Chapman Highway Corridor Study

PREPARED BY THE KNOXVILLE • KNOX COUNTY METROPOLITAN PLANNING COMMISSION

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The James White Parkway-Chapman Highway Task Force for developing the Vision for Chapman Highway; and

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Chapter 1:

Introduction

For several years, the Knoxville-Knox County Metropolitan Planning Commission has been committed to working with state and local governments, businesses and property owners to transform gateway arterial corridors such as Chapman Highway. Chapman Highway serves as a major entry point to Knox County from surrounding counties, and the images along it offer a lasting impression of the community.

Much discussion has taken place related to Chapman Highway improvements, extension of James White Parkway, and the South Waterfront development. This plan should be used as a guide for land use, site and building design, and thoroughfare characteristics along Chapman Highway as the corridor is renewed over the next several years. Three main principles influenced the development of this plan: safety and operations, beautification and economic development. These elements are all interconnected and in many ways mutually dependant upon one another.

There are challenges involved with creating a corridor plan that meets the needs of neighborhoods along an established regional highway. A majority of the Chapman Highway frontage is zoned for types of commercial uses that serve a wide market area, so ease of automotive access is required. The study area (see Map 1) spans the distance between downtown Knoxville and Seymour, with some attention given to the portion of the corridor just outside of Knox County. This document outlines concepts for short-term improvements that should be implemented as soon as possible, as well as longer range improvements that can take place as opportunities arise.

GUIDING PRINCIPLES:

Safety and Operations

Roadway improvements should accommodate all transportation modes while acknowledging the car as the primary method of transportation. Improvements should increase the satisfaction, safety and comfort of all users. This can be accomplished through use of well-designed intersections, easily understood turning movements, and other access management techniques.

A “complete street” accommodates pedestrians, bicycles, and public transit, in addition to motor vehicles.

Beautification

Chapman Highway serves as a gateway and should be a source of local pride. Improvements should enhance public and private spaces and provide new opportunities for residents to enjoy the natural beauty and charm of South Knoxville and South Knox County. Use of landscaping and other design standards can improve visual appeal, increase property values, improve safety and operations, and stimulate economic development.

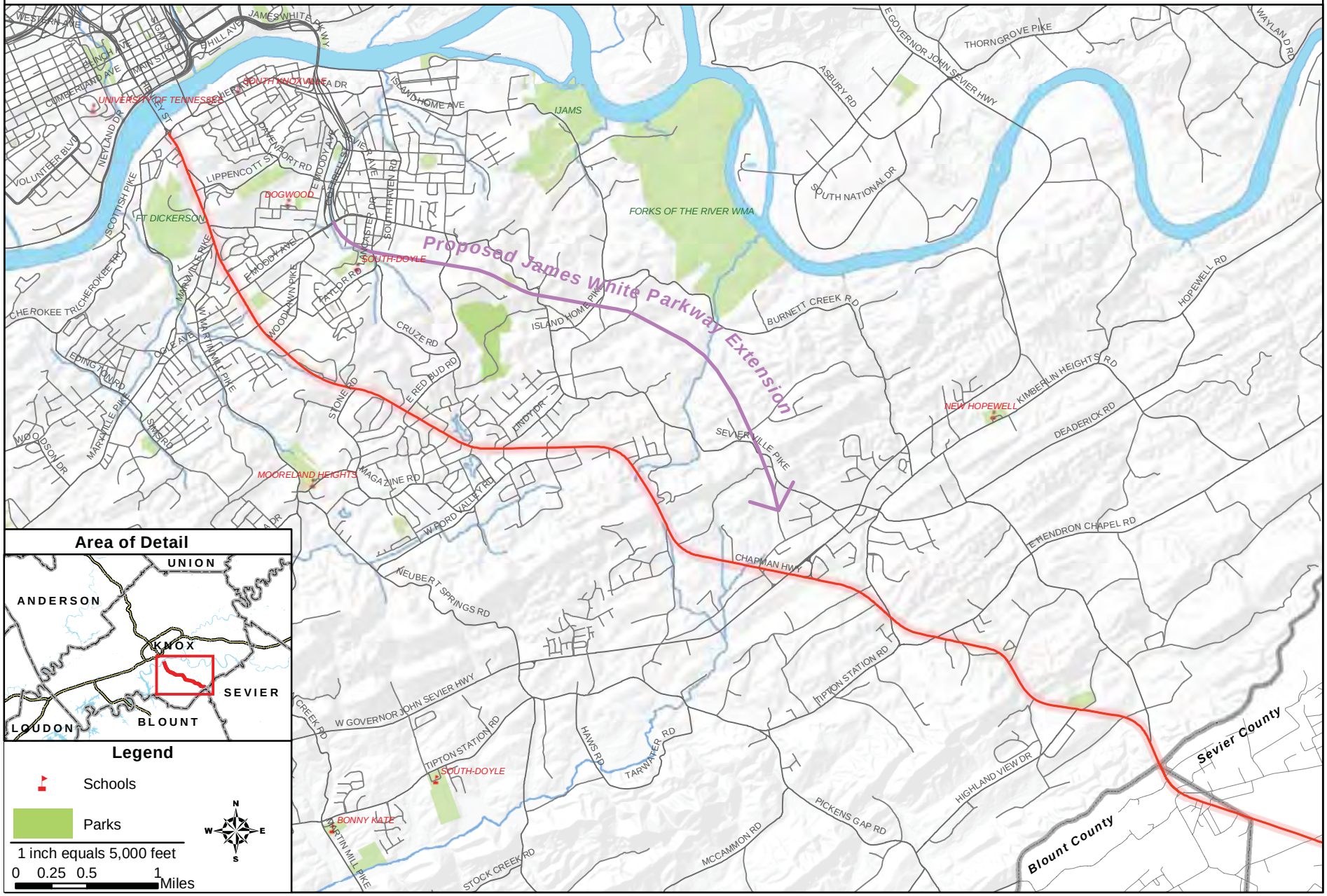
Use of landscaping and design standards will improve the visual appeal.

Economic Development

Transportation and land use should be well organized to increase opportunities for viable community businesses. Corridor improvements should stimulate investment in quality businesses by encouraging better designs, a good variety of establishments and creation of an environment that these businesses can thrive in. Redevelopment of underutilized properties offers virtually unlimited opportunities to strengthen the local economy.

A safer, more attractive corridor will strengthen the business environment.

Map 1: Study Area Base Map



THE COMMUNITY VISION:

A pedestrian- and bike-friendly community is desired, with improved transit and attractive destinations.

The Tennessee River, while it is a barrier between south Knoxville and Downtown, can also be an asset.

Chapman Highway is viewed as the hub of business and community activity.

James White Parkway is a traffic mover with no commercial development.

The plan outlines the potential of Chapman Highway by illustrating ways to apply the community's vision for land use and transportation. Chapman Highway will continue to accommodate and welcome people passing through the South Knox community. It should also better serve the surrounding neighborhoods by offering pedestrian-friendly centers that make transit a viable alternative, new housing options, new jobs and high-quality retail areas that redefine the character of the community.

Although churches, banks and other civic components are present, the predominant uses along the highway are a mix of fast food restaurants, gas stations and other auto-related uses, strip shopping centers and older motor lodges. These uses do not reflect the vision of the community, and currently much of the property is vacant or underutilized.

Development along the corridor includes auto-related uses.

Chapman Highway in the 1940s, near Lindbergh Forest

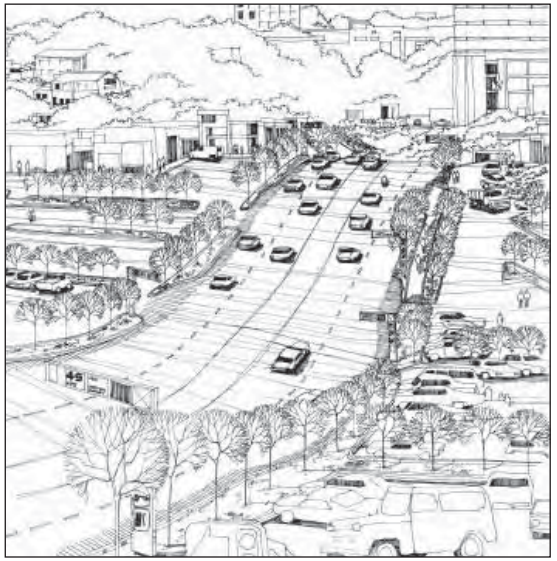
HISTORY

Prior to the turn of the 20th century, development was sparse due to a lack of good access across the Tennessee River. Geographic constraints such as shallow bedrock outcrops, sinkholes and steep slopes also hindered South Knoxville's growth. Although Lindbergh Forest, established in the 1920s, is one of Knoxville's first suburban neighborhoods, little subdivision development occurred until the 1940s.

In the 1960s, population increased by approximately 10 percent due to construction of single-family homes and apartments. Chapman Highway emerged as a commercial corridor to serve the increased residential population. According to a study commissioned by MPC in 1968, the businesses were predominately supermarkets, restaurants, motels, car dealerships and service stations, most of them comparatively new. Even then, the lack of visual appeal along Chapman Highway was a concern. Cluttered signage, utility poles and failure to take advantage of naturally occurring scenic vistas were cited as problems.

Tourists visiting the Great Smoky Mountains National Park also traveled into Pigeon Forge and Gatlinburg using Chapman Highway. The 1968 MPC study reported that many of the 3,300 existing motel rooms were in two principal areas: along Chapman Highway and Cumberland Avenue/Kingston Pike.

The Wayoma Motel, then and now, serving fewer tourists traveling to the Great Smoky Mountains.



A 1970 study recommended additional landscaping, better access control and reducing visual clutter.

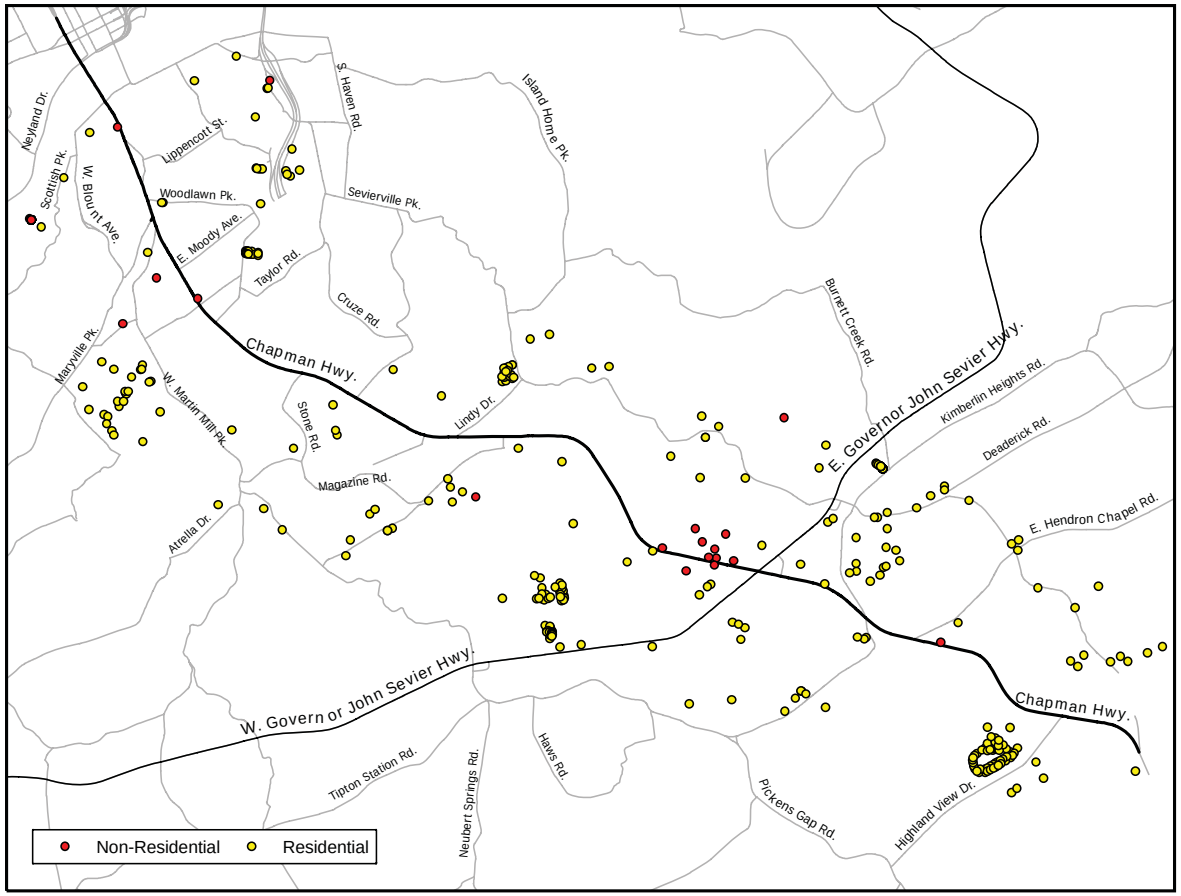
EXISTING CONDITIONS

Many of the motels and shops that served the tourist trade are now defunct, since most tourists use Interstate 40 and State Route 66 for access into the Smoky Mountains. Population in the incorporated portions of South Knoxville began to drop in the seventies, but this trend appears to be reversing due in part to recent construction of student housing. South Knox County has been much slower to develop than other parts of Knox County, although growth has picked up recently. Much of the new development, both commercial and residential, is occurring in the area around Governor John Sevier Highway, as illustrated by the building permits shown in Figure 1. More than 500,000 square feet of new "big-box" retail construction has taken place recently along Chapman Highway near Governor John Sevier Highway. Construction on another large site is under way; an aerial photo of the Southgrove development can be seen below.

Site preparation is under way on the Southgrove development.

Most new construction has occurred on undeveloped land, and has done little to reverse the aging and deterioration evident along the corridor. One exception is South Trader's Landing, which won an MPC award in 2003 for redeveloping the site of a former tire warehouse.

Figure 1: Building Permits, 2003-May 2006



SOUTH TRADER'S LANDING: The metamorphosis of a decrepit tire warehouse into an attractive shopping center. The wall signs provide information about the tenants without relying on large pole signs, and landscaping softens the parking area.

This aerial view, taken in July 2006, shows the commercial development around Governor John Sevier Highway, including Wal-Mart, Home Depot and, in the upper right, two Nova call-centers that are re-using former retail space.

Of the estimated 450 businesses having Chapman Highway addresses, over 100 are listed as being vacant according to the 2004 Knoxville City Directory. There are more than 50 auto-related establishments such as used car lots, auto-parts stores and service stations. Although automotive uses have always been a significant part of Chapman's mix of businesses, residents desire a more diverse retail shopping experience. More than 30 businesses provide either pawn or consignment goods, check cashing services or storage space. Several motels that formerly provided lodging to tourists now serve as semi-permanent housing for a transient population who live or work in the region. The abundance of aging buildings and asphalt-laden parking areas creates a desolate streetscape, lacking appeal and missing many of the characteristics of vibrant urban and suburban areas.

Automotive uses have always been a significant part of Chapman Highway's mix of businesses. (photos circa1969)

Much vacant space exists along the corridor.

Residents are eager to see improvements along Chapman Highway.

Utility poles and yard signs partially obscure kudzu growing on this hillside.

Vacant land that remains in the rural areas along the corridor is likely to develop with similar uses and style unless more emphasis is placed on development quality. The success of any street type is largely dependent on the shape, scale and use of the buildings that surround the roadway, and Chapman Highway is no exception. Buildings that exhibit quality construction, beauty and permanence will reinforce Chapman Highway's role as a main street for the many neighborhoods that rely on it.

As Chapman Highway continues to evolve and develop, the neighborhoods need to reclaim the roadway as a pleasant, desirable place to be. Current landscaping is sparse, in many places limited to private street yards and occasional street trees. The invasive species, kudzu, is rampant along the undeveloped properties and steep slopes, displacing native plants that once thrived in the area.

Street lighting, when available, is scaled to motor vehicles rather than both pedestrians and vehicles. Bike facilities, pedestrian amenities and transit shelters are virtually non-existent. Vast areas of asphalt are visually unattractive and detrimental to air and water quality. Frequent curb cuts increase opportunities for crashes and conflicts, since drivers have a hard time predicting when cars ahead of them will turn or come to a stop. This also creates unsafe conditions for bicyclists and pedestrians.

For commuters in South Knox County, Seymour and portions of Blount County bordering Knox and Sevier, there are very few alternatives to using Chapman Highway. Crash rates are higher than average in many places along the corridor and when crashes do occur, commuters encounter lengthy delays.

Chapman Highway is not pedestrian-friendly.

Large parking areas with no landscaping are visually unattractive.

Frequent curb cuts are a safety issue.

In 2006, the Tennessee Department of Transportation will begin environmental studies and identify potential route alignments for the James White Parkway extension. Extending James White Parkway southward to Governor John Sevier Highway as recommended by the James White Parkway-Chapman Highway Corridor Study Task Force will divert some traffic off Chapman Highway and onto the proposed parkway. Extension of James White Parkway alone is not anticipated to significantly improve the safety of Chapman Highway, although overall safety will improve as a result of more trips occurring on a limited-access divided parkway, which is considered a safer road design. Community stakeholders agree that modifications to improve the safety and operation of Chapman Highway are necessary, and extending James White Parkway without also improving Chapman Highway will not adequately meet the transportation needs of Knoxville and South Knox County. Typical complaints include a lack of turn lanes, abundance of driveways, and excessive speeds.

Recommendations in this plan assume that the James White Parkway will be extended, although the outcome of the proposed extension will not be known until after the Environmental Impact Statement (EIS) is completed and funding is obtained. The EIS process, outlined by the National Environmental Policy Act of 1969 (NEPA), requires that a series of alternatives be examined, including improvements to Chapman Highway.

OPPORTUNITIES

The Chapman Highway corridor benefits from its location near the University of Tennessee and Knoxville's central business district. Downtown renewal, waterfront redevelopment and future investment in transportation projects are opportunities to use as catalysts for positive change. Making Chapman Highway a "complete street" to safely accommodate a variety of transportation alternatives including walking, biking and transit is one major opportunity. Redeveloping older commercial areas into modern mixed-use facilities by thinking of growth as vertical rather than horizontal is another opportunity that should not be ignored. For instance, in some areas office and residential uses could be constructed above retail establishments. In the interim, simple improvements in landscaping, facades and signage will enhance the corridor's appearance, while better access control measures, sight distance improvements, and a few more turn lanes will improve safety and function. As a result, Chapman Highway can become a more attractive location for many types of business.

The corridor also benefits from its proximity to great regional open spaces as well as local parks, including Ijams Nature Center, Fort Dickerson and the distant Smoky Mountain National Park, allowing for both active and passive recreation. These parks can be connected into a regional open space network - one that can be accessed via foot or bicycle from nearby neighborhoods.

Recently the Institute of Transportation Engineers released a series of proposals in a document titled *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*, which was developed in partnership with the Congress for the New Urbanism. The use of context-sensitive solutions (CSS) results in transportation projects that serve all users. By involving the public in each stage of planning, the improvements are more responsive to community goals and environmental concerns. The opportunity now exists to apply CSS principles to retrofit Chapman Highway.

This landscaped street accommodates bicyclists and pedestrians, while still permitting access to highway-oriented businesses.

The landscaped median added to this highway improves safety and appearance.

Redeveloping older commercial areas

To encourage the use of a variety of transportation alternatives and promote more livable streets, neighborhoods and communities, a high priority should be placed on the following characteristics:

- Mixed land uses in close proximity to one another
- Building entries that front directly onto the street without parking between entries and the public right-of-way
- Building, landscape and thoroughfare design that is pedestrian-scale, in other words, provides architectural and urban design detail with size and design appreciated by persons who are traveling slowly and observing from the street level.
- Relatively compact development (both residential and commercial)
- A highly connected, multimodal circulation network, usually with a fine "grain" created by relatively short blocks
- Thoroughfares and other public spaces that contribute to "placemaking" – the creation of unique locations that are compact, mixed-use and pedestrian-and transit-oriented and have a strong civic character with lasting economic value.

Source:
Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, page 10-11.

Context sensitivity sometimes requires that the design of the thoroughfare change as it passes through areas where a change in character is desired.

— Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities

Chapter 2:

Public Input

In order to better identify the improvements needed along Chapman Highway and allow community stakeholders to participate effectively in the planning process, several methods were used to obtain input. Much discussion about Chapman Highway took place in 2004 during the formulation of a recommendation on extending the James White Parkway. This effort involved more than 30 task force members, four subcommittees, 35 meetings open to the public, three large-scale open house style meetings and several meetings with community groups. It is estimated that between 300 and 400 people attended a presentation. All material was also available on MPC's web site.

Meeting attendees review the recommendations of the James White Parkway Task Force.

With the recommendation on the James White Parkway extension completed in early 2005, staff began to focus specifically on the Chapman Highway Corridor by working with a smaller, more informal group of stakeholders from the city and county. When discussing places to conserve, Fort Dickerson Park, the Lakes in Colonial Village, and the Kerns Bakery building were mentioned. Older businesses that have not maintained an attractive appearance were viewed as being less desirable.

The community discusses what they like and don't like with MPC planners.

A public meeting was held to obtain more specific information about what people like and don't like about Chapman Highway. After this meeting, the list of places to conserve was expanded to include:

- Ye Olde Steakhouse
- Duff Field/Young High School Stadium
- Little Switzerland
- Lindbergh Forest, which is experiencing some intrusion from commercial uses
- Berry's Funeral Home
- Flenniken School
- The Baptist Hospital
- Lippencott Park, Civil War Site
- Unique businesses such as Sally's Alley, the Florist and Kay's Ice Cream
- Bower Field Park
- Ridges and hillsides
- Charter Doyle Park
- Remnants of the Smoky Mountain Railroad
- Greenspace between Stone Road and Colonial
- All neighborhoods

These areas are important to residents of South Knoxville and Knox County, and as planning turns into implementation, every effort should be made to avoid damaging these special features.

"There seems to be major accidents weekly on my way to and from work"

"With a bike lane, I could ride a bike to work"

The community values places for recreation.

For additional input, a questionnaire was widely distributed via public meetings, local newspapers, MPC's web site, and door-to-door hand delivery to businesses along Chapman Highway. More than 250 people responded by providing input, and over 180 separate questionnaires were returned. A copy of the questionnaire used to obtain input can be found in Appendix A.

Most respondents indicated that they rely mainly on their personal vehicle for transportation, with less than 3 percent indicating otherwise. Approximately 17 percent reported using other alternatives in addition to their personal vehicle. Over 30 percent of the respondents indicated that improvements would encourage them to try alternative transportation, or use them more frequently. The following were suggested:

Survey respondents suggested expanding public transit service.

- Bike lanes
- More sidewalks, including sidewalks to bus stops and between retail establishments
- More crosswalks and crossing bridges
- Greenway system - walking and biking trails connecting downtown and south Knoxville
- Expanded public transit routes - out to John Sevier Highway, Boyd's Creek/Seymour
- More frequent transit service
- Park-and-ride facilities where you can leave your car or bike and use the bus system
- Easier access to route and stop information, including schedules and phone numbers posted at each stop to call for current information.
- Covered bus stops
- Trolley or train
- Better lighting at night/better security
- Slower traffic

This suburban building is enhanced by quality materials, a monument sign and landscaping that softens the parking area.

"Discourage strip center development; instead, encourage more upscale retail, possibly in an enhanced and inviting architectural setting like a village. Give incentives for architectural excellence —give developers a reason to build more attractive structures"

Respondents were asked about how to improve Chapman Highway's overall appearance. This resulted in a wide variety of solutions, ranging from simple facelifts for renewing the older buildings, to tearing buildings down and starting over. Some expressed feelings of frustration and indicated that very little could be done unless the property owners were willing. Many suggested transportation improvements, and some respondents noted that safety was more important than appearance. Everyone agrees that safety is the most important factor, and in many cases safe roadway designs can be very attractive. The following ideas were offered:

- More landscaping
- A master plan/better planning
- Center median with trees
- Better sidewalks
- Nice lighting
- Fewer acres of parking lots bordering the street
- Fewer billboards
- Bike lanes
- Public parks and green spaces
- More businesses/higher quality businesses
- Sign ordinance
- Condemn "trailers as businesses"
- No metal flat-roof buildings
- Get a vision for "the look" and work to implement – stick to it!
- Buffering junk yards and unattractive land uses so that they are not visible from the road
- Force property owners to renew old structures/ improve curb appeal
- Reduce the speed of traffic
- Remove overhead utility lines
- Improve roadside appearance with more frequent mowing and litter removal
- Code enforcement and zoning
- Redesign shopping centers/fewer strip malls
- Redesign Chapman Highway - reduce width or add lanes
- Service roads for access to businesses
- More turn lanes

"…where turn lanes are obviously not needed, construct medians"

A "Master Sign" for this shopping center reduces the total number of signs required.

"Make it beautiful and safe and people will want to come"

Business interests were asked some additional questions, such as "What can be done to improve the business climate along Chapman Highway?" Responses included:

- Keep it clean and appealing
- Public meetings, higher standards and beautification projects
- Have all sale items be enclosed – no sales allowed in public rights-of-way
- Improve the looks of the buildings and the landscape – buildings in disrepair should be removed or repaired
- Remove excessive auto lots
- Quality shopping destinations – nicer retail
- Riverfront development
- Better quality apartments and housing
- Better traffic control to relieve congestion
- Increased safety for pedestrian traffic
- Have a slogan similar to the "Halls has it" concept
- The community must grow to support Chapman Highway businesses

Chapter 3:

Transportation and Land Use Analysis

A frontage road is used to provide access to businesses along this corridor. Monument signs and sidewalks are located in the street yard adjacent to the main arterial.

This portion of the study contains an overview of the corridor, a brief description of the operational and safety concerns, and information on recent projects such as signal timing improvements. Land use is described, particularly in regard to the context of the roadway. Level of service (LOS), traffic volume, and other characteristics of the thoroughfare are also listed. For long-range planning purposes, the plan suggests roadway designs (referred to as cross-sections) that are compatible with proposed land use for each segment of Chapman Highway. The relationship between land use and transportation will be an important factor in developing the transportation improvements. Pending projects are also highlighted.

During the upcoming year, TDOT will conduct transportation planning studies for the city and county portions of Chapman Highway to provide detailed transportation improvement measures, using this document for guidance.

Operational and Safety Concerns

The public feedback received makes it abundantly clear that users are concerned about the safety of Chapman Highway and the way traffic flows along it. Problems, both real and perceived, are a result of several factors, including land use, roadway design, and traffic volume. Traffic operations can be improved through greater use of access management, coordinated signal timing, removal of unwarranted signals and accommodation of turning traffic at intersections. These improvements, along with other roadway design features, can result in increased safety for the users of Chapman Highway.

The Institute of Transportation Engineers defines access management as "the management of the interference with through traffic caused by traffic entering, leaving and crossing thoroughfares." Nearly all properties along Chapman Highway have direct access, sometimes unlimited access, to the arterial. Redesigning portions of Chapman Highway would allow access to be managed better, which could lead to significantly lower crash rates and better traffic flow by reducing conflict points. Better access management can include relatively simple measures such as consolidating driveways and limiting turn movements by use of a median. More extensive measures such as grade-separated interchanges and systems of frontage and backage roads are also used to manage access.

A large percentage of vehicle crashes occurring on Chapman Highway are rear-end collisions, which cause property damage and traffic delays. More serious injuries and fatalities typically happen in the locations with no center turn lane. All crashes involving pedestrians and bicyclists pose a high risk for serious injury, and many people currently avoid walking or biking along Chapman due to the safety issues.

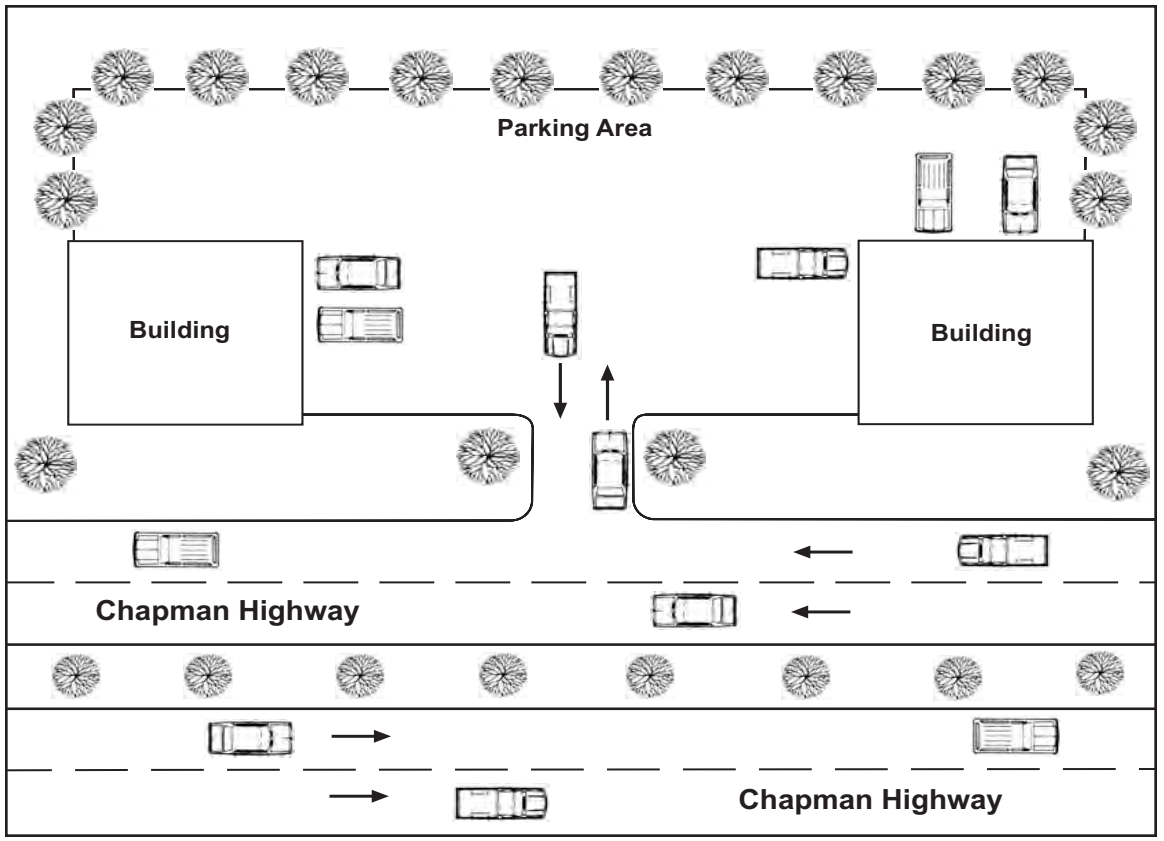
Increased safety can be achieved in several ways:

- Providing space for different modes - bicyclists, pedestrians and motor vehicles
- Informing users of the mix of modes
- Providing uniform and predictable designs and traffic control, based on context
- Establishing appropriate design speed, based on context
- Adding appropriate design elements (center turn lanes or medians, right turn lanes, etc.)
- Providing adequate sight distance

In most traffic incidents, someone is breaking the law. Enforcement has increased, but because officers have other responsibilities in addition to traffic enforcement, it is hard to estimate how much of their time is spent on traffic issues. Knoxville Police Department has considered an automated red-light camera at one of the signal lights - Moody or Young High Pike - but it was not included in the first phase of camera installation. Regardless of what improvements are made, nothing can replace attentive drivers obeying traffic rules that have been established to protect personal safety.

Topographical constraints may limit the options for improving some portions of the corridor, but these constraints should not be an excuse to delay in identification of solutions. As the community moves forward with improvements, attention should be given to the trade-offs each proposed project will have. Traffic experts, land use planners, the public and the elected officials – a full range of stakeholders – should participate in discussions. Understanding that traffic problems will not always be solved by a strictly engineering approach is crucial. Stronger land use and development regulations can be just as effective in many cases, without placing the financial burden of road improvements on the public sector.

Figure 2: Access Management



Access management limits the locations where direct access is provided to adjacent land.

Immediate improvements are needed at some intersections where a turn lane is not present. The addition of a center turn lane should be considered a short-term operational/safety improvement but not the desired long-term solution. A median is generally preferred as being safer, and a median will be recommended for many segments of Chapman Highway if a redesign occurs.

Rear-end crashes on Chapman Highway delay traffic.

Signal Timing Improvements

Volkert & Associates, Inc. recently completed a signal timing study to evaluate and update signal timings along Henley Street and Chapman Highway. Signal timings must be periodically updated to match changes in traffic patterns. Poorly coordinated signals can create excessive stop-and-go conditions that contribute to delays and congestion. Better signal coordination can provide improvements in traffic flow and reductions in vehicle emissions.

The study included 15 signalized intersections between Clinch Avenue and Stone Road. Four types of data were collected: intersection turning movement counts, 24-hour directional mid-block traffic volume counts, spacing of signalized intersections, and travel time and delay information. The distance from the intersection of Henley Street and Main Street to Chapman Highway at Blount Avenue is not long enough to divide Henley Street and Chapman Highway into two separate signal timing plans, so they were analyzed as one corridor. The goal was to reduce travel time and delay while increasing average travel speed.

After Volkert & Associates collected data and analyzed existing conditions during 2003, new signal timing plans were developed, field-tested and implemented. Separate timing plans were developed for the AM, Midday and PM periods. A post-timing study was conducted to determine the impacts of the new signal timings. The updated signal timing plan became fully operational in April 2005. The City of Knoxville's traffic engineering division is currently collecting data on crash rates to see if the new signal timing has any impact on crash rates at these intersections. More crashes tend to occur at the signalized intersections.

Signal coordination is one of the often mentioned improvements that has been studied and recently implemented. Modernization of signals, such as upgrades to the equipment, is also necessary, especially at unwarranted signalized intersections.

Highway Characteristics

Chapman Highway is classified as an urban principal arterial. It is an undivided highway and typically has two through lanes in each direction. Several sections of the highway lack center turn lanes, have narrow shoulders and have no medians. Average daily traffic (ADT) volume ranges from 42,000 at Henley Street Bridge to 29,970 at the Knox County line, with posted speed limits of 45-50 mph (see Maps 2 and 3). Approximately 2.8 miles of corridor have moderate congestion, categorized as a level of service (LOS) of E. Several intersections have crash rates above the state critical rate, which indicates statistically that the site has a high frequency of crashes. Land use varies from strip commercial to suburban residential and mixed commercial and office uses.

Volume-to-Capacity Ratio (V/C)
and
Level of Service (LOS)

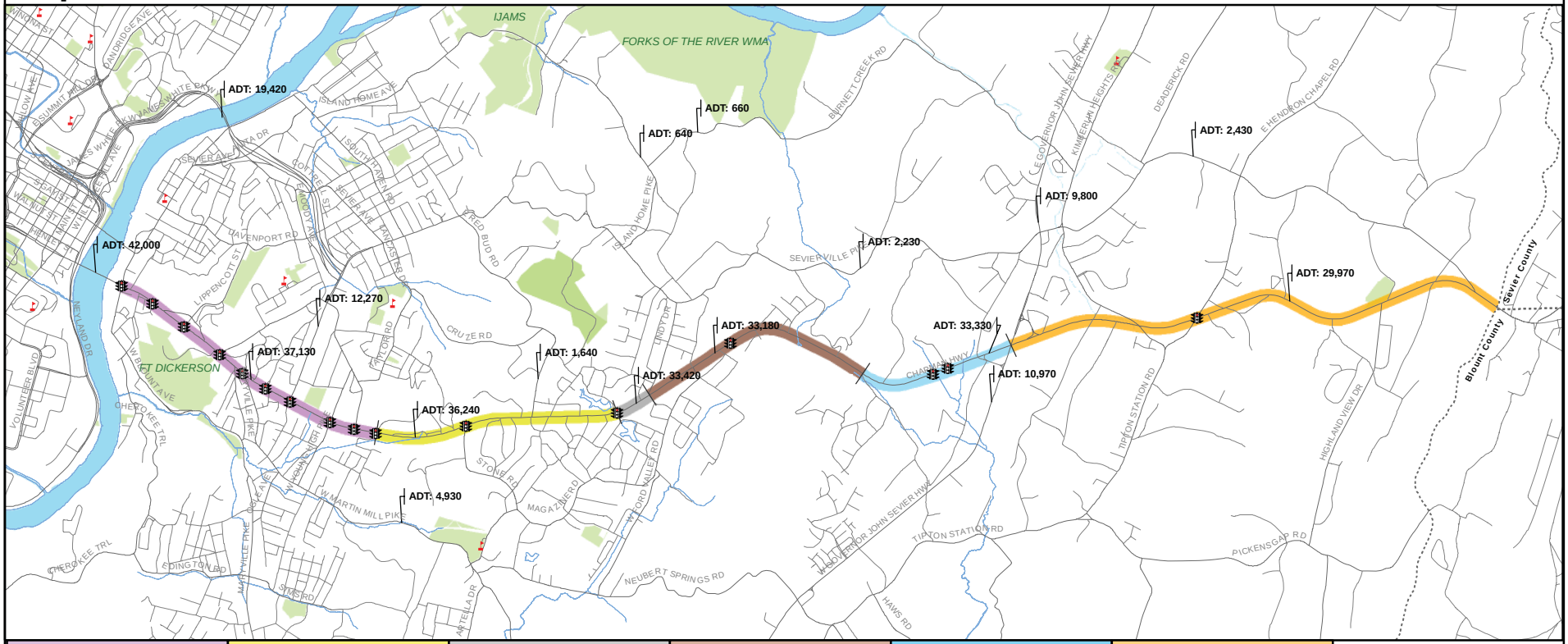
Volume-to-capacity ratio (V/C) and level of service (LOS) are related terms that attempt to describe how well a roadway is operating, the amount of congestion motorists are experiencing, and the corresponding driver comfort level. A V/C ratio greater than 1 indicates that there is more traffic demand than the roadway can theoretically accommodate. LOS ranges from A to F, similar to a student's report card. Additional information can be found in Appendix B, Travel Demand Data.

Signal timing improvements have been implemented.

Land use close to downtown is mainly commercial.

Sections of Chapman have no center turn lane or median.

Map 2: Traffic Characteristics - 2005 Baseline Conditions



SEGMENT 1	SEGMENT 2	SEGMENT 3	SEGMENT 4	SEGMENT 5	SEGMENT 6
BLOUNT AVE TO FRONDA LN	**FRONDA LN TO COLONIAL DR**	**COLONIAL DR TO LINDY DR**	**LINDY DR TO W. DICK FORD LANE**	**W. DICK FORD LN. TO JOHN SEVIER HWY**	**JOHN SEVIER HWY TO KNOX COUNTY LINE**
Average Daily Traffic	Average Daily Traffic	Average Daily Traffic	Average Daily Traffic	Average Daily Traffic	Average Daily Traffic
ADT: 37,130	ADT: 36,240	ADT: 33,240	ADT: 33,180	ADT: 33,330	ADT: 29,970
Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio
V/C: 0.84	V/C: 0.84	V/C: 0.73	V/C: 0.66	V/C: 0.72	V/C: 0.65
Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
LOS: E	LOS: E	LOS: D	LOS: D	LOS: D	LOS: C
AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)
AM: 25.2	AM: 24.1	AM: 24.4	AM: 32.0	AM: 29.1	AM: 37.0
PM: 35.6	PM: 32.0	PM: 38.6	PM: 43.1	PM: 37.8	PM: 46.4
DAILY: 36.1	DAILY: 35.0	DAILY: 38.6	DAILY: 43.8	DAILY: 38.7	DAILY: 47.2
ACCIDENT RATE (Acc. Per Million Vehicle Miles)	ACCIDENT RATE (Acc. Per Million Vehicle Miles)	ACCIDENT RATE (Acc. Per Million Vehicle Miles)	ACCIDENT RATE (Acc. Per Million Vehicle Miles)	ACCIDENT RATE (Acc. Per Million Vehicle Miles)	ACCIDENT RATE (Acc. Per Million Vehicle Miles)
11.2 acc/mvm	4.0 acc/mvm	5.8 acc/mvm	2.3 acc/mvm	2.1 acc/mvm	3.4 acc/mvm

Legend

- Existing Traffic Signals
- Schools
- Parks

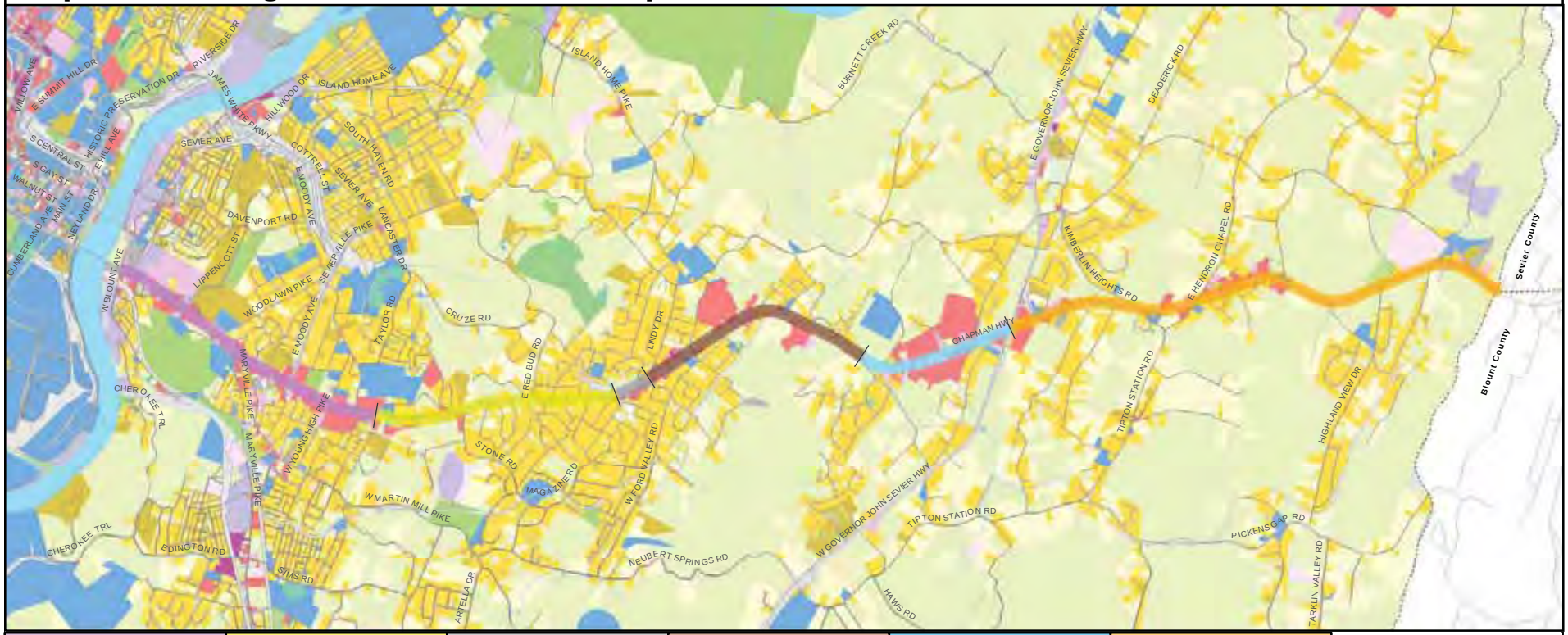
ADT = Average Daily Traffic

Average Daily Traffic Volumes are estimates for the period shown and are based on outputs from a travel demand forecasting

0 0.5 1 Miles

1 inch equals 5,000 feet

Map 3: Existing Land Use and Transportation Features



SEGMENT 1	SEGMENT 2	SEGMENT 3	SEGMENT 4	SEGMENT 5	SEGMENT 6
BLOUNT AVE TO FRONDA LN LENGTH = 1.8 miles Land Use : Strip Commercial Roadway Characteristics • Four 11 ft. lanes • Entire section includes continuous center turn lane • Includes wide shoulders/ deceleration lanes throughout section, especially southbound • Nine signalized intersections • Posted Speed Limit = 45 mph	**FRONDA LN TO COLONIAL DR** LENGTH = 1.0 mile Land Use: Suburban Residential Roadway Characteristics • Four 11 ft. lanes • Infrequent turn lanes • Narrow shoulders • Two signalized intersections (Stone Road & Fronda Lane) • Posted Speed Limit = 45 mph	**COLONIAL DR TO LINDY DR** LENGTH = 0.6 miles Land Use: Mixed Uses of Residential, Commercial and Office Roadway Characteristics • Four 11 ft. lanes • Majority of section includes some type of center left turn lane • Wide shoulders • One signalized intersection (Colonial Drive) • Posted Speed Limit = 45 mph	**LINDY DR TO W. DICK FORD LANE** LENGTH = 1.8 miles Land Use: Strip Commercial Roadway Characteristics • Four 11 ft. lanes • Infrequent turn lanes, no median • Narrow 2-4 ft. shoulders • One signalized intersection (Old Wal-Mart Shopping Center) • Posted Speed Limit = 45 mph	**W. DICK FORD LN. TO JOHN SEVIER HWY** LENGTH = 1.0 mile Land Use: Strip Commercial and Large Shopping Centers Roadway Characteristics • Four 11 ft. lanes • Continuous Center Turn Lane • Wide shoulders/deceleration lanes exist through majority of section • Two signalized intersections (Green Road & NOVA Shopping Center) • Posted Speed Limit = 50 mph	**JOHN SEVIER HWY TO KNOX COUNTY LINE** LENGTH = 3.0 miles Land Use: Rural Residential and Highway Commercial Roadway Characteristics • Four 11 ft. lanes • Infrequent turn lanes, no median (double yellow lines about 2 ft. apart) • Narrow shoulders (2 ft. majority of section) • One signalized intersection (Hendrons Chapel Drive) • Posted Speed Limit = 45 mph

Legend

- Rural Residential
- Single Family Residential
- Multifamily Residential
- Commercial
- Office
- Industrial (Manufacturing)
- Wholesale
- Transportation/Communications/Utilities
- Public/Quasi Public Land
- Agriculture/Forestry/Vacant Land
- Public Parks
- Private Recreation
- Under Construction/Other Uses
- Unknown Land Uses
- Water
- Right of Way/Open Space

0 0.5 1 Miles

1 inch equals 5,000 feet

Recommendations

In order to make recommendations, Chapman Highway has been divided into segments that are based on the type of road design – four lane, five lane, etc. Another way to group the highway into smaller, similar segments would be to use the context zone, and this document will refer to the context zone frequently. Just as the roadway design varies, the context of the roadway also changes along the length of Chapman Highway. Context encompasses environmental, social, economic and historical aspects of a community. It is defined by several parameters, including land use, density and other design features. Buildings, landscaping, land-use mix, site access and public and semi-public open spaces shape the context of roadways.

The context zones present along Chapman Highway range from the close-to-downtown areas that can acquire a more urban feel over time, to the developing suburban areas that are still somewhat agricultural in nature. Recommendations for these segments, including roadway cross-section recommendations, are based on what is most appropriate for the context zone.

Some recommendations are short term, intermediate improvements to be viewed as temporary solutions. Long range, more visionary ideas are also included. These are achievable in the future with support from the community.

SEGMENT 1: Blount/Sevier Avenues to Overbrook/Fronda Lane (LOS E)

The majority of the traffic signals are in this section of roadway, and this is where the corridor is most heavily congested. Strip commercial uses front the arterial, with numerous, closely spaced curb cuts. Residential uses are located on either side of Chapman Highway just beyond the commercial strip. Opportunities to manage access and provide bike, transit and pedestrian facilities along this section need to be identified. One of the challenges in this segment is the high turnover rate and traffic volume associated with the type of businesses located here. Vehicles entering and leaving a business impact traffic flow. Another challenge is the limited right-of-way, which appears to be approximately 76 feet for most of the segment, compared to 120 feet for most of Chapman Highway south of Young High Pike to the Knox County line. The accident rate for this 1.8 mile section is 12.2 accidents/million vehicle miles (acc/mvm), significantly above the state average of 5.41 acc/mvm for similar roadway types.

Planners and engineers evaluate the need for transportation system improvements through use of a Travel Demand Model that attempts to replicate traffic patterns in the region and forecast future traffic volumes. This model is helpful in estimating the potential for diversion of traffic once the James White Parkway is extended. It is estimated that in 2030, with James White Parkway completed to Governor John Sevier Highway, approximately 30,560 vehicles (7,000 fewer than in 2005 according to forecasts) will travel this segment of Chapman Highway daily given similar land uses. Commuters and others wishing for a faster drive without stop lights or access to commercial services will use the new parkway, leaving local traffic on Chapman Highway. Diversion to James White Parkway will allow Chapman Highway to be improved in a way that accommodates the full range of transportation options, so that more trips can be made by foot, transit or bicycle.

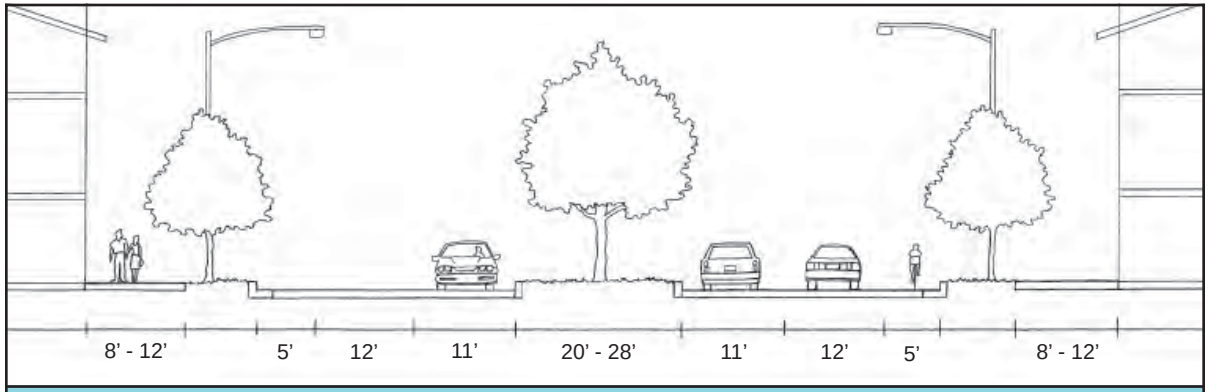
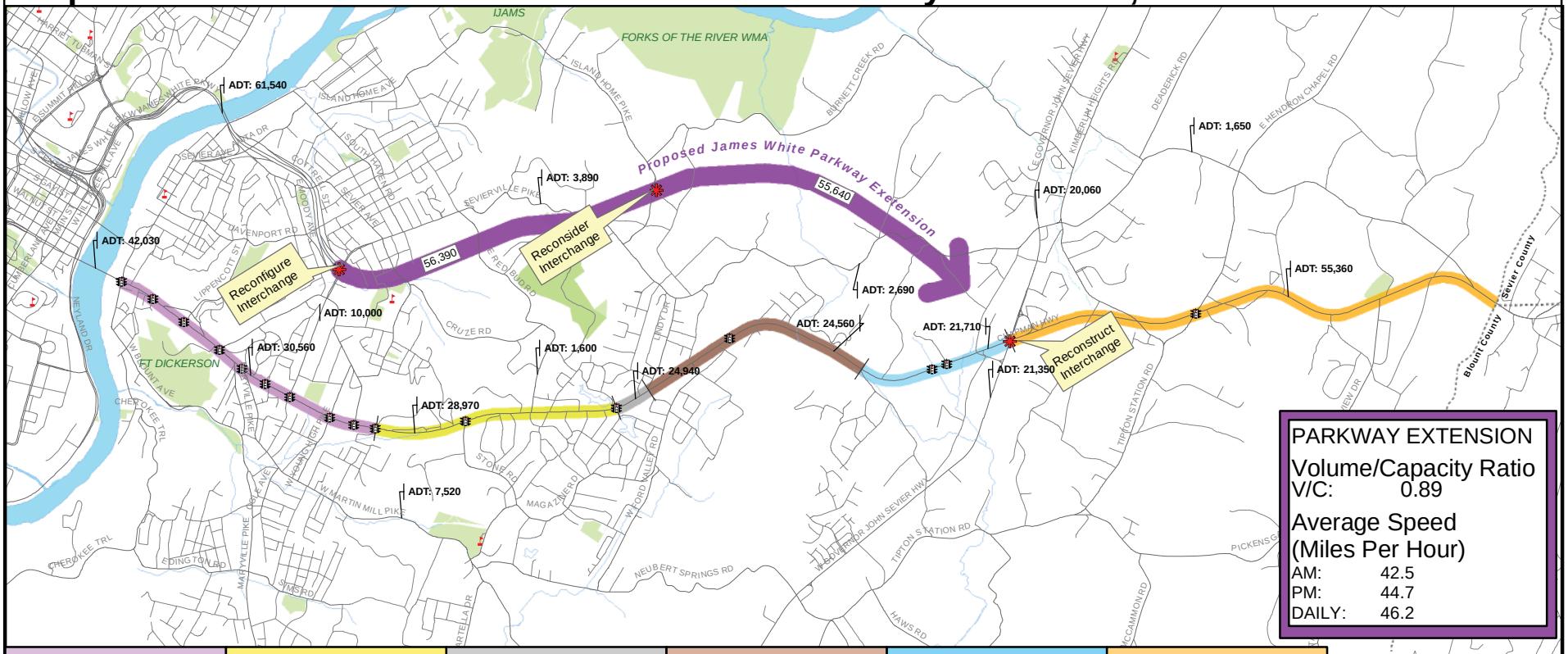


Figure 3: Boulevard Concept

A boulevard-style redevelopment is recommended for the length of Segment 1. The boulevard concept has been discussed and championed by many residents within the community as a long-term improvement that will significantly enhance the corridor. The boulevard would include a low-speed, tree-lined street with bike lanes, additional sidewalks, and landscaped center islands to provide access control.

Map 4: Forecasted Traffic with James White Parkway Extension, Year 2030



SEGMENT 1	SEGMENT 2	SEGMENT 3	SEGMENT 4	SEGMENT 5	SEGMENT 6
BLOUNT AVE TO FRONDA LN	**FRONDA LN TO COLONIAL DR**	**COLONIAL DR TO LINDY DR**	**LINDY DR TO W. DICK FORD LANE**	**W. DICK FORD LN. TO JOHN SEVIER HWY**	**JOHN SEVIER HWY TO KNOX COUNTY LINE**
Average Daily Traffic	Average Daily Traffic	Average Daily Traffic	Average Daily Traffic	Average Daily Traffic	Average Daily Traffic
ADT: 30,560	ADT: 28,970	ADT: 24,940	ADT: 24,560	ADT: 21,710	ADT: 55,360
Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio	Volume/Capacity Ratio
V/C: 0.82	V/C: 0.80	V/C: 0.54	V/C: 0.46	V/C: 0.46	V/C: 1.00
Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
LOS: E	LOS: D	LOS: C	LOS: B	LOS: B	LOS: E
AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)	AVERAGE SPEED (Miles Per Hour)
AM: 21.6	AM: 23.8	AM: 40.0	AM: 45.0	AM: 42.8	AM: 6.0
PM: 28.6	PM: 33.7	PM: 41.9	PM: 46.1	PM: 42.4	PM: 4.9
DAILY: 30.7	DAILY: 35.0	DAILY: 44.0	DAILY: 46.8	DAILY: 43.2	DAILY: 10.1
SEGMENT DIVERSION (Vehicles Diverted to Parkway)	SEGMENT DIVERSION (Vehicles Diverted to Parkway)	SEGMENT DIVERSION (Vehicles Diverted to Parkway)	SEGMENT DIVERSION (Vehicles Diverted to Parkway)	SEGMENT DIVERSION (Vehicles Diverted to Parkway)	
Vehicles: 26,780	Vehicles: 31,370	Vehicles: 32,550	Vehicles: 35,020	Vehicles: 40,560	

Legend

Schools

Parks

ADT = Average Daily Traffic

Average Daily Traffic Volumes are estimates for the period shown and are based on outputs from a travel demand forecasting

0 0.5 1 Miles

1 inch equals 5,000 feet

The northern portion of this section is adjacent to the South Waterfront study area. Access in and out of the waterfront area is currently constrained by steep topography, narrow railroad underpasses and the winding, local roads that haphazardly intersect with one another. However, the South Waterfront Vision Plan cites character as the street system's shortcoming, rather than capacity.

Strip commercial along Chapman Highway contributes to this lack of character. The South Waterfront Vision Plan calls for new gateway park space along Chapman Highway near Henley Street, to launch its transformation from a suburban strip highway to an urban boulevard. The new park space is described as simple but vital, signaling a transition in neighborhood, use and tone. The Henley Gateway Park, as proposed, will open up a welcoming view.

Figure 4: South Waterfront Plan Area
As part of the South Waterfront Vision Plan, Chapman Highway will be transformed to an urban boulevard.

> Knoxville's South Waterfront will be an active, attractive, and distinctive part of downtown Knoxville and a gateway to diverse neighborhoods, waterfront recreation, revitalized business districts and places of employment. It will preserve and enhance things that make it special today. It will be a better place to live, work, play and move around."
>
> — Knoxville South Waterfront Vision Plan

Transportation improvements called for as part of the South Waterfront Vision Plan include a new intersection at Henley Street and investments on Augusta Avenue. Augusta's intersection with Chapman currently needs a significant amount of work. Augusta Avenue will become an important connection to Vestal as the South Waterfront improvements are implemented.

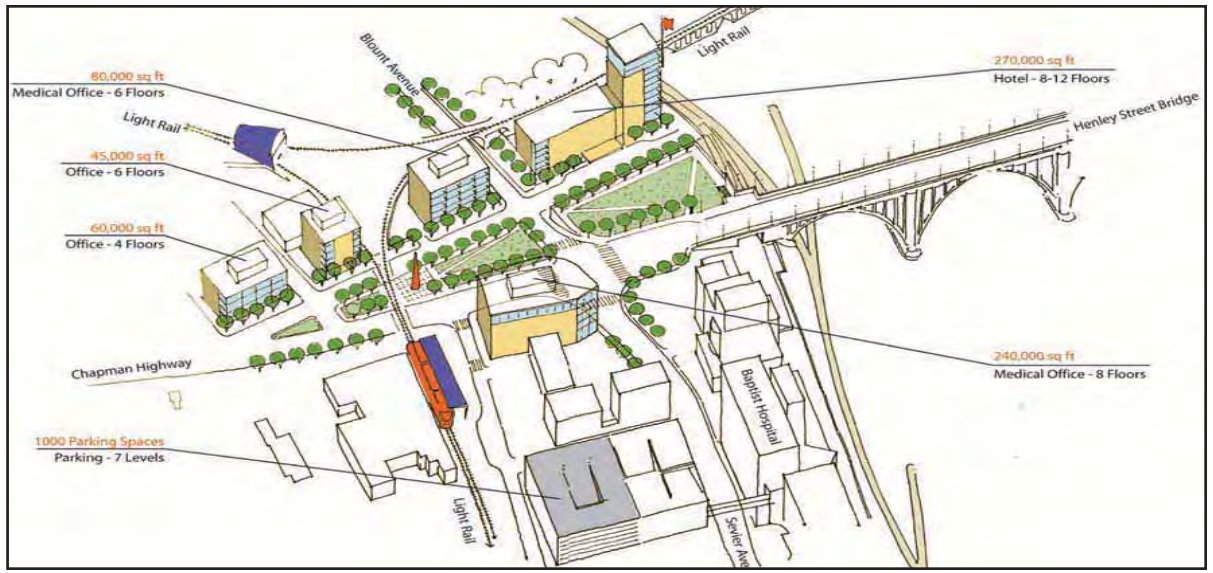


Figure 5: Henley Gateway Park
The Henley Gateway Park will open up a welcoming view.

Fort Avenue

- Implement access management measures in the area surrounding the Fort Avenue signal. Figure 6 shows conceptually how the restaurants can connect parking areas and consolidate driveways to direct traffic onto Chapman Highway at the signalized intersection.

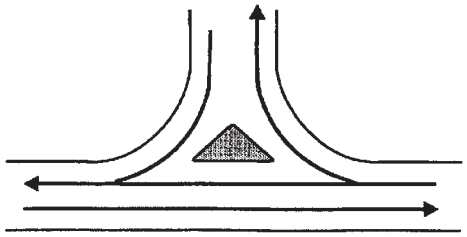
E. Martin Mill Pike/Fort Avenue to Woodlawn

- Based on the existing pedestrian environment, add transit amenities such as covered stops and bus pull-offs at locations where pedestrians are comfortable.

- Improve the entrance to Fort Dickerson according to plans developed by the Fort Dickerson Task Force in cooperation with the East Tennessee Community Design Center.
- Extend existing sidewalks in Vestal to Chapman Highway and improve road connectivity, potentially installing a traffic circle at the intersection of Blount Avenue and Maryville Pike.
- Use the same or similar urban design treatment as that found in the waterfront redevelopment area.
- Enhance the "old Hotel area" between East Martin Mill Pike and Moody Avenue, potentially through designation as a redevelopment area through Knoxville's Community Development Corporation (KCDC).

Figure 6: Fort Avenue Access Management Techniques

Techniques to manage access near Fort Avenue could include driveway treatments (omit some, share some, restrict some to right-in and right-out), internal circulation improvements and construction of a backage road.



Driveway Channelizing Island to Discourage Left-Turn Egress and Ingress Maneuvers

Lindberg Forest

- Protect the character of the neighborhood and recognize its historic significance, potentially using a historic or conservation overlay.

Taliwa Court to Fronda Lane - The Town Center

The Town Center is best described as a pedestrian-friendly, mixed-use urban development that provides shopping, employment, housing, and business and personal services. The developments are intended to promote efficient, compact land use patterns and reduce reliance on personal motorized vehicles. A high level of attention to site and building design is required to promote attractive, functional development. Low-density and medium-density residential units are already located within a 10-minute walk of this core area, and long-term redevelopment opportunities could add more residential units. The City of Knoxville zoning ordinance currently has a Town Center District (TC-1) to facilitate this type of development. It could also be realized through the use of form-based codes or overlays that are not currently a part of the development regulations in Knoxville.

With good proximity to downtown and the waterfront, this is an ideal location for a Town Center. The illustrations to the right show how an aging suburban shopping center can be transformed into a thriving, mixed-use development.

- Mixed-use growth of residential, office and commercial uses should be encouraged and can occur vertically through redevelopment. The higher-intensity residential development that is envisioned will require ample parking, but the placement and visibility of the parking areas should be designed in a way that does not cause unattractive gaps in the streetscape. Figure 10 illustrates how the various uses would be integrated.
- Improvements to existing public and private spaces will be required in order to attract more residents, including park improvements and greenway connections. Create a better visual connection from Chapman Highway to Sam Duff Memorial Park by use of landscaping, a pedestrian path and public-plaza space between Chapman Highway and the park. Improved landscape and facilities are also recommended for Sam Duff Memorial Park as the proposed town center district is developing.
- Provide street furniture, such as benches and waste receptacles, at regular intervals along the sidewalk.
- Increase internal access between businesses, eventually developing a grid pattern of local streets while eliminating individual curb cuts along Chapman, especially those occurring near intersections.

Transitioning into the existing neighborhoods, new development could include townhouses at the edges of low-density areas with parking in the rear of the buildings.

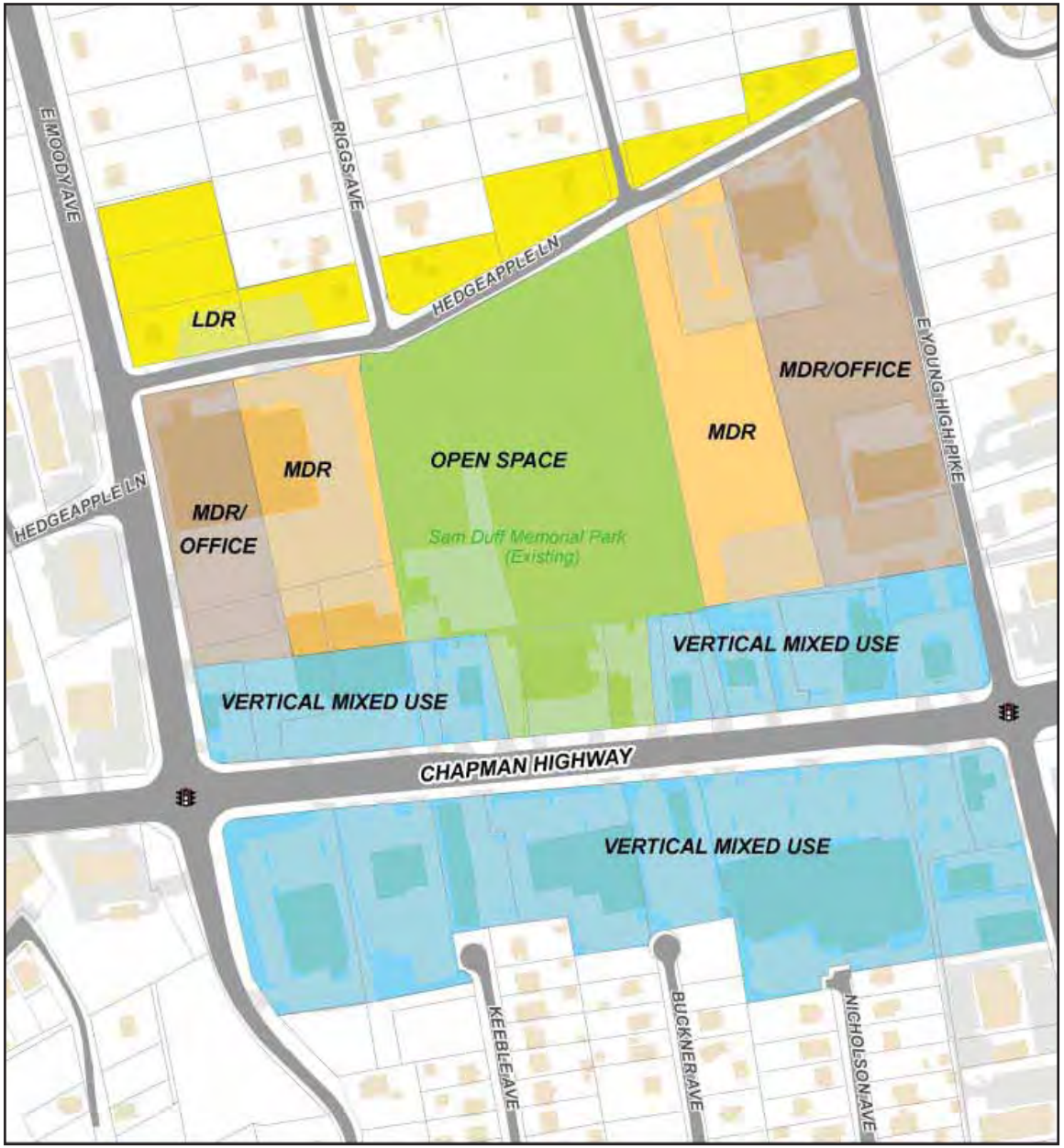
A denser, more urban public-plaza space could link Chapman Highway and Duff Park.

Figure 7: Existing Conditions
Auto-oriented regional arterial is inhospitable to pedestrians. The street is wider than it needs to be; signage and lighting are oversized. Despite being located on a major transportation corridor, land uses are low-intensity and underutilized. Driveways invade what little pedestrian space exists. Parking lots along the street and blank-walled buildings form a public space that is unattractive.

Figure 8: Phase I
Public improvements in the streetscape and pedestrian environment are coupled with changes in land use policy. Higher intensity, mixed-use developments are attracted to the corridor. New buildings are placed next to the street, on-street parking is provided and off-street parking is located in the rear. A landscaped median adds definition to the corridor, and the former parking lot entrance is converted to a street. Building placement and the mix of ground-floor commercial and upper-story office uses bring pedestrian activity to the sidewalk, which is made pleasant and interesting by building design details. Street trees and on-street parking buffer pedestrians from traffic.

Figure 9: Phase II
A new housing development with apartments above office and retail on the ground floor frames the street and provides a smooth transition to the adjacent neighborhoods by transitioning to street-fronting townhouses. The increased land use activity has generated greater demand for transit services. A bulbout-style bus stop is added, along with other features to speed bus operations. Through incremental improvements, the street has become a place – it has evolved into a vibrant mixed-use corridor serving as a center of activity and commerce for surrounding neighborhoods.

Figure 10: Town Center Land Use Proposal



TOWN CENTER PROPOSAL

The photograph to the right is a current view of the area between Moody Avenue and Young High Pike. Like most of the corridor, this area has seen businesses change over time. In anticipation of future changes, and in the interest of creating more pedestrian-friendly places and avoiding sprawl, a town center is proposed.

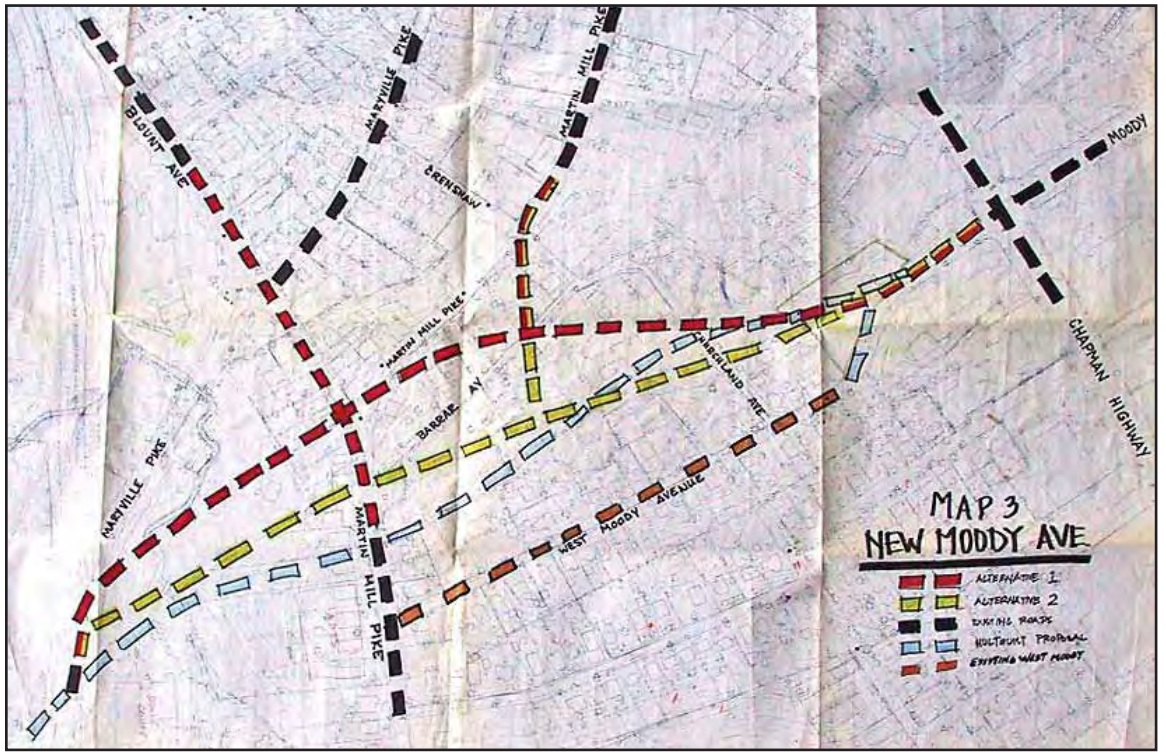
The proposal, depicted in the drawing, is centered on Sam Duff Memorial Park, where the open space and walking trail become the centerpiece for the development. Chapman Highway is the focus for a vertical mix of uses, including sidewalk-oriented shops and restaurants with housing and offices above. Apartments and office buildings are located behind mixed-use development. In order to create a pedestrian-friendly feeling, a boulevard with street trees and a landscaped median have been created and parking is placed behind buildings. The restaurants have space for outdoor eating, including a plaza, leading to Sam Duff Park.

This is a long-range vision, which can be created incrementally by the adoption of mixed-use zoning and form-based codes for the area.

Figure 11: Town Center Concept

- Revisit W. Moody extension to Maryville Pike and how to deal with the "jog". Several previous studies have investigated the need to extend W. Moody Avenue from Chapman Highway to Maryville Pike, and four proposed alignments were examined by MPC staff in the late 1990s. This project is still a valid and needed improvement in the area. A traffic circle constructed as an intersection control measure where Moody intersects with Chapman Highway would be a very attractive focal point within the proposed Town Center. Although there are some topographic constraints and other impacts that may make the construction process difficult, it should be considered as a long-range improvement. Figure 12 shows some alignments that have been considered.
- Bike lanes should be extended through this segment, consistent with proposals by the Bicycle Advisory Committee.
- Uses that are not compatible in a Town Center setting should be discouraged. These include commercial uses such as self-storage that are not oriented to pedestrians. Higher residential densities that support walk-in retail should be encouraged.

Figure 12: 1990s Moody Extension Alternatives



REDEVELOPMENT

Figure 13: Existing Conditions
Deep building setbacks, large expanses of unused parking and building design that lacks visual interest are unwelcoming to pedestrians.

Figure 14: Phase I
Corner-located, pedestrian-scale buildings make more effective use of unused parking and bring the shopping center closer to the street and surrounding community. The new buildings include office above retail, bringing more activity and customer base to the shopping center. Surface parking is located behind the buildings. Human-scale building details such as transparent windows, street-facing entrances and awnings, along with landscaping and pedestrian-scale lighting, improve the walking environment.

Figure 15: Phase II
The original shopping center has been reinvigorated with a redesigned retail anchor and further infill development. The parking lot entrance becomes a real street. Intensification of buildings, such as adding a third story, brings more people to the site and parking can be consolidated into structures that also contain other uses. Outside spaces are comfortable and pleasant for pedestrians.

E. Young High Pike

- Implement access management techniques. Currently there are multiple entrances to businesses that are not necessary, and many of them are too close to existing intersections.

As land becomes more valuable, underutilized buildings on Chapman Highway such as the former Food City building could undergo significant redevelopment. The illustrations to the left show the rebirth in phases.

SEGMENT 2:
Overbrook/Fronda Lane to Colonial Drive (LOS E)

With fewer signals and mostly residential uses, Segment 2 has a lower accident rate, but infrequent turn lanes and narrow shoulders increase the severity of crashes. Adding turn lanes or medians as needed along with bike, transit and pedestrian facilities is desirable. Rock outcroppings along some portions of this segment will make widening more difficult, but the right-of-way width should be adequate for the improvements.

Stone Road

- This signalized intersection needs additional turn lanes, and there is no signal head visible to traffic leaving the apartments. Residents exiting the apartments cannot tell whether oncoming traffic has a red light or not.
- Sight distance improvements may be necessary.
- The green space between Stone Road and Colonial Drive should be protected.

A continuous center turn lane may not be required, if intersections can be designed properly. Residents want safer access to the neighborhoods, but they also want to protect the residential context and green space found along Chapman Highway, which helps define the neighborhood's character. Addition of sidewalks and bike lanes would be a better use of the public right-of-way than a continuous center turn lane.

Locust Hill Lane and E. Red Bud Road

- A turn lane at both intersections and sight-distance improvements are needed.
- A second alternative is to explore whether access can be consolidated or realigned, so that some intersections are eliminated. Figure 16 shows where local roads intersect with Chapman Highway. It is crucial to work with the neighborhoods in and around Lake Forest and Red Bud Road to determine the safest, most effective way to consolidate entrances if that option is preferred. Turn lanes, and acceleration/deceleration lanes if needed, could be added at the location of consolidated entrances with minimal disruption to the green spaces.

Lake Forest Drive and Lake Shore Drive

- One option, as mentioned previously, is to establish a turn lane at the main entrance and consolidate access to that main entrance so that all traffic will use the intersection with a turn lane. The entrance to Sequoyah Hills at Cherokee Boulevard and Kingston Pike is an example of how this can be treated. One significant difference, however, is that traffic volumes going into Sequoyah Hills at Cherokee Boulevard warrant a signalized intersection, with average daily traffic (ADT) volume reaching 4,000 vehicles per day. Traffic volumes on Locust Hill Lane, Red Bud Road, and the Lake Forest entrances are much lower, and a signal light would not be warranted unless several access points were consolidated.

Figure 16: Access Consolidation Potential, Lake Forest Area

There are several existing entrance points into the residential areas.

SEGMENT 3:
Colonial Drive to Lindy Drive (LOS D)

Segment 3, the shortest segment (0.6 mile) along Chapman, includes the area between Colonial Drive and Lindy Drive. The intersection of Colonial Drive is above the state's critical accident rate. A center turn lane is generally available from Colonial Drive to Lindy Drive as well as wide shoulders.

Lake Forest Drive/Colonial Village

- Obtain easements or work with property owners to encourage use of the Butterfly Pond as a public resource, similar to Fountain City Park. Parking, public access and outdoor dining opportunities could occur near the Lakeside Pizza Pub and Dogwood Animal Clinic. The community, with assistance from the City of Knoxville's Parks and Recreation Department, should pursue this opportunity.

Several sites need to be redeveloped or renovated. This area has an older form of mixed-use present, with apartments above shops in Colonial Center.

- Because villages are pedestrian-oriented, roadway design in this area should encourage traffic to slow down. This will be more feasible once James White Parkway is extended.

A village style development with buildings close to the sidewalk.

This neighborhood's character would be enhanced by turning the Butterfly Pond into a public amenity similar to Fountain City Lake. Since the residential areas are in easy walking distance from the commercial core, using the ponds as a public amenity could serve as a catalyst for revitalization of the businesses in the Lake Forest area.

- Landscaping, pedestrian improvements, bike lanes, and design features such as on-street parking could be explored as a long-term option. On-street parking is a typical feature of an urban village and serves as a traffic calming device. Some vehicles currently use the wide shoulders illegally for parking, but this is discouraged because the space has not been designed to allow for parking and the illegally parked cars can limit sight distance.
- Infill buildings should be constructed close to the sidewalk to provide convenient pedestrian access and narrow the perceived width of the street.

SEGMENT 4:
Lindy Drive to W. Dick Ford Lane (LOS D)

Segment 4, which begins at Lindy Drive, generally has no median, infrequent turn lanes, and narrow 2-4 foot shoulders. The accident rate is lower, but due to the absence of median or turn lanes, crashes are more severe. Adding turn lanes or medians as appropriate, along with increased shoulder width, is recommended.

South of Lindy Drive to Chapman Crossing

- This area is also in need of some redevelopment, potentially a high-quality suburban-style redevelopment, as illustrated in the following photos.

The Cool Springs development near Franklin, Tennessee, can serve as an example for suburban-style redevelopment.

- Another alternative for this area is a continuation of the village-style character of Colonial Village.
- Much of the undeveloped land east of Chapman Crossing with access to Sevierville Pike is currently zoned RB, which allows medium-density residential. If developed properly, this area could enhance the population base supporting local businesses. However, the zone requires very little site plan review. Amending the zoning ordinance (to require use-on-review for condominium and multi-family RB developments) or a general rezoning of the property is recommended.
- Using the old Wal-Mart building as a call center is a good reuse of the building for the short- to mid-range timeframe, but in the long-range the building will age to the point of needing to be replaced.
- Investigate extending the center turn lane from Lindy to East/West Ford Valley Road.

Little Switzerland Road

- Protect the character of the neighborhood and recognize its historic significance, potentially using a historic or conservation overlay.

- A turn lane on Chapman Highway at the intersection and sight-distance improvements are needed.
- No shoulder or acceleration lanes currently exist, making turns onto Chapman Highway difficult for the cars coming from Little Switzerland.
- Respondents have indicated that better lighting is needed for night driving.

Unlike the downtown commercial buildings of past centuries, big-box buildings such as the former Wal-Mart are not designed to last for generations. These sites will undergo reuse and eventually redevelopment.

Segment 5:
W. Dick Ford Lane to Governor John Sevier Highway **(LOS D)**

Due to large-scale commercial and residential development near Chapman Highway's intersection with Governor John Sevier Highway, traffic patterns are changing and volume is increasing rapidly. A continuous center turn lane is present along this one-mile section, with wide shoulders/deceleration lanes in some locations.

One of the land use issues of concern in this area is the strip of land near Little Switzerland that is zoned commercial, where Chapman Highway passes through the gap in Brown Mountain. Due to topography and access issues, this is not considered to be ideal for commercial development. As popular as Ye Ole Steakhouse is, patrons struggle with ingress and egress to the restaurant and parking, because of sight distance issues and land constraints.

Commercial uses along this stretch of Chapman Highway should be discouraged in order to avoid the massive slope cuts that would be required to bring sites into compliance with development codes.

W. Norton Road

- Investigate the need for sight distance improvements.

The portion of Chapman just south of Ellis Road near E. Dick Ford Lane has no center turn lane or median. The James White Parkway-Chapman Highway Corridor Study Task Force, meeting in 2004-2005, recommended to TDOT that the James White Parkway extension not intersect with Chapman Highway in this location.

Segment 6: Governor John Sevier Highway to Knox County Line **(LOS C)**

This three-mile section consists of four 11-foot lanes with no median (double yellow lines about two feet apart), narrow shoulders (approximately two feet) and infrequent turn lanes. With development pressure strong in this area, plans for meeting additional capacity should be under way now. The level of service here is good, and every effort should be made to protect the existing capacity of the roadway. Rights-of-way for future infrastructure should be preserved, and access should be controlled.

Suggested roadway improvements include widening shoulders, adding a center median and turn lanes where appropriate, and geometric improvements at intersections. Traffic moves faster in the county portion of the Chapman corridor, and a divided, landscaped median (not a five-lane) cross-section is preferred because it is a safer road design and access can be controlled more easily with this type of facility.

Protecting the existing capacity of the corridor is an important land use issue, since it is almost certain that inappropriate development will degrade safety and travel times. Transferring commercial development from strips to nodes is desirable and would help to protect the highway's functionality. Maintaining and eventually adding to Chapman Highway's capacity is important because no alternate route (such as the James White Parkway extension) is proposed for this section and it will have to handle heavier volumes of traffic in the future. Strips of commercial development are strongly discouraged.

Governor John Sevier Highway

- Investigate extending the acceleration lane on Chapman Highway, especially northbound. Chapman Highway access road from E. Governor John Sevier Highway has delays, but due to the ramp-type intersection, signalization is not considered to be the best solution. A single-point urban interchange should be considered as the new design for the interchange, with major improvements required as part of the James White Parkway extension.
- Traffic from the James White Parkway extension will merge into Chapman Highway somewhere in this general area. Further study and completion of the EIS is needed to determine where. Due to the growth in that area, an alignment should be identified as soon as possible in order to protect the land from development.
- The community has expressed interest in having a park-and-ride lot in this area, with the ability to park and take an express bus route into downtown.
- Regarding the large-scale commercial development occurring at Governor John Sevier Highway, staff discussed with the public the idea of containing the area into a node, and where the "stopping point" should be. Tipton Station Road was suggested by a meeting participant. Upon examination of the topography between there and the shopping area, staff believes that Tipton Station Road is probably too far from the existing development, and Marine Road may be the better option.

Michaels Road

- Improvements to turn lanes near Michaels Road are pending. TDOT and the developer will be working together on these improvements.

Marine Road

- Road improvements as a result of new commercial development will potentially result in additional lanes and a new signal on Chapman Highway. It is Knox County's intent to close Marine Road access to Chapman Highway and re-route Marine Road to intersect with a new roadway through the proposed commercial development, which will access Chapman Highway at a signalized intersection. Figure 17, on the following page, shows the area. TDOT has asked Knox County to close both sides of Marine Road due to its crash history. Discussions are still under way to resolve this situation.

A land use issue of concern in this area is the strip of land from south of Marine Road to Whites School Road. This land is zoned commercial, but due to topography and access issues, very detailed consideration should be made before extending commercial development southward from the Governor John Sevier Highway node.

In this segment particularly, increased development that is not carefully planned could be detrimental to Chapman Highway's ability to carry the amount of traffic that it is expected to have in the future. Combining access points and/or developing frontage roads for this section of Chapman Highway will be necessary if commercial development continues to grow along the corridor toward the county line.

Figure 17: Southgrove Site Plan, Marine Road

This aerial view of the Governor John Sevier Highway interchange shows the 40-acre construction site of Southgrove, a new commercial development. The James White Parkway extension is expected to intersect with Chapman Highway somewhere in the general area, and it is important that a location be identified to preserve the right-of-way from continued development.

This development contains monument signs, consistency in architectural materials, and a separated sidewalk with handicap access and pedestrian refuge space in the center median.

Monument signs and landscaped street yards enhance this corridor's appeal

Kimberlin Heights Road

- During MPC's public involvement process, community members requested that a turn lane and potentially a traffic signal be added.
- This intersection was studied in 2003 as part of Knox County's FIXIT program. At that time, a traffic signal was not warranted.

W. Hendrons Chapel Road

- During MPC's public involvement process, community members requested that a left turn arrow be added at the traffic signal.
- This intersection was studied in 2004 through Knox County's FIXIT Program. No conclusive deficiencies were noted.
- Enhance the area near Sally's Alley, building on the eclectic character of the local mom-and-pop-style businesses.
- Smaller intersections such as the Kimberlin Heights Road / Tipton Station / Hendrons Chapel area are appropriate for smaller-scale commercial uses that could offer the daily necessities for the immediate neighborhoods.
- Establishing activity centers at a village or neighborhood scale for these developing areas will enhance their attractiveness. The activity center or "village center" could include retail services, civic uses and recreation.
- The community has expressed interest in having a park-and-ride lot in this area, with the ability to park and take an express bus route into downtown.

Highland View Drive

- This intersection was considered for signalization based on studies in 2004 through Knox County's FIXIT Program, and revisited in 2005 as a subdivision review. A signal was not found to be warranted at that time. This should be reevaluated as the area grows.

Simpson Road (East and West)

- This intersection was studied in 2004 through Knox County's FIXIT Program. No conclusive deficiencies were noted.
- Some of the crashes at the Simpson Road intersection are likely related to peak traffic after church services on Sunday, since 5 of 13 recorded crashes occurred on Sunday.

Sevierville Pike

- This intersection was studied as part of Knox County's FIXIT Program.

Simpson Road/Sevierville Pike Neighborhood Center

- Establish Village/Neighborhood Center: Smaller intersections such as the Simpson Road/Sevierville Pike area have smaller-scale commercial uses which could offer the daily necessities for the immediate neighborhoods. Establishing activity centers (village or neighborhood scale) for these developing neighborhoods will enhance their attractiveness. Activity center or "village center" would include both retail services, civic type uses (church/cemetery located there) and recreation.
- If portions of the Smoky Mountain Rail Line can be converted to trails, a trail head could be located in this area. An example of a rail-to-trail conversion, the Virginia Creeper Trail, which begins in Abingdon, Virginia, is a resource enjoyed by the entire community and has added to the positive image of the area.
- Bower Field Park is a community resource that is being leased for use as a park.
- The community has expressed interest in having a park-and-ride lot in this area, with the ability to park and take an express bus route into downtown.

SEYMOUR COMMUNITY

Burnett Station Road/Macon Lane

This corridor study examines Chapman Highway as far south as Macon Lane, the location of the new Food City in Sevier County. A small portion of Chapman Highway also passes through Blount County. Clearly, the need for improvement of Chapman Highway is a regional issue not to be determined solely by one county or another. Good coordination between the Tennessee Department of Transportation, the Knoxville Regional Transportation Planning Organization (which oversees regional highway projects) and the counties of Knox, Blount and Sevier is needed to effectively address the issues along this section of Chapman Highway.

Chapman Highway is a four-lane road in the Seymour area.

Chapter 4:

Development Policies

Transportation
Provide space for all transportation modes, including bicycle lanes, separated sidewalks, crosswalks and transit amenities.
Encourage higher-density residential uses along the urban sections of the corridor to take advantage of proximity to the waterfront, Knoxville's Central Business District and the University of Tennessee.
Turn unused pavement within the roadway into a community amenity by landscaping the space and creating pedestrian refuge areas.
Control access by constructing raised, landscaped medians and limiting left-turn movements to controlled intersections. Private driveway access in some segments should be restricted to right-in and right-out only turn movements. Enforcement would require addition of continuous non-traversable center median in some areas. Driveway channeling islands could be added to discourage left turns in locations where a median is not feasible.
Limit the width of parking access and maximize spacing of driveways to reduce interruption of the sidewalk network.
Establish a better block and street network to increase connectivity and provide local alternatives to using Chapman Highway.
Improve sidewalks along Chapman Highway, and extend them into the surrounding neighborhoods.
Locate bus stops in areas where users will feel comfortable waiting for the bus, and design bus pull-off areas to safely pick up and drop off passengers.
Use greenways in addition to sidewalks to expand the walkable area, connecting neighborhoods with activity centers.
Require cross-access easements along Chapman Highway.

Top: Comfortable space for pedestrians should always be provided.
Middle: More people living in pedestrian-friendly areas will provide incentive for expanding the public transit system.
Bottom: Intersection enhancement increases pedestrian safety and improves the visual appeal of the streetscape.

Landscaping
Chapman Highway has historically been a gateway to the Smoky Mountains and should reclaim that identity through the use of native trees and landscapes. Native plant species are best suited to the local climate and should be used as the preferred landscaping material. See Appendix 3 for recommended species.
Slopes, native plants and other natural beauty along the corridor should be conserved.
New landscaping should be provided with each development, including street trees and landscaped front street yards to provide shade and visual relief.
Landscaping should be used to identify key entry points or gateways into the neighborhoods.
Develop programs with the City and County to eradicate invasive plants, particularly the unsightly kudzu, along the corridor.
Encourage landscape screening of surface parking lots where they face Chapman Highway to minimize the visual impact of parked vehicles.
Require new street lighting and parking lot lighting to be pedestrian scaled and designed to minimize light pollution.
Reduce impervious surfaces when redeveloping and introduce green space as a visual improvement and public amenity, as well as an environmental enhancement. Existing development took place before storm water runoff was systematically addressed. Best management practices need to be put in place to reduce the amount of non-point source pollution currently occurring along the corridor, for example, permeable surfaces such as porous concrete.

Top: Landscaping with native trees

Middle: This facility has a bio-retention area to improve water quality.

Bottom: One tree per 10 parking spaces is recommended for shade and visual relief.

Above: A variety of housing options should be part of each neighborhood.

Below: The commercial establishments along this arterial were developed by policies requiring sidewalks, monument signs and consistent setbacks (using a build-to line). Strip commercial with large signs and vast amounts of parking out front can be seen across the street.

Urban Design
Development should be an investment that will improve the overall community, occurring through well-planned site layout and use of quality materials.
As redevelopment occurs, replace aging commercial signs with more modern monument styles that are attractive at pedestrian scales and lower vehicle speeds.
Encourage buildings to maintain a consistent setback while incorporating articulation of the store fronts to mitigate long, uninterrupted facades.
Encourage shared parking facilities to reduce the number of parking spaces and driveways.
Incorporate into the corridor a mix of compatible housing types that work together to serve a wide demographic range, create a harmonious streetscape, and provide customers for the local businesses.
Preserve and protect contiguous pockets of single-family detached houses.

In this suburban shopping district, development standards have allowed access at selected entry points, generally 500-600 feet apart. Turn movements are limited by the landscaped median, allowing for an uninterrupted sidewalk within the buildings' street yard.

Chapter 5:

Action Plan

Safety and Operations

- Construct bike lanes as recommended by the Bicycle Advisory Committee for the area from the waterfront to Moody Avenue. Work with the Bicycle Advisory Committee and TPO staff to develop appropriate bicycle facility designs for other areas and make other traffic improvements in bike-sensitive ways.

- Create enough shoulder space for future bike lanes along all portions of roadway as other improvements are being implemented, even if lanes are not initially marked.

- Fill in gaps in existing sidewalk network, as a short-term measure. Construct separated sidewalks along all portions of roadway where other improvements are being implemented.

- Add a center turn lane at key intersections as a short term operational/safety improvement.

- Determine the need for additional deceleration lanes for right turns at key intersections, and construction as needed.

- Improve sight distance and/or add acceleration lanes at intersections where sight distance is limited.

- Comprehensively evaluate options for access management, including driveway consolidations and channels, access roads, elimination of residential street connections and the construction of medians.

- Conduct a public awareness campaign on the benefits of access management.

- Identify ways to eliminate some of the commercial zoning where the highway's capacity will be damaged, especially areas where the slope is too extreme to construct access roads. Explore "transfer of zoning program" to maintain the current amount of commercial zoning, but to have it in more appropriate areas. Develop overlay districts or guidelines to better regulate development, including grading, clear-cutting, and access to Chapman Highway.

- Replace outdated signal equipment and remove unwarranted traffic signals.

- Three possible locations for a park-and-ride lot have been suggested. Identify the best spot and pursue this as well as other improvements that make public transit easier to use.

- Plan for additional capacity in South Knox County beyond Governor John Sevier Highway, either improvements to Chapman Highway or the continuation of the James White Parkway extension into the Seymour Community.

Beautification

Landscaping Improvements

- Long-term landscaping efforts should be made in coordination with road improvements, park improvements and redevelopment efforts.

- Recommendations outlined in the City of Knoxville Street Tree Plan should be implemented, particularly those related to landscaping requirements for new development, including parking lots. Appendix 4 contains an analysis of existing conditions along the more developed segments of Chapman Highway, along with suggestions for immediate improvements.

Park, Recreation and Greenway

- In cooperation with the Knox County and City of Knoxville park and recreation departments, MPC will be preparing a joint City-County Parks, Recreation and Greenways Plan that will outline deficiencies, recommend facility improvements and suggest new park locations.

- Using portions of the Smoky Mountain Rail Line corridor as right-of-way becomes available, along with other greenway and sidewalk connections, link the natural features and parks into a regional open-space network — one that can be accessed via foot or bicycle from nearby neighborhoods.

- Develop a long-term agreement with property owners to insure continued access to public park space at Bower Field Park. Purchasing the park property or other land to replace the recreational facility is recommended.

- As residential subdivisions develop, recreational space should be included based on the needs of the developer's target market.

Urban Design

- Create overlay districts and design guidelines to be used when redeveloping property on gateway arterials.

- Update development regulations and ordinances to require use of new zoning codes that establish design controls to improve appearances and resolve potential inconsistencies between land uses. These are often called form-based codes because the placement of buildings, parking, landscaping and signs are addressed in a consistent manner.

Economic Development

- As land becomes scarce and more valuable, redevelopment opportunities abound along the corridor. Much land is currently under-utilized; pursue higher intensities designed to be pedestrian-friendly, with a mix of uses.

  The major redevelopment opportunities include: Martin Mill Pike/Woodlawn (1), Moody Avenue (2), Colonial Village (3) and all aging "big-box" locations.

- Improve the mix of land use along the corridor through use of rezoning and revisions to development regulations and ordinances.

  Suggested land use plan changes and general rezonings include: east of Chapman Crossing near Sevierville Pike (4), the strip along Chapman Highway near Little Switzerland (5), and the area south of Marine Road to Whites School Road (6).

- Develop village center or access-controlled suburban formats for new commercial areas, as alternatives to strip commercial development that degrade the highway's capacity and contribute to a lack of character.

  Likely neighborhood- or village-scale service nodes could include: Hendrons Chapel (7) and Simpson Road/Sevierville Pike (8).

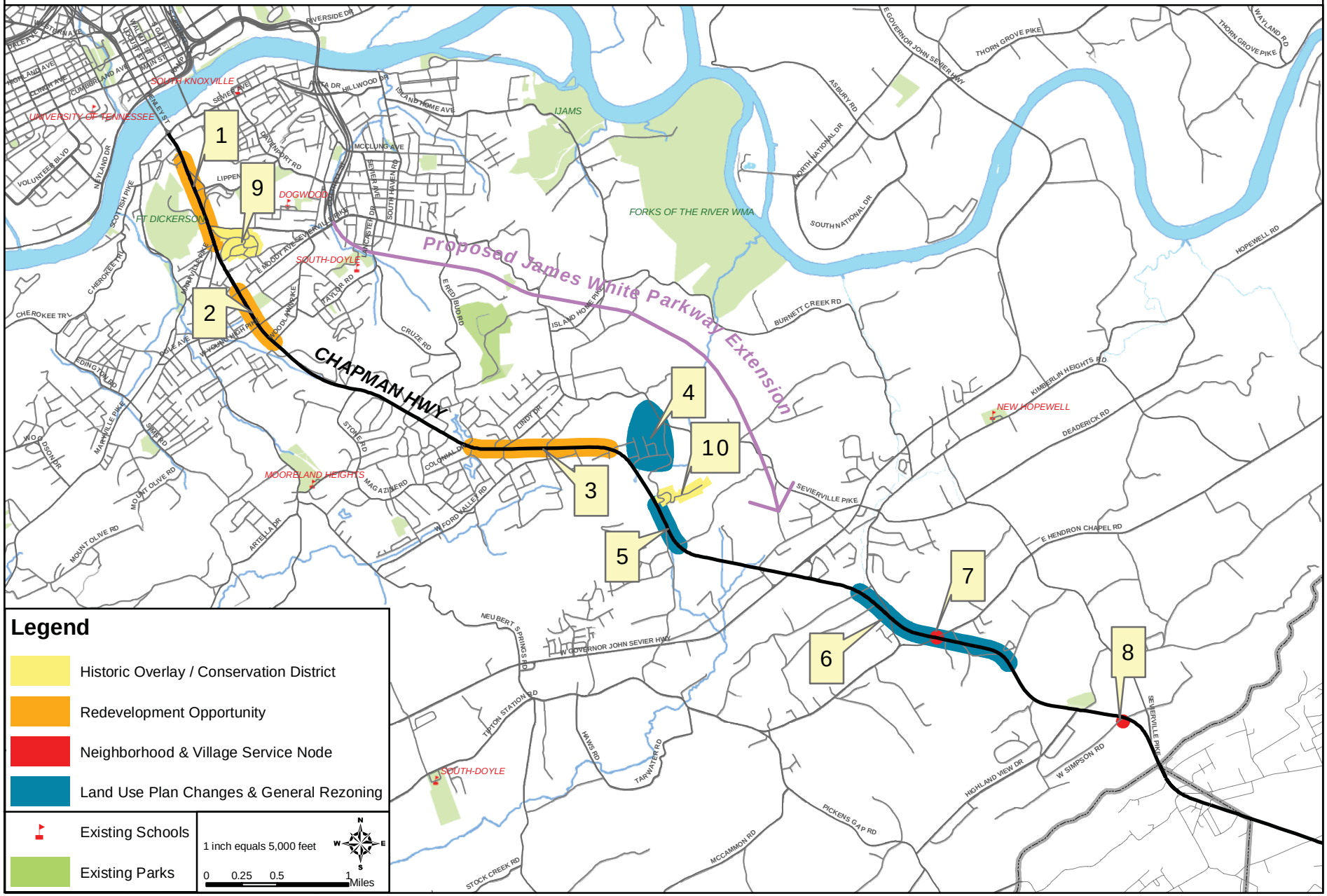
- Strengthen the economy of the area and the long-term sustainability of the corridor by preserving features that set it apart, make it unique, and draw people to it as a destination attraction.

  Potential historic overlay or neighborhood conservation districts include Lindberg Forest (9) and Little Switzerland (10).

Map 5 highlights significant opportunities to strengthen the economy through redevelopment, rezoning and neighborhood conservation.

Attention to urban design should be a priority with all redevelopment projects.

Map 5: Economic Development Opportunities



Chapman Highway Questionnaire

1. Please indicate if you use the following type of transportation on a weekly basis:
   ☐ Personal Vehicle ☐ Public Transit ☐ Walking ☐ Bicycling ☐ Carpooling/Rideshare
   ☐ Other, please list: _____

2. Would improvements encourage you to frequently use the alternatives to driving alone that are listed above? ☐ No, I will continue using my personal vehicle for most trips.
   ☐ Yes, please consider these improvements: _____

3. Please indicate which intersections you find most uncomfortable (and why) when using Chapman Highway, along with any solutions you would like to see considered.
   (Attach additional pages; if you are at a public meeting, add notes to the maps to provide more detail)

4. Are you able to do most of your shopping in South Knoxville? ☐ No ☐ Yes

5. What types of retail services do you travel to other parts of Knox County in search of?

6. Do you think South Knoxville has too many of any particular types of businesses?
   ☐ No ☐ Yes, the following: _____

7. How appealing is Chapman Highway as a commercial area that serves your neighborhood?
   (with 1 being low in appeal and 5 being high) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

8. What do you think can be done to improve the overall appearance of Chapman Highway?

9. Select one or more improvements to Chapman Highway that you think are most important:
   ☐ Reducing speeds ☐ Reducing vehicular delays ☐ Enhanced pedestrian & bike facilities
   ☐ Adding more turn lanes ☐ Access control, fewer driveways ☐ Signage & other visual improvements
   ☐ Landscaping ☐ Other: _____

10. How familiar are you with the concept of 'mixed-use' development (for example, shops at ground level with apartments on upper stories)?
    ☐ Not very familiar, I would like more information ☐ I think it should be considered in some locations:

    ☐ I don't think it will work for these reasons: _____

Business owners and operators, please continue on the back page…

Please answer the following (11-17) only if you own or manage a business along Chapman Highway.

11. If you own or operate a business along Chapman Highway, approximately what percentage of your business is a result of (please estimate):
    _____ Regional traffic using Chapman to reach a location outside of Knox County
    _____ Destination traffic, driving to your business from another part of Knox County
    _____ Local traffic from the nearby neighborhoods
    _____ Do not have enough information to estimate this

12. How dependent is your business on local pedestrian traffic?
    ☐ Very dependent ☐ Somewhat dependent ☐ Not very dependent ☐ Not dependent at all

13. Would a pedestrian-friendly upgrade to Chapman (such as construction of sidewalks) significantly increase your business? ☐ No ☐ Yes ☐ Maybe

14. How would you rate the business climate along Chapman Highway?
    (1 being not good at all and 5 being very good) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

15. What can be done to improve the business climate along Chapman Highway?

16. Which of the following do you see as a barrier to Chapman business development?
    ☐ Chapman traffic patterns and lack of safety ☐ South Knox 'stigma' ☐ Lack of pedestrian access
    ☐ Appearance of Chapman Highway Corridor ☐ Demographics: Lack of sufficient population and/or income
    ☐ Other, please describe _____

17. Identify which block your business is in (or list your street address) and provide any additional comments: _____

We appreciate your input. Please fill out this questionnaire online (www.knoxmpc.org), fax to us (215-2068) or mail to:

KNOXVILLE-KNOX COUNTY MPC
ATTN: Renee Davis
Suite 403, City County Building
400 Main Street
Knoxville, TN 37902

Appendix B: Travel Demand Data

The Travel Demand Model attempts to replicate traffic patterns in the Knoxville region and can be used to forecast future traffic volumes. To develop the model, mathematical relationships between travel activity and household socioeconomic characteristics were derived from an extensive travel behavior survey that was conducted in the year 2000. In this survey over 1500 households in Knox and Blount counties were requested to record their travels in a one-day period including information on trip purpose, origin and destination of each trip, mode of transportation used and time of day the trip was made. The model was then developed based on the assumption that households with similar socioeconomic characteristics such as household income, number of school-age children and vehicle ownership would exhibit similar travel activity. These household characteristics are available from the U.S. Census and are input into the model based on their distribution across smaller geographic areas in the region known as "Traffic Analysis Zones" (TAZ).

In addition to the socioeconomic inputs at the TAZ-level, the model also includes a mathematical representation of the roadway network through a system of links and nodes. Each link in the model represents a segment of roadway, which is described by several attributes such as functional classification, speed limit, number of lanes, pavement width, level of access control and whether it is divided by a median. The nodes represent intersections or where roadway characteristics might change in the middle of a segment, such as where a road narrows, and also include locations of traffic signals. The roadway attributes are used to determine the vehicular capacity and travel time along each link in the model network.

The model can be used to compare alternatives in terms of several different aspects and performance measures of interest by changing the appropriate roadway attributes or by adding new links. Some of the key performance measures considered during analysis of the James White Parkway Extension and its impacts on Chapman Highway were traffic volume, average speed, volume-to-capacity ratio (V/C ratio) and level-of-service (LOS). The V/C ratio and LOS are related terms that attempt to describe how well a roadway is operating and the level of congestion motorists are experiencing.

In order to facilitate comparisons between the build and no-build alternatives, model runs for the baseline year 2005 and the horizon year 2030 with the existing roadway system were made. The first model runs were made for nine different "build" alternatives of the James White Parkway extension (three different terminus points and three different facility types), two Chapman Highway improvement alternatives and the "Do Nothing" alternative. The resulting impacts on Chapman Highway performance measures were presented to the task force in the form of two charts included on the following pages. The model was especially helpful in determining the relative potential for diversion of traffic for each of the different James White Parkway extension alternatives, for example it was shown that the boulevard design types were much less effective at diverting traffic from Chapman Highway than the parkway or freeway design types.

Traffic Analysis Terminology and Definitions

ADT = Average Daily Traffic

This is the estimated amount of total traffic volume on a roadway (both directions) on an average day during the year.

V/C = Volume to Capacity Ratio

Capacity represents the maximum number of vehicles that can pass a given point in a specified time period. The V/C ratio compares the volume in the peak 15-minute period to the roadway capacity. A V/C ratio greater than 1.00 indicates that there is more traffic demand than the roadway can theoretically accommodate, which results in congestion.

EXAMPLE:
Traffic Volume = 2000 vehicles per hour
Roadway Capacity = 4000 vehicles per hour
V/C Ratio = 2000/4000 = 0.50

LOS = Level-of-Service

Level of Service is a qualitative measure which attempts to describe the amount of congestion on a roadway and the corresponding driver comfort level. It is ***not*** used to measure safety of a roadway. LOS ranges from A to F (similar to a student's report card)

LOS A represents conditions whereby vehicles are completely unimpeded in their ability to maneuver within the traffic stream; traffic volume is less than one-third of the maximum capacity of the roadway. In addition, stopped delay at signalized intersections is minimal, typical of "free-flow" operations.

LOS B represents reasonably unimpeded operations – the ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.

LOS C represents stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds. Motorists will experience appreciable tension while driving.

LOS D borders on a range in which small disruptions in flow, i.e. traffic incidents, may cause substantial increases in delay and hence decreases in arterial speed. Volumes are at two-thirds and above of the available roadway capacity, signifying less freedom to maneuver and increased driver tension.

LOS E is characterized by significant delays and congestion with the traffic volumes approaching the maximum capacity of the roadway. Such operations are caused by some combination of adverse signal progression, high signal density, high traffic volumes, and extensive delays at critical intersections.

LOS F entails heavy congestion at critical signalized locations, with high delays and extensive queuing. The demand traffic volume exceeds the available capacity of the roadway, which can increase congestion upstream of the roadway on "feeder routes"

Correlation of Volume to Capacity Ratio with Level of Service

The following ranges of V/C ratios can be roughly equated to a corresponding Level-of-Service:

V/C Ratio	LOS
0.00 – 0.30	A
0.31 – 0.50	B
0.51 – 0.65	C
0.66 – 0.80	D
0.81 – 1.00	E
> 1.00	F

It is important to understand that since the chart above is describing the peak period of the day one cannot generally expect to achieve LOS A in an urban setting because it would probably require too many lanes and not be cost effective to provide capacity that would not be utilized in off-peak hours. Therefore LOS D is generally characterized as "acceptable" for urban areas currently, and in the future LOS E may be more realistic as population and traffic continue to grow.

Appendix C: Recommended Tree Species List

SMALL TREE GROUP Mature Height Less than 30'	Interchanges/ Grade Separations	Medians	Parking Lots or Similar 'Hardscape'	Planting Strips/Verges		Near Sidewalks	Under Utility Lines	Visibility Concern Areas**	Yards Adjoining Rights-of-Way	Sidewalk Planting Wells***
				2' - 4'	More than 4'					
1. Blackhaw*	YES	YES	YES[A]	NO	YES[C]	NO	YES	YES[B]	YES	NO
2. Rusty Blackhaw*	YES	YES	YES[A]	NO	NO	NO	YES	YES[B]	YES	NO
3. Red Buckeye*	YES	YES	YES[A]	YES[B]	YES[C]	YES	YES	YES[B]	YES	NO
4. Carolina Buckthorn*	YES	YES	YES[A]	NO	YES[C]	YES	YES	YES	YES	NO
5. Oriental Cherries	YES	YES	YES[A]	YES[B]	YES[C]	NO	YES	YES[B]	YES	NO
6. Carolina Cherrylaurel*	YES	YES	YES[A]	YES[B]	YES[C]	YES	YES	YES[B]	YES	NO
7. Flowering Crabapple	YES	YES	YES[A]	NO	NO	NO	YES	YES[B]	YES	NO
8. Crepe Myrtle	YES	YES	YES[A]	NO	YES[C]	YES	YES	YES[B]	YES	NO
9. Cherry Dogwood	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
10. Cornel Dogwood	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
11. Flowering Dogwood	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
12. Kousa Dogwood	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
13. Pagoda Dogwood	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
14. Autumn Flametree	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
15. American Fringetree*	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
16. Chinese Fringetree	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
17. Golden Raintree	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
18. Cockspur Hawthorn	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
19. Foster Holly	YES	YES	YES[A]	NO	NO	YES	YES	YES[B]	YES	NO
20. Amur Maple	YES	YES	YES[A]	NO	NO	YES	YES	YES[B]	YES	NO
21. Japanese Maple	YES	YES	YES[A]	NO	NO	YES	YES	YES[B]	YES	NO
22. Pawpaw*	YES	YES	YES[A]	NO	NO	NO	YES	YES[B]	YES	NO
23. Eastern Redbud*	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
24. Service Berry*	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
25. Carolina Silverbell*	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
26. European Smoketree	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
27. American Smoketree*	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
28. Sourwood*	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
29. Mountain Stewartia	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO
30. Witch-hazel*	YES	YES	YES[A]	YES	YES[C]	YES	YES	YES[B]	YES	NO

* Native to South Central United States

** All tree plantings and their maintenance procedures should be respectful of sight distance triangles. Trees that are bushy or have other sight-impairing qualities should be avoided.

*** Areas, like downtown, where planting wells are necessary within sidewalks; elongated wells are recommended

A. Should not be used for more than 25% of parking lot trees. Do not use in parking lot islands. May be used in parking lot medians

B. If properly trimmed. Some species will need to be pruned in their early years to allow space for pedestrian traffic; additional trimming may be needed

C. Only as intermediate planting between Large and Small Tree Group trees

MEDIUM TREE GROUP Mature Height 30' - 50'	Interchanges/ Grade Separations	Medians	Parking Lots or Similar 'Hardscape'	Planting Strips/Verges		Near Sidewalks	Under Utility Lines	Visibility Concern Areas**	Yards Adjoining Rights-of-Way	Sidewalk Planting Wells***
				2' - 4'	More than 4'					
1. Arborvitae*	YES	YES	YES	NO	NO	NO	NO	NO	YES	NO
2. River Birch*	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO
3. Catalpa*	YES	YES	NO	NO	NO	NO	NO	NO	YES	NO
4. Atlantic White Cedar*	YES	YES[A]	YES[B]	NO	NO	NO	NO	NO	YES	NO
5. Deodar Cedar	YES	YES[A]	YES[B]	NO	NO	NO	NO	NO	YES	NO
6. Eastern Red Cedar*	YES	YES[A]	YES[B]	NO	NO	NO	NO	NO	YES	NO
7. Kentucky Coffeetree	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO
8. Amur Cork Tree	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
9. Japanese Cryptomeria	YES	YES	YES[B]	NO	NO	NO	NO	NO	YES	NO
10. Lace-bark Elm	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
11. Smooth Leaf Elm	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
12. Eastern Hemlock*	YES	YES[A]	YES[B]	NO	NO	NO	NO	NO	YES	NO
13. American Holly*	YES	YES	YES[B]	NO	NO	NO	NO	NO	YES	NO
14. Thornless Honeylocust	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
15. American Hornbeam*	YES	YES	YES	NO	NO	NO	NO	YES	YES	NO
16. Eastern Hophornbeam*	YES	YES	YES	NO	NO	NO	NO	YES	YES	NO
17. Little-leaf Linden*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
18. Silver Linden*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
19. Black Locust*	YES	YES	YES	NO	NO	NO	NO	YES	YES	NO
20. Southern Magnolia*	YES	YES[A]	NO	NO	NO	NO	NO	NO	YES	NO
21. Sweetbay Magnolia*	YES	YES	YES[B]	NO	YES	YES	NO	NO	YES	YES
22. Hedge Maple	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
23. Shantung Maple	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
24. Trident Maple	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
25. Austrian Pine	YES	YES[A]	YES[B]	NO	NO	NO	NO	NO	YES	NO
26. Japanese Red Pine	YES	YES	YES	NO	NO	NO	NO	NO	YES	NO
27. Chinese Pistache	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
28. Sassafras*	YES	YES	NO	NO	NO	YES	NO	YES	YES	NO
29. Sourwood*	YES	YES	NO	`NO	NO	YES	NO	YES	YES	NO
30. Colorado Blue Spruce	YES	YES[A]	YES[B]	NO	NO	NO	NO	NO	YES	NO
31. White Spruce	YES	YES	YES[B]	NO	NO	NO	NO	NO	YES	NO
32. Weeping Willow	YES	NO	NO	NO	NO	NO	NO	NO	YES	NO
33. Yellowwood*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
34. Zelkova	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES

* Native to South Central United States

** All tree plantings and their maintenance procedures should be respectful of sight distance triangles. Trees that are bushy or have other sight-impairing qualities should be avoided.

*** Areas, like downtown, where planting wells are necessary within sidewalks; elongated wells are recommended

A. Avoid planting where there are breaks in median for turning across travel lanes. Plant where a screen from on-coming car headlights is needed.

B. Use at edges of parking lots for border or buffering purposes. Do not use in islands or medians of parking lots.

LARGE TREE GROUP Mature Height More than 50'	Interchanges/ Grade Separations	Medians	Parking Lots or Similar 'Hardscape'	Planting Strips/Verges		Near Sidewalks	Under Utility Lines	Visibility Concern Areas***	Yards Adjoining Rights-of-Way	Sidewalk Planting Wells****
				2' - 4'	More than 4'**					
1. Green Ash*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
2. American Basswood (Linden)*	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO
3. White Basswood (Linden)	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO
4. American Beech*	YES	YES	NO[B]	NO	NO[B]	NO[B]	NO	YES	YES	NO
5. European Beech	YES	YES	NO[B]	NO	NO[B]	NO[B]	NO	YES	YES	NO
6. Blackgum*	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO
7. Yellow Buckeye	YES	NO	NO	NO	NO	NO	NO	YES	YES	NO
8. Bald Cypress*	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO
9. American Heritage Elm	YES	YES	YES[C]	NO	YES	YES[C]	NO	YES	YES	YES
10. Hackberry*	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO
11. European Hornbeam	YES	YES	YES	NO	NO	NO	NO	NO	YES	NO
12. Ginkgo	YES	YES	NO[D]	NO	NO	NO	NO	YES	YES[E]	NO[D]
13. Red Maple*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
14. Sugar Maple*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
15. Bur Oak	YES	YES	NO[B]	NO	NO[B]	NO[B]	NO	YES	YES	NO
16. Chestnut Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
17. Chinkapin Oak*	YES	YES	NO[B]	NO	NO[B]	NO[B]	NO	YES	YES	NO
18. English Oak	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO
19. Northern Red Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
20. Sawtooth Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
21. Scarlet Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO
22. Shumard Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
23. Southern Red Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
24. White Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO
25. Willow Oak*	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES
26. Loblolly Pine*	YES	NO	NO	NO	NO	NO	NO	NO	YES	NO
27. Pitch Pine	YES	YES[A]	NO	NO	NO	NO	NO	NO	YES	NO
28. Shortleaf Pine*	YES	YES[A]	NO	NO	NO	NO	NO	NO	YES	NO
29. White Pine*	YES	YES[A]	NO	NO	NO	NO	NO	NO	YES	NO
30. London Planetree/Sycamore*	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO
31. Tulip Poplar*	YES	YES	YES	NO	YES	YES	NO	YES	YES	NO
32. Dawn Redwood	YES	YES[A]	NO	NO	NO	NO	NO	NO	YES	NO
33. Sweetgum*	YES	YES	NO[B]	NO	NO[B]	NO[B]	NO	YES	YES	NO

* Native to South Central United States

** Recommended minimum width for new planting strips is 7 feet, since some species require more space

*** All tree plantings and their maintenance procedures should be respectful of sight distance triangles. Trees that are bushy or have other sight-impairing qualities should be avoided.

**** Areas, like downtown, where planting wells are necessary within sidewalks; elongated wells are recommended

A. If site does not obstruct visibility and median width is acceptable

B. Large nuts can cause difficulties under foot

C. If hybrid, disease-resistant variety is used

D. Because of slow-growing nature and 'stick-like' appearance

E. Male trees, only

Small Tree Group

SCIENTIFIC NAME	COMMON NAME
Acer ginnala	Amur Maple
Acer palmatum	Japanese Maple
Aesculus pavia	Red Buckeye
Amelanchier arborea	Service Berry
Asimina triloba	Pawpaw
Cercis canadensis	Eastern Redbud
Chionanthus retusus	Chinese Fringetree
Cornus alternifolia	Pagoda Dogwood
Cornus florida	Flowering Dogwood (disease resistant varieties)
Cornus kousa	Kousa Dogwood
Cornus mas	Cornelian Cherry Dogwood
Corus officinalis	Japanese Cornel Dogwood
Cotinus coggygria	European Smoketree
Cotinus obovatus	American Smoketree
Crataegus crus-galli	Cockspur Hawthorn
Evodia daniellii	Korean Evodia
Halesia carolina	Carolina Silverbell
Hamamelis virginiana	Witch-hazel
Ilex X attenuata	Foster Holly
Koelreuteria bipinnata	Autumn Flametree
Koelreuteria paniculata	Golden Raintree
Lagerstroemia fauriei evindica	Crepe Myrtle
Maackia amurensis	Amur Maackia
Malus sps.and cvs.	Flowering Crabapple
Oxydendron arboreum	Sourwood
Pinus thunbergiana	Japanese Black Pine (Short-lived)
Prunus caroliniana	Carolina Cherrylaurel
Prunus serrulata (several varieties)	Oriental Cherries
Rhamnus Caroliniana	Carolina Buckthorn
Stewartia ovata	Mountain Stewartia (Mountain Cameella)
Viburnam prunifolium	Blackhaw
Viburnam rufidulum	Rusty Blackhaw

Medium Tree Group

SCIENTIFIC NAME	COMMON NAME
Acer buergerianum	Trident Maple
Acer campestre	Hedge Maple
Acer truncatum	Shantung Maple
Betula nigra 'Heritage'	Heritage River Birch
Carpinus betulus 'Columnaris,' 'Fastigiata'	European Hornbeam
Carpinus carolininana	American
Catalpa bignonioides	Catalpa
Cedrus deodara	Deodar Cedar
Chamaecyparis thyoides	Atlantic White Cedar
Cladrastis kentukea	Yellowwood
Cryptomeria japanica	Japanese Cryptomeria
Gymnocladus dioicus	Kentucky Coffeetree
Gleditsis triancanthos inermis	Thornless Honeylocust
Llex opaca	American Holly
Juniperus virginiana	Eastern Red Cedar
Magnolia grandiflora	Southern Magnolia
Magnolia grandiflora	Southern Magnolia (usually less than 50 feet)
Magnolia virginiana	Sweetbay Magnolia
Ostrya virginia	Eastern Hophornbeam
Oxydendrum arboreum	Sourwood
Phellodendron amurense	Amur Cork Tree
Picea glauca	White Spruce (slow growing, subject to needle cast)
Picea pungens	Colorado Blue Spruce
Pinus nigra	Austrian Pine
Pinus palmatum	Japanese Black Pine (short-lived/usually doesn't grow over 30 feet)
Pistachia chinensis	Chinese Pistache
Quercus acutissima	Sawtooth Oak
Quercus palustris	Pin Oak (environmental stress & multiple disease problems)
Robinia pseudoacacia	Black Locust
Salix babylonica	Weeping Willow
Sassafras albidum	Sassafras
Thuja occidentalis	Arborvitae
Tilia cordata	Little-leaf Linden
Tilia tomentosa	Silver Linden
Tsuga canadensis	Eastern Hemlock
Ulmus carpinifolia	Smooth Leaf Elm
Ulmus parvifolia	Lace-bark Elm
Zelkova serrata	Zelkova

Large Tree Group

SCIENTIFIC NAME	COMMON NAME
Acer rubrum	Red Maple
Acer saccharum	Sugar Maple
Aesculus flava	Yellow Buckeye
Carpinus betulus	European Hornbeam
Celtis laevigata	Sugar Hackberry
Celtis occidentalis (select cultivars)	Hackberry
Fagus sylvatica (select cultivars)	European Beech
Fagus grandifolia	American Beech
Fraxinun pennsylvanica	Green Ash
Ginkgo biloba (male cvs.)	Ginkgo
Liquidambar styraciflula	Sweetgum
Liriodendron tulipifera	Tulip Poplar
Metasequoia glyptostroboides	Dawn Redwood
Nyssa sylvatica	Blackgum
Pinus echinata	Shortleaf Pine
Pinus rigida	Pitch Pine
Pinus strobus	White Pine
Pinus taeda	Loblolly Pine
Platanus X acerifolia	London Planetree
Quercus acutissima	Sawtooth Oak
Quercus alba	White Oak
Quercus coccinia	Scarlet Oak
Quercus falcata	Southern Red Oak
Quercus macrocarpa	Bur Oak
Quercus muechlenbergii	Chinkapin Oak
Quercus phellos	Willow Oak
Quercus prinus	Chestnut Oak
Quercus robur	English Oak
Quercus rubra	Red Oak
Quercus shumardii	Shumard Oak
Taxodium distichum	Bald Cypress
Tilia americana	American Basswood (Linden)
Tilia heterophylla	White Basswood (Linden)
Ulmus Americana	American Elm (American Heritage) (disease free variety)

Appendix D: Landscape and Beautification Assessment

This is an assessment looking at the landscape conditions and beautification opportunities along the corridor starting at Blount Avenue and Sevier Avenue moving southward.

The separated sidewalks along Baptist Hospital property and Kerns Bakery are nicely landscaped and should be a model for other areas in the corridor.

- The building and parking lot between Kerns and Rally's hamburger is unkempt and the entrance is dangerous because of potholes. An ATM is located in this lot between parking stalls and the drive lane. Since the parking lot is rarely utilized to capacity look for ways to reduce the amount of asphalt and include islands with trees and shrubs. The existing grass strip along the sidewalk should be continued and the width of the curb cut reduced for pedestrian safety.

- The hill behind these businesses is very steep and should be protected from further development. The existing trees should be preserved and maintained.

- Across Chapman Highway, landscaping along Saint Paul Street should take into consideration the topography and site distance issues.

- If driveways are consolidated as part of an access management plan, landscaped islands could provide directional clues through the connected parking lots.

- The hill behind the Disc Exchange and Arby's has significant slope and notable rock outcroppings – this area should be treated as natural open space, providing protection for the existing native trees. Invasive species, especially kudzu, should be removed.

- The blocks between E Martin Mill Pike and Chapman Highway should reduce the number of curb cuts and utilize front yard space to plant native trees, which will add to the quality of the proposed boulevard for this area. Additionally these parking lots and those across Chapman should have planting islands with deciduous trees that will cool parking lots in the summer months and help to reduce water runoff from the site.

- The businesses that front Chapman in front of Ft. Dickerson Park have no street yard landscaping. This could be an opportunity to enhance the park entrance and attract visitors.

- The intersection of Chapman and (north) Woodlawn Pike has two concrete triangle islands to delineate turn lanes. These triangles should be converted to sidewalk and landscaping areas (similar to the islands by Baptist Hospital). Juniperus horizontalis or Blue Rug Juniper could be used in this application because its mature height is 6-8 inches and would not conflict with site lines.

- Another opportunity just off the intersection of Chapman and Woodlawn is the cul-de-sac of Chamberlain Boulevard. This large asphalt area should have an interior circle with a tree and other plantings. There are few houses on this section of roadway. Emergency crews could access the property from either Woodlawn or the parking lot of the bank.

- The commercial areas from Martin Mill Pike to Childress Street have a significant amount of asphalt parking that services multiple buildings, but there are no landscaping or street yards in front of these establishments. These businesses are in older building stock and need to improve their appearance and ambiance.

- From Childress to Moody Avenue landscaping and beautification should be used to create a gateway to the proposed Town Center area.

- The Walgreens at the corner has utilized the street yard along Moody Avenue to plant approximately six maple trees. However, the street yard that fronts Chapman has no plantings other than a few bushes around the base of the store's sign.

- The Big Lots parking lot, the CBBC Bank and the strip center including Emery's Five and Dime flow together as one large asphalt area. These parking areas should be better defined with landscaped islands. This area is also a part of the proposed Town Center area and should reflect a comprehensive planting and beautification plan.

- Sam Duff Memorial Park is next to the Big Lots shopping center and is an asset to the community that is not currently being used to its full potential. Landscaping and signage along the front entrance

could act as visual cues for motorist along Chapman Highway.

- Throughout the Town Center area the number of curb cuts along the highway and side streets should be reduced and where enough right-of-way exist sidewalks should be separated from the street by a planting strip including low-growing hedges and street trees.

- The Food City Shopping Center has a street yard in front of their parking lot and they have planted dogwoods. (Side note: dogwoods are pretty trees and they stay fairly short, which is good where overhead utility lines exist. However, being in full sun and in such a hot environment they are not likely to survive to maturity). Additional planting islands within the parking lot would greatly enhance the center and allow for cooler parking during the summer months. The building adjoining the grocery store has a noteworthy architectural brick and wood façade which needs minimal improvement (i.e. new coat of paint), and new sign types to be a great asset to the community.

- In the Town Center area parking should be shifted to the sides and rear of buildings so that building facades create an outdoor room along the corridor.

- The plantings in the street yard in front of Kroger's shopping center should be an example to other developments, however, the trees are in the ROW so if the street is widened the trees could be in jeopardy. Kroger has also done a nice job of landscaping the periphery of their parking lot but has not created islands to shade areas within the parking lot.

- In the Bi-Lo shopping center, there are planting islands within the parking lot and the street yard is nicely landscaped. Within this shopping center is the South Knoxville Library, which has difficult access and few pedestrian-oriented amenities. One way to increase the pedestrian friendliness is to provide connected sidewalks with landscaping separating the pedestrian from vehicle traffic. This could also be a space to capitalize on the benefits of a courtyard between buildings.

- The hill behind the self-storage units is covered in kudzu, which should be removed. To prevent slope erosion, native plants should be preserved and native ground cover should be planted.

- The residential portion of Chapman Highway between Stone Road and Lakeview Drive is well planted and maintained by individual homeowners.

- The commercial area by the two ponds on either side of the Highway could act as a gateway for the ponds through use of pedestrian-oriented pathways and landscaping leading to the ponds.

- The strip commercial on both sides of the Highway from Colonial Drive to Ford Valley Road should be enhanced with street tree and parking lot plantings appropriate for suburban retail. Currently cars are being parked in the existing ROW and street yards; this practice should be stopped and the areas reclaimed for pedestrians and landscaping.

- Chapman highway through the Little Switzerland and Brown Mountain area has several pockets of undeveloped wooded areas that should be left natural in order to protect the steep slopes.

- South of Nixon Road the character of the Highway changes to commercial use on a regional scale. The Nova building has planted pin oaks in their street yard, but has not created any planting islands within the parking lot. Across the street the First Tennessee Bank building has covered the sidewalk areas surrounding their plantings in asphalt. This area could easily be converted to a pedestrian plaza with stamped concrete that is cooler in the summer and costs less for long-term maintenance. Additionally, this would be a good spot for a covered bus stop for transit.

- A short-term beautification opportunity would be to landscape the traffic triangle at Gov. John Sevier Highway, similar to the area around Baptist Hospital and the proposal for Woodlawn and Chapman Highway.

Credits

page 4
Photo of Wayoma Motel
Tim Glazner, www.swankpad.org

page 9
Photos
Dan Burden
Mr. Burden is a nationally recognized authority on bicycle and pedestrian facilities and programs, street corridor and intersection design, traffic flow and calming, and other design and planning elements that affect roadway environments. He has had 25 years of experience in developing, promoting and evaluating alternative transportation facilities, traffic calming practices and sustainable community design. He served for 16 years as Florida DOT's State Bicycle and Pedestrian Coordinator, and he presently works as Executive Director of Walkable Communities, Inc., a non profit corporation helping North America develop walkable communities.

pages 24, 25, 30
Photo Simulations - San Jose, California
Valley Transportation Authority (2002), Community Design & Transportation (CDT) Program - *Manual of Best Practices for Integrating Transportation and Land Use*; and Joint Venture Silicon Valley Network

page 27
Dede Christopher, Christopher Illustrations

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Knoxville South Waterfront Vision Plan
Hargreaves Associates

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