



2014 EAST CITY SECTOR PLAN



KNOXVILLE • KNOX COUNTY METROPOLITAN PLANNING COMMISSION



East City Sector Plan

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Knoxville Knox County Metropolitan Planning Commission on April 10, 2014

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Acknowledgements

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Section 1:

Background Report

Comprehensive Planning Process Overview

The East City Sector Plan is a significant component of the Metropolitan Planning Commission's comprehensive plan. Sector plans are interrelated to several laws, processes and plans, which are described below.

The Metropolitan Planning Commission (MPC), under state law, is directed to create a comprehensive plan to provide recommendations for:

- public ways, including roads, and other transportation systems,
- public grounds, such as parks and other public property,
- the general location and extent of public utilities, including sanitation and water,
- the general character, location and extent of community centers, town sites, and housing development,
- the location and extent of forests, agricultural areas, and open space,
- uses of land for trade, industry, habitation, recreation, agriculture, forestry, soil and water conservation, and other purposes, and
- the appropriate zoning relating to the land use plan, outlining permitted uses and the intensity of those uses, such as height, bulk, and locations of buildings on their parcels.

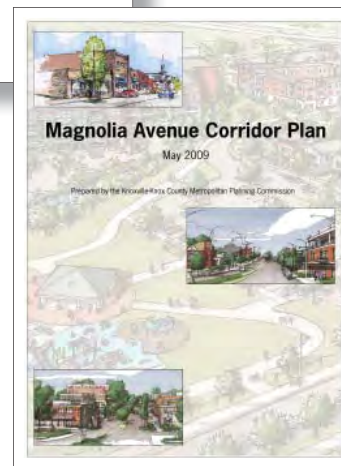
The General Plan (*The Knoxville-Knox County General Plan 2033*) is the official 30-year comprehensive plan for Knoxville and Knox County that outlines a long-range vision and policy framework for physical and economic development. The plan includes the Growth Policy Plan, twelve sector plans, corridor and small area plans, and system-wide plans.

Sector Plans provide a detailed analysis of land use, community facilities, and transportation for twelve geographical divisions in Knox County. The focus is to take goals contained in the General Plan and draft a

sector plan that is to guide land use and development over a 15-year period. Also included is a five-year plan with recommended capital improvements and other implementation programs.

Corridor Plans primarily cover land use and transportation recommendations along existing transportation corridors.

These plans are more detailed than sector plans because they have a smaller geographical area. Recommendations often deal with economic development, aesthetics, and public safety.



Small Area Plans are neighborhood-based and address more detailed concerns like revitalization or special environmental considerations. These plans are developed as a result of some immediate development pressure on the area and are usually requested by the elected bodies.

System-wide Plans cover specific systems such as greenways and parks or hillside and ridgetop protection. All plans are developed through citizen participation, including workshops, surveys, and public meetings. Plans are adopted by the MPC, the Knoxville City Council and Knox County Commission and serve as a basis for zoning and land use decisions.

The Growth Plan (*The Growth Plan for Knoxville, Knox County, and Farragut, Tennessee*) was mandated under the Tennessee Growth Policy Act (Public Chapter 1101), and requires that city and county governments prepare a 20-year Growth Policy Plan for each county. At a minimum, a growth plan must identify three classifications of land:

- 'Rural Areas' are to include land to be preserved for farming, recreation, and other non-urban uses.
- 'Urban Growth Boundaries' (UGB) must be drawn for all cities and towns. The land within the UGB must be reasonably compact, but adequate to accommodate all of the city's expected growth for the next 20 years.
- 'Planned Growth Areas' (PGA) must be reasonably compact, but large enough to accommodate growth expected to occur in unincorporated areas over the next 20 years.

An Overview of Sector Achievements

The *2002 East City Sector Plan* proposed several objectives, actions and programs regarding neighborhood conservation, economic development, corridor revitalization and urban design. Additionally, many recommendations made in the *Martin Luther King, Jr. (MLK) Avenue* and *Magnolia Avenue Corridor Plans*, which were adopted in 2007 and 2009, respectively, have been implemented. The following list details those proposals that have been achieved or are on their way to realization, as well as other major changes in the sector since the 2002 plan:



- Knoxville's Community Development Corporation (KCDC) completed a dozen dwellings at infill sites on Chestnut Street in the Five Points neighborhood using federal HUD funds.
- Paul Hogue Park, formerly Union Square Park, was extensively redesigned, commercial buildings around the park were demolished, and new sidewalks were added.



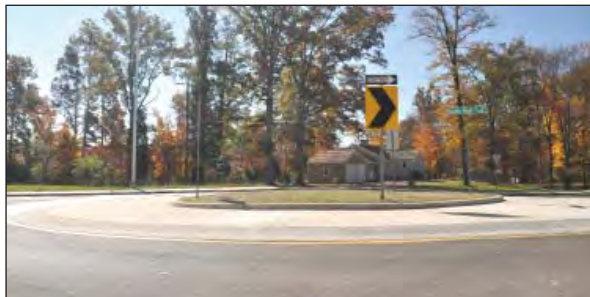
- The Burlington Branch Library and neighboring Thomas 'Tank' Strickland Park opened at the intersection of Asheville Highway and Holston Drive.



- On Skyline Drive, Knoxville Habitat for Humanity built 13 homes in Silver Leaf, its third affordable housing subdivision in Knox County.



- Knox Housing Partnership's *Home Improvement Energy Retrofit Program* brought structural repairs and energy efficiency improvements to 35 homes in the Parkridge and Five Points areas.
- In the northwest corner of the sector, an infill housing overlay district (IH-1) was established in the Edgewood Park neighborhood.



- Various traffic calming projects have been completed, including a roundabout at Valley View Drive and Charlie Haun Drive.



- Eleven commercial buildings along the Magnolia Avenue and MLK, Jr. Avenue corridors have benefited from facade improvement.
- Five Points saw the development of the Five Points Village Plaza, which has since struggled following the closure of a grocery store. Now called Harvest Plaza, it is anchored by the ministry, Eternal Harvest Life Center .
- The Holston Hills and Chilhowee Hills neighborhoods were the first to adopt the "established neighborhood" (R-1EN) zoning, which is designed to protect neighborhood integrity from development that is inconsistent with its character.



- The Jacob Building at Chilhowee Park underwent a \$2.6 million renovation.

Community Population Profile

Since 1990, total sector population has decreased by a marginal 1.4 percent. The only significant growth occurred among those aged 45 to 64, from a 20.6 percent share in 1990 to a 27.7 percent share in 2010. This age group now includes all of the 'baby boom' generation.

Table 1. East City Sector Population by Age and Sex

Age	1990	2000	% Change	2010	% Change
Under 5 years	1,518	1,454	- 4.4	1,532	5.1
5-19 years	4,678	4,617	- 1.3	4,385	- 5.3
20-34 years	5,539	4,805	- 15.3	4,729	- 1.6
35-44 years	3,707	3,820	3.0	3,270	- 16.8
45-64 years	5,319	6,040	11.9	6,960	13.2
65+ years	5,172	4,742	- 9.1	4,260	- 11.3
TOTAL	25,878	25,478	- 1.6	25,136	- 1.4
Male	11,562	11,699	1.2	11,823	1.0
Female	14,316	13,779	- 3.9	13,313	- 3.5

At the Knox County level, total population grew by 13.8 percent from 1990 to 2000, while Knoxville's population grew only 2.4 percent. Since 1990, Knox County's population shifted from 50.6 percent found in Knoxville to only 41.4 percent in 2010, indicating a much slower growth rate than the county population.

Table 2. Knox County Population

	1990	% Share	2000	% Share	2010	% Share
Knox County	335,749	100.0	382,032	100.0	432,226	100.0
Knoxville	169,761	50.6	173,890	45.5	178,874	41.4
County balance	165,988	49.4	208,142	54.5	253,352	58.6

While other city sectors have experienced changes in population growth and decline, the population of the East City Sector and its relationship to the greater city population has declined only slightly in the last 20 years.

Table 3. Knoxville City Sectors Population

City Sectors	1990	% Share	2000	% Share	2010	% Share
Central	52,881	32.1	48,162	29.0	49,584	28.8
East	25,878	15.7	25,478	15.4	25,136	14.6
North	23,344	14.1	25,343	15.3	29,233	17.0
Northwest	25,207	15.3	27,974	16.9	30,175	17.5
South	17,719	10.7	18,516	11.2	18,029	10.5
West	19,808	12.1	20,354	12.3	19,781	11.5
TOTAL	164,837		165,827		171,938	

Public Safety

Police protection is provided by the Knoxville Police Department (KPD) within city limits. The Knoxville Fire Department provides fire protection service from stations 6 and 16 within the sector.

Public Facilities and Infrastructure

Libraries

The East City Sector is served by two branch libraries of the Knox County Public Library system: the North Knoxville Branch Library, located at 2901 Ocoee Trail (which is off of Broadway near the Edgewood neighborhood), and the Burlington Branch Library, at 4614 Asheville Highway.

Schools

School enrollment in the East City Sector has generally declined between 2007 and 2011. Significantly, enrollment at Austin-East Magnet High has decreased by 23 percent since 2007. Other schools have experienced less dramatic decreases; however, Holston Middle School's enrollment has increased by 13 percent.



Table 4. East City Sector School Enrollment

School Name	2007	2008	2009	2010	2011
Austin-East Magnet High	761	757	692	645	584
Belle Morris Elementary	447	405	407	394	384
Chilhowee Intermediate	250	269	265	277	258
Fulton High*	990	925	874	854	885
Holston Middle*	725	669	785	828	833
Richard Yoakley Alternative	66	56	61	73	65
Sarah Moore Greene Magnet Technology Academy	561	618	590	619	588
Vine Middle Magnet Performing Arts Academy*	391	402	371	357	327
Whittle Springs Middle	531	523	533	491	490
TOTAL	4,722	4,624	4,578	4,538	4,414

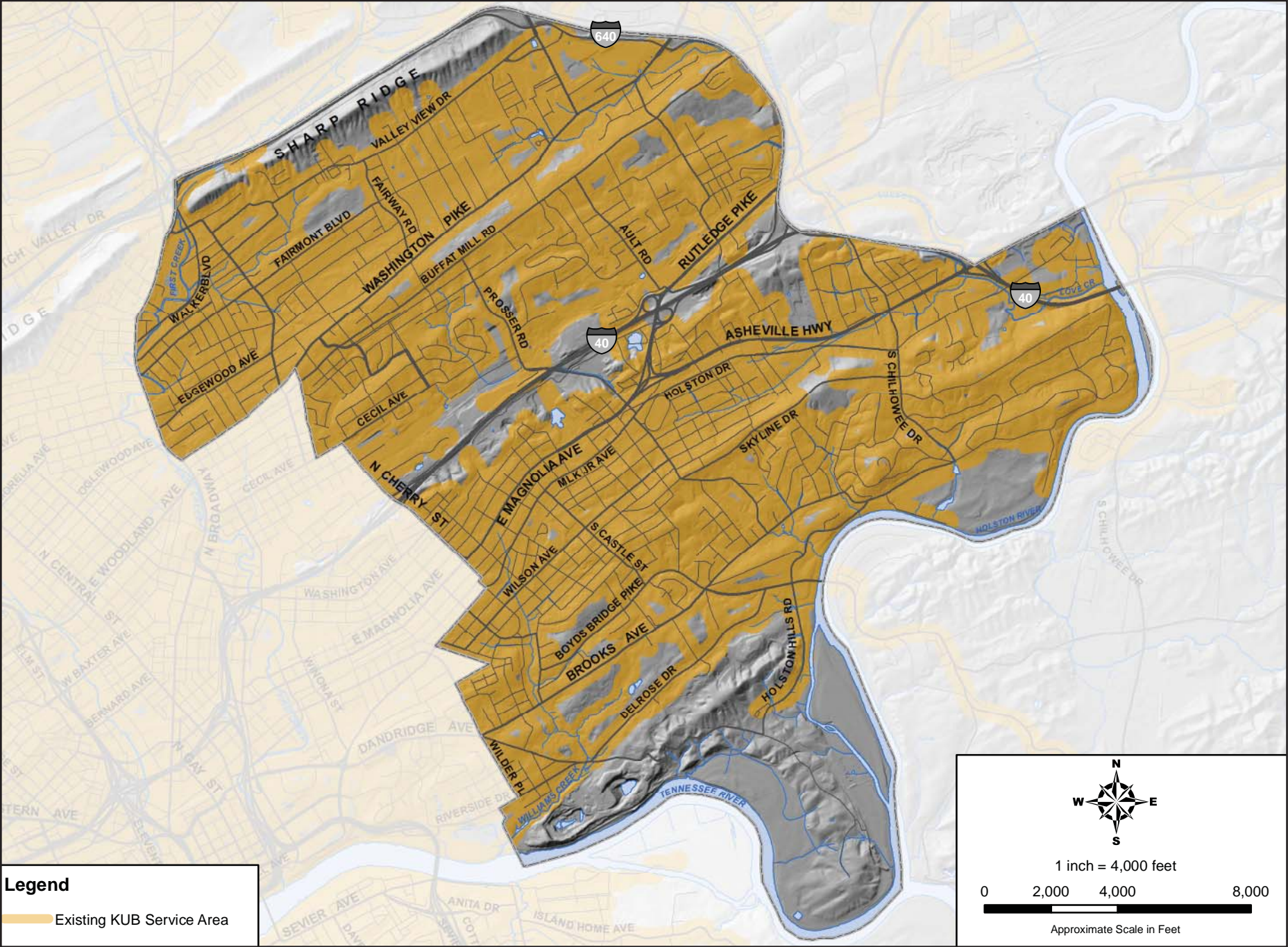
* Indicates schools located outside the sector boundary

The Knox County School Board makes decisions regarding school construction and maintenance. Currently, the capital improvement program for almost all Knox County's schools revolves around maintenance and upgrading of existing facilities, such as a school's electrical, heating, and cooling systems.

Public Utilities

The utility infrastructure is extensive with virtually all parts of the sector capable of being served by the Knoxville Utilities Board (KUB). That agency also provides water, sanitary wastewater, natural gas, and electrical utility services to the East City Sector.

East City Sector: Existing Wastewater Service



Parks and Greenways

There are 281.4 acres of parks within the East City Sector boundary. The largest of these are Holston River Park (44 acres) and Chilhowee Park (81 acres), which includes an exhibition center and a fairground. The Knoxville Botanical Garden and Arboretum (a quasi-public space), and two golf courses, the Wee Course at William's Creek and Whittle Springs Golf Course, provide other leisure opportunities.



Holston River Park

Table 5. East City Sector Park Acreage	
Classification	Acreage
Neighborhood Park	52.6
Community Park	181.8
District/Regional Park	0
Open Space/Natural Area	0
Private/Quasi-Public Park	47.0
TOTAL ACREAGE	281.4
Acres of Close-to-Home Park per 1,000 people	9.3
Publicly-owned Golf Courses	180.23

Greenway trails in the sector include:

- Holston River Greenway, a 2-mile loop trail within Holston River Park
- Holston-Chilhowee Greenway, a 1-mile loop trail within Holston Chilhowee Park
- A small loop made up of paved trail and sidewalk at Sarah Moore Greene Magnet Technology Academy
- A short loop trail at the Knoxville Botanical Garden and Arboretum

The City of Knoxville has a grant from the Tennessee Department of Transportation (TDOT) to build a new section of First Creek Greenway from Fulton High School up to Edgewood Park.

The City of Knoxville and Knox County developed a park and greenway plan entitled *Knoxville-Knox County Park, Recreation, and Greenways Plan*, which was adopted in 2009. Several parks have opened following that plan's adoption, such as Thomas "Tank" Strickland Park next to the Burlington Library.

This plan recommended the establishment of a greenway from the Holston River, through the Wee Golf Course and into the Five Points/Austin East High School area. The Tennessee Clean Water Network, the current land steward, is expected to pass control of the properties to the Parks and Recreation Department later this year.

Transportation

The Major Road Plan for the City of Knoxville and Knox County, Tennessee was adopted by MPC, City Council and County Commission in 2004 and updated in 2011. It views each road as part of the overall transportation system and identifies its functional classification. It assigns right-of-way requirements based on the purpose and function of the road, future road improvements, future pedestrian improvements, traffic counts, anticipated development, and policies and goals contained in plans (including the sector plan, long-range transportation plans, and the *Knoxville-Knox County General Plan*). The Planned Roadway Improvements map was developed using data from the Major Road Plan.

Sidewalks

Residents' ability to use sidewalks to walk to schools, parks, and shopping is limited. Sidewalks are primarily along major corridors like Magnolia Avenue and Martin Luther King, Jr. Avenue, and in parts of some older neighborhoods such as Parkridge, Edgewood Park and Emoriland-Fairmont. Most development beyond these areas arose in the 'automobile age,' the era following World War II, when there was little emphasis on sidewalk construction.

Currently, no general requirements mandate sidewalks with new development. MPC may require sidewalks, and often does in Parental Responsibility Zones (PRZ). The subdivision regulations allow MPC to require sidewalks outside the PRZ's as well. The PRZ is an area of one (1) mile from elementary schools and an area of one and a half (1.5) miles from middle and high schools, within those areas parents are responsible for providing transportation to and from school, as these zones are not serviced by school buses. The PRZ is determined by the roadway system from the front door of a school to the households that will not have school bus service. These areas should be targeted for sidewalk creation or improvement.

Bike Lanes

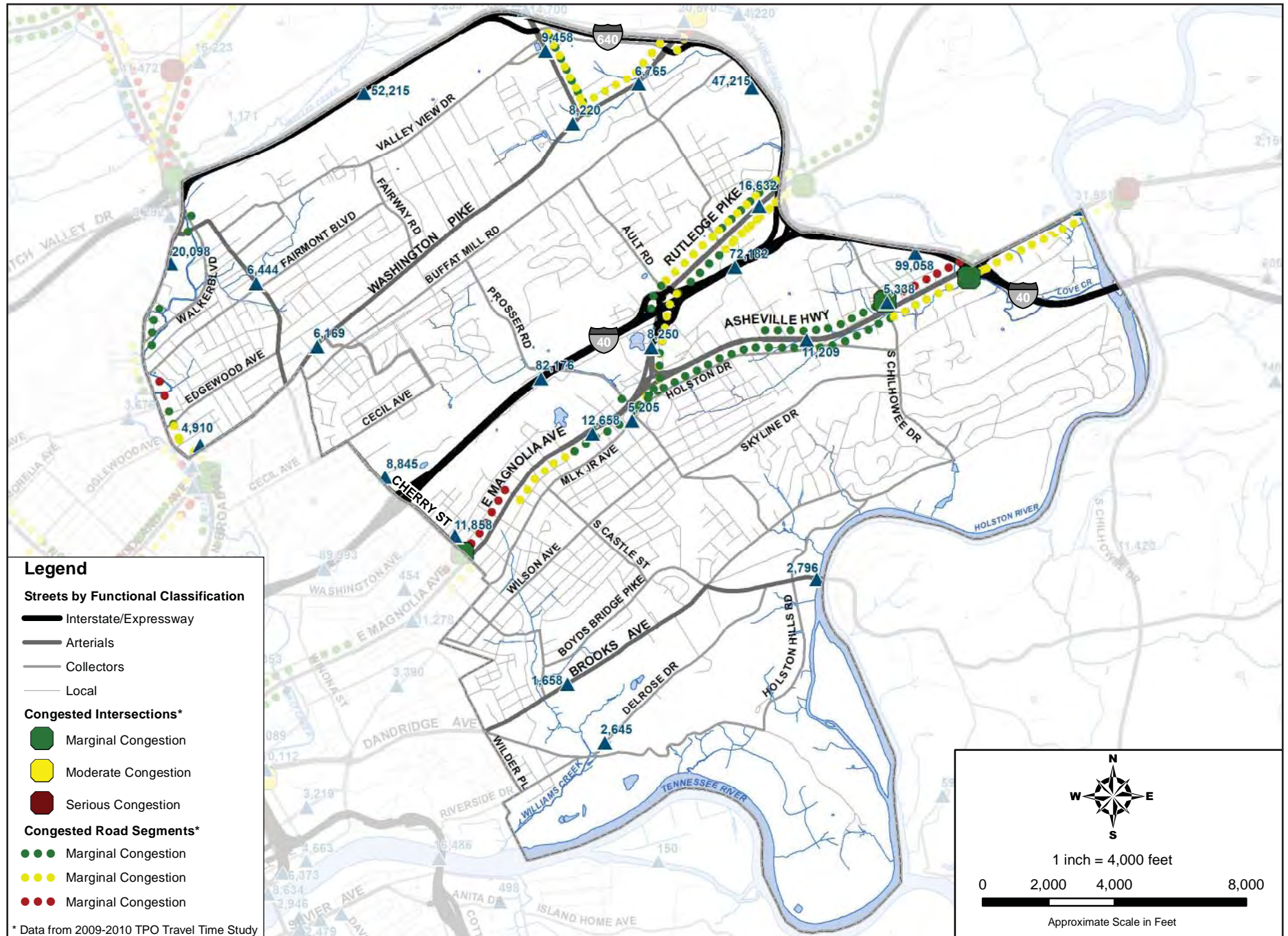
The only marked bike lanes in the sector are on Magnolia Avenue but were developed decades ago and do not meet current design guidelines. As a result, the City of Knoxville will be adding a system of signs for a new TPO-designated bicycle route between downtown and Knoxville Zoo/Chilhowee Park that will not use Magnolia Avenue.

Some other roadways in the sector have shoulders, which can be used by bicyclists, but are not marked as bike lanes.

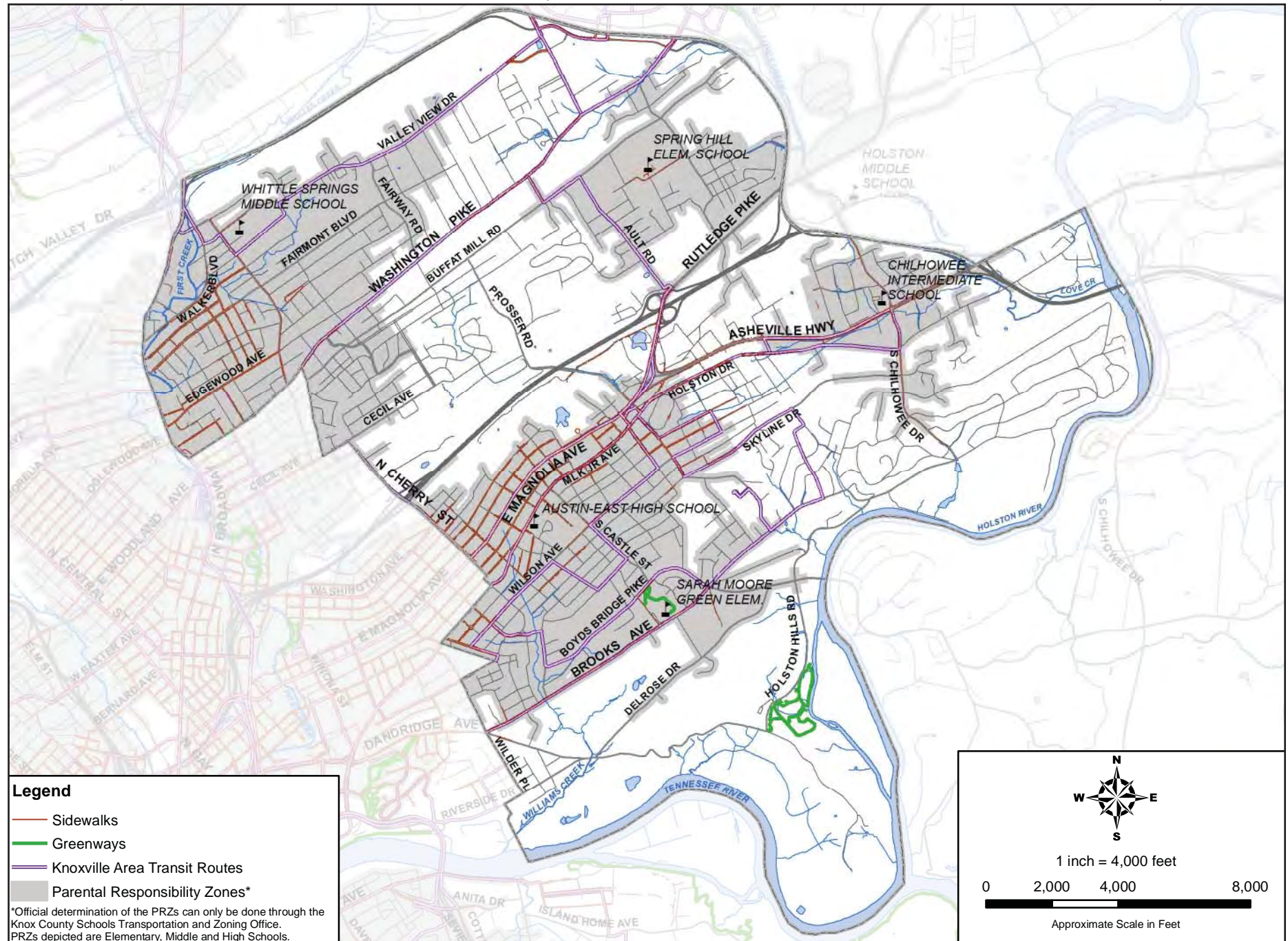
State Route 1 (Magnolia Avenue and Rutledge Pike) has been marked with signs by TDOT as a state bike route between Nashville and Bristol.

The City of Knoxville is currently preparing a Bicycle Facilities Plan, which will result in a prioritized bike network. The recommendations of that plan should be implemented in this sector.

East City Sector: Road Classes and Traffic Congestion



East City Sector: Sidewalks, Greenways, Transit Routes & Parental Responsibility Zones



Transit

Past

In the late 1800's to the early 1900's Knoxville boasted one of the best and most extensive street car systems in the south. The earliest street cars, like the line along Washington Avenue, were horse-drawn. Soon, however, electric lines were established to fuel the real estate ventures, now known as trolley suburb development. Park City, once part of the Central and East City Sector landscape, was developed as trolley lines were established along Washington, Magnolia, McCalla and Church Avenues.

Like most cities, the 1920's marked the peak of Knoxville's street car system. As many as 150 vehicles operated during this decade and most of the lines had ten-minute service during the day. Peak ridership occurred in 1923 with

19,600,000 patrons. After that year, several factors led to the demise of Knoxville's street car system, including the rapidly increasing popularity of automobiles, the stock market crash of the 1929 and subsequent Great Depression, and the advent of a bus system. These trends were in play here and across the United States. In 1930, the first street car line (Sevierville Pike) was converted to a bus line. Knoxville's street car network kept shrinking as bus service was found to be more cost effective and automobile travel grew in popularity. In 1945 City Council voted to provide transit service solely through buses. The last street cars ran in 1947. Afterward, their rail lines were dismantled or covered with pavement.

The bus system was privately owned until 1967, when the City of Knoxville took over, renaming the system Knoxville Transportation Corporation. In 1978, the City by



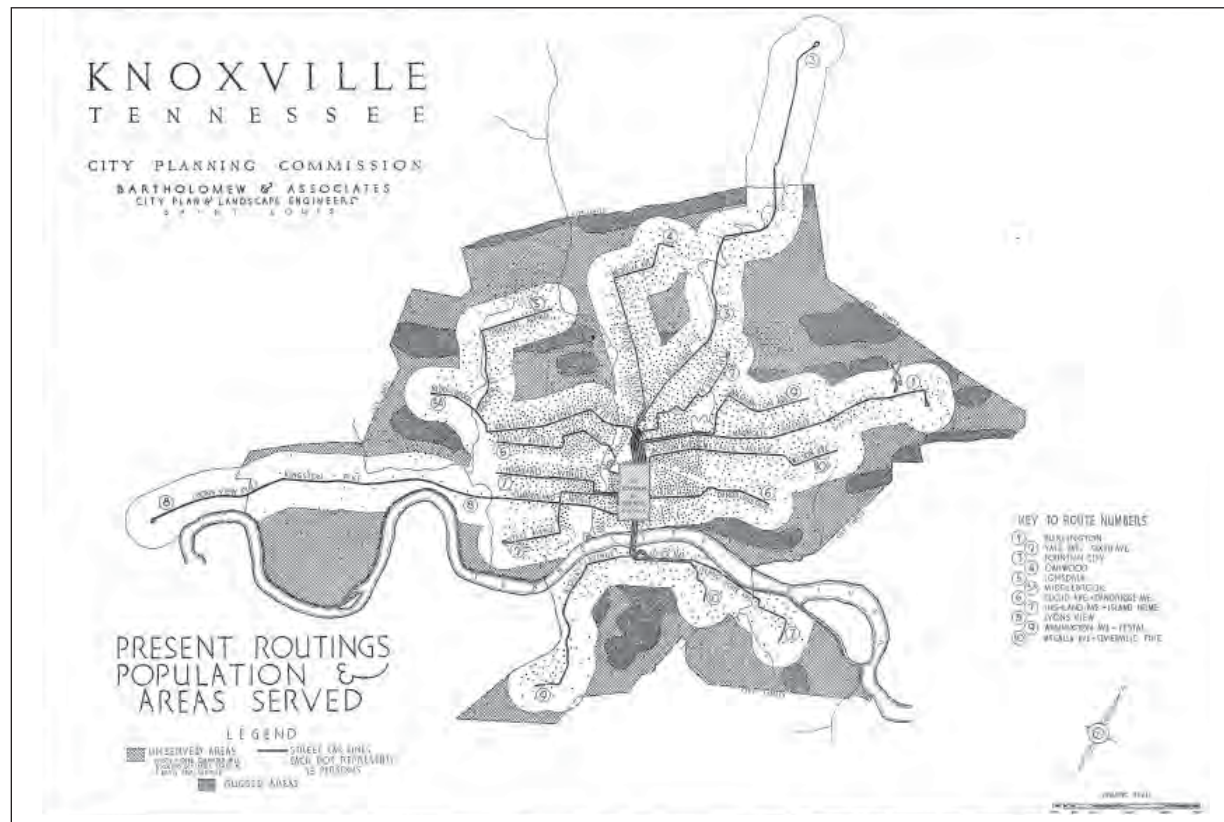
Street car in 1915

Image courtesy of the McClung Historical Collection of the Knox County Public Library System

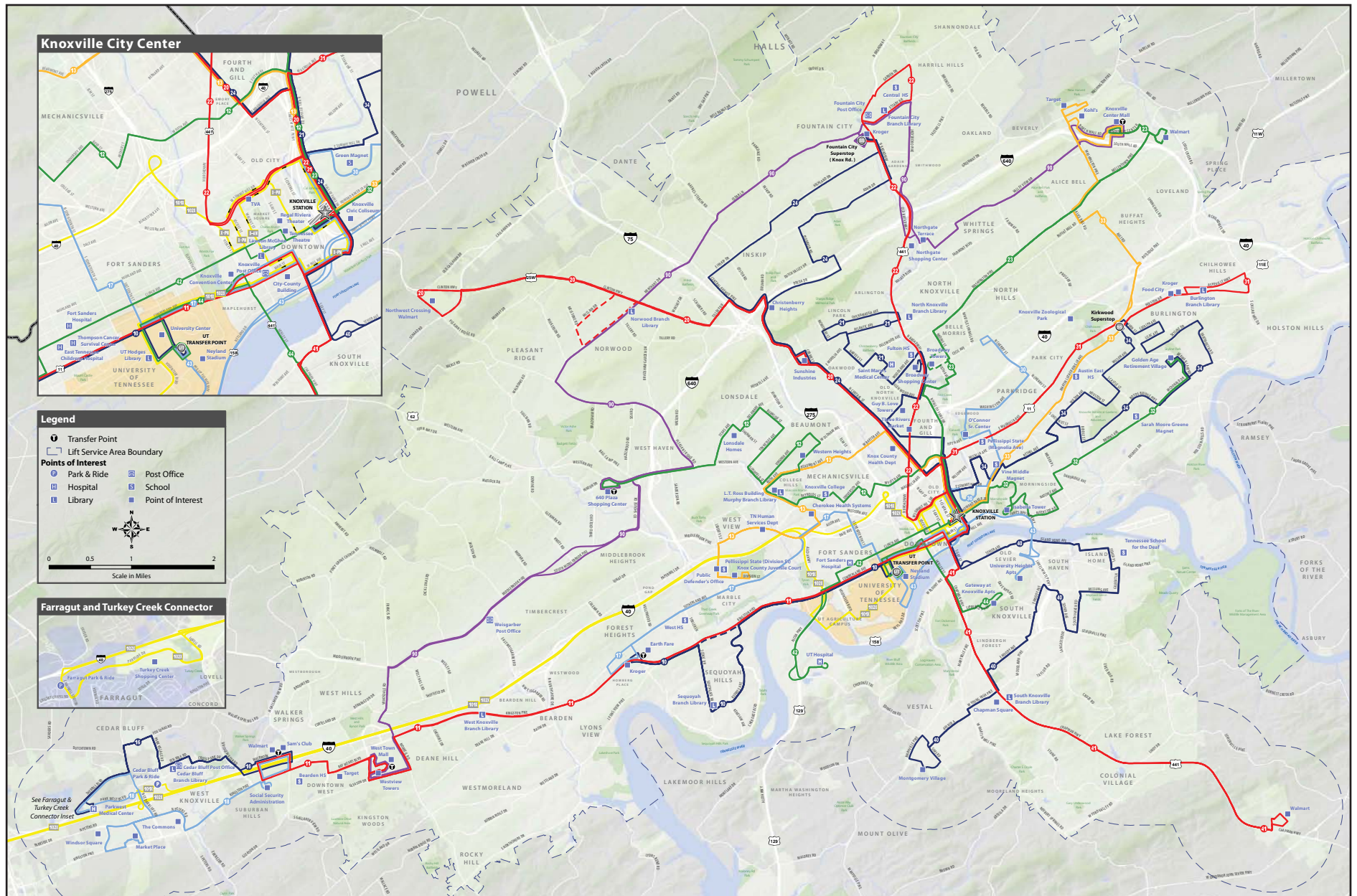
ordinance created the Knoxville Transportation Authority (KTA) to oversee the operations of the transit system. At that time, the transit service was renamed K-Trans. In 1989, K-Trans moved into a brand new administrative office and maintenance facility at 1135 East Magnolia Avenue. In 1995, K-Trans changed its name to Knoxville Area Transit (KAT). In 2010, KAT administrative offices moved to a new state-of-the-art and Silver LEED (Leadership in Energy and Environmental Design) certified facility called the John J. Duncan Jr. Knoxville Station Transit Center (Knoxville Station). Located at 301 Church Avenue the facility parallels the Church Avenue bridge over the James White Parkway. Knoxville Station is the major transfer center for the KAT system with a variety of passenger amenities, such as customer service, restrooms, benches, in-door waiting, digital message boards which tell when the next bus arrives, and a cafe. A benefit of the Station's location is its capacity to help reconnect the downtown, over the parkway, to east Knoxville.

Present

KAT is the largest provider of public transit in the Knoxville region. KAT focuses a majority of its services within the City of Knoxville but does provide some service in Knox County outside the city limits. With a capital and operating budget slightly over \$16 million annually, KAT provides fixed-route bus service, downtown trolley circulators, and door-to-door paratransit service for those persons who are disabled. The KAT fixed route bus and trolley system consists of 28 routes with several in the East City.



Trolley routes from the 1930 Plan for Knoxville



2013 map of the overall Knoxville Area Transit system

Future

In October 2012, a team of transit consultants, STV and Sasaki, released a draft study, known as the Knoxville Regional Transit Corridor Analysis, which outlines various

transit options in Knoxville and nearby counties. A host of factors were considered in identifying and evaluating twelve options, including population and employment

density, low income households, lack of vehicle ownership, engineering criteria, community benefits, and development and redevelopment opportunities.

The corridors that received the highest ratings were Cumberland Avenue/Kingston Pike, Magnolia Avenue and North Broadway. The type of recommended transit for each of those corridors is bus rapid transit (BRT), which could use high tech diesel or diesel/hybrid buses. Such systems are created along urban corridors where travel speeds can be expected to be between 20 and 40 miles per hour. If the BRT system is developed, several operational characteristics would be anticipated: buses would operate with other types of vehicles in curb lanes except along Magnolia where a center lane could be used exclusively for transit vehicles, signal priority would be given to buses, and stations would be roughly between one-quarter and one-half mile apart. An important goal is to increase the frequency of the buses. While the plan allows for the implementation of these improvements based on current characteristics, it does recognize the project can be more successful with increased activity along the corridors, which is largely dependent on land development and related strategies that will be identified during the course of creating this plan.

Implications from Adopted Corridor Plans

Two adopted corridor plans call for specific transportation improvement programs in the sector:

Martin Luther King, Jr. Avenue Corridor Plan

This plan was adopted by the Knoxville City Council in 2007. The goal of the plan is the continued revitalization of the MLK Avenue corridor, and includes roughly 50 short term and long term recommendations for areas such as the Five Points Commercial Area, Burlington Commercial Area, and South Chestnut Street. Some of these recommendations have partially been implemented, for example, street design improvements like landscape and sidewalk development.

Magnolia Avenue Corridor Plan

This corridor plan was prepared in 2009 with the goal of stimulating economic development in the Magnolia Avenue corridor. Transportation recommendations include the implementation of pedestrian-oriented complete street design and beautification, such as landscape and sidewalk improvements.



The Martin Luther King, Jr. Avenue Corridor Plan includes recommendation for public improvements, aesthetic enhancements, and infill housing.



The Magnolia Avenue Corridor Plan offers recommendations for street design, improved transit, form-based districts and historic preservation.

Natural Resources and Environmental Constraints

Topography

The Knoxville Knox County Hillside and Ridgetop Protection Plan was adopted in 2011 and 2012 by the city council and county commission. This plan restricts density of development on slopes greater than 15 percent and along streams and rivers within Knox County.

This plan also addresses public safety as a concern in restricting the density of development. Sloped areas have greater susceptibility for soil slippage and failure. Many of the soils along slopes are considered unstable, and removal of vegetation that secures the soil promotes further slope failure. Also by protecting these areas, the amount of runoff is reduced and riparian areas are maintained.

Areas of the East City Sector which fall under the Hillside and Ridgetop Protection Area include:

Sharp's Ridge

Running parallel to Interstate 640 on the northern border of the sector, this prominent ridge overlooks North Knoxville. Many slopes steeper than 25 percent occur on this ridge.

Holston Hills and North Hills

These single-family housing neighborhoods feature many slopes of 15 to 25 percent, and were developed with the density and landscape conservation that would be consistent with the Protection Plan.



These apartments were built south of the ridge on the more level area and not on the hillside.

Water Resources

Flood Prone Areas

FEMA's *Flood Insurance Study - Knox County, Tennessee and Incorporated Areas* (2007) identified First Creek and Williams Creek as the principal flood sources in this sector. The City of Knoxville Engineering Division restricts filling of the floodplain, and habitable portions of buildings must be above the 100-year floodplain elevation.

First Creek is prone to flooding from urban runoff. First Creek's problems have been addressed by the City of Knoxville's First Creek Drainage Improvement Project, which widened a segment of the creek to reduce water levels during storm events.

Williams Creek has been modeled by the City of Knoxville Engineering Division to address storm water drainage, and they have identified and designed construction projects to stabilize stream banks and reduce erosion. The City of Knoxville also funds an ongoing Neighborhood Drainage Improvement Program to alleviate neighborhood drainage problems.

Another significant area of flooding is the Emily Avenue/Timothy Avenue area where a sinkhole cannot drain flood waters for days after a major storm. Traffic detours are routine in this area, including rerouting people bound for the Knoxville Zoo.

Water Quality

First Creek, Loves Creek and Williams Creek are on the State's 303(d) list, a collection of waterways which do not meet the clean water standards of by the Tennessee Department of Environment and Conservation.

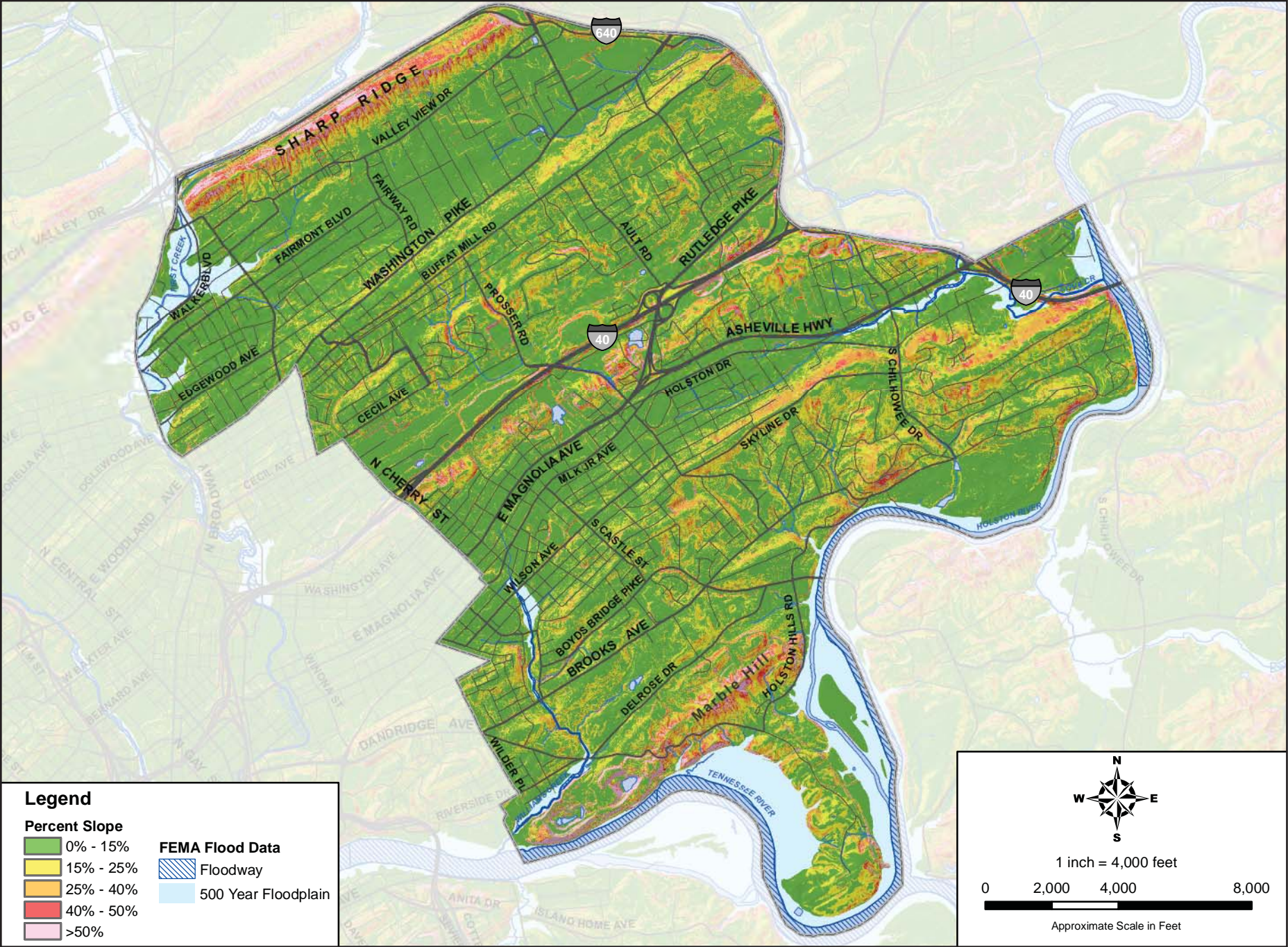
The Knoxville Utility Board is under federal consent decree to provide wastewater infrastructure improvements. Partners Acting for a Cleaner Environment (PACE10) is a ten-year program to address wastewater issues. As part of the PACE 10 plan, the Knoxville Utility Board has done much to rehabilitate Williams Creek, including a Supplemental Environmental Project to help less affluent residents repair privately owned piping that connects to the KUB infrastructure.

Agricultural Soils and Greenbelt Parcels

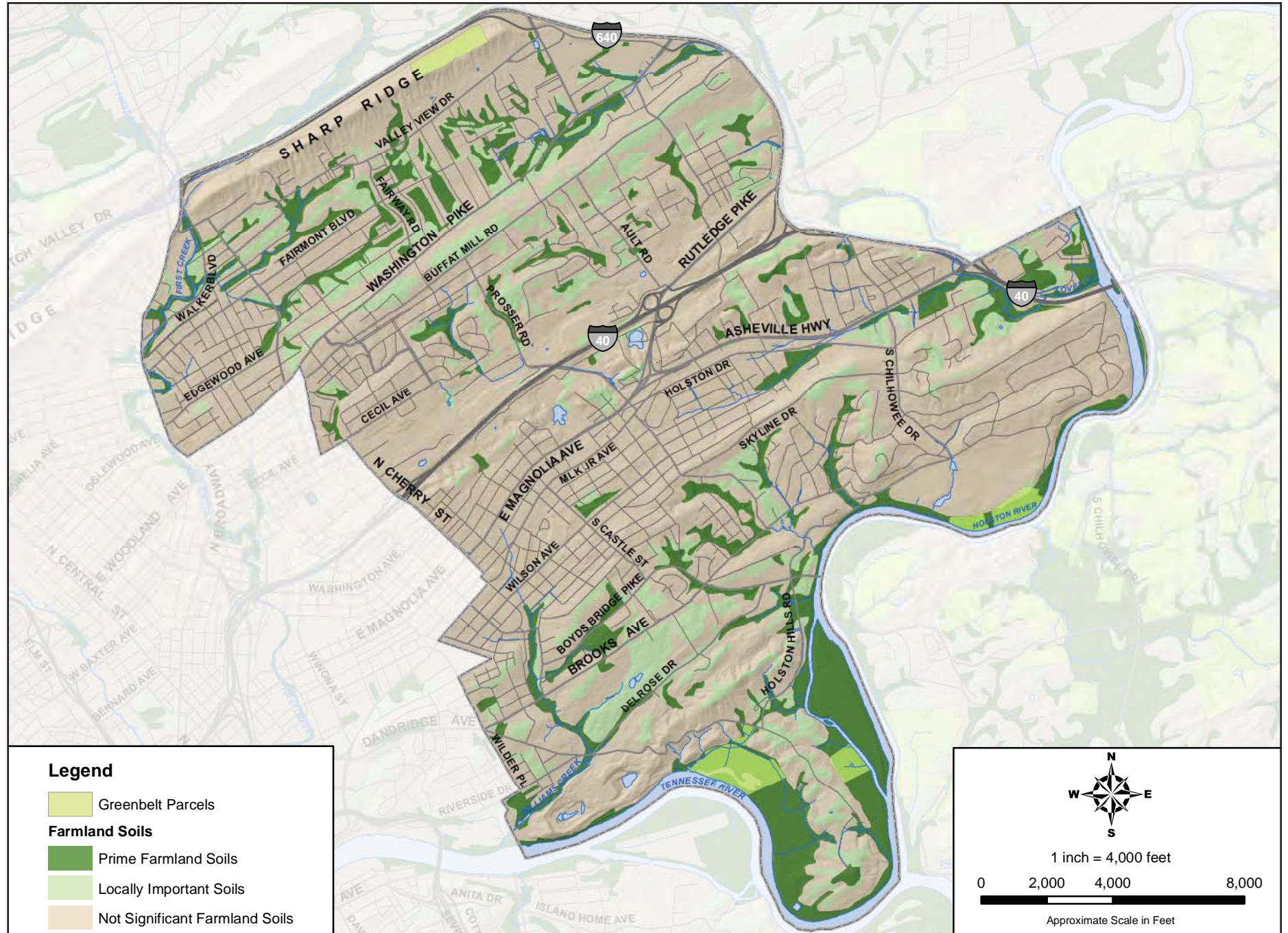
The prime and locally important agricultural soils are found adjacent to the Tennessee and Holston Rivers and the surrounding creeks.

Five parcels are currently part of Tennessee's and Knox County's "greenbelt" program under which property taxes can be reduced when the land is used for agricultural, forestry or open space purposes.

East City Sector: Environmental Constraints



East City Sector: Agricultural Soils and Greenbelt Program Parcels



Existing Land Use

As of 2012, East City Sector land use is mainly comprised of Rural Residential at 34.27 percent of the total acreage. The second largest share is Right of Way/Open Space at 14.73 percent, followed closely by Agriculture/Forestry/Vacant Land at 14.73 percent.

Table 6. East City Sector Land Use Acreage, 2012

Land Use Categories	Acres	% Share
Agriculture/Forestry/Vacant	1,479.49	14.73
Commercial	310.75	3.09
Industrial (Manufacturing)	27.73	0.28
Multifamily Residential	282.74	2.81
Office	148.19	1.48
Private Recreation	191.23	1.90
Public Parks	344.35	3.43
Public/Quasi Public	1,034.99	10.30
Right of Way/Open Space	1,484.73	14.78
Rural Residential	549.70	5.47
Single Family Residential	3,441.65	34.27
Transportation/Communications/Utilities	112.49	1.12
Under Construction/Other Uses	64.95	0.65
Water	275.19	2.74
Wholesale	42.02	0.42
Mining and Landfills	253.93	2.53
TOTAL	10,044.13	100.00

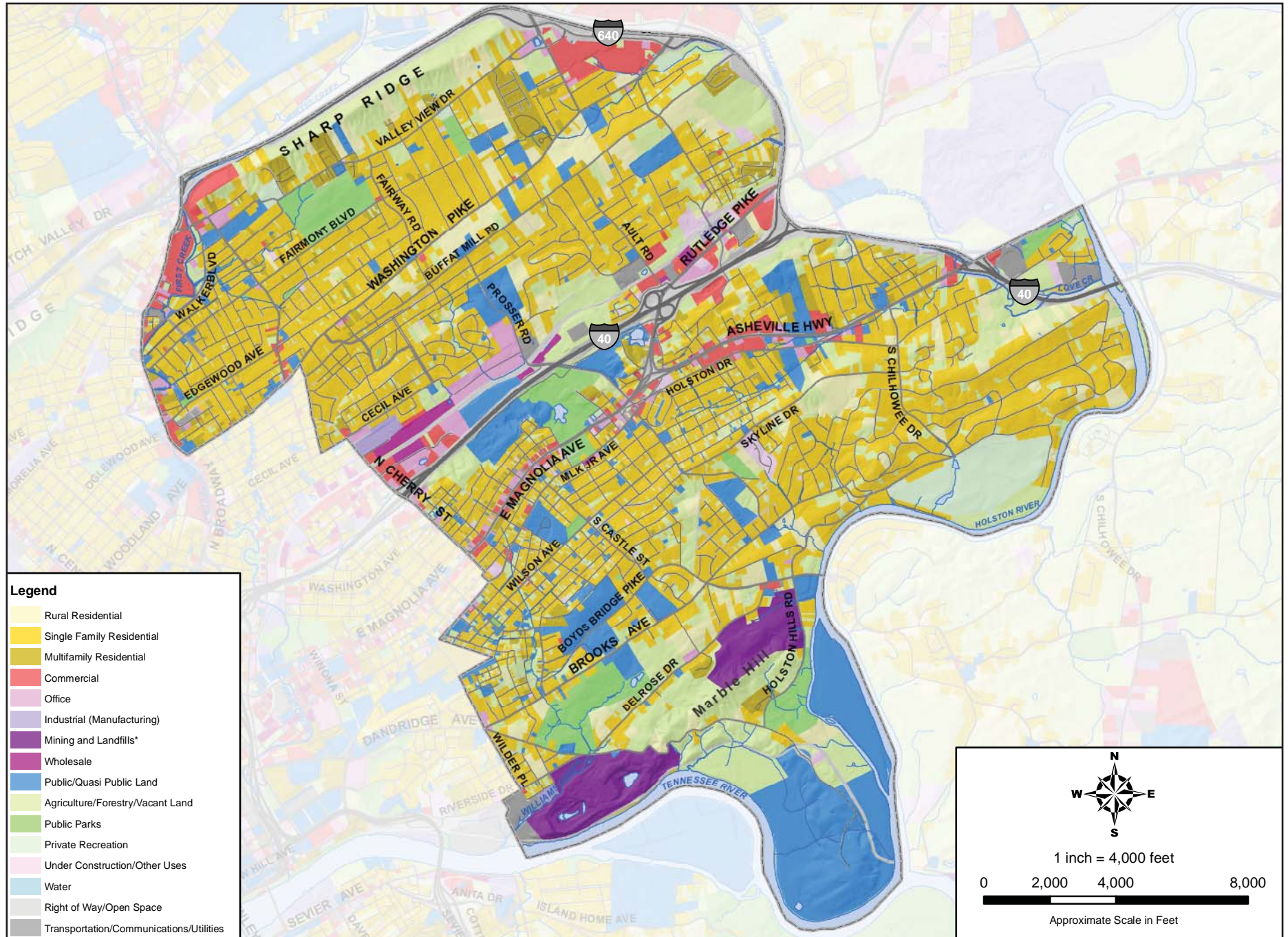


Thirty-four percent of the East City Sector land use is comprised of single-family residential housing.



Neighborhood commercial uses at the intersection of Whittle Springs Road and Washington Pike

East City Sector: Existing Land Use



Development Activity

Residential Building Permits

East City had an increase of 584 residential units between January 2003 and December 2010. This increase in units accounted for 5.8 percent of the city's permit value for residential new construction. During this same time period East City had 2,042 permits for residential renovations, alterations, or additions. This increase in permits represented 8.4 percent of the city's residential building permits for renovation, alterations, or additions.

**Table 7. Residential Building Permits for New Construction
January 2003 – December 2012**

Housing Type	East City Sector		Percent Share of Citywide	
	No. of Units	Permit Value	No. of Units	Permit Value
Detached	301	\$19,755,077	13.5%	8.1%
Attached	109	\$7,739,565	5.0%	4.3%
Multi-dwelling	161	\$8,632,189	4.8%	4.1%
Mobile Home	13	\$692,783	21.3%	25.8%
TOTAL	584	\$36,819,614		5.8%

**Table 8. Residential Building Permits for Renovation/Alteration/Addition
January 2003 – December 2012**

Housing Type	East City Sector		Percent Share of Citywide	
	No. of Units	Permit Value	No. of Units	Permit Value
Detached	1,884	\$20,154,200	19.7%	11.6%
Attached	26	\$580,503	3.3%	1.9%
Multi-dwelling	132	\$5,104,45	8.6%	4.9%
Mobile Home	0	0	0	0



Infill housing on Louise Avenue

**Table 9. Non-Residential Building Permits for New Construction
January 2003 – December 2012**

Type	East City Sector		Percent Share of Citywide	
	No. of Permits	Permit Value	No. of Permits	Permit Value
Commercial	39	\$13,244,973	5.2%	2.0%
Industrial	9	\$2,896,001	8.4%	3.3%
TOTAL	48	\$16,140,974		2.2%

**Table 10. Non-Residential Building Permits for Renovation/Alteration/Addition
January 2003 – December 2012**

Type	East City Sector		Percent Share of Citywide	
	No. of Permits	Permit Value	No. of Permits	Permit Value
Commercial	178	\$10,801,365	3.6%	1.8%
Industrial	18	\$3,849,149	7.9%	10.9%
TOTAL	196	\$14,650,514		2.3%

Non-Residential Building Permits

East City only had 48 permits issued for non-residential new construction, representing only 2.2 percent of the city's building permits for these uses. There were 196 permits issued for non-residential renovations, alterations or additions, representing only 2.3 percent of the city's building permits for these uses. This is not surprising since non-residential uses, such as commercial, industrial, wholesale and office combined only represent 5.27 percent of the overall acreage within the East City. Between 2000 and 2010, East City registered 46

**Table 11. City Sectors Non-Residential Building Permits
2000 - 2010**

	Commercial	% Share	Industrial	% Share
Central	129	23.2	38	37.6
East	46	8.3	10	9.9
North	83	14.9	16	15.8
Northwest	199	35.8	23	22.8
South	21	3.8	6	5.9
West	78	14.0	8	7.9
TOTAL	556		101	

commercial and 10 industrial building permits. The sector's share of commercial and industrial building permits was strikingly low: less than 10 percent of such permits among the city sectors. Only South City experienced less non-residential construction.

Table 12. Residential Subdivision Permits, 2000 – 2010

Subdivisions	East City Sector	All City Sectors	% Share
Acreage	205.1	1,769.3	11.6%
Number	62	359	17.3%
Lots Created	317	3,080	10.3%

Housing

Between 1990 and 2011, the total number of housing units in East City increased by 11.4 percent from 11,925 units in 1990 to 13,463 units in 2011. Multi-dwelling unit construction was the most significant share, with 663 units added from 1990 to 2011. Detached dwellings are more than 70 percent of the total housing units.

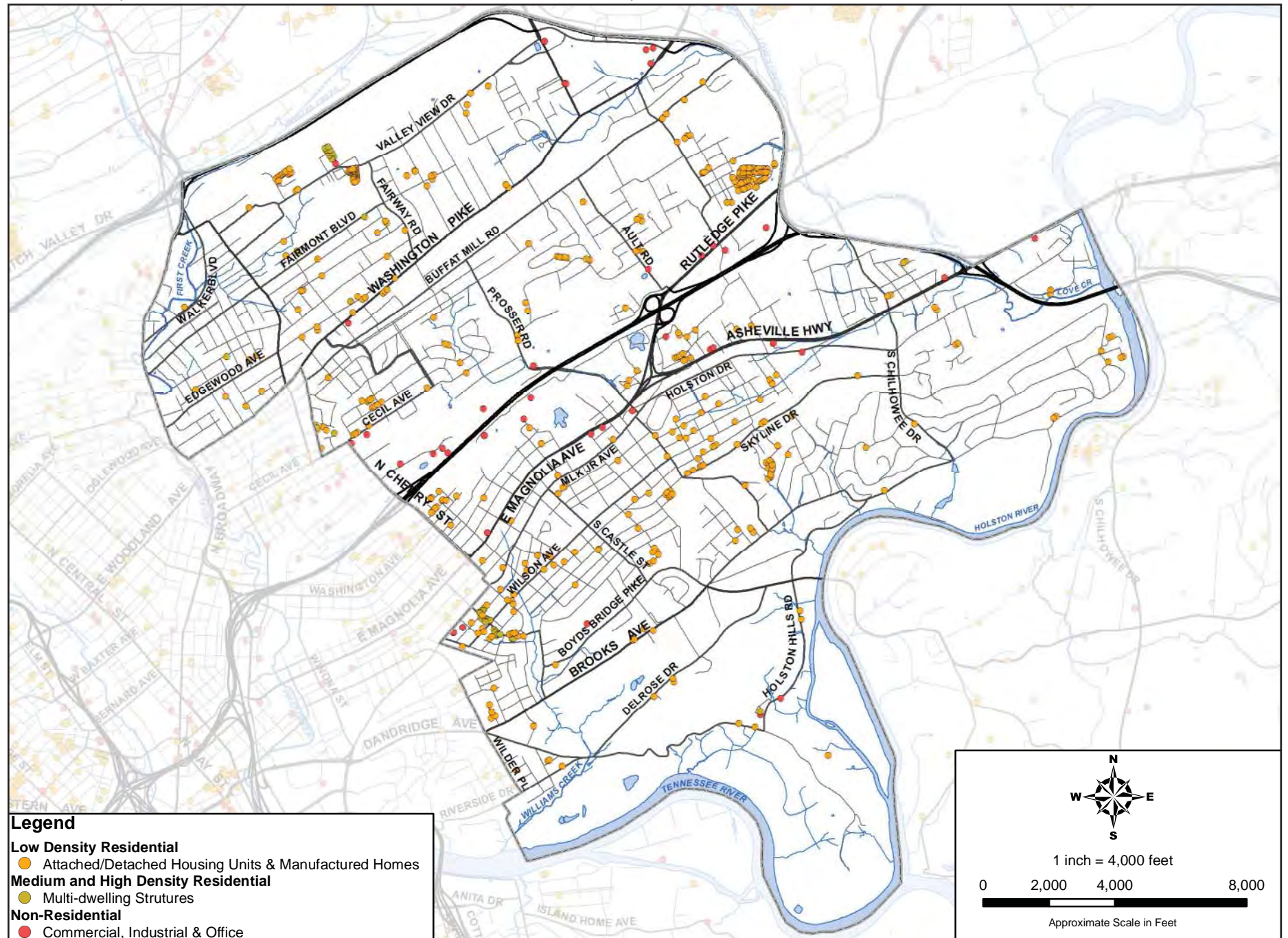
Table 13. East City Sector Housing Units

	1990	% Share	2000	% Share	2011	% Share
Detached	9,237	77.4%	9,399	74.3%	9,772	72.6%
Attached	204	1.7%	376	2.9%	533	4.0%
Multi-dwelling	2,399	20.1%	2,817	22.3%	3,062	22.7%
Mobile Home	85	0.7%	66	0.5%	96	0.7%
TOTAL	11,925		12,658		13,463	

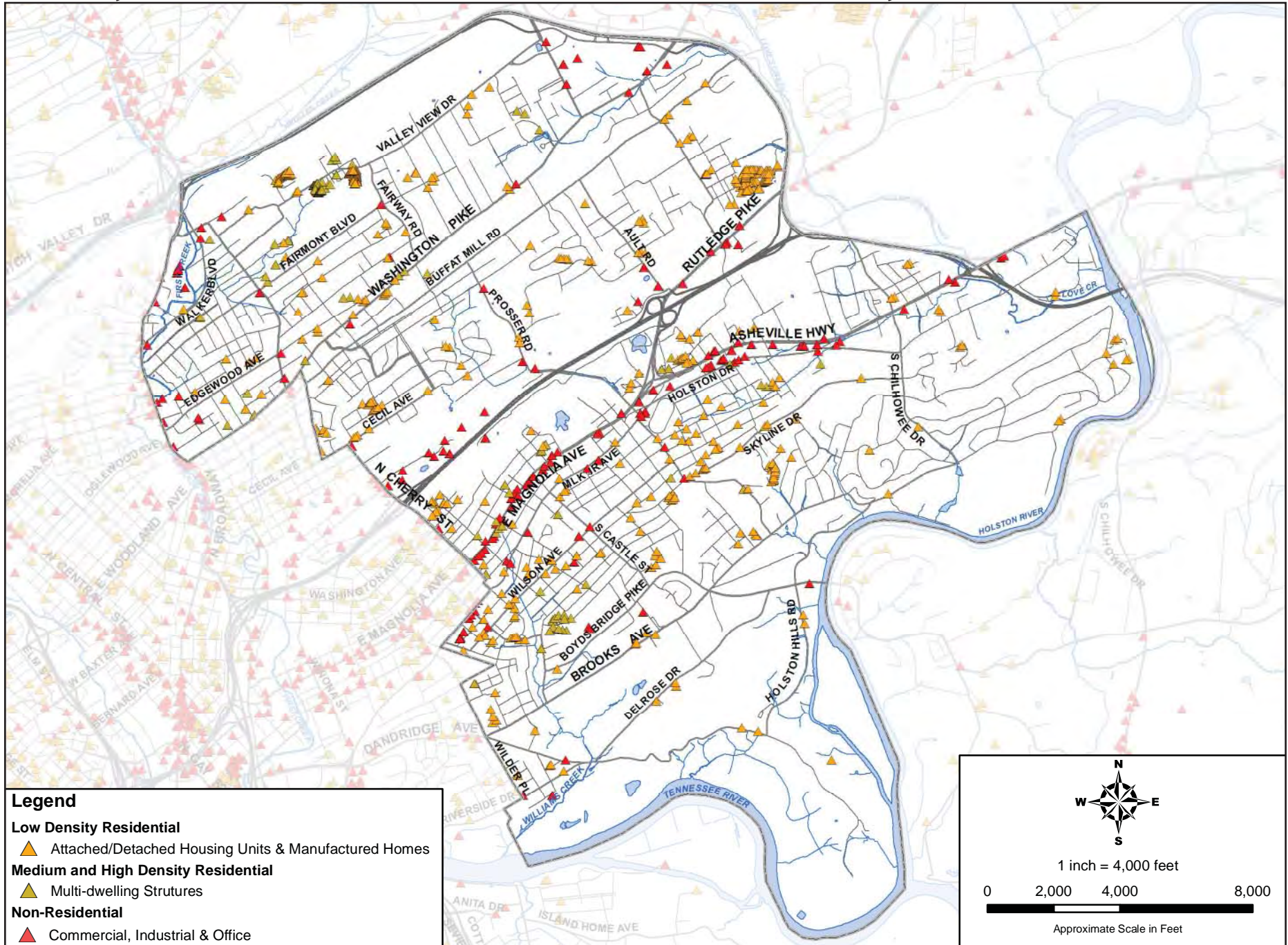


Infill housing has made a positive impact in the sector.

East City Sector: New Construction, January 2003 - December 2012



East City Sector: Renovations, Alterations, Additions, January 2003 - December 2012



Building Conditions

The source of the following information is the Knox County Tax Assessor's records. Maps demonstrating housing and commercial-industrial-office building conditions are on the following pages. MPC is presenting the "big picture" in the following tables, text and maps. The general patterns and percentages are discussed.

Residential Buildings

The East City's oldest houses and apartments are in the Park City and Parkridge areas. Consequently, it is not surprising to see a swath of "Fair/Average" housing lots to either side of Magnolia Avenue on the map. In contrast the newer, more suburban areas of Holston Hills, North Hills and Fairmont Boulevard area have housing that is largely in good or better condition.

Table 14. Residential Building Conditions		
Building Conditions	Parcels	Acres
Unsound/Very Poor/Poor	319	144.5
Fair/Average	7027	2775
Good/Very Good/Excellent	2806	1323.3

Non-Residential Buildings

A rating of "Fair/Average" is predominant with 69 percent of the non-residential buildings being characterized as such. There are a few areas where commercial buildings are rated as being in poor condition; Burlington is one of these. Still, buildings in "Poor" condition comprise only 1 percent of the total non-residential buildings.

Table 15. Non-Residential Building Conditions		
Building Conditions	Parcels	Acres
Poor	33	19.3
Fair/Average	258	763.9
Good/Very Good/Excellent	83	165.9

Other Plan Recommendations

Knox Housing Partnership

As part of the federal *Home Improvement Energy Retrofit Program*, Knox Housing Partnership (KHP) constructed affordable and energy efficient certified LEED Gold houses. Five have been completed on Chestnut Street in Five Points, and KHP aims to build more in Park Ridge, Morningside and Burlington.

Knoxville Community Development Corporation

Knoxville Community Development Corporation (KCDC) is responsible for planning and implementing neighborhood redevelopment plans aimed at revitalizing blighted facilities and struggling communities. KCDC has recently constructed fourteen residential buildings along Chestnut Street, including duplexes and multifamily structures. A recent Five Points Master Plan includes recommendations for street extensions, open space, new housing types and styles.

Magnolia Avenue Corridor Plan

The goal of this plan is to create opportunities to enhance development along the Magnolia Avenue corridor, including the north end of downtown, the Hall of Fame/Caswell Park area, Burlington, and the areas in between. The suggested implementation measures include fostering opportunities for mixed use, pedestrian-oriented complete street design, historic preservation, and the adoption of a form-based zoning code. KCDC has created an advisory board which has begun meeting to discuss roles and timelines, and to identify priority blighted properties for redevelopment. Additionally, the City of Knoxville Community Development Department is providing a façade improvement incentive program to the Magnolia Redevelopment Area.

Martin Luther King, Jr. Avenue Corridor Plan

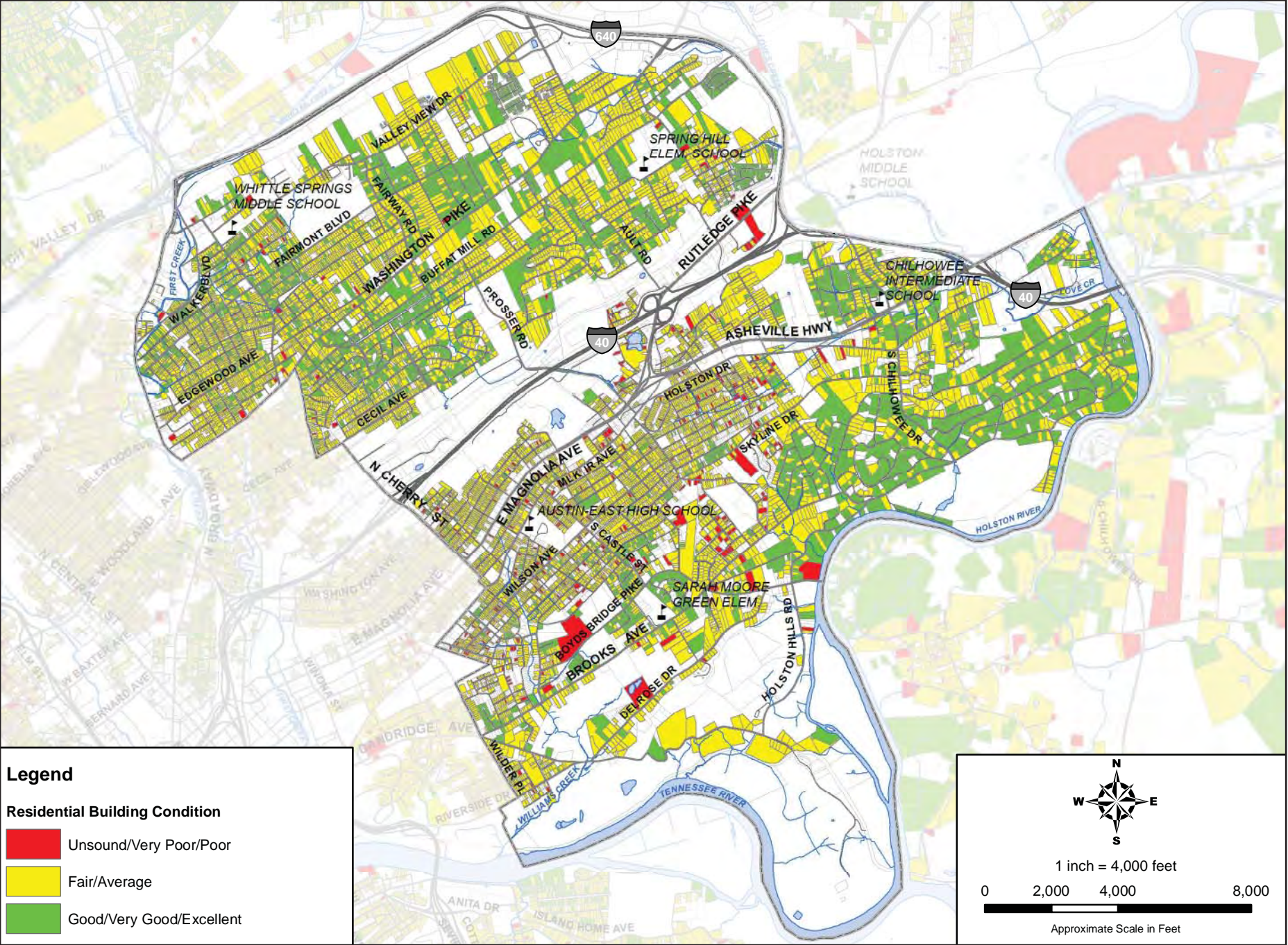
The purpose of this plan is to guide the city's continued revitalization of the MLK, Jr. Avenue corridor. Focus areas include the Five Points Commercial Area, Burlington Commercial Area, and South Chestnut Street. Recommendations for immediate action include streetscape improvements and façade improvements

in Five Points and Burlington, rezoning and infill housing along South Chestnut Street, the designation of Burlington as a redevelopment area, and the redevelopment of Walter P. Taylor homes using federal funding. Many of the recommendations listed in the plan have already been implemented.

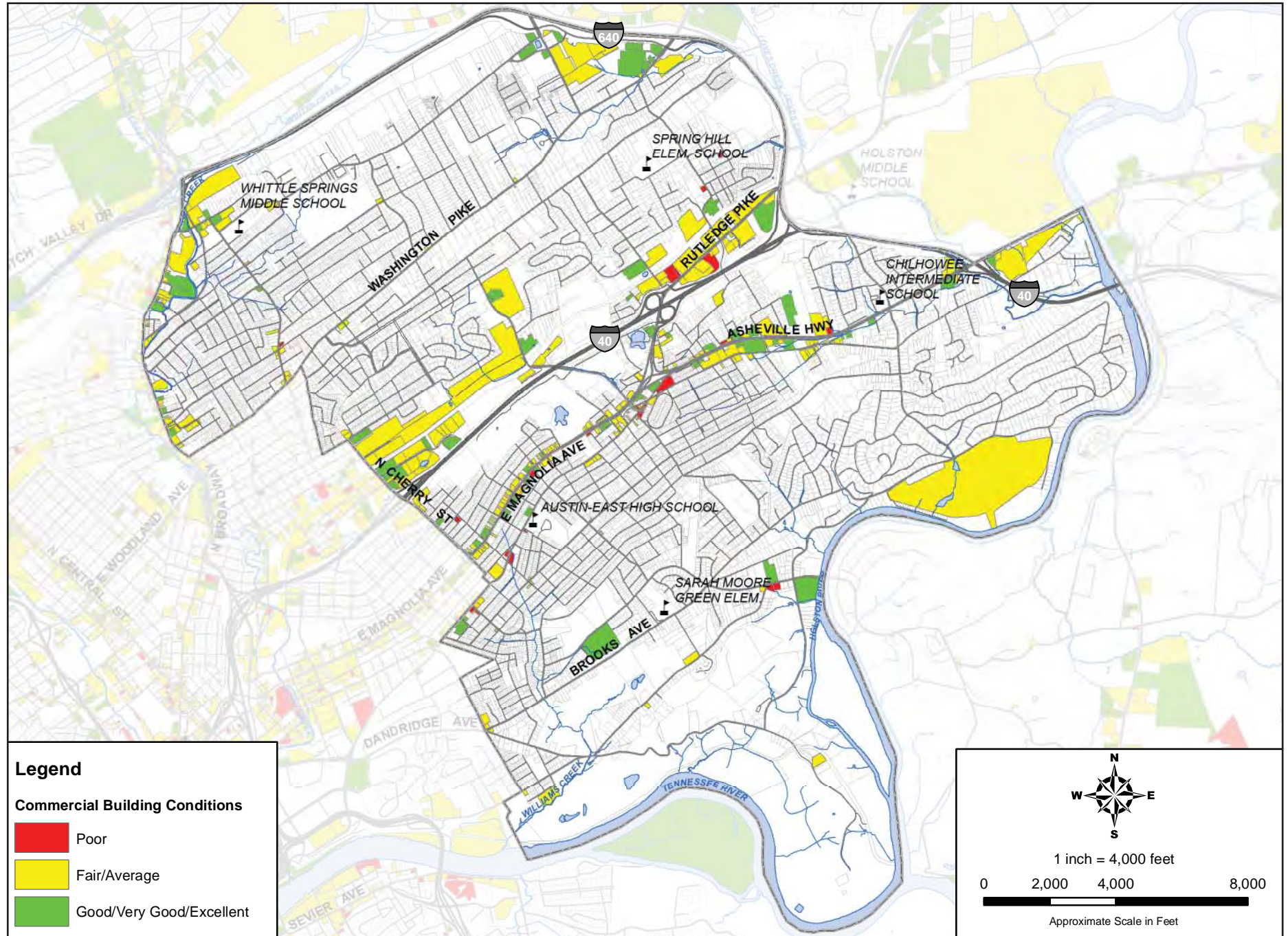
Growth Policy Plan

The East City Sector is almost entirely within the Knoxville city limits. However, a few parcels on the bend of the Holston River are still in the unincorporated area of Knox County, yet within the city's Urban Growth Boundary (which is to say, areas that could be annexed by the city).

East City Sector: Residential Building Conditions



East City Sector: Non-Residential Building Conditions



Section 2:

Land Use, Community Facilities, Green Infrastructure, Historic Resources, and Transportation Plans

LAND USE PLAN

The 15-Year Land Use Plan is a basis for land development and conservation, including rezoning decisions. Those decisions are made periodically through recommendations of the Metropolitan Planning Commission and the actual zoning changes via the decisions of City Council or County Commission. Zoning districts that are recommended in relation to the following land use plan designations and policies are outlined in Appendix B.

Proposed Land Use Policies

Low Density Residential (LDR): Primarily residential at densities of less than 6 dwelling units per acre (city) and less than 5 dwelling units per acre (county)

Traditional Neighborhood Residential (TDR):

Primarily residential and is characterized by neighborhoods where a mix of detached and attached houses, sidewalks, smaller lots, and alleys have typically been or are to be created. Densities in the range of 4 to 8 units per acre are typical

Medium Density Residential (MDR): Primarily residential at densities from 6 to 24 dwelling units per acre (city) and 5 to 12 dwelling units (county)

Medium Density Residential/Office (MDR/O): These uses have similar development characteristics, scale of buildings, areas devoted to parking, yard spaces, and location requirements. In areas designated MDR/O, either use can be created. These uses provide a buffer to low density residential areas, particularly when located adjacent to a thoroughfare or as a transition between commercial uses and a neighborhood.

Office (O): Business and professional offices and office parks

General Commercial (GC): Primarily existing strip commercial corridors, providing a wide range of retail and service-oriented uses

Neighborhood Commercial (NC): This includes retail and service-oriented uses intended to provide goods and services that support the day-to-day needs of households, within walking or short driving distances

Light Industrial (LI): Typically used in older industrial areas for assembly, packaging, and indoor warehousing

Heavy Industrial (HI): Typically used in older industrial areas, such as chemical processing, production of materials, and heavy outdoor storage

Mining (HIM): Used primarily for existing quarry or mining operations

Civic/Institutional (CI): Land used for major public and quasi-public institutions, including schools, colleges, churches, correctional facilities, utilities, and similar uses

Public Parks and Refuges (PP): Existing parks, wildlife refuges, or similar public or quasi-public parks, open spaces, and greenways

Other Open Space (OS): Cemeteries, private golf courses and similar uses

Hillside/Ridgetop Protection Areas (HP): Used to identify hillsides, ridges and similar features that have a slope of 15 percent or more

Stream Protection Areas (SP): Areas subject to flooding as identified on Knox County flood maps. For streams that do not have a mapped flood zone, state and local storm water regulations creating non-disturbance areas apply

Water (W): Primarily the Tennessee and Holston Rivers

Major Rights-of-way (ROW): Primarily the rights-of-way of interstates

Table 16. Hillside and Ridgetop Protection Plan Policies*

Low Density Residential density limits within the Hillside and Ridgetop Protection Area (HRPA) :

- 15 - 25 percent slope = two houses per acre in the low density residential areas; one house per acre in agricultural and rural residential areas
- 25 - 40 percent slope = one house per two acres
- 40+ percent slope = one house per four acres
- Ridgetops are generally the more level areas on the highest elevations of a ridge. Because the shapes of Knox County ridges are so varied, the ridgetop area should be determined on a case-by-case basis with each rezoning and related development proposal.

Medium Density Residential and Office development within the HRPA that extends into the 15 to 25 percent slopes should only be considered :

- If the slope is closer to 15 percent and the building footprint does not exceed 5,000 square feet per one acre
- If the slope is closer to 25 percent and the building footprint does not exceed 5,000 square feet per two acres
- All proposals should be subject to the approval of a use on review and site plan by the Metropolitan Planning Commission.

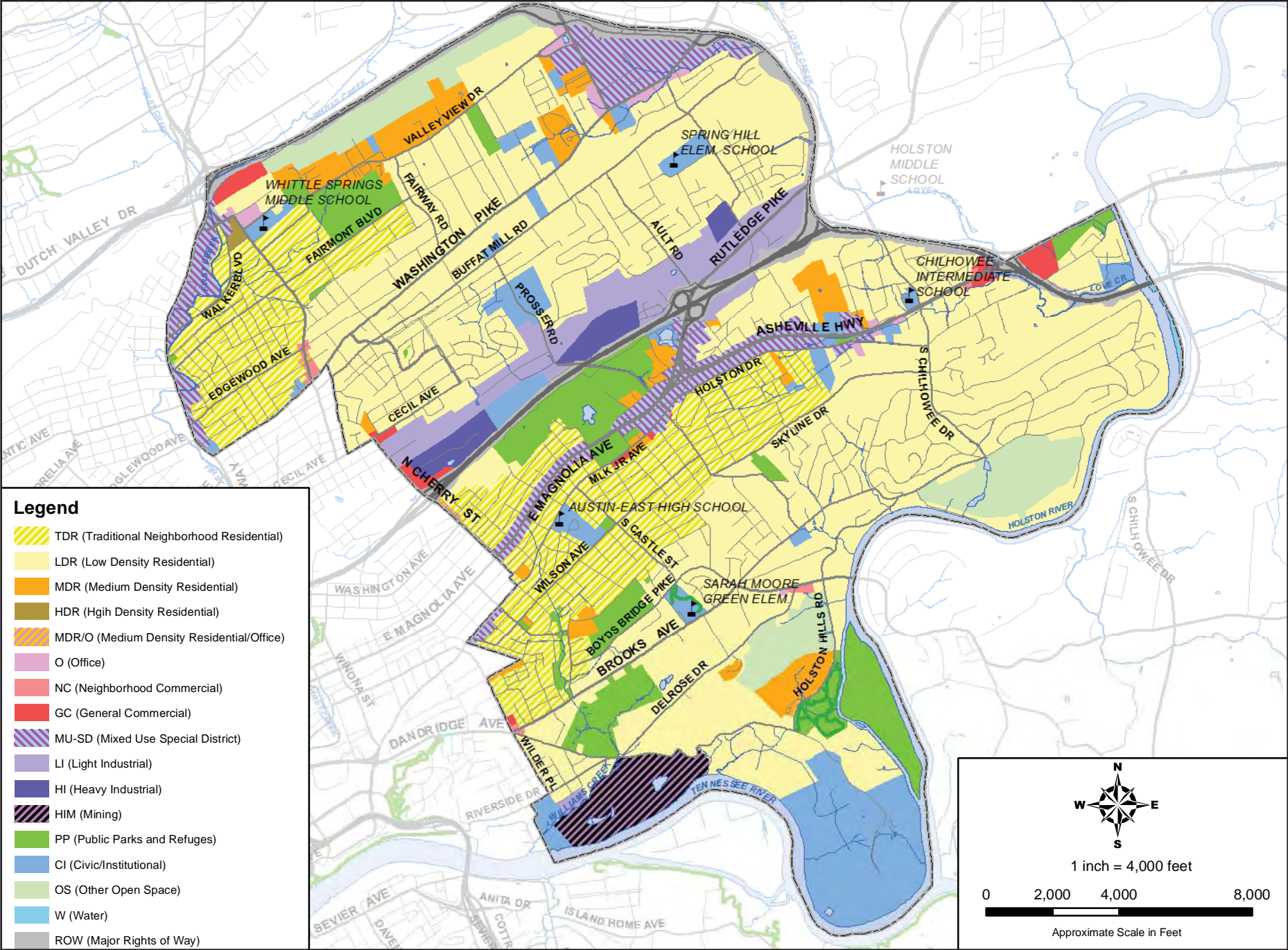
Commercial development within the HRPA that extends into the 15 to 25 percent slopes:

- Slope restoration and reforestation of cut-and-fill areas should be accomplished to minimize the long term impact to water quality and lessen forest canopy loss.

Height of new buildings within the HRPA: Limit to 35 feet.

** Please note that this is not a complete list of the policies from the Knoxville-Knox County Hillside and Ridgetop Protection Plan, as adopted by County Commission Resolution RZ-12-1-101 on January 23, 2012.*

East City Sector: Proposed Land Use



MIXED-USE SPECIAL DISTRICTS

There are several areas that are capable of sustaining different mixes of land uses. In other words, a broad brush of proposing only one land use may not be prudent in view of changing conditions and the dynamics of the local economy. All of the following proposed districts are well located in terms of good transportation systems and generally have good infrastructure. Both interim and long-term zoning are recommended for each district.

EC-1:

Magnolia Avenue (Cherry Street to Chilhowee Park)

Historic Context:

In 1890, an electric streetcar line connected Lake Ottossee (later became Chilhowee Park) to Gay Street, along Park Avenue (later named Magnolia Avenue). The area was one of Knoxville's first suburbs, called Park City which was annexed in 1917.

The character of the avenue changed with the widespread automobile use. Following WWII, the conversion and demolition of many single-family residences for commercial uses became commonplace along the corridor, as Magnolia became a federal highway, the major arterial leading to Asheville and Virginia. Motels, gas stations, repair shops and restaurants emerged. Much of the development, however, detracted from the early pedestrian friendly, transit oriented setting. Garish signs, too little landscaping and helter-skelter building patterns are typical remnants of the automobile age.

The construction of I-40 split the neighborhoods between Central and Randolph Streets, and created social displacement and isolation. The majority of area homes by this time were 40 to 80 years old and experiencing some deterioration. Since the 1960s, commercial business has struggled along large portions of the automobile-scaled avenue. Today, many lots and buildings are vacant or dilapidated, awaiting revitalization and redevelopment of a once vibrant neighborhood corridor



An artist's depiction of a mixed use development at Cherry Street

Recommended Uses:

A mix of uses should be allowed along Magnolia Avenue. Current zoning, largely the C-3 General Commercial district, should be replaced or supplemented with design-oriented zoning such as a form-based code or corridor overlay district. This would allow continued use of existing residential, office and commercial structures that are historic to the area and the renovation of other existing structures that are transformed to comply with the proposed form code.

- Land uses should be consistent with the Medium Density Residential (MDR), Office (O), and General Commercial (GC) land use classifications.

Recommended Zoning:

New form-based district, Corridor Overlay Zone or Planned Residential or Commercial Zones, requiring use on review or zoning conditions are recommended. The recommended zoning should address design standards, such as consistent front and side yard landscaping, allowances in a reduction in parking, consistency in building setbacks/settings, buffers between commercial and adjoining residential properties, and adherence to adopted plans, such as the *Knoxville Street Tree Master Plan*. These measures could address the extensive post-1950s strip commercial development that is present today and foster more intensive redevelopment to support transit.

Transportation Improvements:

- Transform Magnolia Avenue into a complete street: create better defined bike lanes, continue street tree planting, define on-street parking and provide more landscaping.
- Enhance KAT service by frequency and amenities.

Community Facility Improvements:

- Create a Cherry Street Square, framed by mixed-use buildings (such as offices above shops).
- Utilize the south side of Chilhowee Park as an accessible open space. Currently, the park's southern portion is closed off from the neighborhood. Create and implement a master plan with area residents to encourage better use.



EC-2:

Magnolia Avenue (East of Chilhowee Park/Asheville Highway/Rutledge Pike)

Historic Context:

Burlington was created in the early 1900s around the last (McCalla Avenue line) streetcar stop as a place for groceries and other daily needs. Asheville Highway was a product of the post-World War II federal highway program. As a result, the adjacent uses often took on the look of the commercial strips and shopping centers of the last half of the 20th century. Rutledge Pike was separated from Burlington when Asheville Highway was created.

Recommended Uses:

A mix of uses should be allowed along Magnolia Avenue, Asheville Highway and Rutledge Pike and within historic Downtown Burlington, including residential, office and commercial development. In the long-term, current C-3 General Commercial zoning should be replaced with design-oriented zoning such as a form-based code or corridor overlay district. The concept is to allow mixed-use, building forms that are more urban (for example, multiple stories and small front yard setbacks) and designed to enhance the pedestrian experience. Planned

commercial or residential zones could also be considered. Land uses should be consistent with the Medium Density Residential (MDR), Office (O) and General Commercial (GC) land use classification.

During the review processes, the following should be addressed: front and side yard landscaping, allowances for a reduction in parking requirements, consistency in building setbacks/settings, buffers between commercial and residential properties, and adherence to the corridor's adopted plans. This could address the extensive post-1950 strip commercial development that is present today and lead to more intensive development that could support transit systems better.

Recommended Zoning:

New form-based district, Corridor Overlay Zone or Planned Residential or Commercial Zones, requiring use on review or zoning conditions are recommended. The recommended zoning should address design standards,

such as consistent front and side yard landscaping, allowances in a reduction in parking, consistency in building setbacks/settings, buffers between commercial and adjoining residential properties, and adherence to adopted plans, such as the *Knoxville Street Tree Master Plan*. These measures could address the extensive post-1950s strip commercial development that is present today and foster more intensive redevelopment to support transit.

Transportation Improvements:

- Develop a street improvement plan for Burlington area streets that includes formalized on-street parking with tree-planted bulb-outs, marked cross walks and pedestrian-scaled lighting.
- Develop a better connection between Magnolia Avenue, Rutledge Pike, and Asheville Highway.
- Establish bike lanes on Magnolia Avenue and extend to Asheville Highway.
- More landscaped medians should be created in conjunction with new design standards or improvements for Asheville Highway.

Community Facility Improvements:

- Develop a community gathering place.
- Develop the southern portion of Chilhowee Park into a usable neighborhood park and open space. Currently, the area is fenced off and used for a parking area during large park events, such as car shows and the Tennessee Valley Fair.

Other Improvements:

- Maintain the façade improvement program in Downtown Burlington, using U.S. Secretary of Interior Standards in designing the renovations to ensure that the historic character of the area is not jeopardized.
- Explore a Downtown Burlington redevelopment program, emphasizing street improvements, reuse of the major vacant parcels such as the flea market site and the AMVETS thrift store block, and potential reconfiguration of the block system to maximize development opportunities.

EC-3:
Broadway (Washington Pike to I-640)

Historic Context:

In 1905, a trolley line was constructed on Broadway, connecting Emory Place to Fountain City. Before WWII, Broadway was mainly a residential corridor. After WWII, with the establishment of the federal highway program, the character of the road changed from a road supporting mass transit, slow travel speeds, shallower setbacks, and having neighborhood serving businesses to a road designed primarily for the automobile with large parking lots in front of strip commercial development, large signs, larger setbacks, loss of green space and higher travel speeds.

Recommended Uses:

A mix of uses should be allowed along Broadway, including residential, office and commercial development. In the long-term, current C-3 General Commercial zoning should be replaced with design-oriented zoning such as a form-based code or corridor overlay district. The concept is to allow mixed-use, building forms that are more urban (for example, multiple stories and small front yard setbacks) and designed to enhance the pedestrian experience. Planned commercial or residential zones could also be considered. Land uses should be consistent with the Medium Density Residential (MDR), Office (O) and General Commercial (GC) land use classifications.

Recommended Zoning:

New form-based district, Corridor Overlay Zone or Planned Residential or Commercial Zones, requiring use on review or zoning conditions are recommended. The recommended zoning should address design standards, such as consistent front and side yard landscaping, allowances in a reduction in parking, consistency in building setbacks/settings, buffers between commercial and adjoining residential properties, and adherence to adopted plans such as the *Knoxville Street Tree Master Plan*. These measures could address the extensive post-1950 strip commercial development that is present today and foster more intensive redevelopment to support transit.

Transportation Improvements:

- Develop a corridor plan that creates a new road profile, better balancing pedestrian, automobile, bicycle, and mass transit needs. Look at access management and signalization. Speeding is an issue in some of the adjacent neighborhoods. The specific streets and the solutions for traffic calming need to be addressed through a revised City traffic calming policy.
- Improve KAT service by increasing frequency and enhancing amenities.

EC-4:
East Town Center Mall Area

Historic Context:

Knoxville Center, formerly East Towne Mall; located in Knoxville, Tennessee, is a super-regional shopping mall serving the Knoxville metropolitan area. The mall opened in 1984, and is located at Exit 8 on Interstate 640. The area lacks visibility from the interstate due to overgrown vegetation in the interstate right-of-way and lacks signage from the interstate to direct people to this area. In addition, the roadway circulation pattern around the mall area is confusing.

Recommended Uses:

A mix of uses should be allowed within this area, including residential, office, institutional, and commercial development. When redevelopment occurs the current zoning should be replaced with design-oriented zoning such as a form-based code. The concept is to allow mixed-use, building forms that are more urban, and incorporate multiple modes of transportation. Planned commercial or residential zones could also be considered. Land uses should be consistent with the Medium Density Residential (MDR), Office (O) and General Commercial (GC) land use classification. There is an opportunity to include this area in future redevelopment scenarios involving the mall, including parcel consolidation and creating a regional center, possibly a town center concept.

Recommended Zoning:

Planned zones consistent with the land use recommendations or a new form code.

Transportation Improvements:

- Improve the circulation around the interstate interchanges. Seek an Interchange Modification Study from TDOT.
- Improve site visibility from the interstate system and adjacent roads.
- Improve directional signage from the interstate.



Infill development should be allowed in such areas as this site and new parking standards (allowing less parking) should be adopted.

EC-5:

Martin Luther King, Jr. Avenue (within Five Points)

Historic Context:

In 1890, the McCalla trolley line crossed Martin Luther King, Jr. Avenue (formerly McCalla Avenue, Jackson Avenue and Rutledge Pike), the line originated in downtown, headed east along BenHur and Wilson Avenues to Harrison Street. The area was known as Park City (annexed by Knoxville in 1917). The area's development pattern is flat, walkable, and has interconnected streets with small blocks.

The Five Points Village Plaza is the largest development within the area. It was a public and private development spurred by Knoxville's federal Empowerment Zone (EZ) grants, part of a Housing and Urban Development program to create new social and economic opportunities in disadvantaged urban areas. It opened in 2006, anchored by an IGA grocery store and a handful of other retail and business outlets. The grocery store closed after eight months; more recently, Eternal Life Harvest Center has occupied this space.

Recommended Uses:

A mix of uses should be allowed along Martin Luther King, Jr. Avenue, including institutional, residential, office, and retail commercial. In the long-term, current C-3 General Commercial zoning should be replaced with design-oriented zoning such as a corridor overlay district. The concept is to allow mixed-use, building

forms that are more urban (for example, multiple stories and small front yard setbacks) and designed to enhance the pedestrian experience. Planned commercial or residential zones could also be considered. Land uses should be consistent with the Low Density Residential (LDR), Office (O) and General Commercial (GC) land use classifications.

Recommended Zoning:

New form-based district, Corridor Overlay Zone or Planned Residential or Commercial Zones, requiring use on review or zoning conditions are recommended. The recommended zoning should address design standards, such as alley access, parking, curb cuts, landscaping, lighting, and the establishment of a front yard space.



The Five Points Village Plaza in 2006

OTHER OPPORTUNITY AREAS

Whittle Springs Corridor

Whittle Springs Road was created in the nineteenth century. It led to the springs just south of Sharp's Ridge, where a hotel and golf course were created in 1902. With the advent of the automobile, neighborhoods began to form nearby, such as Fairmont (1924) and North Hills (1927). Following World War II, housing development was largely directed to returning veterans and their families. Ranch houses were built in many blocks. Commercial development was largely clustered at the Washington Pike intersection. Two historic civic structures, Belle Morris School (1915) and Fire Station 11, are still in use today. This pattern of development is important because it has led to neighborhood stability, and needs to continue.

The objectives and recommended programs for this corridor are:

- Retain the low density residential character in the adjoining neighborhoods.
- Pursue a general rezoning of the single family areas in the north end of the corridor and to the northeast of Washington Pike that are zoned Medium Density Residential (R-2). More appropriately, they should be Low Density Residential (R-1).
- Sidewalks (5-year program): repairs should be undertaken in some areas.
- Sidewalks/complete streets (15-year program): with two schools as destinations, consider sidewalks on each side of the road: bike lanes may be difficult along the road, given R-O-W width, but should be considered; sidewalk connections should be made to Old Broadway and under I-640, as the interchange is upgraded.
- Neighborhood Commercial (C-1) zoning is appropriate for the commercial parcels. That zone also allows offices and on-site residences. Maintain the neighborhood commercial sector plan designation but no expansion should be pursued.
- Foster redevelopment/revitalization programs for the commercial properties. Facade improvement and other assistance programs should be explored.



There are several areas along Whittle Springs Road that could redevelop into neighborhood-oriented mixed use, like the example below.



- Reduce the amount of impervious surfaces when redeveloping/remodeling commercial properties. Landscaping is needed on commercial properties, especially to define sidewalk edges, and yard trees are needed to complement the character of the residential setting.
- Corridor overlay zoning with design guidelines should be considered. Such guidelines should include sign and lighting standards that are more in keeping with the scale of the neighborhood commercial buildings, and architectural and landscaping design provisions. With such a code, consolidation of entrance points to commercial properties should be pursued.

OTHER OPPORTUNITIES

Corridor Overlay District (CO-1)

Through community input in the sector plan update process, MPC staff heard that people are concerned with establishing better design standards on the major commercial corridors within East City. Furthermore, the recent corridor plans for Magnolia Avenue and Martin Luther King, Jr. Avenue address these same design concerns. In response to these concerns, MPC staff recommends the adoption of a new Corridor Overlay District (CO-1).

The purpose of this district is to enable the designation of certain roadway corridors with an overlay zone district. This will supplement the regulations found elsewhere in the zoning ordinance so as to conserve natural, historic, and aesthetic features, provide better access management, and provide appropriate screening and buffering of vehicle parking and loading areas. The intent of the overlay district is to:

- Promote the health, safety and welfare of the community
- Promote the safe and efficient movement for all modes of travel, including motorized vehicles, bicycles, and pedestrians
- Create a sense of place that is aesthetically pleasing and environmentally sustainable
- Establish consistent and harmonious design standards for development

A separate public input process would be used for each corridor allowing for multiple overlay standards. This would help address the uniqueness of East Knoxville's corridors, including, but not limited to: Asheville Highway, Broadway, Magnolia Avenue, Martin Luther King, Jr. Avenue, and Whittle Springs Road.

The guidelines/standards for a CO-1 overlay district may include the following elements:

- Building and related development characteristics
- Lot characteristics, including setbacks/lot coverage
- Landscaping and lighting
- Access management

- Stormwater management
- Signs
- Other features that may be unique to the corridor



Landscaping and sign control (like the above monument sign) are key elements of corridor design standards.

Heart of Knoxville Residential District (R-1HK)

Through community input in the sector plan update process, MPC staff heard that people are concerned with establishing better design standards within their neighborhoods. In response to this concern, MPC staff is recommending the adoption of a new residential zoning district called the Heart of Knoxville Residential District (R-1HK). This is a zoning district intended for Heart of Knoxville neighborhoods, defined as Knoxville's pre-1950s neighborhoods found within Interstate 640.

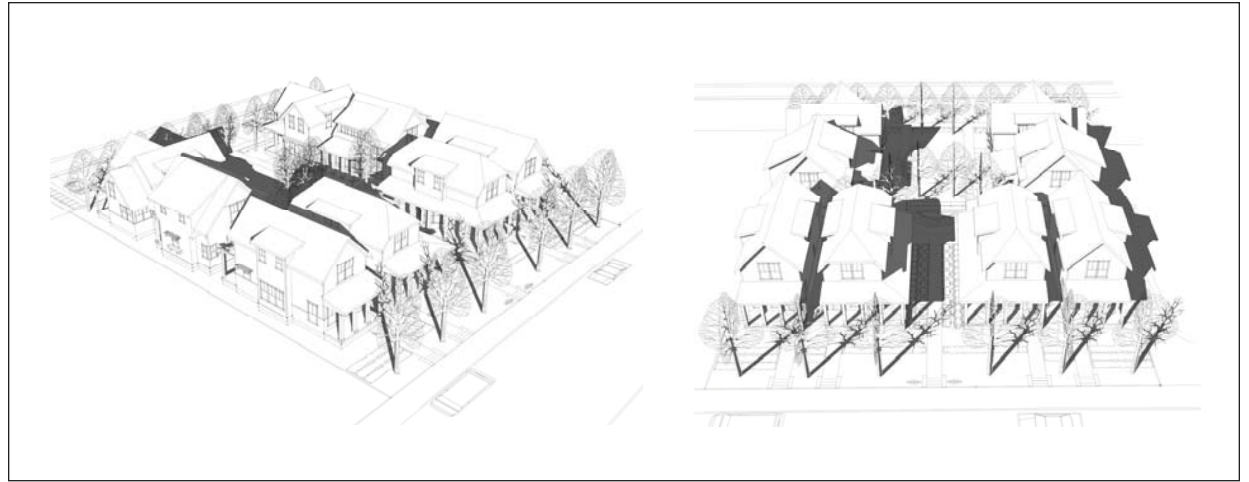
Today's current zoning districts predominantly found within these neighborhoods (R-1, R-1A and R-2) do not recognize their small lot patterns. In addition, the current zoning does not address design standards, sometimes resulting in incompatible development within these neighborhoods.

Examples of incompatible development include shallow roof pitch and orientation, absence of porches, and no front door or windows facing the street. The design standards within R-1 HK address these design elements.

The adoption of R-1HK would give these neighborhoods a tool to:

- Promote neighborhood stability and facilitate housing development
- Strengthen desirable physical features and design characteristics, and a neighborhood's identity, charm and flavor
- Enhance pedestrian-oriented streets
- Prevent blight, caused by incompatible and insensitive development
- Promote and retain affordable housing
- Encourage the harmonious, orderly and efficient growth and redevelopment in older Knoxville neighborhoods

The new zoning district is intended to regulate new houses, duplexes, and multi-dwelling structures.



Illustrations of courtyard development

The opportunity to do better infill development on existing and smaller lots, and courtyard development are offered by this zone. It includes design standards and principles that are not present in our current zones, and having these in place would enhance the physical attributes of neighborhoods. These standards and principles include:

- Use on review for multi-dwelling structures
- Provisions to allow for accessory dwelling units
- Provisions to allow courtyard development
- When there is no usable alley, parking must be 20 feet beyond the front façade
- On-street parking may fulfill parking requirement
- Exteriors of residential structures would need to be made of brick, clapboard-like material, stone, or wood-like shingles
- Street facing elevations must contain 25% doors and windows
- Porches or stoops when 75% or more of the surrounding structures has them

These standards were developed using the *Heart of Knoxville Infill Housing Guidelines*. Those guidelines have been used by the City's infill housing programs and Infill Housing Overlay districts (IH-1), found within Lonsdale, Oakwood Lincoln Park, and Edgewood Park neighborhoods. The R-1HK zone uses the same design principles, but instead of separate guidelines, the principles have been standardized into the new base zone.

COMMUNITY FACILITIES PLAN

This portion of the plan is directed to public facilities that are needed for community growth and provided in a prudent manner relative to the conservation of scenic, historical, and environmental assets.

Schools and Libraries

These facilities are well distributed in this sector, and the anticipated growth trends do not point to the need for additional schools or libraries. The Knox County School Board and Knox County Library Board will concentrate on facility maintenance programs for the foreseeable future.

Parks, Greenways and Recreation Facilities

In 2009 the city and county adopted a comprehensive park plan. The East City Sector portion of that plan is presented below. During the course of the sector plan meetings, a few park policy decisions that needed to be addressed, including developing additional opportunities for dog parks, ensuring all parks have at least a bench, and developing opportunities for community gardens. In addition, the Riverside C & D Landfill has approximately twenty years left in operations and should be considered for future park opportunities.



Residents noted through the public participation process that they would like a dog park.

A portion of this sector was once called Park City, so named in respect to Chilhowee Park and other parks east of First Creek. While the park infrastructure is relatively good, there are several themes for improvements that should be pursued; better day-to-day access to the existing resources (like the south side of Chilhowee Park), more neighborhood parks and squares that are surrounded by houses, and connections in the greenway system, especially along the Holston River and Williams Creek.

Recommendations:

New Parks and Squares

• Neighborhood Parks and Squares

Acquire space for new neighborhood parks (5 to 10 acres each) or squares (1 to 5 acres each) as indicated on the plan: Harrison Street Square; East Burlington Park (between Holston Drive and Skyline Drive, and east of Dickson Street); Burlington Square (as noted in the Magnolia Corridor Plan); Williams Creek Park; Zoo Drive Park (adapting this edge of the fairgrounds for multi-purpose uses, including field space); Burlington Library Park; and Holston Hills Neighborhood Park (possibly utilizing the neighborhood-owned pocket park).

• Prosser Road Community Park

Develop a park on city-owned parcel, possibly in partnership with the Kiwanis club located across the street. If a partnership is established, this community park could serve multiple neighborhoods, including Plantation Hills, Woodland Terrace and Gillenwater.

Recommendations:

Greenways and Greenway Connectors

• First Creek Greenway

Construct a greenway trail from Fulton High School to Edgewood Park and then extend to the Old Broadway corridor.

• Holston River Greenway

Connect to the existing James White Greenway and the proposed Williams Creek Greenway to Holston River Park and Holston Hills (pursuing a trail easement through the UT farm).

• Loves Creek Greenway

Construct a greenway trail from Spring Place Park to Knoxville Center Mall/Millertown Pike in multiple phases. In a later phase, extend the greenway trail from Spring Place Park to Holston Middle School and Holston Hills.

• Sarah Moore Greene Greenway Connectors

Continue connections to the Knoxville Botanical Gardens and Austin East Magnet High School.

• Sharps Ridge Greenway

Acquire easements to create a trail running the length of the ridge.

• Williams Creek Greenway

Follow the creek from the river through the Wee Golf Course and into the Five Points/Austin East High School area.

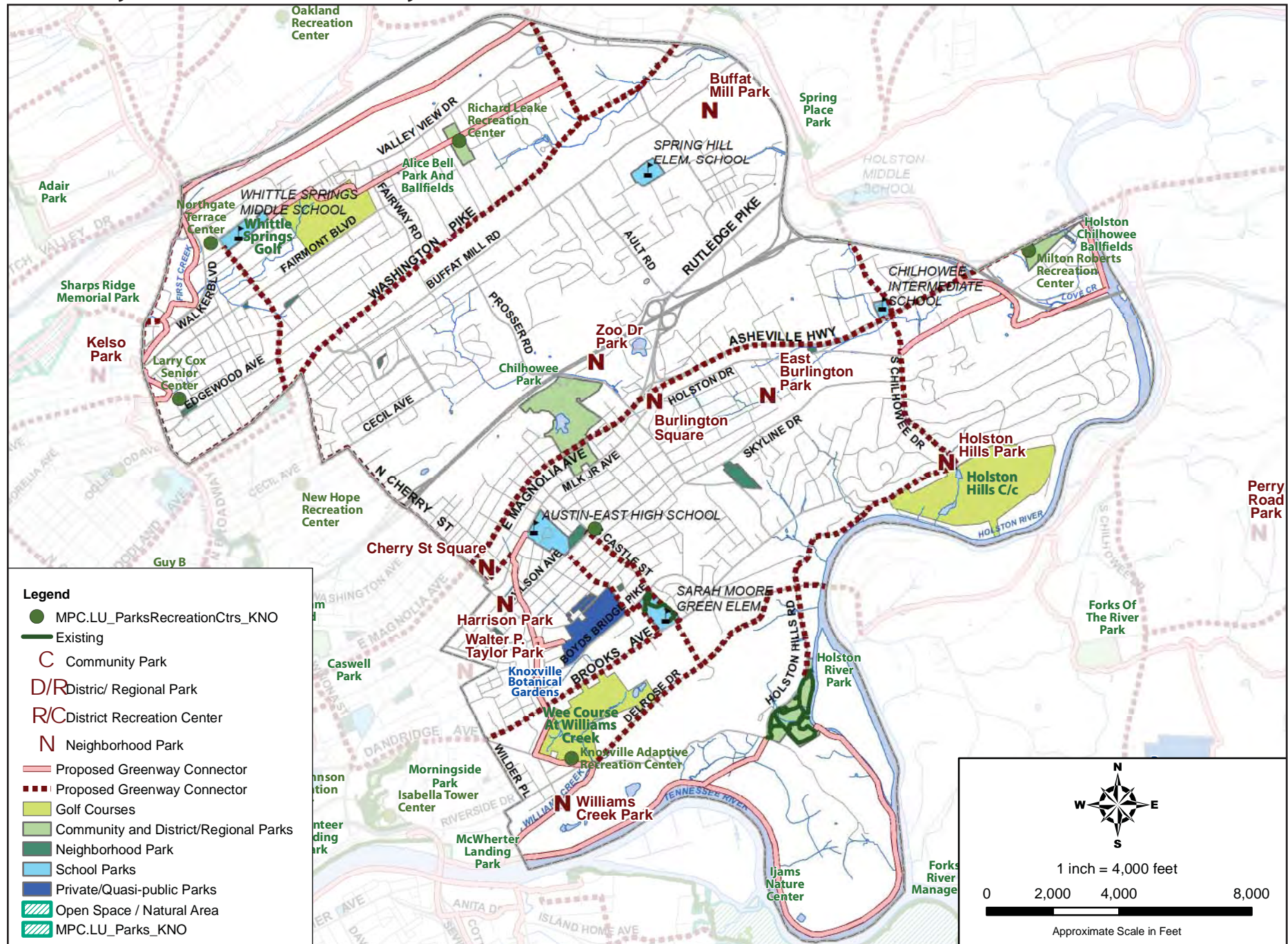
• Greenway Connectors

Magnolia Avenue/Asheville Highway and the streets leading to the Knoxville Botanical Garden and Arboretum are the most significant streets that should be improved to safely accommodate both pedestrians and bicyclists.



Holston River Park

East City Sector: Community Facilities Plan





Support the continued agricultural use of the University of Tennessee farm while encouraging a greenway extension through that property.

GREEN INFRASTRUCTURE PLAN

Green infrastructure represents the natural resources needed for environmental, social and economic sustainability, including existing parks, schools, natural areas, wooded hillsides, lakes, creeks, and existing and proposed greenways. A well-connected green infrastructure system has both environmental and economic benefits to communities. These benefits include clean air and water, increased property values, and healthier citizens.

The Green Infrastructure Plan incorporates the components of the *Knoxville-Knox County Park, Recreation and Greenways Plan*; the *Knoxville-Knox County Hillside and Ridgeline Protection Plan*; the Knox County and City of Knoxville Stormwater Ordinances; and the *Knoxville-Knox County Tree Conservation and Planting Plan*, which calls for tree planting along streets and new landscaping standards for parking lots.

It also relates to existing ordinances and manuals, including:

Floodways and Floodplains

Structures are not allowed in the floodway zones for the city and county (F-1 and F). For streams with a designated 100-year floodplain, fifty percent of the floodplain can be filled. Development on wetlands and sinkholes is limited by the city and county stormwater ordinances.

Stormwater Best Management Practices

Such practices include bio-retention areas, wetland enhancement and porous paving systems. The practices are illustrated and discussed in *Knox County's Stormwater Management Manual, 2008* and the *City of Knoxville Best Management Practices Manual*.

The implementation strategies are as follows:

- **Conserve wooded hillsides**, which help maintain our natural ridge system and reduce stormwater runoff.
- **Protect the area's watersheds system**, fostering more widespread use of development practices that reduce stormwater runoff and protect water quality.
- **Continue to expand the greenway system** within and beyond the sector plan boundary, especially by expanding the parks and open space system along the river and creeks.
- **Connect residential areas to natural areas and community facilities** such as schools and parks.
- **Support the continued agricultural use of the University of Tennessee farm** while encouraging a greenway extension through that property.
- **Enact conservation subdivision regulations** to foster green infrastructure protection while allowing clustered residential development.

- **Enable homeowners and community groups to identify the most productive soils for personal and community gardening.** The Green Infrastructure map shows that there are several areas within the sector good agricultural soils; additional information can be secured through the UT Extension Service and the U.S. Department of Agriculture (USDA).

URBAN AGRICULTURE & FOOD ACCESS

Knoxville is home to the first food policy council in the world. The Food Policy Council was created in 1982 and includes appointees made through the Knoxville and Knox County mayors. Along with the appointed members, there are associate members; together they work to address issues of food security, access and equity.

Recently, there has been building interest in food systems planning, including food access and urban agriculture. Public health impacts, such as rates of obesity, diabetes and heart disease have demonstrated strong correlations with lack of access to healthy affordable food. Burgeoning interest in local food, including the growth of farmers markets and community gardens, is creating a robust local food economy. Cities across the world, including Knoxville, are looking at reuse of blighted properties for urban agriculture, as a means of job creation and neighborhood stabilization. These neglected spaces have the capacity to become income generators as well as providing a space for social interaction to further strengthen connections between neighbors.

The Knox County Health Department, the City of Knoxville and other organizations have been working to address these challenges and interests. A recent focus has been addressing the problem of "food deserts," which are sections of the city where populations are challenged by low-income and low access to be able to reach a supermarket or large grocery store. The majority of food deserts are located in the Central City and East City Sectors.



Food deserts in the East City Planning Sector



POLICES TO ADDRESS FOOD DESERTS



Allowance of gardening and urban agriculture practices by right in all zone districts

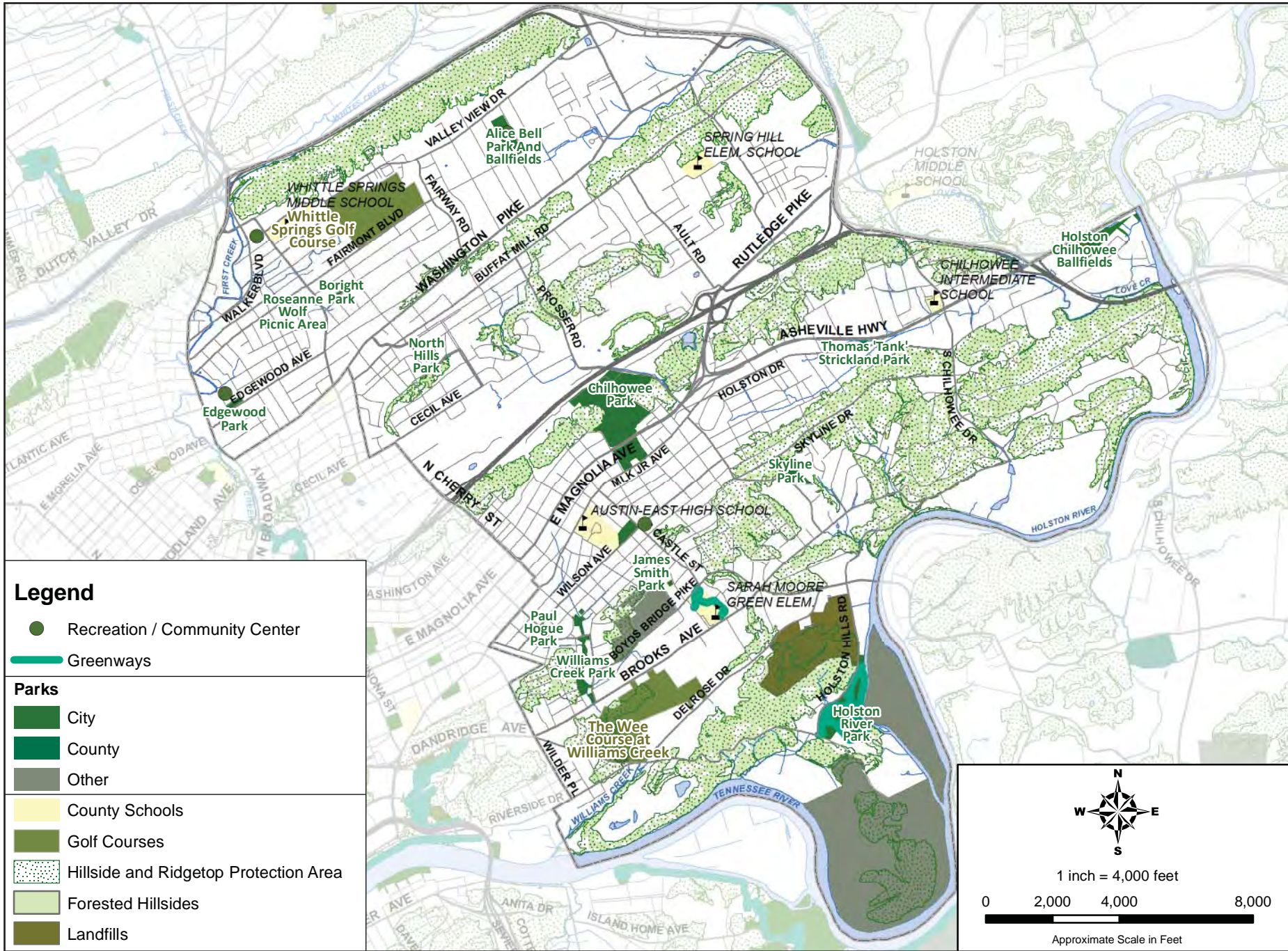
Use of Community Development Block Grants and other grants to enable food desert populations to have the means to create community garden and agricultural programs

Acceptance and promotion of certain defined urban agricultural activities (for example, hoop houses where plants can be propagated, and allowances for goats)

Adoption of conservation subdivisions and courtyard development ordinances to provide incentives for creation of common open space that can be used for community gardens and urban agriculture practices

Performance standards for protecting adjacent property owners from larger scale commercial operations (such as buffering and fencing)

East City Sector: Green Infrastructure Plan



HISTORIC RESOURCES PLAN

Historic Preservation Program

The goals for historic preservation are threefold:

1. Preserve all buildings and districts that are on the National Register of Historic Places.
2. Support more National Register nominations and Historic Overlay (H-1) Districts.
3. Cooperate with non-profits and property owners to develop strategies to stabilize and restore historic resources.

The following descriptions provide an overview of many of the East City historic resources. Following each description, the preservation recommendation is outlined. There are many buildings that are eligible for the National Register of Historic Places, given their age, history and architectural characteristics; their locations are depicted on the Historic Resources map, but are not included in this overview.



• **Burlington District** is a neighborhood center which was once a major commercial and civic hub for East Knoxville. Downtown Burlington retains many historic buildings but some of the architectural fabric has been altered.

Recommendation: Continue City programs, like façade improvements, building stabilization, and improvements to the streetscape to foster and improve reuse. Support National Register recognition, especially to enable tax credits for private investment.



• **Chilhowee Park Bandstand** (1897) served as a centerpiece for the 1911, 1913 and 1920 expositions held in Knoxville, and is a highlight of the park. The bandstand is constructed of Tennessee marble.

Recommendation: Encourage the Tennessee Valley Fair organization to recreate a wider, landscaped setting that would mimic the scene of the early 20th century and use for musical events.



• **Eastern State Hospital and the Kreis Dairy Farm** (1941) is a large property owned by the University of Tennessee and operated by the agricultural extension service for crop and weed science research.

Recommendation: Encourage UT to stabilize the main building and develop a restoration and reuse program.

• **Edgewood-Park City National Register/Historic Overlay District** (1880-1925), now known as Parkridge, was built as a streetcar suburb, which attracted the talents of Knoxville's own George F. Barber, a nationally acclaimed Victorian-era catalog architect. The district is home to more of his designs than anywhere else in the Country, including Eastlake, Neoclassical, Craftsman and Bungalow styles. It is representative of early suburban development of Knoxville.

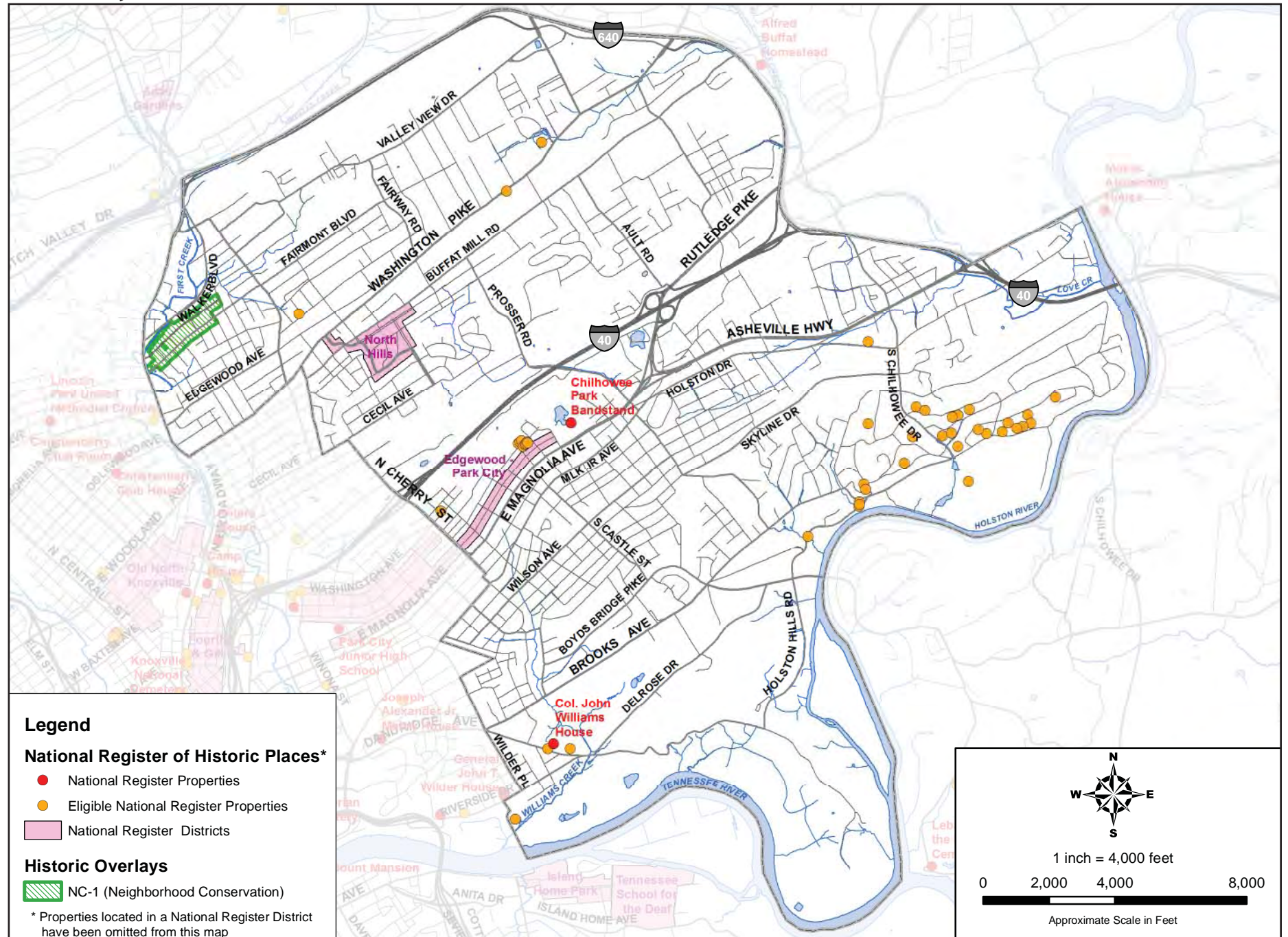
Recommendation: Continue City programs, like building stabilization and improvements to the streetscape, to foster renovation and reinvestment. Support extension of the Historic Overlay District.



• **Fairmont Park Neighborhood Conservation District** (1924-1945) was developed by Charles Emory as a direct response to the increasing pressure for urbanization created by the streetcar line's Arlington station stop. Architectural designs include Craftsman, Dutch Colonial Revival, Tudor Revival, Mediterranean Revival, Colonial Revival, and Ranch. The Emoriland neighborhood is included in this district, and is recognized as a neighborhood conservation zoning overlay district.

Recommendation: Since this area is already a neighborhood conservation district and a very stable area, maintain the status quo.

East City Sector: Historic Resources





• **Fire Station Number 11** (1913), located on Whittle Springs Road, this Tudor-revival style edifice is a fine example of civic architecture that blends with the character of the Edgewood-Park and North Hills neighborhoods.

Recommendation: Support a thematic National Register nomination for this and other historic fire stations throughout the city.



Magnolia Avenue United Methodist Church

• **Harrison-Hembree Block** (c.1927) is a segment of Magnolia Avenue between Harrison Street and

Hembree Street defined by the Gothic Revival-style Magnolia Avenue United Methodist Church and several Mediterranean-style apartment buildings. These 1920s buildings are all brick masonry.



Aston Apartment building



Lakewood building

Recommendation: Continue City programs, like façade improvements and building stabilization, to foster reuse and continued use. Support National Register recognition, especially to enable tax credits for private investment.



• **Holston Hills Neighborhood** (c.1895-1925) includes portions of the Holston Hills neighborhood, which reflect the garden and automobile suburbs of post World War I urban expansion. The Holston Hills Golf Course clubhouse was built in 1927 and was designed by Charles Barber of Barber McMurry Architects. The course was designed by nationally renowned golf course architect Donald Ross in the same era.

Recommendation: Support the nominations of portions of the neighborhood, and the clubhouse and golf course to the National Register of Historic Places.



• **Knoxville Botanical Garden & Arboretum** (1786) is a 44-acre “secret” garden tucked into East Knoxville. It is located two miles from Knoxville’s city center. The history of the Knoxville Botanical Garden spans more than 200 years of family, flowers, and friends.

Recommendation: Support the landscape renovation program. Support the nomination of the property to the National Register of Historic Places.



• **Mark B. Whittaker Water Plant** (1926) is a two-story Collegiate Gothic facility complete with buttresses and an elaborate trim of cast concrete.

Recommendation: Maintain the architectural integrity and consider a Historic Overlay District.



• **Mount Rest Home** was originally established in 1894 by the Women's Education and Industrial Union to assist destitute elderly women. However, the building is much older, having been built for politician and Sheriff Robert Houston in the early 1800s. He called his 400 acre property Cold Spring Farm.

Recommendation: Continue support for the Women's Union through the East Tennessee Foundation and support a Nation Register Nomination.



• **North Hills National Register Historic District** (1927-1950) began as an interwar subdivision initiated by brothers George, Hugh and Carl Fielden. The development had 28 homes completed by 1928, and offered private bus service to downtown Knoxville. Landscaped and heavily treed boulevards are the defining elements of the neighborhood, framing its unique architecture that draws on Colonial Revival, Mission, Tudor Revival and other styles of the 20th century's second quarter.

Recommendation: Support establishment of a Neighborhood Conservation Overlay District.



• **Colonel John Williams House** (1826) was built by Colonel John Williams as a two-story brick Federal-style home. Colonel Williams was the father of John C. J. Williams, builder of the Williams-Richards House.

Recommendation: Support a Historic Overlay District.

• **Williams-Richards House** (1842, 1899) is a two-story Federal brick home built by John C. J. Williams, II, the great grandfather of Tennessee Williams and the grandson of James White. It originally faced Dandridge Avenue; Riverside Drive did not exist when the house was built. In 1899, the house was extensively remodeled and the Neo-classical front façade facing Riverside Drive was constructed.

Recommendation: Support a nomination to the National Register and Historic Overlay District.

• **National Register Eligible Properties** are scattered throughout the sector, with a cluster in Holston Hills.

Recommendation: Consider formal National Register nominations for the balance of the eligible properties. Again, the Holston Hills properties could be the basis for a National Register nomination.

TRANSPORTATION PLAN

The transportation recommendations are based on previously adopted plans and studies, including the *Knoxville Regional Mobility Plan 2009 - 2034*, MPC's *Magnolia Avenue Corridor Plan*, and the *Martin Luther King, Jr. Corridor Plan*. The East City Sector portion of the Mobility Plan is presented on the following page. During the course of public meetings, changes were not suggested to this plan map.

Prior to implementation of the following proposed projects, there should be opportunities for additional public input to address such potential issues as impacts related to adjacent land use, neighborhood protection, and environmental and cultural resource protection. These are principles that are important in developing a sustainable transportation system. It is vital to develop and maintain a transportation network that is accessible, provides mobility to all residents, and does not adversely impact the environment. To meet these goals this plan recommends several implementation tools such as conservation corridors, complete streets, and greenway connectors. The complete streets principles should guide all future roadway projects.

Complete Streets

Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities are able to safely move along and across a complete street.

Considerations for more detailed road designs include:

- Asheville Highway
- Broadway
- Magnolia Avenue
- Martin Luther King, Jr. Avenue
- Rutledge Pike
- Washington Pike & Millertown Pike (intersection of streets to I-640)
- Whittle Springs Road

Traffic Calming

In recent years, neighborhood residents have expressed concern about speeding traffic along their streets. Traffic calming involves a set of design strategies aimed at reducing motor vehicle speeds, improving safety and

enhancing quality of life. The goal of traffic calming efforts is to balance vehicle traffic on local streets with other uses such as walking and bicycling. The City of Knoxville is currently analyzing calming program/policy options to address appropriate calming measures in neighborhoods. Typical traffic calming measures and their benefits are depicted in Appendix C.

Sidewalk Improvements

Priority areas include Parental Responsibility Zones (PRZ) where students do not have bus service to and from school. In 1993 the Knox County Board of Education established guidelines for Parental Responsibility Zones or PRZs in Knox County. These guidelines state that for elementary schools, students within an area of one (1) mile from the school by the shortest route shall not have transportation services provided by Knox County Schools. For middle and high schools the PRZ is one and a half (1.5) miles.

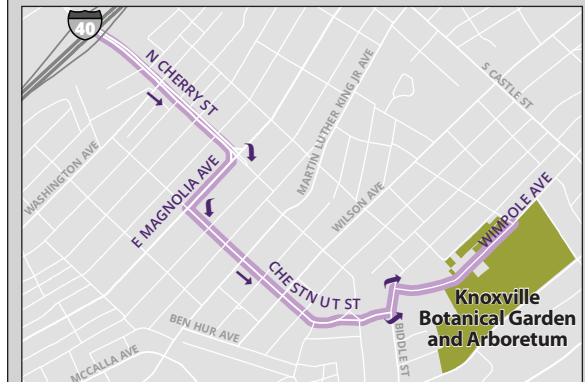
The Knoxville Regional Transportation Planning Organization's (TPO) Mobility Plan identified two areas for sidewalk improvements along Fairmont Boulevard and Skyline Drive.

Access Improvements to Knoxville Botanical Garden and Arboretum

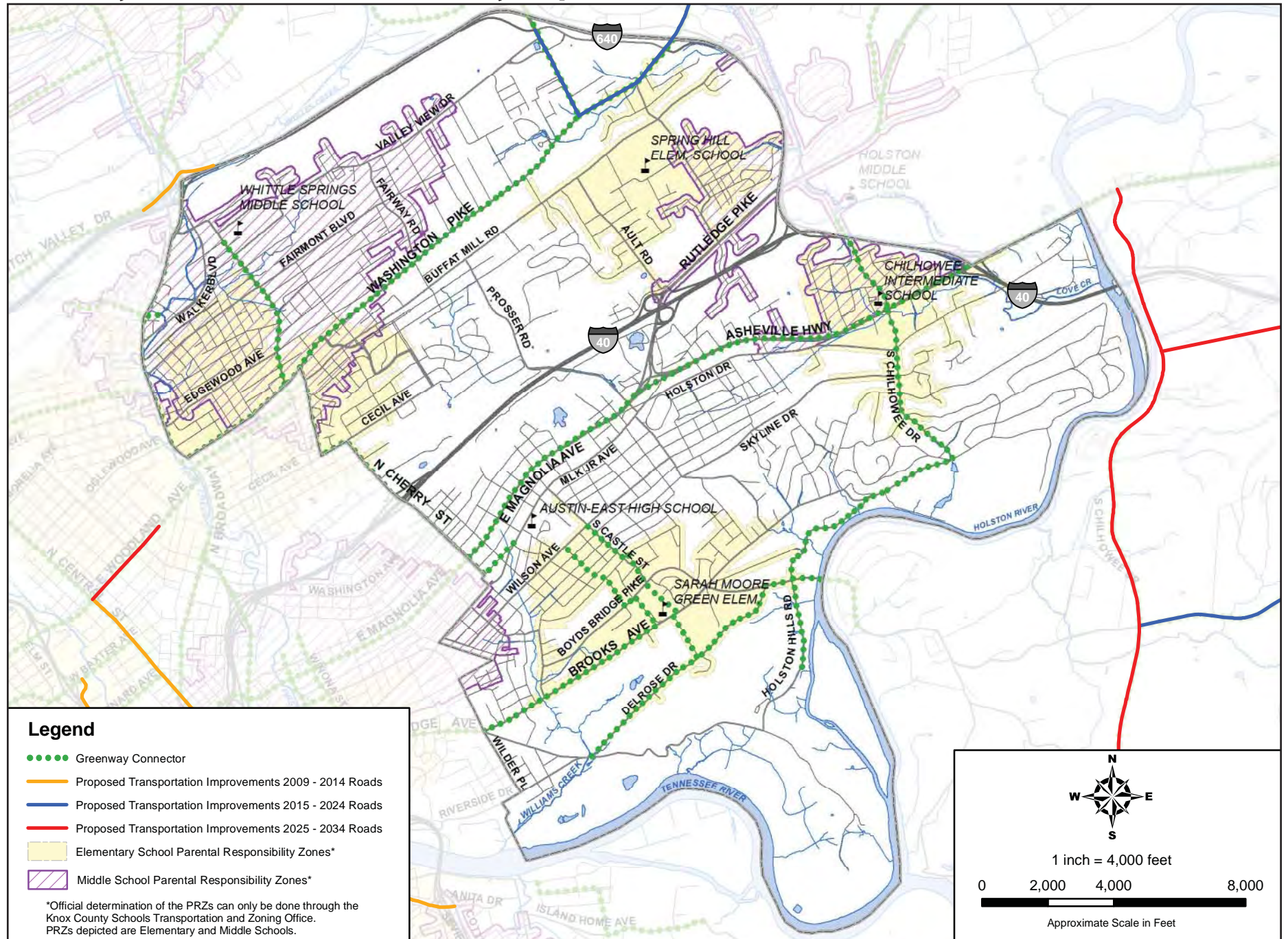
This historic site is a gem on the East City landscape. The 44-acre site was originally part of David Howell's land grant, given for Revolutionary War service. Sons of Howell started a nursery on the farm in the 1800s. The grounds have been largely restored, and the Howell family home is now used as a visitor's center at the main entrance. Open to the public, visitors can observe plants and wildlife, and enjoy seasonal activities.

This plan calls for improved access and beautification along the route, which should be started as a five-year plan, including:

- Work with Tennessee Department of Transportation (TDOT) to add "attraction" signage at the I-40 Cherry Street exit
- Add a way-finding system of signs on local streets
- Make roadway surface improvements
- Install festive light pole banners and repeat the theme along the route
- Plant trees along access streets and adjacent properties
- Remove blight along the route; upgrade housing stock and continue in-fill housing



East City Sector: Planned Roadway Improvements



Section 3:

Five- and Fifteen-Year Improvement Plans

The Improvement Plan recommends projects and programs to be implemented for the first five and the next ten years following plan adoption. The 5-Year Plan should be reviewed annually in preparing the capital improvements program (CIP).

<i>Project or Program</i>	<i>5-Year</i>	<i>15-Year</i>	<i>Responsible Agency</i>
LAND USE			
Develop design-based code for Broadway, Magnolia Avenue, and Downtown Burlington		X	City/MPC
Pursue general rezoning of area northeast of Washington Pike, changing from medium to low density residential	X		City/MPC
Revise neighborhood commercial zoning to reflect uses neighborhoods desire within their communities	X		City/MPC
Revise parking code to reduce off-street parking requirements	X		City/MPC
Adopt a new zoning district: Heart of Knoxville Residential (R1-HK)	X		City/MPC
Adopt a new zoning district: Corridor Overlay (CO-1)	X		City/MPC
implement the Five Points Master Plan and redevelopment of Walter P. Taylor homes	X	X	KCDC
Continue façade improvement program for Broadway, MLK, Jr. Avenue, Magnolia Avenue and Downtown Burlington	X		City
COMMUNITY FACILITIES			
Create a Cherry Street Square and Downtown Burlington neighborhood park		X	City
Develop the southern portion of Chilhowee Park into a usable neighborhood park/open space		X	City
Complete the Williams Creek Greenway - multiple phases	X	X	City
Complete the First Creek Greenway - multiple phases	X	X	City
Complete the First Creek Greenway - multiple phases	X	X	City
Complete the Sharps Ridge Greenway Corridor- multiple phases	X	X	City
HISTORIC PRESERVATION			
Continue façade and streetscape improvements, building stabilization, to foster and improve reuse in the Burlington District	X		City
Encourage UT to stabilize the main building and develop restoration/adaptive reuse program at the Eastern State Hospital & Kreis Dairy Farm site	X		UT
Support landscape renovation program; Nominate for National Historic Register - Knoxville Botanical Garden & Arboretum.	X		City/MPC
Continue façade improvements and building stabilization, to foster reuse and continued use in the Harrison-Hembree block.	X		City

<i>Project or Program</i>	<i>5-Year</i>	<i>15-Year</i>	<i>Responsible Agency</i>
TRANSPORTATION			
Pursue Washington Pike, Millertown Pike and Broadway I-640 Interchange Improvements	X	X	TDOT
Develop a better connection between Magnolia Avenue, Rutledge Pike, and Asheville Highway, explore traffic circle option contained in plan		X	TDOT/City
Increase landscaped medians within Asheville Highway right-of-way.		X	TDOT/City
Develop an Interchange Modification Study for Knoxville Center Mall area	X		TDOT/TPO/City
Improve site visibility from the interstate to mall area by controlling vegetation in the right of way	X		TDOT/City
Improve signage to mall area or consider renaming roads to improve visibility	X		TDOT/City
Initiate Knoxville Botanical Garden "attraction" sign at the I-40 Cherry Street exit	X		City/TDOT
Develop new road cross sections for Magnolia Avenue, Broadway, and Downtown Burlington to complement the intent of a design-based code	X		City
implement Five Points Master Plan transportation recommendations; extend Louise, Selma and Wilson Avenues in W. P. Taylor homes redevelopment	X	X	City
Connect Walter P. Taylor homes site more strongly to Magnolia Avenue, look at realignment of Vine Street	X		KCDC
Establish a Bus Rapid Transit (BRT) system on Broadway and Magnolia Avenue		X	TPO/KAT
Enhance the KAT Kirkwood Street superstop and other stops along Magnolia Avenue with shelter facilities	X		KAT
Improve bicycle lane design on Magnolia Avenue and extend bicycle lanes along MLK, Jr. Avenue.	X		TDOT/City
Develop sidewalks during new construction and complete sidewalk system in Parental Responsibility Zones (PRZ)'s	X		City
Connect missing sidewalk near the Serenity Shelter property at 2619 Martin Luther King, Jr. Avenue	X		City
Construct 4,500 linear feet of sidewalk on Fairmont Boulevard between Whittle Springs Road and Fairway Road		X	City
Construct 7,500 feet of sidewalks on Skyline Drive between Fern Street and Chilhowee Drive		X	City

APPENDIX A: Public Participation

MPC staff developed a survey, attended eight neighborhood and business group meetings, and held four public meetings as means to reach out to the community. At the meetings, staff utilized comment cards, surveys, and took notes to capture public input.

Neighborhood Leaders Meeting

After the East City Background Report was completed, MPC staff reached out to the sector's neighborhood leaders to develop a survey that was used to garner initial input. The neighborhood leaders and the City's Office of Neighborhoods helped with the distribution of the survey, which led to approximately 181 responses.

Neighborhood and Business Group Meetings

MPC staff presented background information, survey results, and development concepts at meetings with Burlington Homeowners and Residents Association, Dandridge Avenue Neighborhood Watch, East City Business and Professional Association, East Towne Area Business and Professionals Association, Edgewood Park Neighborhood Association, Town Hall East, and Whittle Springs Neighborhood Association.

Sector Plan Meetings (Round 1)

MPC staff presented the survey results and initial development concepts at two open house meetings. Input was gathered through staff notes and comment cards.

Sector Plan Meetings (Round 2)

MPC staff presented the draft plan recommendations on display boards via an open house discussion. Input was gathered through staff notes and comment cards.

Survey

The survey contained twenty six questions regarding neighborhoods, land use, community facilities and transportation.

Survey Results

• Neighborhoods

The neighborhood with the highest participation rate (29%) was North Hills. The majority (65.8%) of residents feel that their neighborhoods have a strong or somewhat strong sense of community. Residents believe the most important issues in their neighborhoods revolve around crime prevention (79.1%), speeding vehicles (62.2%) and safe/convenient pedestrian connections (37.8%).

• Land Use

Most residents (84.2%) support manufacturing to be located in older, underutilized industrial areas. People feel that job creation and economic development in this sector is below average. When developing single family houses, the majority of the people (72.6%) are concerned with design/architectural style. When commercial uses or multifamily housing are developed, most people (76.4%) are concerned with traffic. The majority of the residents (52.3%) would like to have a dine-in restaurant near their home.

The majority of the people would support office development on Asheville Highway, Broadway, Magnolia Avenue, Millertown Pike, Rutledge Pike, Washington Pike, and Whittle Springs Road. The majority of the people would support commercial uses on all the major streets except Washington Pike and Whittle Springs Road. New apartments would be supported on Asheville Highway, Millertown Pike, Rutledge Pike, Washington Pike, and Whittle Springs Road.

• Community Facilities

All the existing community facilities and services were rated above average. Residents feel that improving schools (existing and new) and improvements to parks/greenways (existing and new) are the most important community resource improvements are needed. Most residents (95.6%) use the parks or greenways within the sector. Residents would like the opportunity to have community gardens in all the parks. People had the most interest in making improvements to Chilhowee Park, including adding picnic shelters, a dog park, an exercise court and play equipment.

• Transportation

Most of the residents (91%) use their personal vehicle daily while only a few people (1.6%) use KAT buses daily; 83.6% of those surveyed indicated they seldom or never take KAT. Residents responded that KAT needs a variety of improvements to improve ridership.

One of the clearest messages from the survey results was that people want to see improvements to the sidewalk system. People responded that they want more sidewalks to improve the amount they walk in their neighborhoods. People also want better sidewalks/crosswalks on major roads. People feel bicycle and pedestrian amenities are poor and more sidewalks and greenway trails are needed to improve non-motorized transportation. Most residents (60.4%) would like to see less congestion on Broadway. Overall, people rated the overall transportation system within the sector as slightly above average.

APPENDIX B: Land Use Classifications

AGRICULTURAL and RURAL RESIDENTIAL LAND USE CLASSIFICATIONS		
Agricultural (AG) and Agricultural Conservation (AGC) This includes farmland in the county's Rural Area as designated in the Growth Policy Plan. Undeveloped tracts with the best soils for agriculture are considered as the primary areas for agricultural conservation (AGC). Agricultural land uses are not generally recommended in the City of Knoxville, nor in the County's Planned Growth Area.		
Location Criteria: <ul style="list-style-type: none"> Farmland in the Rural Area as designated in the Growth Policy Plan Land where soils are designated as prime or locally important by the U.S. Department of Agriculture are considered for agricultural conservation (AGC) 	Recommended Zoning and Programs: County's Rural Area: A new zone AC (Agricultural Conservation) is proposed for Agricultural Conservation (AGC) areas, allowing agriculture and one dwelling unit per 30 acres, minimum. (Note: This density will require a change to the zoning ordinance.) Additionally, conservation easement and related programs should be considered to preserve prime farmland.	Other Zoning to Consider: A or PR @ densities of one dwelling unit per acre where dwellings are clustered in one portion of a subdivision.
Rural Residential (RR) Very low density residential and conservation/cluster housing subdivisions are typical land uses.		
Location Criteria: <ul style="list-style-type: none"> Rural areas characterized as forested (tree covered), especially on moderate and steep slopes Sites adjacent to agricultural areas (AG or AGC) where conservation/cluster housing subdivisions may be appropriate 	Recommended Zoning and Programs: County's Rural Area: OS, E, RR (Rural Residential, a new zone with densities of one dwelling unit per acre or less), or PR @ densities of one dwelling unit per acre where dwellings may be clustered in one portion of a subdivision	Other Zoning to Consider: A in the Growth Plan's Rural Area
RESIDENTIAL LAND USE CLASSIFICATIONS		
Traditional Neighborhood Residential (TDR) This land use is primarily residential and is characterized by neighborhoods where a mix of detached and attached houses, sidewalks, smaller lots and alleys have typically been or are to be created. Densities in the range of 4 to 8 dwelling units per acre are typical.		
Location Criteria: <ul style="list-style-type: none"> Neighborhoods like those in the 'Heart of Knoxville' where lots are typically less than 50 feet wide, and usually have sidewalks and alleys. This area is essentially the 19th and early 20th century grid street neighborhoods, mostly located within the I-640 beltway. City's Urban Growth Area or county's Planned Growth Areas where neighborhood or community mixed use development is identified (see Mixed Use and Special Districts section) 	Recommended Zoning and Programs: City: R-1A or RP-1 [with an Infill Housing (IH-1), Neighborhood Conservation (NC-1) or Historic (H-1) Overlay]; TND-1; and new residential zone(s), based on lot sizes less than 7,500 square feet County's Planned Growth Area: PR and new TND zoning.	Other Zoning to Consider: City: R-1, R-1A and RP-1 (without overlays), R-2 County's Planned Growth Area: RA, RB and PR (with conditions for sidewalks, common open spaces and alleys)

RESIDENTIAL LAND USE CLASSIFICATIONS . . . continued

Low Density Residential (LDR)

This type of land use is primarily residential in character at densities of less than 6 dwelling units per acre (dus/ac). Conventional post-1950 residential development (i.e. large-lot, low-density subdivisions) and attached condominiums are typical.

Location Criteria: <ul style="list-style-type: none"> • Land served by water and sewer utilities and collector roads • Slopes less than 25 percent 	Recommended Zoning and Programs: City: R-1, R-1E and RP-1 at less than 6 dus/ac and new residential zones based on lot sizes greater than 7,500 square feet and 75 feet or greater frontage. County's Planned Growth Area: RA, RAE and PR at less than 6 dus/ac.	Other Zoning to Consider: City: R-1A and A-1 County: A and RB
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Medium Density Residential (MDR)

Such land uses are primarily residential at densities from 6 to 24 dwelling units per acre (city) and 6 to 12 (county). Attached houses, including townhouses and apartments are typical. Mobile home parks are another form of this land use.

Location Criteria: <ul style="list-style-type: none"> • As transitional areas between commercial development and low density residential neighborhoods • On land with less than 15 percent slopes • Along corridors that are served by or proposed to be served by transit, with densities proposed to be above 12 dwelling units per acre and to be served by sidewalks 	Recommended Zoning and Programs: City: R-2, R-3 and R-4 (within the 'Heart of Knoxville' area such zoning should be accompanied by an IH-1, NC-1 or H-1 overlay); otherwise, R-1A, RP-1, RP-2 or RP-3. Densities above 12 dus/ac should be within ¼ mile of transit service with sidewalk connections to transit service. County's Planned Growth Area: PR, densities above 12 dus/ac should be within ¼ mile of transit service with sidewalk connections to transit service; RB at 6 or more dus/ac may be considered with use on review. (Note: This proposed 6 dus/ac threshold for use on review will require a zoning ordinance change.)	Other Zoning to Consider: City's Urban Growth Boundary: R-2, R-3 and R-4
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High Density Residential (HDR)

This land use is primarily characterized by apartment development at densities greater than 24 dwelling units per acre.

Location Criteria: <ul style="list-style-type: none"> • On major collector and arterial streets, adjacent to regional shopping and major office districts (office sites allowing four or more stories); these sites must be identified in sector or small area plans • Within the CBD or its adjacent areas, such as portions of the Morningside community • On relatively flat sites (slopes less than 10 percent) • Along corridors with transit and sidewalks 	Recommended Zoning and Programs: City: C-2, RP-2 and RP-3, and new form-based codes (e.g. South Waterfront). R-3 and R-4 (with an IH-1, NC-1 or H-1 overlay in the 'Heart of Knoxville' area)	Other Zoning to Consider: TC-1 and TC (where higher density residential is part or a mixed-use project)
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RESIDENTIAL LAND USE CLASSIFICATIONS . . . continued

Medium Density Residential/Office (MDR/O)

Office and medium residential uses typically have similar development characteristics: scale of buildings, areas devoted to parking, yard spaces and location requirements (on thoroughfares). In areas designated MU-MDR/O, either use can be created. These uses provide a buffer to low density residential areas, particularly when located adjacent to a thoroughfare or as a transition between commercial uses and a neighborhood.

Location Criteria:	Recommended Zoning and Programs:	Other Zoning to Consider:
<ul style="list-style-type: none"> See Medium Density Residential (MDR) criteria 	City: RP-1, RP-2, RP-3 County: PR	City: O-1, O-2 County: OB

OFFICE and BUSINESS/TECHNOLOGY LAND USE CLASSIFICATIONS

Office (O)

This land use includes business and professional offices and office parks.

Location Criteria:	Recommended Zoning and Programs:	Other Zoning to Consider:
<ul style="list-style-type: none"> Low intensity business and professional offices (less than three stories) may be transitional uses from commercial or industrial uses to neighborhoods Generally level sites (slopes less than 15 percent) Access to major collector or arterial streets, particularly within one-quarter mile of such thoroughfares Highest intensity office uses (development that is four or more stories), should be located in close proximity to arterial/freeway interchanges or be served by transit 	City: O-1, O-2, O-3, or a new office zone that requires site plan review County's Planned Growth Area: OA, OC, PC (with covenants) or a new office park zone that requires site plan review	In areas that are identified in sector plans exclusively as office land uses, OB.

Technology Park (TP)

This land use primarily includes offices and research and development facilities. The target area for such development has been the Pellissippi Technology Corridor. Additional districts could be created in other areas of the city or county. The development standards that are adopted by the Tennessee Technology Corridor Development Authority should be used for such districts.

Location Criteria:	Recommended Zoning and Programs:	Other Zoning to Consider:
<ul style="list-style-type: none"> Within the Technology Corridor or subsequent areas designated for Technology Park development Sites near freeway interchanges or along major arterials Water, sewer and natural gas utilities available 	City: BP-1 County's Planned Growth Area: BP and PC (with covenants limiting uses to research/development)	EC (with limitations to require office and research/development uses)

RETAIL and RELATED SERVICES LAND USE CLASSIFICATIONS

Rural Commercial (RC)

This classification includes retail and service-oriented commercial uses intended to provide rural communities with goods and services that meet day-to-day and agricultural-related needs.

Location Criteria:	Recommended Zoning and Programs:	Other Zoning to Consider:
<ul style="list-style-type: none"> At the intersection of two thoroughfares (arterial or collector roads) Rural commercial nodes should generally not exceed more than 300 feet in depth and lots and not extend more than 300 feet away from the intersection 	County's Rural Area: CR PC as provided in Growth Policy Plan	CN

RETAIL and RELATED SERVICES LAND USE CLASSIFICATIONS . . . continued

Neighborhood Commercial (NC)

This classification includes retail and service-oriented commercial uses intended to provide goods and services that serve the day-to-day needs of households, within a walking or short driving distance. Neighborhood commercial uses may also be accommodated within neighborhood centers (see Mixed Use and Special Districts).

Location Criteria: <ul style="list-style-type: none"> • Generally located at intersections of collectors or arterial streets at the edge of or central to a neighborhood • New NC should not be zoned for or developed within ½ mile of existing commercial that features sales of day-to-day goods and services • Automobile-oriented uses (e.g. gas stations or convenience stores) should be located on arterial street at the edge of neighborhood • Should not exceed the depth of the nearby residential lots and not extend more than a block (typically no more than 300 feet) away from the intersection 	Recommended Zoning and Programs: City: C-1 County's Planned Growth Area: CN	Other Zoning to Consider: SC-1
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Community Commercial (CC)

This land use includes retail and service-oriented development, including shops, restaurants, and what has come to be known as "big box" retail stores; typical service area includes 20,000 to 30,000 residents. Community commercial uses may also be considered within community centers (see Mixed Use and Special Districts).

Location Criteria: <ul style="list-style-type: none"> • Locate at intersection of arterial streets • Sites should be relatively flat (under 10 percent slope) and with enough depth to support shopping center and ancillary development. • Vehicular and pedestrian connections should be accommodated between different components of the district (e.g. between stores, parking areas and out-parcel development) • Infrastructure should include adequate water and sewer services, and major arterial highway access • Community commercial centers should be distributed across the city and county in accordance with recommended standards of the Urban Land Institute 	Recommended Zoning and Programs: Because of traffic and lighting impacts (potential glare) and buffering needs of surrounding interests, 'planned zones' should be used. City: SC-2, PC-1 and PC-2. County's Planned Growth Boundary: PC or SC	Other Zoning to Consider: As infill development within areas already zoned C-3, C-4, C-5 and C-6 (City), and CA, CB and T (County)
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RETAIL and RELATED SERVICES LAND USE CLASSIFICATIONS . . . continued

Regional Commercial (RS)

This land use includes retail and service-oriented development that meets the needs of residents across Knox County and surrounding areas. Development typically exceeds 400,000 square feet; malls have been a typical form and 'life-style centers' (e.g. Turkey Creek) are examples of regional-oriented commercial uses. Regional commercial uses may also be considered in Regional Centers (see Mixed Use and Special Districts).

Location Criteria: <ul style="list-style-type: none"> • Flat sites (under 10 percent slope) • Locate near interstate interchanges with major arterial highway access • Water, sewer, gas and stormwater systems should be capable of handling the development • Vehicular and pedestrian connections should be accommodated between components of the development 	Recommended Zoning and Programs: Because of the magnitude of the traffic and environmental impacts, planned zones should be used. City: SC-3, PC-1 and PC-2 County's Planned Growth Boundary: PC	Other Zoning to Consider: As infill development within areas already zoned C-3, C-4, C-5 in the City CA, CB and SC in the County
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General Commercial (GC)

This category includes previously developed strip commercial corridors providing a wide range of retail and service-oriented uses. Such land use classification and related zoning should not be extended because of the adverse effects on traffic-carrying capacity, safety and environmental impacts. Redevelopment of commercial corridors, including mixed use development, should be accommodated under planned or design-oriented zones.

Location Criteria: <ul style="list-style-type: none"> • Existing commercial areas 	Recommended Zoning and Programs: City: C-6 and PC-1 County's Planned Growth Area: PC New corridor design overlays when designated as special districts (see Mixed Use and Special Districts)	C-3, C-4, C-5, SC-1, SC, CA and CB for infill commercial development in areas previously zoned for commercial uses
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MIXED USE and SPECIAL DISTRICTS

There are several types of mixed-use areas: neighborhood, community and regionally-scaled districts and urban corridors. Mixed Use areas can be developed with higher intensity uses because of infrastructure and ability to sustain alternative modes of transportation. Development plan review is crucial. These areas should typically be created with sidewalks. Shared parking may be considered. Automobile and truck-dependent uses, such as heavy industrial, distribution and highway-oriented commercial uses should not be located in neighborhood, community and regional mixed-use centers. There are likely to be several distinctions between types of mixed use designations. Each Sector Plan and the One Year Plan will have a separate section which outlines the intent of each mixed use district and the development criteria for the district.

1. Neighborhood Mixed Use Center (MU-NC)

These are the least intense of the proposed mixed use districts. Residential densities of 5 to 12 dus/ac are appropriate within the area. Locations at the intersection of a local street and thoroughfare are generally most appropriate. The surrounding land uses should primarily be planned for low or medium density residential. The buildings of these centers should be designed with a residential character and scale to serve as a complement to the surrounding neighborhoods.

Location Criteria: <ul style="list-style-type: none"> • Flat terrain (slopes generally less than 10 percent) • Currently served by or planned to be served by sidewalks • The location does not include auto and truck-oriented uses such as industrial, strip commercial and warehouse/ distribution uses unless the proposal calls for a redevelopment of such areas • At the intersection of a local street and throughfare • Next to low or medium density residential 	Recommended Zoning and Programs: TND-1	Other Zoning to Consider: Other form- or design-based codes
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MIXED USE and SPECIAL DISTRICTS . . . continued

2. Community Mixed Use Center (MU-CC)

These centers are envisioned to be developed at a moderate intensity with a variety of housing types (8 to 24 dus/ac). The core of the district, with its predominant commercial and office uses, should be within ¼ mile of the higher intensity residential uses (such as townhouses and apartments). The district should be located within a ¼-mile radius of an intersection of the thoroughfare system (a collector/arterial or arterial/arterial intersection). In addition to sidewalks, the district should be served by transit. Redevelopment of vacant or largely vacant shopping centers are considerations for these centers.

Location Criteria: <ul style="list-style-type: none"> • Flat terrain (slopes generally less than 10 percent) • Areas currently served by or planned to be served by sidewalks • The location does not include auto and truck-oriented uses such as industrial, strip commercial and warehouse/distribution uses unless the proposal calls for a redevelopment of such areas • Within a ¼-mile radius of an intersection of the thoroughfare system (a collector/arterial or arterial/arterial intersection) • Commercial/office core should be within ¼ mile of the higher intensity residential uses (e.g. townhouses and apartments) • Areas currently served by or planned to be served by sidewalks and transit services 	Recommended Zoning and Programs: TC-1, TC	Other Zoning to Consider: Other form- or design-based codes
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3. Regional Mixed Use Center (MU-RC)

These are envisioned to be highest intensity mixed use centers. These districts should be served by sidewalk and transit systems and be located on a major arterial, adjacent to an Interstate highway or adjacent to downtown. Housing densities in the core of such districts can be 24 or more dus/ac. Downtown Knoxville's Central Business District is a regional mixed use center.

Location Criteria: <ul style="list-style-type: none"> • Flat terrain (slopes generally less than 10 percent) • Currently served by or planned to be served by sidewalks • The location does not include auto and truck-oriented uses such as industrial, strip commercial and warehouse/distribution uses unless the proposal calls for a redevelopment of such areas • On a major arterial, adjacent to an interstate highway or adjacent to downtown 	Recommended Zoning and Programs: C-2 in the Central Business District (Downtown); an adaptation of C-2 for the 'Downtown North' area (Central City Sector); TC-1, TC or new form-based codes (and regulating plans) for other community and regional centers	Other Zoning to Consider: Other form- or design-based codes
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4. Urban Corridor Mixed Use (MU-UC)

Several street corridors within the city have potential for redevelopment with a mix of retail, restaurants, office and residential uses. Commercial cores should be created at points (nodes) along these corridors, allowing a vertical mix of uses (for example, shops at ground level and apartments above); such nodes should not be more than four blocks long.

Location Criteria: <ul style="list-style-type: none"> • Corridors should have sidewalks, transit services, street trees and related beautification • Capable of sustaining on-street parking along corridor or along side streets 	Recommended Zoning and Programs: City: form-based or design-based codes (e.g. South Waterfront)
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MIXED USE and SPECIAL DISTRICTS . . . continued

5. Special Mixed Use District (MU with reference number)

These can include designations to address urban design, pedestrian and transit-oriented development and vertical mixed use in designated areas. The areas may include older portions of the city or county where redevelopment and/or preservation programs are needed for revitalization purposes.

Location Criteria: <ul style="list-style-type: none"> • Case-by-case analysis is recommended 	Recommended Zoning and Programs: TND-1, TC-1, TC, especially in greenfield areas, or form-based or designed-based codes as noted in the Sector Plan and One Year Plan for each of these districts.
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6. Special Corridors (CD with reference number)

These can include designations to address urban design and environmental concerns along commercial or industrial corridors (where overlays for aesthetic reasons or sidewalks may be recommended, like the Chapman Highway corridor). Other potential corridor designation could include rural/farmland conservation areas.

Location Criteria: <ul style="list-style-type: none"> • Case-by-case analysis is recommended 	Recommended Zoning and Programs: Should be noted in the Sector Plan and One Year Plan for each of these districts.
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INDUSTRIAL AND WAREHOUSE/DISTRIBUTION LAND USE CLASSIFICATIONS

Light and Heavy Industrial (LI and HI) and Mining (HIM)

These classifications are typically used to identify older industrial areas, which were intended for manufacturing, assembling, warehousing and distribution of goods. Light industrial uses include such manufacturing as assembly of electronic goods and packaging of beverage or food products. Heavy industrial uses include such processes used in the production of steel, automobiles, chemicals, cement, and animal by-products and are viewed as clearly not compatible with areas designated for residential, institutional, office and retail uses. Quarry operations and asphalt plants are a particular form of heavy industrial, generally located in rural areas.

Location Criteria: <ul style="list-style-type: none"> • Existing industrial areas • Within one mile of an interstate interchange with access via standard major collector or arterial streets 	Recommended Zoning and Programs: City: I-1, I-2, I-3 and I-4 (infill development, using those zones, may be appropriate); C-6, PC-2 and a new planned, industrial zone, that requires site plan review, may be warranted to address environmental and transportation issues and surrounding community concerns. County's Planned Growth Boundary: LI; EC zone should be used in future development	Other Zoning to Consider: County: I (Industrial) zoning should be used in cases involving rezonings to accommodate mining activities and should be accompanied by buffering and other conditions to protect adjacent property owner. PC, LI, I and CB may be considered for infill industrial development.
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Business Park (BP) Type 1

Primary uses are light manufacturing, office and regionally-oriented warehouse/distribution services in which tractor-trailer transportation is to be a substantial portion of the operations. A zoning category which requires site plan review is expected in the development or redevelopment of such areas. Site plans shall address landscaping, lighting, signs, drainage, and other concerns that are raised in the rezoning process. Substantial landscaped buffers are expected between uses of lesser intensity, particularly residential, office and agricultural uses.

Location Criteria: <ul style="list-style-type: none"> • Relatively flat sites (predominant slopes less than 6 percent) out of floodplains • Relatively large sites (generally over 100 acres) • Away from low and medium density areas or where truck traffic would have to go through such areas • Areas with freeway and arterial highway access (generally within two miles of an interchange) • Rail access is a consideration • Can be served with sanitary sewer, water and natural gas 	Recommended Zoning and Programs: City: I-1, C-6, PC-2 or a new Planned Industrial Park zone County's Planned Growth and Rural Areas: EC	Other Zoning to Consider: PC
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INDUSTRIAL AND WAREHOUSE/DISTRIBUTION LAND USE CLASSIFICATIONS . . . continued

Business Park (BP) Type 2:

Primary uses are light manufacturing, offices, and locally-oriented warehouse/distribution services. Retail and restaurant services, which are developed primarily to serve tenants and visitors to the business park can be considered. A zoning category which requires site plan review is expected in the development or redevelopment of such areas. Site plans must include provisions for landscaping, lighting and signs. Substantial landscaped buffers are necessary between uses of lesser intensity, particularly residential, office and agricultural uses.

Location Criteria: <ul style="list-style-type: none"> • Relatively flat sites (predominant slopes less than 6 percent) out of floodplains • Relatively large sites (generally over 100 acres) • Away from low and medium density areas or where truck traffic would have to go through such areas • Freeway and arterial highway access (generally within two miles of an interchange) • Rail access is a consideration • Sites that can be served with sanitary sewer, water and natural gas 	Recommended Zoning and Programs: City: I-1, C-6, PC-2 or a new Planned Industrial Park zone County's Planned Growth and Rural Areas: EC	Other Zoning to Consider: PC
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PARK, PUBLIC INSTITUTIONAL, OTHER OPEN SPACE & ENVIRONMENTAL PROTECTION LAND USE CLASSIFICATIONS

Public Parks and Refuges (PP)

This land use classification contains existing parks, wildlife refuges or similar public or quasi-public parks, open spaces and greenways. It also contains quasi-public spaces, which are owned by civic or related organizations. Location criteria is not needed relative to large components of the park system, like community, district and regional parks and refuges; these areas are generally established through capital expenditures or land transfers from state or federal governments.

Location Criteria: <ul style="list-style-type: none"> • Neighborhood parks, squares and commons should be within ¼ mile of residents in the traditional residential areas (particularly the 'Heart of Knoxville') and within ½ mile of residents within the balance of the city and county's Planned Growth area. • Greenways should be located along or within the flood plains of streams and rivers/reservoirs. Other potential locations include ridges and utility corridors. 	Recommended Zoning and Programs: City: OS-1 County's Planned Growth and Rural Area: OS, E and OC A new zone should be created to designate parks, schools and similar institutional lands for both city and county jurisdictions.	Other Zoning to Consider: Other zones that allow parks and open space as permitted uses.
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Civic/Institutional (CI)

Land used for major public and quasi-public institutions, including schools, colleges, the university, churches, correctional facilities, hospitals, utilities and similar uses.

Location Criteria: <ul style="list-style-type: none"> • Existing public uses, other than parks and greenways • Quasi-public uses of two acres or more 	Recommended Zoning and Programs: City and County: New zoning categories for such uses or continue to use conventional zones (e.g. O-1, O-2 and OC)	Other Zoning to Consider: Other zones that allow civic/institutional as permitted uses.
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Other Open Space (OS)

Land uses include cemeteries, private golf courses, and similar uses.

Location Criteria: <ul style="list-style-type: none"> • Existing cemeteries, private golf courses and private open spaces 	Recommended Zoning and Programs: City: OS-1 and a new zone created to designate parks, schools and similar institutional lands County's Planned Growth and Rural Area: OS, E and OC	Other Zoning to Consider: A-1, and A
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PARK, PUBLIC INSTITUTIONAL, OTHER OPEN SPACE & ENVIRONMENTAL PROTECTION LAND USE CLASSIFICATIONS . . . continued

Hillside/Ridge Top Protection Areas (HP)

This classification is used to identify hillsides, ridges and similar features that have a slope of 15 percent or more. Open space, recreation land or very low density housing (one dwelling unit per two acres) is recommended for slopes exceeding 25 percent. For slopes of 15 to 25 percent, housing densities should not exceed 2 dus/ac). Office uses may also be considered. Building height should not exceed 35 feet.

Location Criteria: <ul style="list-style-type: none"> Hillsides greater than 15 percent slope 	Recommended Zoning and Programs: City: RP-1, OS-1 and a new hillside protection zoning overlay, that has standards for various residential and office land uses and the amount of land disturbance that can take place relative to the degree of slope. County's Planned Growth and Rural Areas: OS, E, A (on slopes less than 15 percent) and PR; a new hillside protection zoning overlay, that has standards for various residential and office land uses and the amount of land disturbance that can take place relative to the degree of slope.	Other Zoning to Consider: Other zones that require use-on-review
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Stream Protection Areas (SP)

Typically these are areas which are subject to flooding. Such areas include both the floodway, which carries the significant portion of stormwater, and the 500-year flood fringe, which the city and county govern with various stormwater regulations.

Location Criteria: <ul style="list-style-type: none"> Floodways and flood fringes 	Recommended Zoning and Programs: City: F-1 and 'planned zones' (such as RP-1 and PC-1), which entail site plan review. County's Planned Growth Area: F and 'planned zones' (such as PR and PC), that require site plan review to address flooding and stream protection issues
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Water (W)

Typically includes the French Broad River, Holston River, Fort Loudoun Lake/Tennessee River, and Melton Hill Lake/Clinch River.

Location Criteria: <ul style="list-style-type: none"> Rivers, TVA reservoirs 	Recommended Zoning and Programs: City: F-1 County: F
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Major Rights of Way (ROW)

Generally, the rights-of-way of interstates and very wide parkways and arterial highways are depicted on the future land use map.

APPENDIX C: Traffic Calming

Traffic Calming (also called Traffic Management) refers to design features and strategies that reduce vehicle speeds, improving safety and enhancing the quality of life within a particular neighborhood.

Traffic calming projects can range from minor modifications of an individual street to a comprehensive redesign of an entire road network.

The first part of this appendix provides a sample of different traffic calming strategies, and the second part examines some of the benefits communities have realized through traffic calming programs. Note that in the illustrative pictures that more than one type of design feature is often used to maximize the benefits.

Examples of Traffic Calming Strategies and Features



CURB EXTENSIONS “PINCH POINTS”

Curb extensions, planters, or centerline traffic islands that narrow traffic lanes to control traffic and reduce pedestrian crossing distances (also known as “chokers”)



SPEED TABLES, RAISED CROSSWALKS

Ramped surface above roadway, 7-10 cm high, 3-6 m long



TRAFFIC CIRCLES

Small circles at intersections



MEDIAN ISLAND

Raised island in the road center (median) narrows lanes and provides pedestrian with a safe place to stop



CHANNELIZATION ISLANDS

A raised island that forces traffic in a particular direction, such as right-turn-only



SPEED HUMPS

Curved 7-10 cm high, 3-4 m long hump.



RUMBLE STRIPS

Low bumps across road make noise when driven over



CHICANES

Curb bulges or planters (usually 3) on alternating sides, forcing motorists to slow down



ROUNDBABOUTS

Medium to large circles at intersections



PAVEMENT TREATMENTS

Special pavement textures (cobble, bricks, etc.) and markings to designate special areas



BIKE LANES

Marking bike lanes narrows traffic lanes



2-LANES NARROW TO 1-LANE

Curb bulge or center island narrows 2-lane road down to 1-lane, forcing traffic for each direction to take turns



SEMI-DIVERTERS, PARTIAL CLOSURES

Restrict entry/exit to/from neighborhood
Limit traffic flow at intersections



STREET CLOSURES

Closing off streets to through vehicle traffic at intersections or midblock



STREET TREES

Planting trees along a street to create a sense of enclosure and improve the pedestrian environment



WOONERF

Streets with mixed vehicle and pedestrian traffic, where motorists are required to drive at very low speeds

TIGHTER CORNER RADII

The radius of street corners affects traffic turning speeds. A tighter radius forces drivers to reduce speed. It is particularly helpful for intersections with numerous pedestrians.

ROAD DIETS

Reducing the number and width of traffic lanes, particularly on arterials

HORIZONTAL SHIFTS

Lane centerline that curves or shifts

NEOTRADITIONAL STREET DESIGN

Streets with narrower lanes, shorter blocks, T-intersections, and other design features to control traffic speed and volumes

PERCEPTUAL DESIGN FEATURES

Patterns painted into road surfaces and other perceptual design features that encourage drivers to reduce their speeds

SPEED REDUCTIONS

Traffic speed reduction programs/increased enforcement of speeding violations

Benefits of Traffic Calming Programs

Traffic calming creates a set of checks and balances that compel those at the wheel to drive slowly and carefully, making streets safer for both drivers and pedestrians. Traffic calming tends to reduce total vehicle mileage in an area by reducing travel speeds and improving conditions for walking, cycling and transit use (see Table 1). Residents in neighborhoods with suitable street environments tend to walk and bicycle more, ride transit more, and drive less than comparable households in other areas. One study found that residents in a pedestrian friendly community walked, bicycled, or rode transit for 49 percent of work trips and 15 percent of their non-work trips, 18- and 11-percentage points more than residents of a comparable automobile-oriented community. Another study found that walking is three times more common in a community with pedestrian friendly streets than in otherwise comparable communities that are less conducive to foot travel.

**Table 1:
Speed Impacts of Traffic Calming Measures**

	Sample Size	Average Speed Afterward (mph)	Average Speed Change	Average Percent Change
12' Humps	179	27.4	-7.6	-22
14' Humps	15	25.6	-7.7	-23
22' Tables	58	30.1	-6.6	-18
Longer Tables	10	31.6	-3.2	-9
Raised Intersections	3	34.3	-0.3	-1
Circles	45	30.2	-3.9	-11
Narrowings	7	32.3	-2.6	-4
One-Lane Slow Points	5	28.6	-4.8	-14
Half Closures	16	26.3	-6.0	-19
Diagonal Diverters	7	27.9	-1.4	-0.5

Source: www.trafficcalming.org (Ewing, 1999)

In addition, Table 2 below highlights additional benefits that traffic calming measures can have on local streets.

**Table 2:
Additional Traffic Calming Benefits**

Benefit	Description
Increased road safety	Reduced traffic accident frequency and severity, particularly for crashes involving pedestrians and cyclists
Increased comfort and mobility for non-motorized travel	Increased comfort and mobility for pedestrians and cyclists
Reduced automobile impacts	Increased non-motorized travel substitutes for automobile trips, reducing congestion, expenses and pollution
Increased community livability	Reduced noise and air pollution, and improved aesthetics
Increased neighborhood interaction	More hospitable streets encourage street activities and community interaction
Increased property values	Reduced traffic speed and volumes increase residential property values
Improved public health	More opportunities for walking and other physical activity
Source: Victoria Transport Policy Institute, Online TDM Encyclopedia, http://www.vtpi.org/tdm/tdm4.htm	

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