestrian amenities and sidewalk conditions along White Avenue.
- Enhance pedestrian crosswalks to institutional uses.
- Existing surface parking lots should be consolidated with structured parking.





7.0 Implementation

Cumberland Avenue Corridor Plan
Implementation

A successful transformation of a city district begins when engaged and committed stakeholders devise a visionary plan, and it becomes real over time with realistic and thorough implementation steps. There is considerable agreement about the desired future for the Cumberland Avenue corridor among the diverse group of Knoxville stakeholders, and one of the points of agreement is that no one wants to see the plan simply put on a shelf. Many in the planning process recall past plans to change Cumberland Avenue that have never moved forward. The steps outlined below are meant to get the project going while realizing that it is currently not the only area of the city with a redevelopment agenda.

Implementation Structure

The Cumberland Avenue corridor is of key interest to a number of important stakeholders: City government, the University of Tennessee, Fort Sanders Regional Medical Center, the East Tennessee Children’s Hospital, the Tennessee Department of Transportation (TDOT), the historic Fort Sanders neighborhood and the property owners and merchants along the street. Yet, until this study began, these players didn’t have a platform for regularly discussing issues in this important district. From the outset of the study, these stakeholders voiced the need for changes to the corridor. This initially took the form of their participation on a diverse Advisory Committee staffed by the MPC.

Advisory Committee members worked closely to review and give advice on the work of the consultant team and participated in regular public meetings. Discussions during Advisory Committee meetings aired a number of issues and concerns and helped inform the planning process. The high degree of trust and communication among Cumberland Avenue stakeholders that emerged from this process is important to make the most of this new set of working relationships.

Recommendations:

- **Continue regular meetings of the Advisory Committee at the request of the Mayor of Knoxville and the University Chancellor.** Meetings should be held on at least a quarterly basis, and the work of the Advisory Committee should be staffed by the MPC. It’s important that stakeholders continue communicating on a high level, and that participation be a priority to existing members. Members of the city’s C-7 committee should be invited to participate.
- **Name a project coordinator based in city government.** Implementation of the Cumberland Avenue Corridor Plan is first and foremost a City of Knoxville function. Cumberland Avenue is a major city street leading directly into downtown, funding will most likely be public, and the regulatory mechanisms necessary to accomplish the redevelopment will be based in city ordinances. In the press of other redevelopment projects in Knoxville, this study will have difficulty being implemented unless someone has responsibility within city government for seeing that it move forward on a day to day basis.

Funding

The Cumberland Avenue Corridor Plan charts the course for street and streetscape improvements as well as new pedestrian connections and public realm improvements. It makes a strong statement about the relationship between public improvements and private reinvestment, and anticipates that a variety of funding sources will be explored to support the work.

Recommendations

- **Amend the TPO’s current long range plan and three-year Transportation Improvement Plan.** Get the lane reconfiguration and streetscape project in the approved list of projects for funding. Ensure that the required local match is budgeted year to year.
- **Consider establishing the corridor as a redevelopment district so that tax increment financing can be used as a funding tool.** The City has the ability to capture revenues generated by private investment in the corridor through the use of tax increment financing (TIF). With this tool, public investments like the Cumberland Avenue streetscape and the Mountcastle Park redevelopment can be financed through bonds based on the incremental increase in property values that will be gained over time as redevelopment occurs. This mechanism was recently used to fund public improvements in the Knoxville South Waterfront area.

While a market analysis has not been conducted for this study to determine its development potential, the urban design plan calculated that approximately 130,000 square feet of new commercial use and more than 1,400 residential units are possible on key sites likely to develop over the next 20 years. This amount of development, calculated roughly at \$200,000/residential unit and \$200/square foot of commercial use, could conceivably result in over \$280 million in new private investment. Further financial analysis will be necessary to determine more accurately the feasibility of using TIF for this corridor.
- **Explore the potential of creating a business improvement district.** This could be a new BID for the area, or an extension of the downtown business improvement district to include the Cumberland Avenue corridor. This could provide a self-taxing tool that could fund improvements to the district. It is important that property-tax-exempt entities such as the University agree to participate on a pro-rated basis.
- **Explore the potential for State funding** through allocation of capital dollars to the University for improvements that directly affect University property and provide benefit to improved University connections.

Cumberland Avenue Streetscape

It is clear from public and stakeholder input and analysis of the physical conditions, as well as traffic modeling, that the three-lane configuration is the best alternative to balance the overall needs of the Cumberland Avenue corridor. The three-lane configuration will provide wider sidewalks and streetscape, accommodate transit and deliveries, slow traffic, increase safety and operate at acceptable vehicular levels of service.

It is strongly recommended that reconfiguration occur as part of the proposed streetscape plan in one complete project as opposed to a first-phase re-striping. This “all or nothing” approach is recommended because the true benefits of the reconfiguration (adding wider sidewalks, streetscape, transit and service delivery pull-outs and on-street parking) are only achieved with the street reconstruction. A simple re-striping would have a punitive impact on vehicular traffic without any positive impact on the pedestrian environment and proposed private development opportunities, resulting in an unbalanced “testing” of the concept.

Recommendations

- Prepare preliminary streetscape design and engineering plans so reconstruction can begin in 2009.** TDOT has requested that no work be done on any east-west corridors in the downtown area until its reworking of I-40 downtown is complete sometime in 2009. The goal is to have the necessary streetscape design and engineering work complete for the project to begin construction as soon as I-40 is reopened.
- Work with the Advisory Committee to prepare a maintenance of business plan for construction.** A critical part of the successful implementation of the streetscape plan will be to minimize the disruption to businesses along the corridor. A maintenance of business plan will define the construction phasing, business signage and public outreach activities necessary to create as little disruption of ongoing commerce in the district as possible.
- Develop a Fort Sanders Neighborhood Traffic Calming Plan.** Based on the recommendations of the Fort Sanders Neighborhood Plan (2003) and the potential traffic diversion of the Cumberland Avenue three-lane conversion, a formal traffic calming study and implementation plan should be developed for the Fort Sanders Neighborhood and hospital campuses to mitigate any speeding and traffic diversion.

- Target Cumberland Avenue as a premium (fixed-guideway) transit corridor.** The number of existing transit routes in the area, along with the adjacent transit-supportive uses of the hospitals and University, suggests that Cumberland Avenue is, and will continue to be, an important transit corridor. A long-term strategy for transit in the corridor should consider fixed- guideway technologies such as light rail or streetcar. One unified service and transit technology along Cumberland Avenue would simplify transit operations by reducing and/or eliminating bus operations on the corridor.

Streetscape Cost Estimate

The conceptual nature of the plan makes it difficult to accurately detail actual costs given the projects many variables, including material choice, furnishing, and utility issues. These estimates are therefore for planning purposes. More detailed design plans will be required to more accurately estimate costs.

Table 3: Streetscape Cost Estimate

Item	Quantity/Unit	Unit Cost	Subtotal	Description
Roadway	Lump Sum	\$2,500,000	\$2,500,000	3-lane, textured left-turn
Sidewalk Amenities	Lump Sum	\$400,000	\$400,000	Concrete sidewalk, paver utility strip, benches, trash cans
Street Trees	150	\$1,200	\$180,000	100-gallon shade trees, 25 feet on center
Ground Planting	7,000 s.f.	\$5	\$35,000	Ground cover and irrigation
Ornamental Lighting	100	\$3,000	\$300,000	Pedestrian-scale lighting, 50 feet on center
Traffic Signals	3	\$120,000	\$360,000	
Subtotal			\$3,775,000	
10% Design Fees			\$377,500	
25% Contingency			\$943,750	
5% Mobilization			\$188,750	Construction trailers, staging sites, etc.
5% MOT / MOB			\$188,750	Maintenance of business, traffic. Coordination with businesses on timing & schedule, maintaining access, etc.
2% Permits / Fees			\$75,500	
7% Construction Admin.			\$264,250	
Total Estimated Cost			\$5,813,500	

Notes: Glatting Jackson Kercher Anglin Lopez Rinehart, Inc. has no control over the cost of labor, materials, or equipment, the contractor’s method of determining prices or competitive bidding or market conditions. Therefore, our opinions of probable construction costs provided for herein are made on the basis of experience and represent our best judgment as landscape architects familiar with the construction industry. The firm cannot and does not guarantee that proposals, bids or the construction cost will not vary from our opinions of probable costs. If the owner wishes greater assurances as to the construction cost, we recommend the employment of an independent cost estimator.

Utilities

An assessment of the utilities (gas, water, sanitary sewer, electric and storm water) was conducted to determine the constraints and opportunities they provide. This assessment drew upon existing sources of information available from the Knoxville Utilities Board (KUB), the City of Knoxville Storm Water Division and field visits. Primary focus was placed on the feasibility and potential cost of utility upgrades or modifications (i.e. burying overhead utility lines) that may be considered as part of potential streetscape alternatives. Existing utilities along the Cumberland Avenue corridor area are of sufficient size and carrying capacity to serve the redevelopment envisioned in this plan.

Recommendations

- Work with KUB to develop a Utility Master Plan for the Cumberland Avenue Corridor.** There are a number of utility upgrade opportunities (sanitary sewer, storm water, natural gas and water) KUB anticipates for the future that should be coordinated with the proposed Cumberland Avenue streetscape. A carefully developed master plan for the utilities in this corridor that is coordinated with future streetscape construction may result in savings to the overall project and to KUB. Additionally, one entity should be designated for the overall responsibility and authority to develop the utility master plan and conduct its implementation as a portion of the overall corridor redevelopment.
- Evaluate relocation options for overhead utilities.** The majority of the electrical service along Cumberland Avenue is overhead with most of the buildings fed from the back alleys. Putting this main conductor underground is possible, however, any relocation of this line would have to be performed on a wholesale basis along the entire portion of Cumberland Avenue to minimize the disruption to existing businesses, and to maintain redundant feeds required by the medical facilities. There are two potential relocation options; 1) relocate to the alleys, estimated cost is \$1,100,000 (excludes traffic control, permitting, and paving cost). 2) relocate under ground, estimated cost is \$2,300,000 (excludes traffic control, permitting and paving cost).
- Identify funding opportunities.** As with most construction projects, especially those involving multiple utilities, funding will be a major hurdle to overcome when considering redevelopment or relocation of utilities within the project area. While all utilities interviewed in preparing the utility evaluation have expressed a willingness to work together in relocating or moving utilities, it was stressed that the magnitude of costs associated with the work will require funding assistance.

Table 4:
KUB Utility Estimates for Cumberland Avenue Corridor Plan

Item	Relocation in Alley	Relocation Underground
Electric	\$1,100,000 (1)	\$2,300,000 (2)
Gas	\$200,000	\$200,000
Water	\$2,700,000	\$2,700,000
Waste Water	\$45,000 (3)	\$1,250,000 (4)
Total Estimate	\$4,045,000 (5)	\$6,450,000 (5)

Notes:

- (1) Relocate electric lines to alleys
- (2) Relocate electric lines underground
- (3) Inspection Cost
- (4) Potential upgrade & replacement of waste water lines
- (5) The estimates do not include any costs for Traffic Control measures (permits, designs, equipment, etc.) and other associated permits (Site Development, ROW, Street Cut, etc.) Also, estimates do not include costs for final paving. It is assumed that the final paving work would be part of the overall project.

Private Redevelopment

Knoxville stakeholders are aware that planned improvements to Cumberland Avenue must be integrated with other key goals of the district: higher quality and greater variety of commercial and residential uses, improved public realm, improved parking resources, better connections in and outside of the district, safety, and commercial appeal and vitality. The urban design plan for the corridor illustrates key areas and projects that can set the stage for the entire vision to be achieved over time as opportunities arise. Considering that the district is experiencing considerable development pressures, the following recommendations are a priority.

Recommendations

- Rewrite the C-7 Design District Regulations.** Use the form-based recommendations of the Cumberland Avenue Corridor Plan as a basis for developing a specific Cumberland Avenue Corridor Design District Development Code for the corridor, replacing the C-7 guidelines now in place. Organize the design regulations around street frontages to regulate the placement, height and form of buildings based on the nature of the street they front on. Redefine the C-7 District to include the full block on either side of Cumberland (to White and Lake Avenues) to recognize the importance of full blocks and the likelihood that development will begin to occur in larger increments.
- Implement the revised C-7 Design District Regulations quickly.** Redevelopment along the corridor is occurring and the new standards need to be in place to properly guide development. Move the new form-based guideline through the adoption process by the Metropolitan Planning Commission and City Council as soon as possible.
- Prepare and distribute a Cumberland Avenue Development Brochure.** Create a development brochure that can be distributed to developers and property owners interested in redevelopment. This brochure should serve as a marketing tool for the corridor that communicates the vision of the plan, outlines the development code, and energizes private development activity.

Mountcastle Park Redevelopment

The need and desire for a new public space in the Cumberland Avenue area was clearly expressed by the public during design sessions. The potential of Mountcastle Park, an isolated and underutilized open space bounded by Terrace and Lake Avenue and Mountcastle and Nineteenth Street, to address this need was identified quickly. In addition to the Cumberland Avenue reconfiguration and streetscape, the proposed reconfiguration of Mountcastle Park is a critical public project that will act as a catalyst for redevelopment and provide a unique physical and symbolic connection to the University and hospitals. The design and implementation of this project can come in a variety of ways but will require involvement from the City, the University, hospitals and private developers.

Recommendations

- **Integrate the Cumberland Avenue Corridor Plan into the University’s Campus Master Plan.** The University should amend its current Campus Master Plan to integrate the proposed corridor improvements and the urban design plan, particularly the Mountcastle Park reconfiguration, with proposed new housing locations directly related to the park and University.
- **Get City approval for park reconfiguration.** The reconfiguration of the existing Mountcastle Park (owned by the University) will require City approval based on the requirement that the park remain as public open space. The design scenario proposed envisions “swapping” land to maintain the same amount of open space but reconfigured to connect to Cumberland Avenue.
- **Identify potential development partners.** The extended park to Cumberland Avenue will need to be created in conjunction with the redevelopment of the adjacent block. The City and University should identify potential developers and assist in supporting this block’s redevelopment by helping to assemble parcels and providing funds for the park’s construction.

Parking

Parking is perhaps the single problem most commonly mentioned by area stakeholders. The public parking that does exist in the corridor is limited to on-street spaces on the side streets which are not well monitored or regulated. This results in the almost exclusive use of the on-street spaces by University or hospital users rather than by visitors to Cumberland Avenue. The off-street parking lots are privately owned and tightly controlled, creating a very negative and confusing impression to visitors. The pressure to better address parking resources is only going to grow, and will hurt commerce and land values if not addressed.

Increasingly, cities are beginning to treat downtown parking as a utility, a resource and service that is critical to the public and private sectors, rather than an end in itself. The goal here is to use a comprehensive approach to managing parking resources that will lead to innovative strategies for shared parking and greater use of cutting-edge parking technologies such as parking debit cards. Nashville has a parking authority that now manages a significant portion of downtown parking spaces. Chattanooga adopted a downtown parking strategy several years ago in part to help better manage parking for its growing tourism industry. The local transit authority provides this comprehensive management for the city of Chattanooga.

While strategies to create new public parking structures should be explored in conjunction with more dense development of the area, the most efficient short-term parking options can come through developing a comprehensive parking management strategy. This strategy would better use current parking resources by increasing the effectiveness of parking facilities, reducing parking demand and improving support strategies such as enhanced parking information, marketing and enforcement. For a good discussion of parking management strategies applicable to Cumberland Avenue, see “Parking Management Best Practices,” by Todd Litman, Planning, Oct. 2006, pp. 40-45.

Recommendations

- **Conduct a parking study** to assess current and projected district parking needs, evaluate shared parking options, explore increased use of transit, and evaluate possible locations and funding sources for new public structured parking. Talk with other cities that approach parking as a utility to determine possible advantages and disadvantages for Knoxville. Explore examples of shared university/city parking structures or initiatives.

- **Consider development of public parking lots/structures in strategic locations in the corridor.** These lots could be developed in cooperation with the University and hospitals, “piggybacking” on their pre-existing plans for parking facilities to either create shared, off-hour parking agreements or fund additional public spaces within their structures.
- **Consider creating a parking authority** to better manage parking resources, possibly in conjunction with downtown Knoxville. This authority could help facilitate the creation of shared parking agreements between properties and create and manage public parking resources. Consider using a portion of parking revenues to provide funds for new structured parking or improved transit services.
- **Update existing on-street parking meters** (many of the existing ones do not work) and regularly monitor parking to ensure a turnover that allows these spaces to be more accessible to Cumberland Avenue visitors.
- **Explore the utility of creating a residential parking permit** for resident parking only on certain streets at certain times in the Fort Sanders neighborhood to relieve residential parking pressures in the district.
- **Consider using the supply of public parking as a way to minimize private, on-site parking requirements.** The proposed urban design plan envisions approximately 130,000 square feet of ground floor commercial use, which would result in the need for 520 parking spaces at 4 spaces/1,000 square feet of commercial use (conservative, suburban standards). Public parking spaces could be used to reduce this requirement and potentially serve as an incentive to developers. Table 5 illustrates how a public parking supply could reduce private on-site spaces needed.

Table 5: Estimate of Public Parking

Total Spaces (4/1,000) for 130,000 s.f. of commercial	Private on-site spaces needed	Potential Public Parking Supply	Estimated Cost at \$20,000 per space (structured)
520	520 (4/1,000)	0	
520	390 (3/1,000)	130	\$2.6 million
520	260 (2/1,000)	260	\$5.2 million



8.0 Public Input



Advisory Committee Input (October 4th 2006)

- Integrate UT with the City
- Make attractive to adults as well as students
- Shopping, dining, safe for walking – a welcoming corridor
- Better coordinated events – site of varied and unique venues – more people!
- Mechanism for long term sustainable businesses
- Don't second guess or compromise
- Safety – personal
- Natural growth corridor for the City
- Safe & revitalized – positive community strip – an urban village with UT cooperation – seamless connection
- Urban campus – urban core
- Safety 24-7 for pedestrians, all folks, all users
- Reduction of vehicle/pedestrian conflicts
- Aesthetics – theme – consistency
- Want people to want to live here
- More efficient roadway & safety enhanced
- Minimize various traffic/pedestrian conflicts
- Seamless neighborhoods transition & mixed uses – shared parking
- Be the heart of a healthy livable corridor
- Safe – identifiable trolley bus pull offs
- A regional destination
- Safety for workers – hospital access conveyors more welcoming
- A place to be proud of
- Shared parking codes reform
- A safe place – plan long term
- Easier access for vehicles to businesses – pedestrian safety
- Re-attract students
- Access to hospitals – improved vehicle flow
- Reduce pedestrian/auto conflicts
- Project needs to be done
- On going major player dialogue

Left top: Image from the Public brainstorming input Nov. 9th, 2006

Center and left bottom: Images from the Advisory Committee Meeting on Oct. 4th, 2006

Public Brainstorming Input (November 9, 2006)

Pedestrians/Bicycles

- Time traffic signals to be more pedestrian friendly (shorter cycle lengths)
- More pedestrian friendly
- Larger, safer pedestrian passages
- Safer pedestrian crossings
- Safer for bicycles, bike lanes
- Safe and enjoyable bicycle & pedestrian environment – bike lanes, streets, trees, well marked crosswalks, slower speeds
- Bike lanes along the entire corridor, which will connect to future bike lanes. Bike lockers like the ones in the parking garages by Market Square for travelers & commuters
- Pedestrian scale of the street and atmosphere to create “social” space
- Re-surfacing of sidewalks
- More pedestrian orientation – fewer cars – more room for bikes, strollers & wheelchairs
- Much more of a pedestrian-friendly place
- Separating walking versus bike lanes is critical. It's hard to ride and walk in the same space
- Pedestrian sidewalks should be larger to accommodate large crowds, straight access from the dorms, fort & campus
- Barrier between pedestrians and vehicles
- Safer foot traffic, barriers (hedges for example) that keep pedestrians on crosswalks
- More attractive sidewalks
- Wide sidewalks with trees
- Pedestrian – bike
- Pedestrian appeal for all users

Parking

- All parking and deliveries in the back of buildings
- More parking in rear of buildings
- Parking garages that allow people who make purchases/eat on the strip to allow up to 2 hours for free parking
- Ample parking in centralized location parking garage
- Limit or eliminate parking in front of businesses – this will do the most to reduce accidents
- On-street parking
- Parking made easier
- All parking in the back
- Move parking from the front of the buildings to the back
- Shared parking within the district
- Less cars in my view, smaller lanes, slower traffic, off street parking, parking garages – that don't look like parking garages

Mixed Use/Retail Environment

- Unique local businesses – no more chains!
- Lose the “freeway exit restaurant spread” less fast food – allow other vendors – unique eateries
- Increase retail on the strip
- More markets / open or farmers markets
- I feel the commercial space is wasted; vacant or closed lots
- 24-hour activity
- A children’s museum on the water
- Diverse shops–healthy image
- Apartments over shops, office and parking structures
- Wide variety of retail uses (books, clothes & groceries)
- Have more one of a kind restaurants, not chain restaurants
- Higher/greater density–people living above Sunspot or the bank.
- Design standards no more boxing–Taco Bell–Krystal’s architecture

Character “feel”/Public Realm

- Less cars in my view, smaller lanes, slower traffic, off street parking, parking garages – that don’t look like parking garages
- Unique local businesses – no more chains!
- Less visual clutter/enhanced streetscape
- UT needs to respect the neighborhood! Stop tearing down historic structures & integrate new construction into existing land use
- Less clutter – billboards, high signs, telephone pole wires
- Aesthetically pleasing
- A beautiful place to have a cup of coffee, a beer or dinner
- Aesthetically beautiful entrance to the neighborhood, University & downtown
- More of an avenue or boulevard feel
- More continuity in design
- Homeless
- Respectful of existing historic architecture developed
- Modern architecture – downtown atmosphere, sharp angles
- Natural beauty structures, crosswalks, greenspace, cleanliness!
- No big signage – NEON
- Vibrant community instead of transient area Pedestrian, Scale of the street and atmosphere to create “social” space
- Form-based codes
- A clean well-lit place in greenspaces and in others missing
- Curb the panhandling!
- Less lack of infill. Push parking & housing away. More density
- Fewer store signs on the south side of the street – make it more subtle like the north side
- Signage needs to be more uniform
- Removal of unsightly advertising
- Less visual clutter
- Unified look for strip streetscape
- A healthy, clean, individual spot!

- Reduce visual clutter – bury power lines, codify signage, make visually appealing, lighting & directional
- Like “Mayberry”
- Make a place that people don’t just go to but they stay in
- Make Fort Sanders a community again. Not a 3-5 year home for students
- SEC character – a place where the students hang out example – GA, Ole Miss & Alabama
- Keep the scale in check – not downtown but not Farragut
- Less panhandling
- One unique lighting identity
- Density should be limited in terms of high rises
- There are no good outdoor gathering spaces adjacent to the strip for concerts, etc.
- Don’t treat the homeless like something to hide
- Be visually pleasing as well as easily accessible to all parts of the strip from campus, Fort Sanders, downtown, etc.

Green

- More green vegetation on strip center
- More green spaces – trees planted down the sidewalks – flower pots that are maintained – less concrete!
- Greener
- More recycling/green – environmentally friendly clean spaces
- Plant more trees & grass and get rid of asphalt
- Fresh – trees, pedestrians not so close to stagnant car exhaust
- Pervious pavements, more greenery using native species
- Wide sidewalks with trees
- Increased landscaping
- More trees and landscaping – visually more attractive
- More street trees
- Setbacks with greenspace, trees & grass

Traffic Control/Management /Transit

- Wider streets – how will this effect businesses & commercial appeal to the UT campus in general
- 20 mph speed limit, motorized traffic volume down to 20% of present
- Safer and more efficient traffic flow – vehicular, bike & pedestrian
- Push more traffic to Neyland and other outside routes with less traffic lights. Cumberland should not serve as a spine for parking structures
- Better all around pedestrian access to businesses, safer vehicular flows & parking. Pedestrian bridges? Think GAME DAY!
- Better traffic flow – traffic calming
- Slower speeds on Cumberland
- Don’t divert traffic to Clinch Ave.
- Use transit to de-emphasize through traffic and emphasize peripheral parking
- Will bus pullouts impede transit
- Ideal plan for the strip would be no autos....perhaps a two trolley system and re-routing cars to alleys and garages

Connections

- Strong connection to downtown – redevelop 11th Street and Cumberland area
- Bike lanes along the entire corridor, which will connect to future bike lanes. Bike lockers like the ones in the parking garages by Market Square for travelers & commuters
- Many students live in South Knoxville, other employees of the university and others need better links to the university
- Gateways
- Connections to the strip from the fort, dorms and academic buildings need to be improved as much as the strip

Other

- Greater definition of boundaries & modes. 17th & Cumberland are entries to strip & downtown
- Hospital & University collaboration
- Emergency phones (call boxes)
- Listen to what the community wants, not just to what would benefit business or your wallets



Public Charrette Table Session Input (December 5, 2006)

The following were questions asked of each participant to discuss during the public charrette table sessions:

1. **Does the vision statement fit your vision for Cumberland?**
(*Vision Statement: Cumberland Avenue will be a uniquely attractive and vibrant area that turns a “pike to a street” a “strip to a place” and reconnects to its neighbors.*)
2. **What do you think of the 3-lane option? What features should be incorporated? Where should we put them?**
 - On-street parking
 - Wider sidewalks
 - Bike lanes
 - Bus stops & pull-offs
 - Service & delivery areas
 - Trees
3. **What should be kept “as-is” in the district?**
4. **What kinds of development should we plan for and where should it go?**
 - Public gathering places
 - Surface, shared & structured parking
 - Types of housing & retail
 - Mixed-use development
5. **What connections within the district or to areas outside need to be improved or created?**

Table 1: Make way for Transit!

Table 1 participants were skeptical about change because some of them had a long history as property owners in the area, but they were supportive of the three lane proposal and had ideas about transit in the area.

- Minimize trolleys and buses on Cumberland
- Have a trolley that connects the whole area
- Create a bypass if necessary
- Don’t send trolleys downtown
- Remove utilities on street
- Improve utilities in the alley
- Leave cars parked and use the transit system
- Alleys improved to accommodate deliveries

They drew:

- A trolley route through the district
- Bus pull offs
- Trees on Cumberland Ave.

Table 2: In the Mix

Table 2 participants wanted to answer every question, and liked the vision statement and the three lane option.

- Art supplies and books
- A mix that caters to students, staff, and residents 24/7
- Make mixes vertical and make the university part of it
- Should be welcoming to entire city
- How do you handle Lake Avenue, connection between Cumberland and University
- Wider sidewalks a necessity

They drew:

- Don’t change College Inn, between 18th and 20th on north side, the character of Cumberland through the university
- Maintain access to medical facilities on north-south streets
- Address potential development at Mountcastle Park
- Moved or underground utilities
- Street tree with street furnishings
- Change radii on side streets to allow service vehicles to operate off of Cumberland
- Striped bike lanes
- Undeveloped spaces for bus pull offs
- Gateway improvements on 17th

Table 3: Parking–R–Us

Table 3 Participants were very detailed in their recommendations, particularly about parking, service and delivery, and they wanted to keep the Fort Sanders neighborhood character preserved.

- No parking on Cumberland
- Could UT/hospitals and merchants share parking as in White Ave. garage?
- What kinds of services hospitals do want for their staff?
- How much can strip business be regulated, such as removing Panera out front parking?
- How does the 3 lane option work with so many crosswalks?
- Vision statement should be more pedestrian friendly
- On street parking may make its own problems
- Alley might be a better face for businesses with back porch seating and pedestrian traffic
- Cars and deliveries have to go somewhere

Public inputs during table sessions at the charrette



Some active drawing and debate during table sessions at the charrette

- Alleys will have to be widened
- Best solution for vehicles may be border parking like UT
- Underground parking may not be healthy because of fumes
- Can delivery times be regulated to stop night deliveries?
- Campus Pointe and new development could add grocery stores
- Some deliveries need to be made very close to businesses, cases of beer
- Keep Karnes Drugs, OCI, trees on White
- White Ave. parking garage and some lots on west end of Fort for border lots
- Reduce surface lots and build structure garages but must be safe
- Safe access to Tyson Park via bikes and pedestrian
- Divert some traffic from Cumberland to other streets? Side streets not built for speed.
- Another northwest exit from neighborhood near Rohm and Haas
- Reconfigure one way streets, 19th and 20th work well
- Maximize Cumberland for pedestrian potential
- One way streets are confusing
- Parking off Concord

They drew:

- Taking Terrace and Lake Ave. to two way
- OCI with storefront retail with parking above and behind
- Parking garages at Cumberland and 22nd, White and 22nd.
- Shared parking at 20th and White
- Keep glorious trees and old homes on White
- Alley with sidewalks and cafes between 18th and 19th, Cumberland and White
- Railroad barrier to Tyson Park

Table 4: I see the light!

Table 4 participants validated the vision statement and thought three lanes was a bad idea. They had lots to say about lighting, alleys, connections, parking and visual clutter.

- Consistent lighting style, like World’s Fair Park
- Ground lighting
- Garage pick up time limited, no late night
- Bike lane
- Smaller, less cluttered signs
- Standards – enforced
- Street parking on one side, bike lane on other
- No street parking
- Fewer bus stops
- Underground utilities
- Pros are density with income, proximity to downtown, multi-venue destination
- Traffic lights/lighting not pedestrian friendly
- Clean up filthy dirty alley between Lake and Cumberland

- Eliminate ugly storefronts
- Develop design standards for businesses
- Restrict use of alley between Lake and Cumberland
- Add “no loitering” signs behind restaurants
- Sidewalk from Cumberland down Mountcastle to connect with Lake Ave. sidewalk
- Lower price for parking at Lake Ave and 18th St. so more students use

They drew:

- Street trees and low street lights along Cumberland
- Shared parking garages at 18th and White and at the UT garage on Lake
- Noted a dangerous condition on Cumberland between Alcoa and 22nd
- A greenway connection to Cumberland from Tyson Park
- Crossed through on-street parking and drew bike lanes on the proposed section

Table 5: Green Bike Team

Table 5 participants had lots of ideas about how to redevelop the district in a more ecologically friendly way and they all wanted it to be more bike friendly.

- Bike lanes/public transportation
- Close several blocks to create a plaza like Market Square
- Route through traffic to Neyland
- Shared parking in back
- Bikeable neighborhoods
- Create a plaza with a community garden
- Small amphitheater, place for summer concerts/food/café
- Beautiful parks
- Ecologically and environmentally responsible construction
- Where are materials coming from?
- Community gardens
- Locally owned businesses
- Community led action, involvement and decision making on all levels
- Less driving/drive-throughs
- Solar panels on roofs
- Green roofs
- Bike lanes, bike lanes, bike lanes
- Uses: grocery store, hardware store, park and plaza event space
- Construction will impact businesses
- Bury utilities
- Design guidelines: no signs above buildings, third story development, give design boards more teeth
- Blend university standards with corridor
- Eliminate on-street parking
- Use bays for transit (bus pull offs)
- Less transit stops
- Don’t kill off existing businesses

They drew:

- Shared parking at White and 21st, city to buy lot
- Green space 19th block of Cumberland
- Potential development at White and 18th
- Crossed through front of store parking

Table 6: The Big Vision

Table 6 participants talked a lot about big ideas and long term prospects for the district. They wanted to make the most of Mountcastle park as well.

- High density parking behind, less surface lots fronting Cumberland Ave.
- Utility lines need to be underground/pedestrian scale
- Limit types of bars, restaurants and such, more neighborhood uses
- Use UT and existing parks as greenspace
- Work with UT for parking and housing on back side of Cumberland
- Sign ordinance
- Lighting changes to be more pedestrian friendly
- Create bicycle stands
- Signal timing
- Change one ways to two ways
- Safe and secure street
- Three lane to Tyson Park
- Create overlay association
- Limit delivery trucks to the rear
- Make it a destination location
- Decrease bars and create more unique retail/eateries with patios
- Create safe connection to proposed sorority housing
- High density public parking for business on strip
- More bridges across Cumberland
- Allow for second story pedestrian traffic
- Use traffic calming method, landscaping, bump-outs on Cumberland
- Internet accessible street
- Neyland Drive- how can it take all the overflow without making it more disconnected, how to tie into waterfront development
- Eliminate non-commercial on-street parking
- Use vertical space while maintaining pedestrian scale with buildings
- Bike lanes essential
- Area as residential would be for young professionals/doctors/students
- More vegetation
- Improve existing parks by making safer
- Eliminate some side street parking to connect back to campus and strip
- More high density parking and multi-story buildings
- One ways are annoying and confusing
- No on-street parking, especially not parallel because they will cause traffic back up

- Market Square is precedent for no on-street deliveries
- Cumberland Avenue equals pedestrian priorities with three traffic lanes
- Any green space needs to stay at street level, not roofs
- Existing and or new development of commercial/residential and potentially rear/air access to buildings
- Appropriate/compatible design transition between Cumberland and Ft. Sanders

They drew:

- Large anchor for Main Street at 22nd and Cumberland
- North side of Cumberland multi use to the street edge all along
- Back side is high density parking on White
- South side of Cumberland, mix of uses and some purely retail with UTK parking decks lined with housing
- Improved Mountcastle Park
- Revamp existing UTK parking garage next to Mountcastle

Table 7:

This table was not needed during the break-out session.

Table 8: Less is more

Table 8 participants noted a number of things they wanted less of or removed altogether. They liked both on street parking and the three lane proposal.

- Less predatory parking lots
- Less curb cuts
- Less fast food and gas stations
- Go high vertical on Cumberland, step down on Lake and White
- Alleys for service vehicles
- Three lanes yes
- On street parking yes
- Integrate development from front to back with alley access
- Hawkeye’s parking for parking structure
- Green connection from Cumberland to Mountcastle Park
- Route traffic to Neyland as possible
- How many surface parking spaces exist now in Fort Sanders?
- Less duplication of services
- Signalize crosswalks and enforce jaywalking
- Shared parking
- Five to six stories or more on Cumberland (mixed use)

They drew:

- Parking garage on Terrace next to UT parking garage
- Trees all down Cumberland from 22nd to 16th
- Preserve existing houses on Lake and White
- Redeveloped Walgreens lot

- A build to line on Cumberland
- Shared parking on parking lots used by Fort Sanders Hospital
- Preserve the Longbranch
- Preserve retail edge along Cumberland between 18th and 19th

Table 10: Making the Connection

Table 10 participants wanted to strengthen internal and external connections. They had a lot to say about the types of appropriate development and the need for an effective mix of uses throughout.

- Strengthen the connections to downtown
- Concern about bike lanes
- Concern about connecting bike lanes, sidewalks and lighting
- Concern about activating parks
- Panhandling
- Concern about development on three lanes, mixed use maybe incompatible uses
- Residential focus on north side
- Beware of treading on right-of-way, want to be able to build to right-of-way
- Need more green space
- Vision statement, should add mixed use
- On street parking, strategic and ideally
- Improve alley access
- Clarify intent of development in vision statement

They drew:

- More commercial on Cumberland and White, 19th to 22nd
- Cumberland and 17th a possible center
- Designated bus stops, example at Cumberland and 18th
- Residential between Cumberland and Clinch and 19th and 17th
- Keep Mountcastle Park
- Keep Longbranch
- Keep residential edge at Lake between Volunteer Blvd and Mountcastle
- Scale of large student housing on White out of scale for neighborhood