



2016 NORTHWEST COUNTY SECTOR PLAN



KNOXVILLE • KNOX COUNTY METROPOLITAN PLANNING COMMISSION



Northwest County Sector Plan

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NORTHWEST COUNTY SECTOR

Executive Summary

The Northwest County Sector is approximately 77 square miles in size, the second largest of all 12 planning sectors in Knox County. However, it is the most populated of all the sectors in Knox County and is suburban and rural in character with 47 percent of existing land use designated Agriculture/Forestry/Vacant Land or Rural Residential. This sector has been and continues to experience rapid population growth with 30 percent (77,000+ persons) of the total population of Knox County residing in the Northwest County.

The sector is comprised of several communities, including, Karns, Ball Camp, Amherst (Hines Valley), Cedar Bluff, Hardin Valley and Solway. Almost all of these communities are experience growth with new subdivisions being developed on previously agricultural, rural land. However, approximately, 20 percent of land in the sector remains under Tennessee's Greenbelt Law program.

In the last twenty years, 27,580 new residents were added to the Northwest County. The housing inventory grew as new construction averaged over 770 new permits annually with residential, single dwelling units accounting for the bulk of development. Environmental constraints in the Northwest County have shaped how development has occurred. Steep slopes along the major ridge systems in the sector, including Beaver Ridge, Copper Ridge and Black Oak Ridge, have shaped how development has occurred historically, however, new residential and commercial/office growth is extending into steep sloped areas. However, the bulk of new development is occurring in the rural, gentle sloping valleys of the sector, such as Hardin Valley, Hines Valley (Amherst), and the flatter areas of the Karns community. In the last ten years, approximately 13 percent of all new development was in the Rural Growth Area, which is designated for farming, recreation and other non-urban uses. As growth continues to occur in the coming years, the Rural Growth Area will face increased development pressure, especially in the Hardin Valley area, as new schools have been established right at the edge of the Planned Growth Boundary.

Employment in the sector is led by Health Care and Social Assistance, which accounts for approximately 18 percent of the 37,000 jobs located in the sector, the second largest employer in the sector is Administration & Support, Waste Management and Remediation, and the third is Professional, Scientific, and Technical Services, reflective of the impact of the Cedar Bluff Medical Facilities area, as well as the business located in the Technology Corridor and within the business parks of the sector. While there are many jobs located in the sector, only about 7 percent of residents live and work in the sector, the majority are commuting outside of the sector to their places of employment.

Since the last sector plan update in 2003, there have been several public facility and infrastructure improvements in the Northwest County, including the construction of Hardin Valley Academy and Amherst Elementary, Knox County Sportsark, and the Karns Senior Center. Community interests and the growing population also helped foster the addition of the Hardin Valley Middle School that is currently under construction. Sections of Middlebrook Pike, Hardin Valley Road and Dutchtown were all widened to include additional lanes and a sidewalk, and the proposed Knoxville

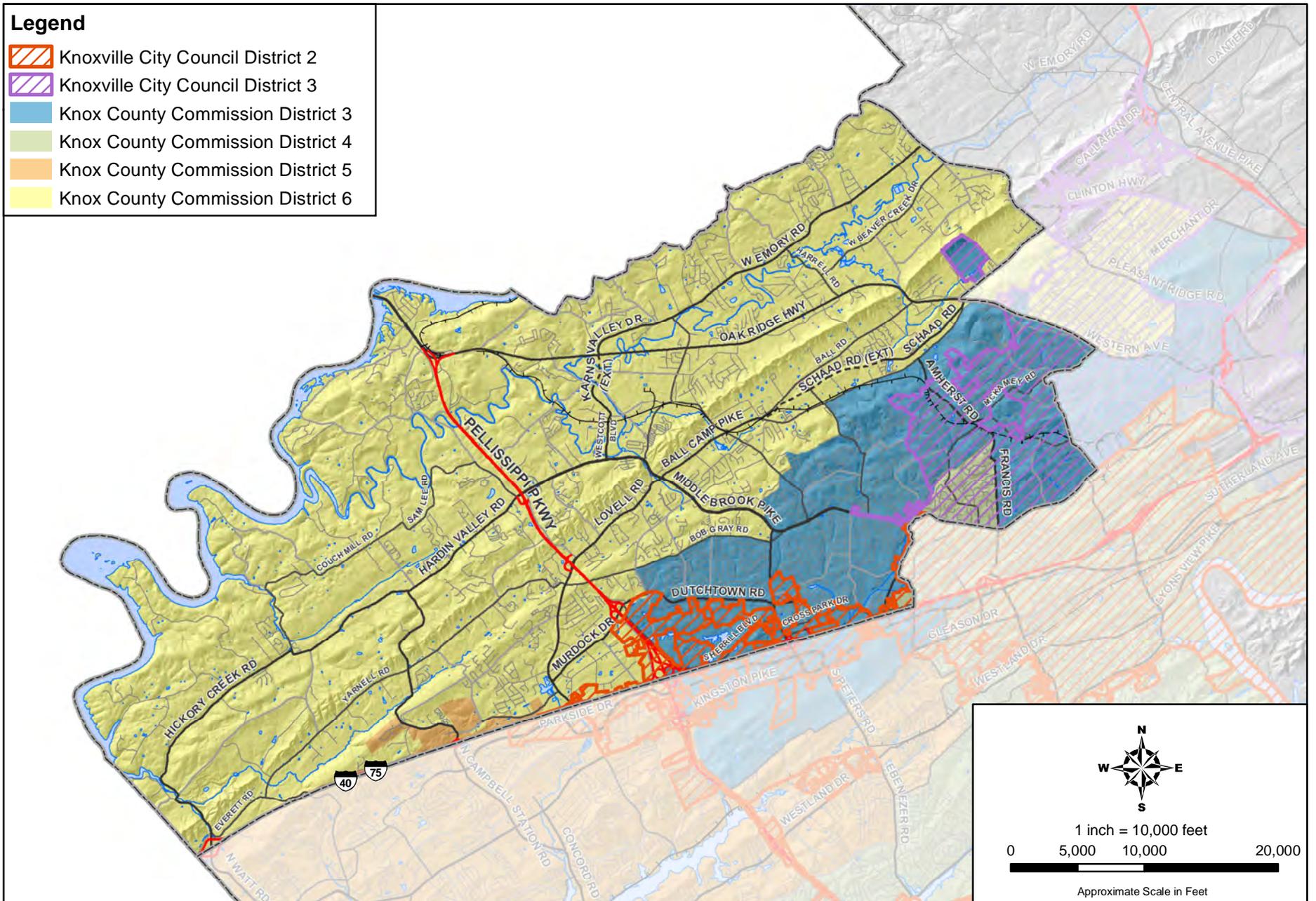
Regional Parkway (State Route 475 or "Orange Route") was abandoned as a project after significant public concerns were raised. Portions of the Schaad Road Extension have been completed, however, there several projects that will be underway or completed in the next few years, including the Karns Connector. Public transportation serves only a small portion of the sector along Cross Park Drive, Cedar Bluff and Sherrill Boulevard.

By 2025, the Northeast County Sector is projected to add between 10,000 to 17,000 people. Long term planning is necessary to balance future development with qualities inherent to the Northwest County sector, particularly, to protect and enhance the "small town feeling" of communities, such as Karns. Residents across the sector noted that increased walkability and connectivity linking schools, neighborhoods, parks and commercial areas is a major interest. The Sector Plan includes land use, community facilities, transportation planning, and historic resources recommendations organized into 5-year and 15-year implementation stages. These recommendations reflect observations from data trends, projects implemented since 2003, and public input from an online survey and public meetings.



Hardin Valley Road, 2012

Northwest County Sector: Knox County Commission and Knoxville City Council Districts



Section 1: Background Report

The Northwest County Sector Plan was updated 12 years ago and adopted by the Knoxville City Council and Knox County Commission in September 2003. In addition this sector plan was amended through the adoption of the Tennessee Technology Corridor Development Authority Comprehensive Plan in January 2009 and the Knoxville-Knox County Park, Recreation, and Greenways Plan in January 2010.

Comprehensive Planning Process Overview

Comprehensive planning in Knoxville and Knox County can be viewed as a series of plans that start with regional areas and broad goals and objectives that gradually address smaller parts of the city and county in more detail and with greater specificity.

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

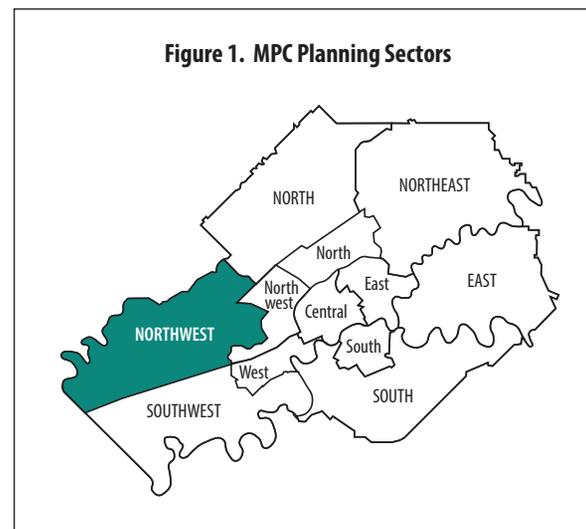
- Roads, and other transportation systems
- Parks and other public property
- The general location and extent of public utilities, including sanitation and water;
- The general character and location of community areas and housing development;
- Uses of land for trade, industry, housing, recreation, agriculture, and forestry; and
- Appropriate zoning relating to the land use plan, outlining permitted uses and the intensity of those uses, such as height and locations of buildings on their parcels

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 Plan for each county. At a minimum, a growth plan must identify three classifications of land outside of the city limits:

- 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. 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.

Note: The Northwest County Sector covers an area mostly in Knox County, but portions of the sector are incorporated areas within the City of Knoxville and the Town of Farragut.



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 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 12 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 ridge top protection.

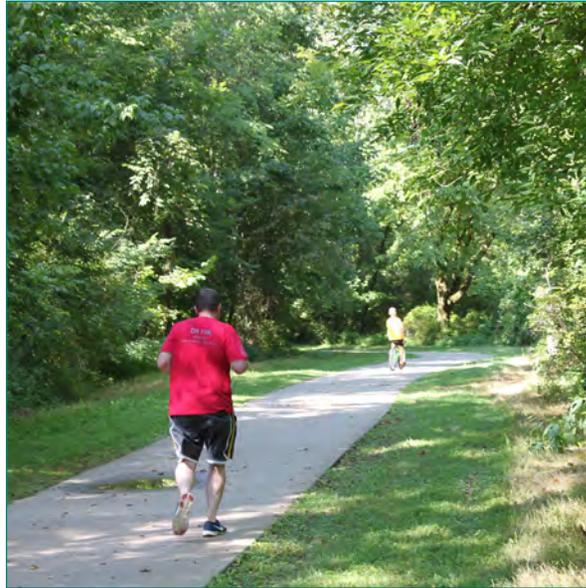
All plans are developed through citizen participation, including workshops, surveys, and public meetings. Plans are adopted by the Metropolitan Planning Commission, Knoxville City Council, and Knox County Commission and serve as a basis for zoning and land use decisions.

A Summary of Recent Projects

The 2003 Northwest County Sector Plan proposed several objectives including land use updates to align development efforts in regard to land use, environmental protection, transportation, and community facilities. The following is a summary of the objectives and list of the proposals that have been implemented or are in the process of being implemented, as well as other major changes in the sector since the 2003 sector plan:

Park and Greenway Improvements

- The Knox County Sportspark, at the intersection of Oak Ridge Highway and Karns Valley Drive, has been completed. It provides a football field, baseball fields, soccer fields, and a play area.
- In 2007, the City of Knoxville and Knox County opened Ten Mile Creek Greenway, our community's first joint city/county greenway. The greenway extends along Ten Mile Creek for 1.2 miles from the Cavet



Ten Mile Creek Greenway

Station Greenway in the Northwest City Sector into the Northwest County Sector area and terminates at the Carmike Wynnsong 16 Theater in Cedar Bluff.

- In 2010, the *Knoxville-Knox County Park, Recreation, and Greenway Plan* was adopted by the Knoxville City Council and the Knox County Commission, which also amended the Northwest County Sector Plan. Key recommendations of the 2010 plan that impact the Northwest County Sector are provided later in this report.
- Harrell Road Stormwater Park, in the Beaver Creek Watershed, is currently under construction and expected to be completed by late 2016.
- In 2014, the Knoxville Regional Transportation Planning Organization and the Great Smoky Mountains Regional Greenway Council initiated a planning process for a greenway connecting Anderson, Knox and Blount Counties, which will traverse the Northwest County Sector.



The Hardin Valley high school and elementary school are in the right portion of this aerial photograph. A new middle school will be located off Steele Road behind the existing schools.

Land Use Changes

- In 2008, Knox County Schools constructed a new high school, Hardin Valley Academy.
- The *Tennessee Technology Corridor Comprehensive Plan* was updated in 2008 and adopted in early 2009.
- In 2011, the Solway Greenwaste site was sold by Knox County to a private owner, Natural Resources Recovery of Tennessee.
- The *Knoxville-Knox County Park, Recreation and Greenways Plan* was adopted in 2010.
- In an effort to conserve the steep slopes and ridges across Knox County, including those in the Northwest County Sector, the *Knoxville-Knox County Hillside and Ridgetop Protection Plan* was adopted in 2011.
- The Karns Senior Center, adjacent to the Knox County SportsPark, opened in July 2015.

Major Road Projects

- A portion of Middlebrook Pike from Hardin Valley Road to Cedar Bluff Road was widened from 2 lanes to 4 lanes with a median and a sidewalk.
- Hardin Valley Road between Campbell Station Road to Pellissippi Parkway was widened from 2 lanes to 3 lanes and a sidewalk.
- The interchange area of Dutchtown Road at Pellissippi Parkway to Murdock Road was widened with 4 lanes and a center turn lane and a westbound right turn lane to the southbound ramps of the Pellissippi Parkway.
- Sections of Dutchtown Road from Pellissippi Parkway to Cedar Bluff Road have all been improved to include additional lanes and a sidewalk.
- A Dutchtown Road extension with sidewalks was also completed between Cedar Bluff Road and Park Village Road.
- The Oak Ridge Highway/Western Avenue Project is scheduled to be completed in 2016. The proposed project consists of reconstructing the existing two lane roadway to a five-lane facility and includes a sidewalk, between Schaad Road and I-640.
- In 2007, phase one of the Karns Connector was completed which connected Oak Ridge Highway to Emory Road. Phase two is currently under construction and is expected to be completed in 2017



The interchange area of Dutchtown Road at Pellissippi Parkway

finishing the link between Hardin Valley Road and Oak Ridge Highway.

- The Schaad Road extension is underway, portions have been completed from Oak Ridge Highway to Olive Branch Lane, but additional sections are still in progress and are expected to be completed around 2024 making the connection complete to Ball Camp Pike near Hitching Post Drive. The extension and subsequent portions consist of a 4-lane facility with sidewalks and bike lanes.
- The Outlet Drive to Snyder Road extension has been completed, connecting Lovell Road to North Campbell Station Road on the north side of I-40.
- The proposed Knoxville Regional Parkway (“Orange Route” or State Route 475) that would have traversed the Northwest County Sector was eliminated by the Tennessee Department of Transportation (TDOT) in 2010.

Community Profile

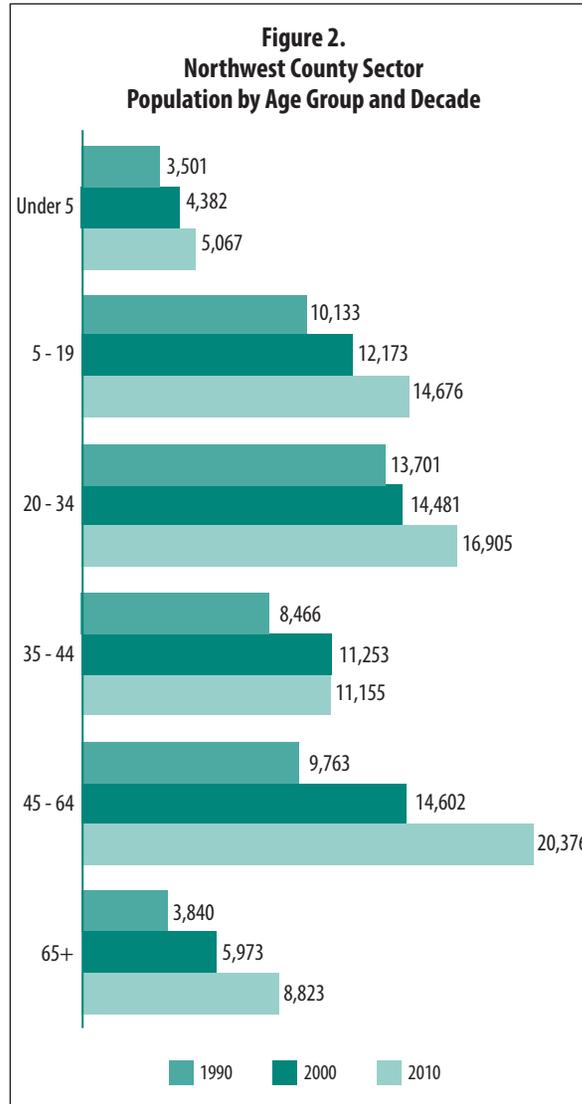
Population

The Northwest County Sector remains the most populated of all city and county sectors with a 2010 population of 77,002. From 1990 to 2000, Northwest County's total population increased by 27.2 percent. However, the following decade experienced a lower growth rate of 22.5%. Reflective of national trends, the population of this sector is aging, with the most significant growth occurring among those aged 45 and older, the "baby boom" generation. The next most significant population growth has occurred among those aged 5 to 34 years, "the millennials" also representing a continuing trend from the previous decade, with young families moving into the area.

In the last twenty years, the majority of the population has shifted from the City to the County with over 58 percent of the population residing in the county as of the 2010 census. At the Knox County level, from 1990 to 2010 the total population grew 28.7 percent, while the city of Knoxville's population grew only 5.3 percent and the county balance has grown 52.6 percent. Since 1990, Knox County's population has shifted from 50.6 percent found within the City of Knoxville to only 41.4 percent in 2010.

The Northwest County sector has remained the most populated sector for the last 20 years, with the next highest population being the Southwest County sector. Population growth has leaned significantly toward the western part Knox County in the last twenty years. The third most populous sector is North County, but it is significantly lower in total population with the sector being comprised of over 20,000 less persons. The most significant population growth in the county sectors generally follows the corridors of interstates and major arterials, particularly in sectors bordering adjacent counties.

What can the Northwest County expect to see in the future? Three population projections are shown for the sector, providing totals for 2015, 2020 and 2025. These projections are based on underlying factors inherent to



the sector such as historical growth rates, share of Knox County's total population, and the Knoxville Regional Transportation Planning Organization's travel demand model. These three projections assume the underlying factors will continue in the future.

The Low Growth projection results in the addition of 10,113 new residents to the sector from 2010 to 2020,

an increase of 13 percent. This projection falls below the historical increase of 27 percent which occurred from 1990 to 2000, and below the 22 percent increase from 2000 to 2010 (see Table 3). The Low Growth scenario uses Knox County population projections from the Center for Business and Economic Research (CBER) at the University of Tennessee as control totals. The Northwest County Sector historically accounts for almost 30 percent of Knox County's total population. This share was applied to CBER's countywide population totals for 2015, 2020, and 2025 to determine the Low Growth scenario for Northwest County.

Table 1. Northwest County Sector Population by Age and Sex

Years of Age	1990	2000	% Change 1990-2000	2010	% Change 2000-2010
Under 5	3,501	4,382	25.2	5,067	15.6
5-19	10,133	12,173	20.1	14,676	20.6
20-34	13,701	14,481	5.7	16,905	16.7
35-44	8,466	11,253	32.9	11,155	-0.9
45-64	9,763	14,602	49.6	20,376	39.5
65+	3,840	5,973	55.5	8,823	47.7
TOTAL	49,404	62,864	27.2	77,002	22.5
Male	24,056	30,584	27.1	37,613	23.0
Female	25,348	32,280	27.3	39,389	22.0

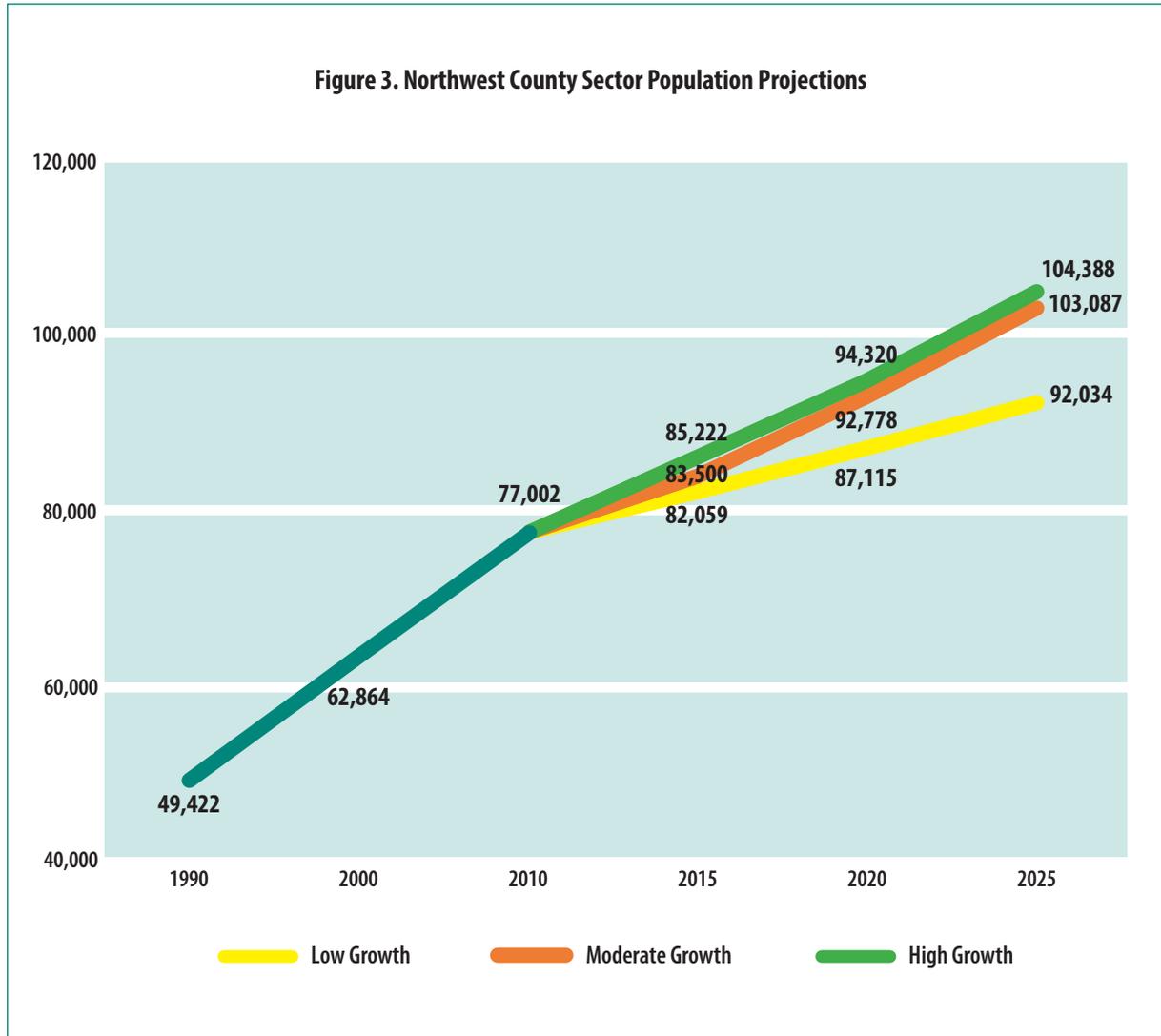
Table 2. Knox County Population

	1990	% Share	2000	% Share	2010	% Share
Northwest County	49,404	14.7	62,864	16.5	77,002	17.8
Knox County	335,749		382,032		432,226	
City of 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

Table 3. Population Growth by Knox County Sector

County Sectors	1990	% Share	2000	% Share	2010	% Share
Northwest	49,422	28.9	62,864	29.1	77,002	29.6
Southwest	39,990	23.4	56,419	26.1	70,459	27.1
North	32,391	19.0	42,557	19.7	49,754	19.1
Northeast	18,993	11.1	21,816	10.1	27,386	10.5
South	17,759	10.4	19,236	8.9	20,988	8.1
East	12,357	7.2	13,313	6.2	14,699	5.6
TOTAL	170,912		216,205		260,288	

Figure 3. Northwest County Sector Population Projections



From 2010 to 2020, the Moderate Growth projection results in a 20 percent increase in population, or 15,776 new residents, while the High Growth projection adds 17,318 people, a 22 percent increase. These two projections still fall below the historical 27 percent increase from 1990 to 2000, and the 22 percent increase from 2000 to 2010 (see Table 3). The Moderate and High Growth projections use Northwest County’s annual

historical growth rates from 1990 to 2010 (Moderate) and 200 to 2010 (High). These annual growth rates are applied to the 2010 total population for the sector and carried out each subsequent year to 2025.

In summary, from 2010 to 2025 the Northwest County Sector could potentially add between 1,000 and 1,820 persons per year.

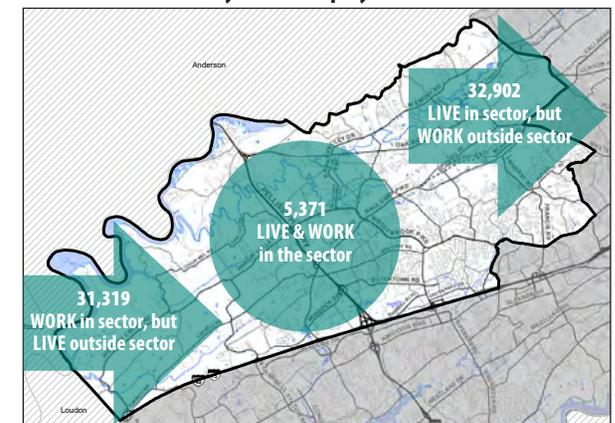
Employment

In 2013, approximately 38,273 residents living in the Northwest County Sector were employed with the majority (32,902) commuting to a place of employment located outside the sector. The largest industry employer of people living in the Northwest County was Health Care and Social Assistance (5,270), Retail Trade (5,158) and Accommodation and Food Services (3,799) were second and third, respectively.

The number of jobs located in the Northwest County Sector was 36,762 with the bulk of the workers (31,391) commuting to the sector from a place of residence outside of the sector. Health Care and Social Assistance was the largest industry with 6,429 jobs, while Administration & Support, Waste Management and Remediation was second highest with 4,592 jobs, and Professional, Scientific, and Technical Services was third with 3,327 jobs in the sector. Agriculture, Forestry, Fishing and Hunting only accounted for 7 jobs, revealing how few people farm as a fulltime occupation in the sector.

Approximately, 5,371 people actually work and live in the Northwest County, or 15% of the 36,762 jobs in the sector.

Figure 4. Northwest County Sector Employment Inflow/Outflow





Office building in Centerpoint business park

Public Facilities and Infrastructure

Schools

The Northwest County Sector is served by thirteen elementary schools, five middle schools, and four high schools. Total enrollment numbers for the Northwest Sector show an increase in enrollment over the past six years, which would be expected with the sizable growth in young families. Most elementary, middle, and high schools showed a steady increase in enrollment from 2008 to 2013. Karns High School lost students; this can be explained by the addition of the Hardin Valley Academy in 2008. West High School showed a decline until last year. Cedar Bluff Elementary showed significant gains due a merger with Cedar Bluff Intermediate School. In 2006, Amherst Elementary was opened along the Schaad Road Extension. In summer of 2015, Knox County announced that construction of a new middle school in the Hardin Valley area would occur and is expected to be open by fall of 2018. The tentative location is on land adjacent to Hardin Valley Academy.

The Northwest County Sector also has the largest concentration of private schools in the county. These schools include Catholic High School, Christian Academy of Knoxville, Episcopal School of Knoxville, Grace Christian Academy, and Webb School.



Episcopal School of Knoxville

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.

Table 4. Northwest County Sector Employment, 2013				
Northern American Industry Classification System (NAICS) Industry	Live in Sector	% Share	Work in Sector	% Share
Agriculture/Forestry/Fishing	40	0.1	7	0.0
Mining/Quarrying/Oil/Gas	19	0.0	28	0.1
Utilities	215	0.6	72	0.2
Construction	1,258	3.3	2,189	6.0
Manufacturing	3,126	8.2	3,102	8.4
Wholesale Trade	1,859	4.9	2,925	8.0
Retail Trade	5,158	13.5	2,864	7.8
Transportation/Warehousing	1,194	3.1	1,245	3.4
Information	952	2.5	2,176	5.9
Finance/Insurance	1,601	4.2	1,073	2.9
Real Estate/Rental/Leasing	478	1.2	482	1.3
Professional/Scientific/Technical Services	3,401	8.9	3,327	9.1
Management of Companies/Enterprises	581	1.5	701	1.9
Administrative/Support/Waste Management	2,990	7.8	4,592	12.5
Educational Services	3,583	9.4	1,817	4.9
Health Care/Social Assistance	5,270	13.8	6,429	17.5
Arts/Entertainment/Recreation	387	1.0	191	0.5
Accommodation/Food Services	3,799	9.9	2,465	6.7
Other Services (excludes Public Administration)	1,184	3.1	1,032	2.8
Public Administration	1,178	3.1	45	0.1
TOTAL	38,273	100.0	36,762	100.0



Hardin Valley Elementary School

Libraries

The Northwest County Sector is served by four Knox County branch libraries. The Karns and Cedar Bluff Libraries are located inside the Northwest sector while the Powell and Farragut Libraries are located outside the sector but still serve Northwest Knox County residents. Pellissippi State Technical Community College also has a 40,000 square foot library with 35,000 titles that is primarily used by students and faculty but is open to visitors.

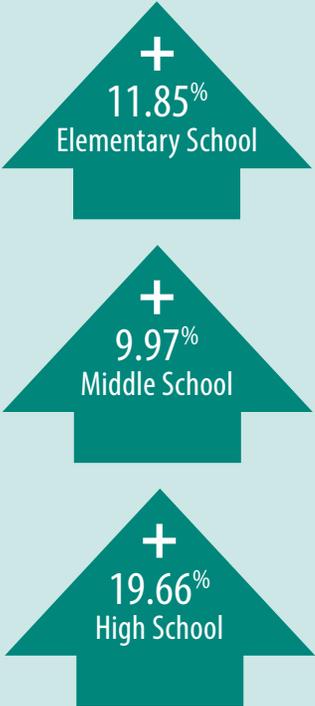
Amherst Elementary School



Table 5. Northwest County Sector School Enrollment, 2008-2013

School Name	2008	2009	2010	2011	2012	2013
Amherst Elementary	710	754	760	737	765	815
Ball Camp Elementary	429	435	437	446	453	495
Bearden Elementary	315	318	322	328	361	386
Cedar Bluff Elementary	583	986	1,270	1,327	1,350	1,423
Cedar Bluff Intermediate (2010 merger with Cedar Bluff Elementary)	538	200	NA	NA	NA	NA
Farragut Intermediate	1,030	1,061	1,110	1,067	1,074	1,079
Farragut Primary	1,003	992	939	975	1,020	951
Hardin Valley Elementary	881	971	1,034	1,033	1,122	1,176
Karns Elementary	1,112	1,087	1,067	1,109	1,129	1,016
Pleasant Ridge Elementary	354	384	367	364	363	351
Pond Gap Elementary	330	349	332	327	344	347
West Hills Elementary	696	692	741	765	760	807
Bearden Middle	1,124	1,065	962	996	996	1,261
Cedar Bluff Middle	536	538	594	594	594	605
Karns Middle	1,211	1,207	1,216	1,228	1,228	1,317
Northwest Middle	772	755	777	824	824	847
Powell Middle	933	925	889	918	918	1,002
Bearden High	1,984	1,884	1,894	1,932	1,896	1,958
Hardin Valley Academy (Opened 2009)	NA	1,207	1,739	1,899	1,872	1,908
Karns High	1,981	1,417	1,273	1,254	1,262	1,317
West High	1,462	1,335	1,287	1,223	1,223	1,311

School Enrollment Trends, 2008-2013



Parks and Greenways

With over 75,000 residents, the Northwest County Sector has the largest population in the county. There are 1,652 acres of park space within the Northwest County Sector. The greatest needs are to develop close-to-home parks that can be reached by biking or walking and to continue to make greenway connections. Proposals for the sector include: developing a recreation center and park with both indoor and outdoor recreation, acquiring land between the middle school and elementary school in Hardin Valley, developing a Northwest District Recreation Center, and possibly expanding the Melton Hill Community Park. Most of Knox County’s suburban area neighborhood parks – those within walking distance of residents – were never created. So, in turn, the 2010 *Knoxville-Knox County Park, Recreation and Greenways Plan* calls for neighborhood parks and greenway extensions to alleviate this situation. Conner Creek, Cate Road, Yount Road, Emory Road Neighborhood, Yarnell Road, Beaver Valley, Lobetti Road, and West Ridge are all targeted locations for neighborhood parks in the park plan. This will relieve the reliance on having to drive to community parks for recreation. In 2015, the Knoxville Regional Transportation Planning Organization and the Great Smoky Mountains Regional Greenway Council conducted a detailed greenway study along the Pellissippi Parkway for the Knox to Oak Ridge Greenway Plan, route alternatives were identified for this study that would traverse the Tennessee Technology Development Corridor in the Northwest County Sector.



Karns Branch Library

Table 6. Northwest County Sector Park Acreage

Park Classification	Acreage
Neighborhood	20.23
Community	287.26
District/Regional	261.35
Private/Quasi Public	135.31
Open Space/Natural Area	121.76
TOTAL ACREAGE	1,651.83
Acres Close-to-home Parks/1,000 population	4.54



Aerial view of the Knox County Sports Park

Public Utilities

Electricity in the Northwest Sector is provided by the Knoxville Utilities Board (KUB) and the Lenoir City Utilities Board (LCUB). KUB provides service to the eastern part of the sector while LCUB provides service to the western part of the sector, which includes a portion of the Town of Farragut. Water and wastewater service are provided to the sector through four different utility companies (see Existing Wastewater Service Map). West Knox Utility District serves the majority of the Northwest County sector. Hallsdale-Powell serves the northeastern section of the sector, and Knoxville Utilities Board (KUB) serves the southeastern section of the sector. First Utilities District provides service to a small area east of Pellissippi Parkway and south of Yarnell Road. It is clear that utility providers service is primarily provided in the areas that are experiencing steady suburban growth. Generally extensions of water and wastewater service extensions are constructed by developers when needed for a project, local utility districts inspect the work and the lines are then turned over to the utility district. When capacity and pollution problems exist, some utilities will seek grant money to address areas of concern, such as the provision of sanitary sewer services to the Ball Camp community, an area that had been heavily reliant on septic systems. The West Knox Utility District completed installation of the sewer network to the Ball Camp community through the use of American Recovery and Reinvestment Act of 2009 (ARRA) grants and a State Revolving Fund loan to help fund the extension of sewer services to reduce fecal contamination in local waterways.

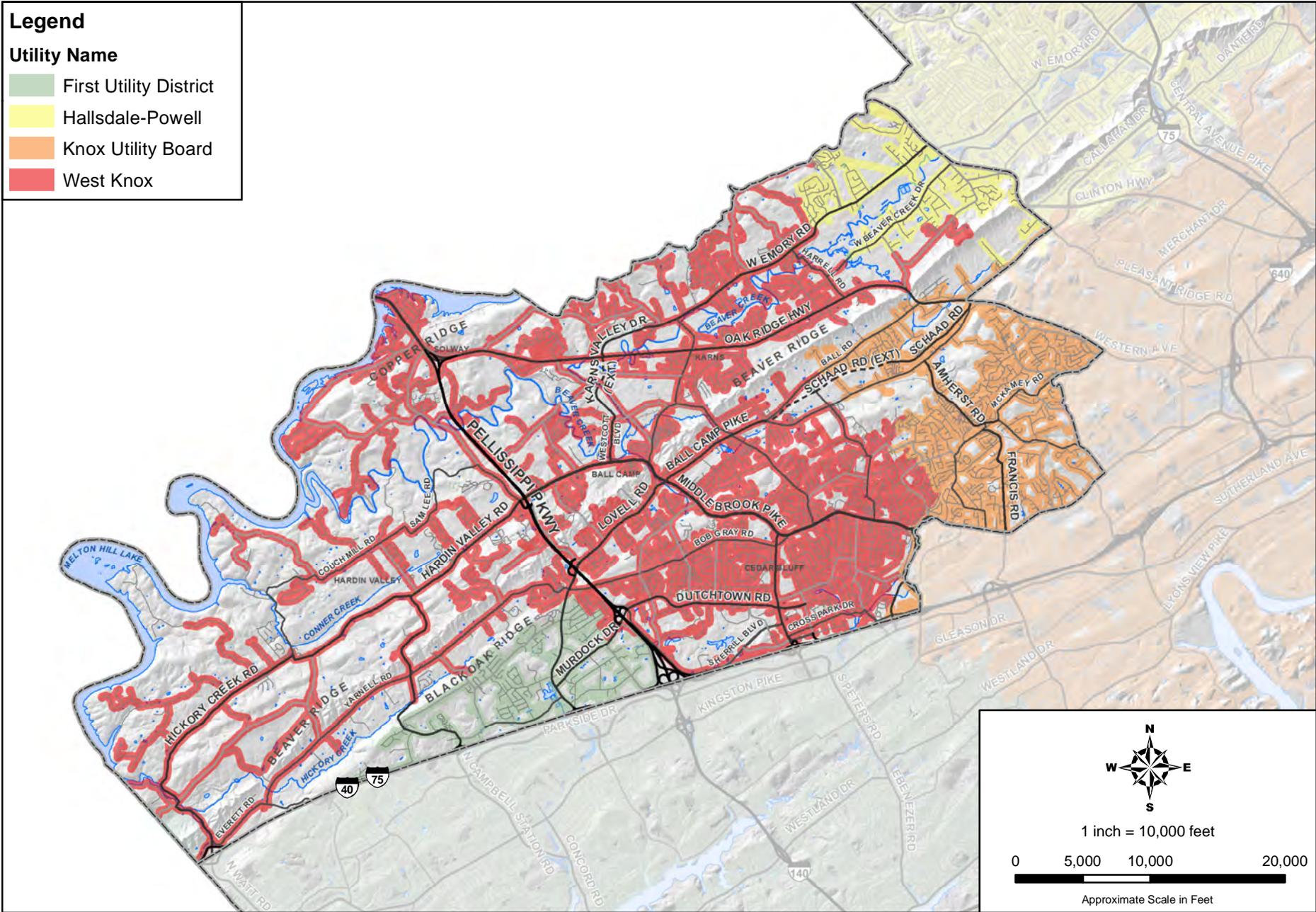


Karns Volunteer Fire Department at 11445 Hardi Valley Road

Public Safety

Police protection in the sector is primarily provided by Knox County Sheriff's Department, except for the areas that are located within the City of Knoxville. The Tennessee Highway Patrol also provides support for police services when needed. Those areas are covered by the Knoxville Police Department. Fire protection services are provided primarily by the Karns Volunteer Fire Department, which consists of both volunteer and paid firefighters and emergency response and life support teams. However, areas outside of the Karns Volunteer Fire Department's Response Area are provided by Rural/Metro Fire Department. Areas of the sector within Knoxville's city limits are provided by the City of Knoxville Fire Department.

Northwest County Sector: Existing Water Service



Transportation

The *Major Road Plan for the City of Knoxville and Knox County* was adopted by MPC, City Council, and County Commission in 2011. It views each road as part of the overall transportation system and identifies its functional classification (such as freeways and arterials roads). 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 policies and goals contained in the adopted sector plans, long range mobility plans, the *Knoxville-Knox County General Plan* and other documents.

Sidewalks

The Northwest County Sector streets with the most sidewalks include Middlebrook Pike, Dutchtown Road, Hardin Valley Road, Cedar Bluff Road, Lovell Road, Francis Road, Beaver Ridge Road, Walker Springs Road, Valley Vista Road, and Schaad Road. However, the vast majority of streets in this sector do not have sidewalks. The presence of sidewalks can be seen on the Sidewalks, Greenways, Transit Routes and Parental Responsibility Zones (PRZ) map.

Currently, there are no mandatory requirements to provide sidewalks with new development. However, the minimum subdivision regulations note that:

For the safety of pedestrians and children at play, the Planning Commission may require that sidewalks be provided for access to schools, recreational facilities, commercial establishments, or any other areas where obvious future pedestrian traffic is anticipated. Whenever sidewalks can be connected to existing walks or proposed walks in adjacent areas, such proposed walks should be designed on that side of the street which will make this connection possible.

NOTE: See 63-10 Sidewalk Location Required. *Knoxville-Knox County Minimum Subdivision Regulations* adopted July 1971 and amended through June 14, 2012).

While currently there are no general requirements for sidewalks MPC often recommends sidewalks in the Parental Responsibility Zones (PRZ), which is an area established by Knox County Schools. The PRZ is an area of one (1) mile from elementary 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 served by school buses. The PRZ is determined by the roadway system from the front door of a school to households that will not have bus service. These areas are typically targeted for sidewalk creation or improvement.

Transit

Knoxville Area Transit (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 circulation, and door-to-door paratransit for persons with disabilities. The KAT fixed route bus system consists of 28 routes with two extending into the Northwest County Sector. Bus route 16 traverses into the Gallaher View Road and Cedar Bluff Road areas, and the 19 bus route runs through the Dowell Springs office park off Middlebrook Pike.

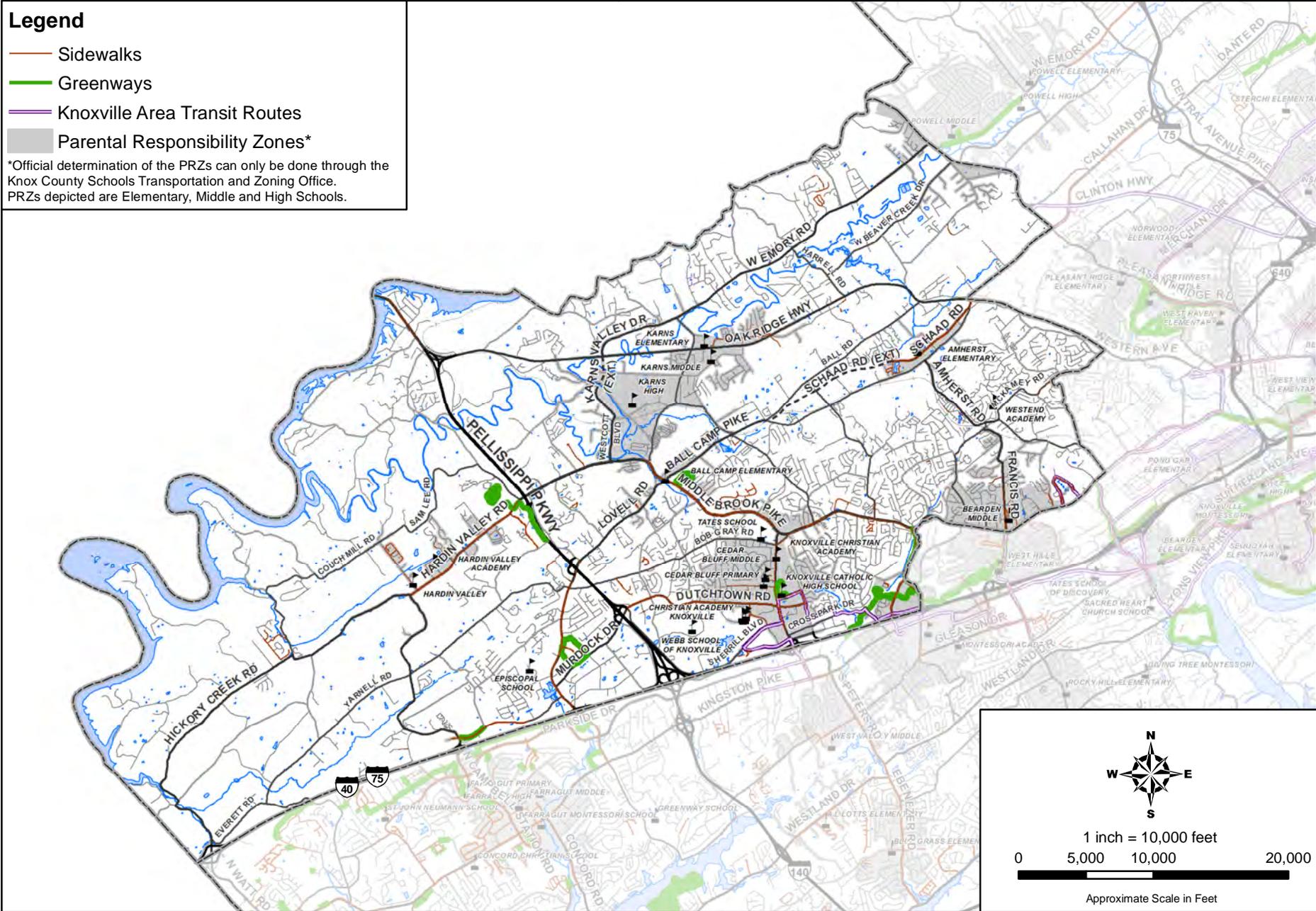


A sidewalk at Yarnell Road connects to Lovell Road.

KAT Bus Route 16



Northwest County Sector: Sidewalks, Greenways, Transit & Parental Responsibility Zones



Environmental Constraints

Topography

The *Knoxville-Knox County Hillside and Ridgetop Protection Plan* was adopted in 2011 and 2012 by the Knoxville City Council and Knox County Commission, respectively. The Hillside and Ridgetop Protection Area (HRPA) is primarily areas with a slope of 15 percent or greater. The intent is to reduce the density of development in the HRPA and encourage/ incentivize the transfer of development intensity to the less environmentally sensitive areas, which helps to reduce the quantity of stormwater runoff and maintain the quality of the area's water resources.

Public safety is also a concern in restricting the intensity 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.

The Northwest County sector is characteristic of the ridge and valley geology that dominates the East Tennessee landscape. Beaver Ridge runs the entire length from east to west in the Northwest County Sector. It is the steepest and most significant elevated landscape feature in the sector, with slopes greater than 40-50 percent. The steepest areas of Beaver Ridge remain largely undeveloped. Copper Ridge and Black Oak Ridge are also prominent steeply sloped features in the sector. These ridges have seen encroachment of more intense land uses such as medium density residential, office and commercial, and industrial. Physical constraints such as steep slope, floodplains, and sink holes limit development activity. The Development Constraints map provides a picture of the land that has the fewest constraints for development. Development is also constrained by lack of infrastructure such as adequate roads and sanitary sewer services, as identified in the Existing Wastewater and Water Service Maps.

Table 7. Hillside and Ridgetop Protection Plan Policies*

<p>LOW DENSITY RESIDENTIAL Density limits within the Hillside and Ridgetop Protection Area (HRPA):</p> <ul style="list-style-type: none"> • 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.
<p>MEDIUM DENSITY RESIDENTIAL AND OFFICE DEVELOPMENT within the HRPA that extends into the 15 to 25 percent slope should only be considered:</p> <ul style="list-style-type: none"> • 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 Knoxville Knox County Metropolitan Planning Commission
<p>COMMERCIAL DEVELOPMENT within the HRPA that extends into the 15 to 25 percent slope:</p> <ul style="list-style-type: none"> • 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
<p>HEIGHT OF NEW BUILDINGS within the HRPA:</p> <ul style="list-style-type: none"> • 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 Knox County Commission, Resolution RZ-12-1-101 on January 23, 2012

Water Quality

There are nine sub-watersheds intersecting the Northwest County sector. These watersheds include Beaver, Clinch River, Conner, Fourth, Grassy, Hickory, Ten Mile, Third, and Turkey. These sub-watersheds are part of the larger watershed of the Upper Tennessee. The health of the sub-watersheds and their respective drainage areas vary across the sector. Leaking septic systems, poor development practices, and agricultural activities are the primary contributors to poor water quality found in the some of the streams. The largest sub-watershed in the Northwest County sector is Beaver Creek (See Watershed and Impaired Streams Map).

A group called the Water Quality Forum was established in 1999, which later became the Beaver Creek Task Force. Initially, the task force conducted an assessment of the Beaver Creek Watershed to inventory resources and to identify problem areas. After a round of public meetings the data was assembled into a report and published in 2003 as *The Beaver Creek Watershed Assessment*. In March 2003, the Beaver Creek Task Force helped create the Beaver Creek Watershed Association,



Ten Mile Creek is considered impaired according to the most recent TDEC water quality status list, also known as the 303(d) list.

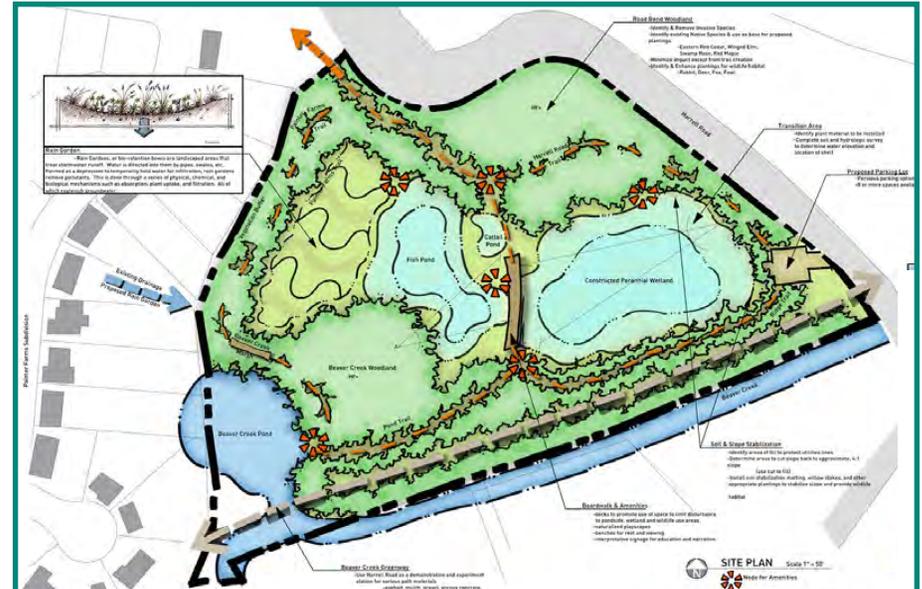
which was formed to protect and enhance the natural and human environment of the Beaver Creek Watershed through the mobilization of public support, building of public awareness, and the promotion of best management practices. In 2006, The Beaver Creek Watershed Green Infrastructure Plan was developed by the University of Tennessee College of Architecture and Design to provide conceptual planning and urban design guidance for future development of the Beaver Creek Watershed. This effort was sponsored by the Beaver Creek Task Force and supported by the Tennessee Valley Authority, Knox County Stormwater Department, and Knox Land and Water Conservancy. This plan looks at ways to develop the Beaver Creek Watershed while protecting its natural resources, utilizing smart growth and conservation concepts. It recommends creating concentrations of development in the most suitable locations for development, leaving areas that are environmentally sensitive for parks and greenways. The developers of the plan never pursued adoption by the Knox County Commission, so it is considered an additional source of information, not a regulatory tool. See Appendix E for more information. The Beaver Creek Watershed Green Infrastructure Plan proposed various concepts to conserve the stream corridor and forested resources, create bike and pedestrian ways and concentrate development at major intersections.

According to the 2014 Tennessee Department of Environment and Conservation (TDEC) 303(d) list (which is a list of impaired streams), Beaver Creek remains impaired due to alterations and degradation of biological functioning of the creek's habitat. Beaver Creek and many other streams in the sector continue to be listed as impaired because of siltation from runoff from construction sites, high velocity of runoff from impervious areas, and the presence of fecal contamination. However, the EPA has approved siltation and pathogen Total Maximum Daily Loads (TMDLs) that address some of the known pollutants.

The pathogen E-coli is a cause of fecal contamination and is often found in several settings such as rural areas with inadequate septic systems and/or large concentrations of livestock and in urban areas that have wastewater collection system failure. Aside from Beaver Creek, the Turkey, Fourth, Third, Ten Mile, and Grassy Creek Watersheds are all contaminated with E-coli. Agricultural runoff and a reliance on septic tanks in more rural areas have influenced the quality of these streams. Land use and water quality are integrally linked. Best management practices for stormwater infiltration to reduce runoff and preventative measures to retain sediment on construction and agricultural sites and vegetated buffers around water bodies can help makes streams safe and usable again for fish and humans.

Flood Prone Areas

FEMA's Flood Insurance Study - Knox County, Tennessee and Incorporated Areas (2007) identified Beaver Creek, Hickory Creek, Connor Creek, Turkey Creek, Ten Mile Creek, Sinking Creek and Plumb Creek as principal flood sources. These waterways are subject to continuing suburban development and hydrology modification, which increase stormwater runoff and limit soil infiltration.

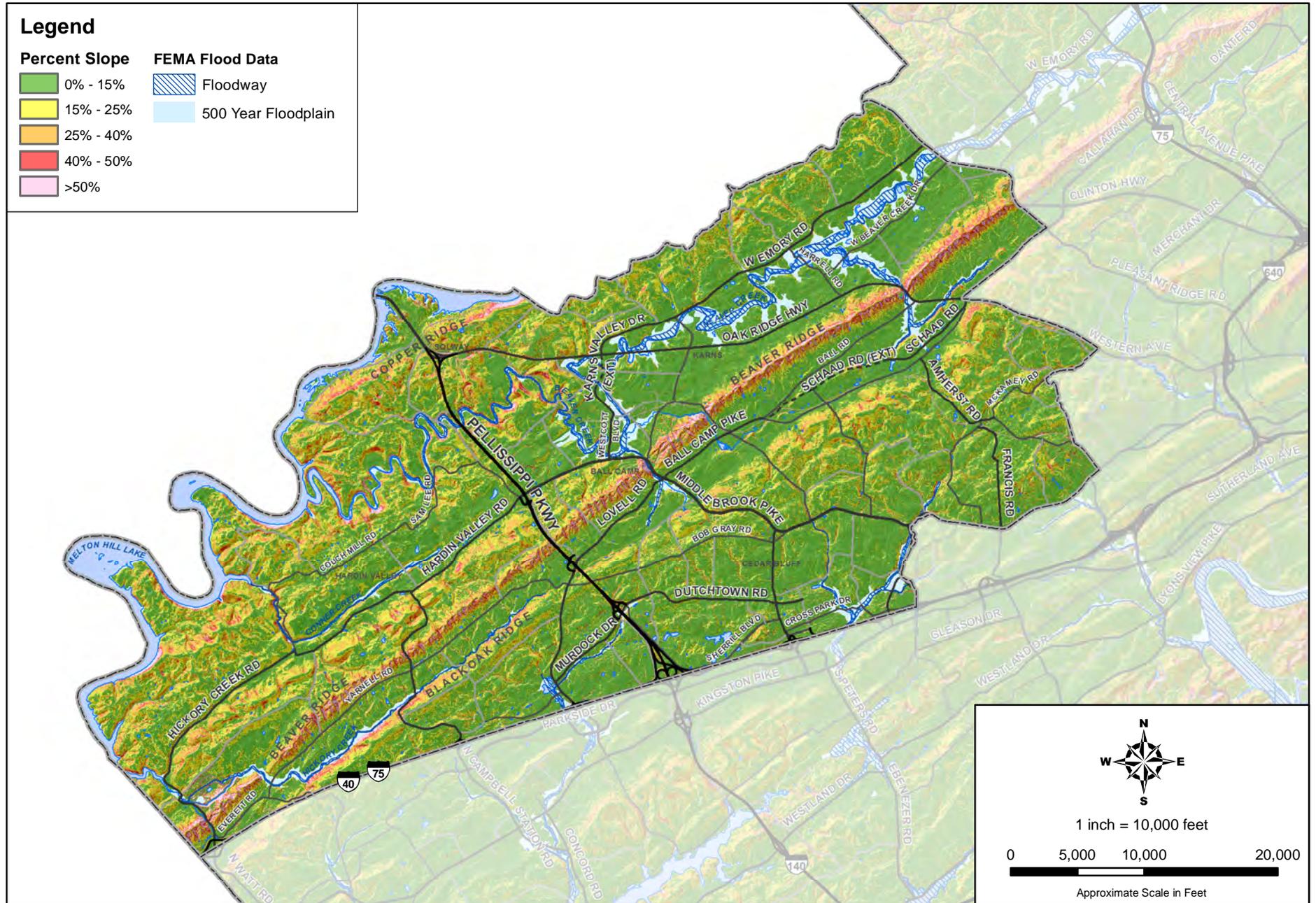


The Harrell Road Stormwater Demonstration Park is a 15-acre site in the Beaver Creek Watershed behind the Pinter Farms subdivision. Once completed this park will provide walking trails and wildlife viewing, as well as serve as a teaching tool for alternative stormwater management techniques, such as constructed wetlands.

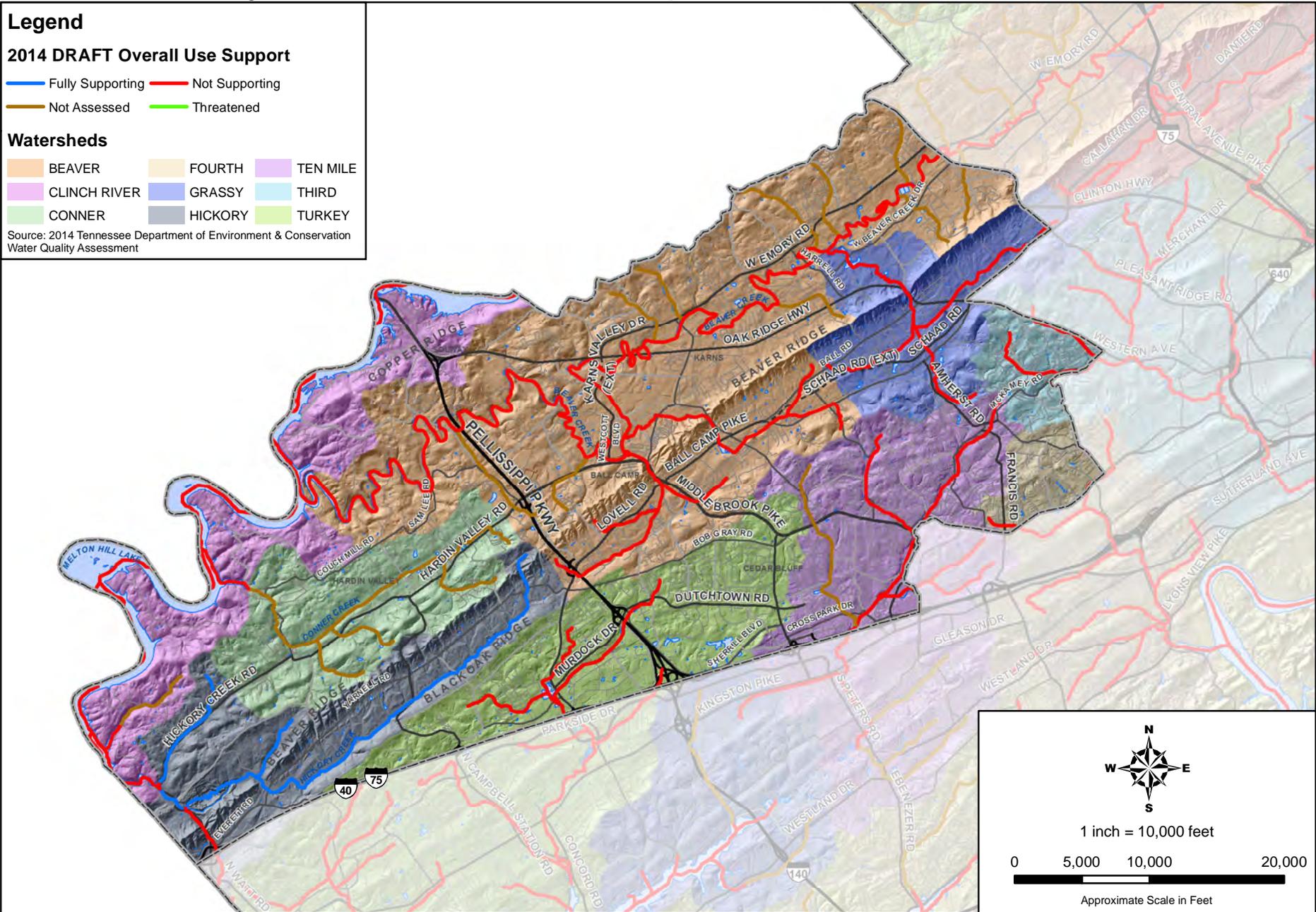
Conceptual drawing courtesy of the East Tennessee Community Design Center



Northwest County Sector: Environmental Constraints



Northwest County Sector: Watersheds and Impaired Streams



Agricultural Soils and Greenbelt Program Parcels

Knox County is home to the Food Policy Council, which was created in 1982 and includes appointees made by the Knoxville and Knox County mayors. Along with the appointed members, there are associate members; together they work to address issues regarding food systems planning such as the cost, availability, distribution, access and health of the local food supply in Knoxville-Knox County. Because current agricultural zoning in the county allows the development of one house per acre, farmland and forested areas are likely to be converted to non-rural land uses. The Northwest County Sector has many rural areas where agricultural activities are occurring, however, it is quickly transitioning from rural uses, such as farms and forested areas, to suburban land uses such as residential subdivisions, commercial centers and office buildings. Currently, over 35% of the existing land use is designated Agricultural/Forestry/Vacant Land. One of the ways to retain and develop the local agricultural economy is by preserving prime soils for farms and farming. Around 37 percent (17,821 acres) of the Northwest County is considered prime farmland or locally important soils (Agricultural Soils and Greenbelt Program Parcels map). Another option for landowners is to use agricultural conservation easements and/or conservation subdivision development to preserve local farmland. The State of Tennessee's Greenbelt Program applies to parcels where the property owner has elected to limit the use of land to agriculture or forest production practices. By doing so, a landowner's property tax is based on the value as farm or forest land and not on market value for residential or commercial purposes. The Greenbelt program does not guarantee permanent farmland protection; owners can opt out and redevelop after paying rollback taxes. There are over 240 parcels, consisting of over 9,000 acres (approximately 20% of the sector) that are part of Tennessee's and Knox County's "greenbelt" program under which property taxes are reduced when the land is used for agricultural, forestry or open space purposes. The prime and locally important agricultural soils are found primarily in the larger valleys of the sector, including Beaver Creek Valley, Hines Valley (Amherst) and Hardin Valley.



Below: A new subdivision under construction off Hickory Creek Road



LAND USE AND DEVELOPMENT TRENDS

Existing Land Use

Existing Land Use refers to the actual use of land based on its observable characteristics. It describes the predominant use that takes place in physical or observable terms (e.g., farming, shopping, manufacturing, vehicular movement, etc.). The existing land use classification definitions ONLY apply to this existing land use section.

Agriculture/Forestry/Vacant:

Includes land that is used for agricultural or forestry purposes. This classification also incorporates vacant land that is not used in conjunction with adjacent parcels, and includes single family residential on ten or more acre lots.

Commercial:

Includes land uses that have sales and services, not including personal services such as real estate and banking services, which are classified under office.

Industrial/Manufacturing:

Includes all manufacturing and assembly uses. This category is used as a catch-all for uses commonly found in industrial areas, excluding wholesale/warehousing.

Table 8. Northwest County Sector Existing Land Use, 2013		
Land Use Categories	Acres	% Share
Agriculture/Forestry/Vacant Land	19,341	35.5
Commercial	722	1.3
Industrial (Manufacturing)	317	0.6
Multifamily Residential	1,532	2.8
Office	1,166	2.1
Private Recreation	266	0.5
Public Parks	611	1.1
Public/Quasi Public Land	1,644	3.0
Right of Way/Open Space	9,955	18.3
Rural Residential	6,118	11.2
Single Family Residential	10,158	18.7
Transportation/Communications/Utilities	308	0.6
Under Construction/Other Uses	113	0.2
Water	1,795	3.3
Wholesale	76	0.1
Mining and Landfills	338	0.6
TOTAL	54,458	100.0

Multifamily:

Includes residential developments commonly associated with development that is denser than single family development, including condominiums, planned unit development, mobile home parks, group quarters, and multifamily housing.

Office:

Typical office uses should be categorized here including those that are primarily office-use in character. The use includes some uses that may sometimes be considered commercial uses, such as banks and real estate offices. Use this category as a catch-all designation for all office-type uses.

Private Recreation:

Includes cultural or natural exhibition, amusement, recreation activities (ex. private golf courses), resorts, and camps.

Public Parks:

Includes public parks, public golf courses, and public nature preserves (ex. Forks of the River Wildlife Management Area, House Mountain State Natural Area and Seven Islands State Birding Park).

Public/Quasi Public Land:

Includes government owned land, religious institutions, public gathering places, educational services, cemeteries, and museums.

Right of Way/Open Space:

Includes public rights of way that have no major structures.

Rural Residential:

Includes residential uses that are located on two (2) to ten (10) acre parcels.

Single Family Residential:

Includes residential uses that are located on two (2) or less acre parcels.

Transportation/Communication/Utilities:

This is a catch-all category comprising transportation, communication, and utilities for essential facilities.

Under Construction/Other Uses:

Includes uses under construction, contract construction, and other uses that cannot be categorized.

Water:

Includes permanently watered areas such as lakes, rivers, large sink holes, and creeks.

Wholesale and Warehousing:

Wholesaling is an intermediate step in the distribution of merchandise. Wholesalers either sell or arrange the purchase of goods to other businesses and normally operate from a warehouse or office. They may

be located in an office building or a warehouse. Unlike retailers, their warehouses and offices have little or no display of merchandise.

Warehousing includes storage facilities for general merchandise, refrigerated goods, and other warehouse products. They provide the facilities to store goods but do not sell the goods they handle. They may also provide a range of services related to the distribution of goods, such as labeling, breaking bulk, inventory control and management, light assembly, order entry and fulfillment, packaging, pick and pack, price marking and ticketing, and transportation arrangement.

Mining and Landfills:

These establishments extract natural mineral solids (coal and ores), liquid minerals (crude petroleum), and gases (natural gas). Mining includes quarrying, well operations, beneficiating (e.g., crushing, screening, washing, and flotation), and other preparations customarily performed at the mine site, or as a part of mining activity. Also classified in this category are landfills and resource recovery facilities.

Existing Land Use Observations

In 2014, Agriculture/Forestry/Vacant Land comprised more than a third of all existing land use in the Northwest County Sector with over 19,300 acres, while single family residential was the second largest with over 10,100 acres, almost a 19 percent share. A significant portion of the agriculture/forestry/vacant land resides in areas with steep slopes, and in the rural area of the sector, predominately in Hardin Valley and areas west of the Pellissippi Parkway.

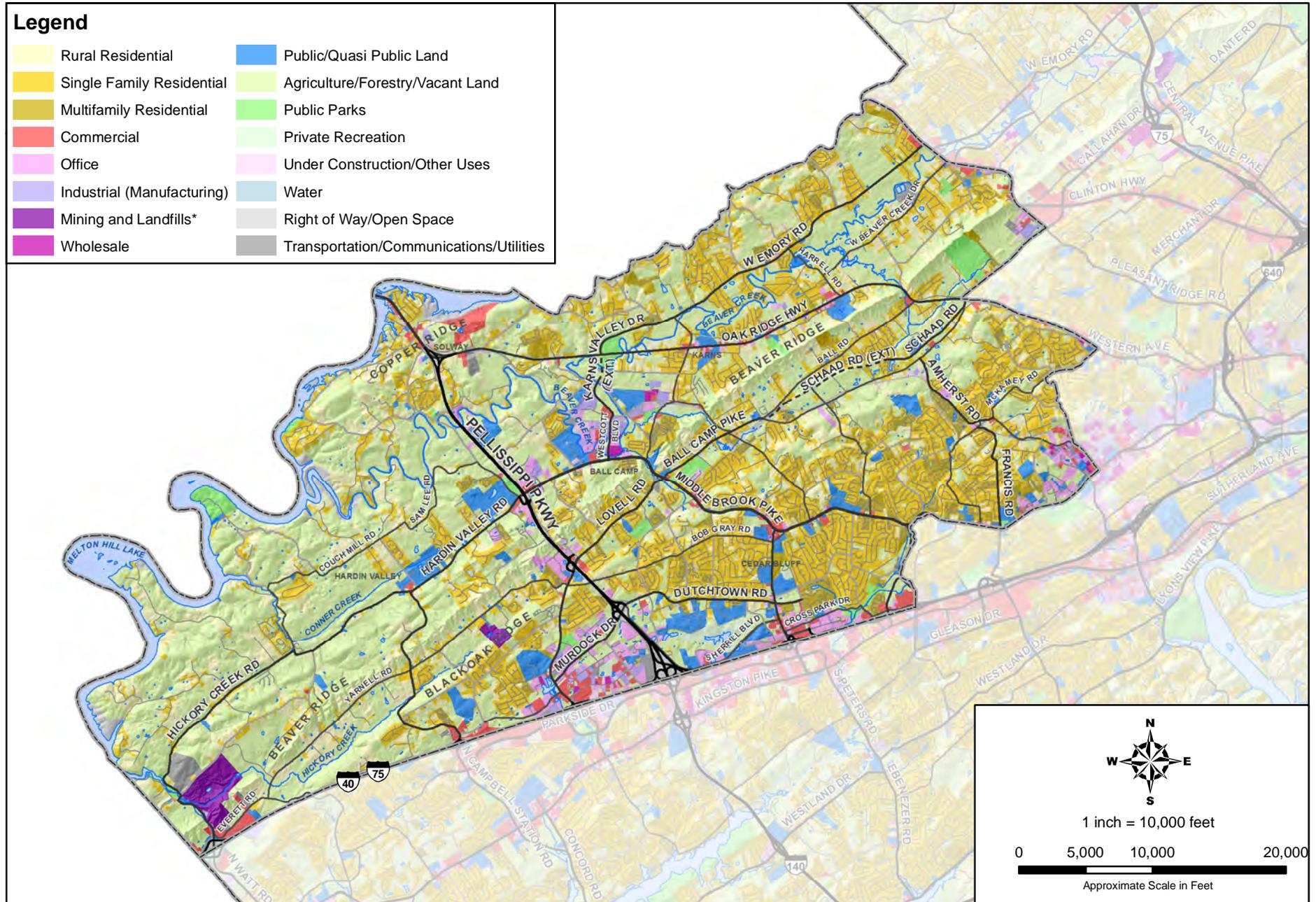
Notable existing land uses in the sector are:

- Hardin Valley Farm (367 acres), which is large rural, agricultural area mostly, west of the Hardin Valley school facilities.
- The Vulcan Materials Dixie Lee Quarry (283 acres), along Everett Road and Buttermilk Road, comprises 84 percent of the Mining and Landfill land use acreage in the sector.
- Rowland Property (243 acres), is an area along the north side Beaver Creek, south of Guinn Road that is largely rural and agricultural.
- WestBridge Business Park (250 acres)
- Hardin Business Park (95 acres)
- City of Knoxville's Municipal Golf Course (158 acres)
- The majority of the multifamily residential land uses within the sector is east of the Pellissippi Parkway, however, there are some instances of multifamily residential west of the Pellissippi Parkway.



A 2012 aerial photograph shows the WestBridge Business Park in the foreground, the Hardin Business Park to the right and Hardin Valley Road in the background.

Northwest County Sector: Existing Land Use



Residential Building Permits

The Northwest County Sector had an increase of 7,029 residential units between 2003 and 2014. This increase in units accounted for over one-fourth of all the residential building permits issued in Knox County (Building Permits for New Construction map), and was over 62 percent of the type of residential permits issued in the Northwest County.

Table 9. Northwest County Sector Residential Building Permits New Construction, 2003-2014			
Residential Type	Number	% Share of NW County Sector	% Share of All Sectors
Detached Dwelling	4,380	62.3	25.4
Multi-Dwelling (apartment/rental duplex)	1,379	19.6	18.4
Mobile Home	318	4.5	20.0
Attached Dwelling (condo/townhouse)	952	13.5	21.8
TOTAL	7,029	100.0	

Non-Residential Building Permits

Almost 19 percent of all commercial building permits issued in Knox County were in the Northwest County Sector from 2003 to 2014. The sector's share of commercial and industrial building permits was second highest among all county sectors: more than 27 percent of commercial permits and over 29 percent of industrial permits were located in the Northwest County Sector. Of all sectors during this time, Northwest County had the second highest activity of non-residential permits. (See the Building Permits for New Construction map for the distribution of these permits within the sector.)

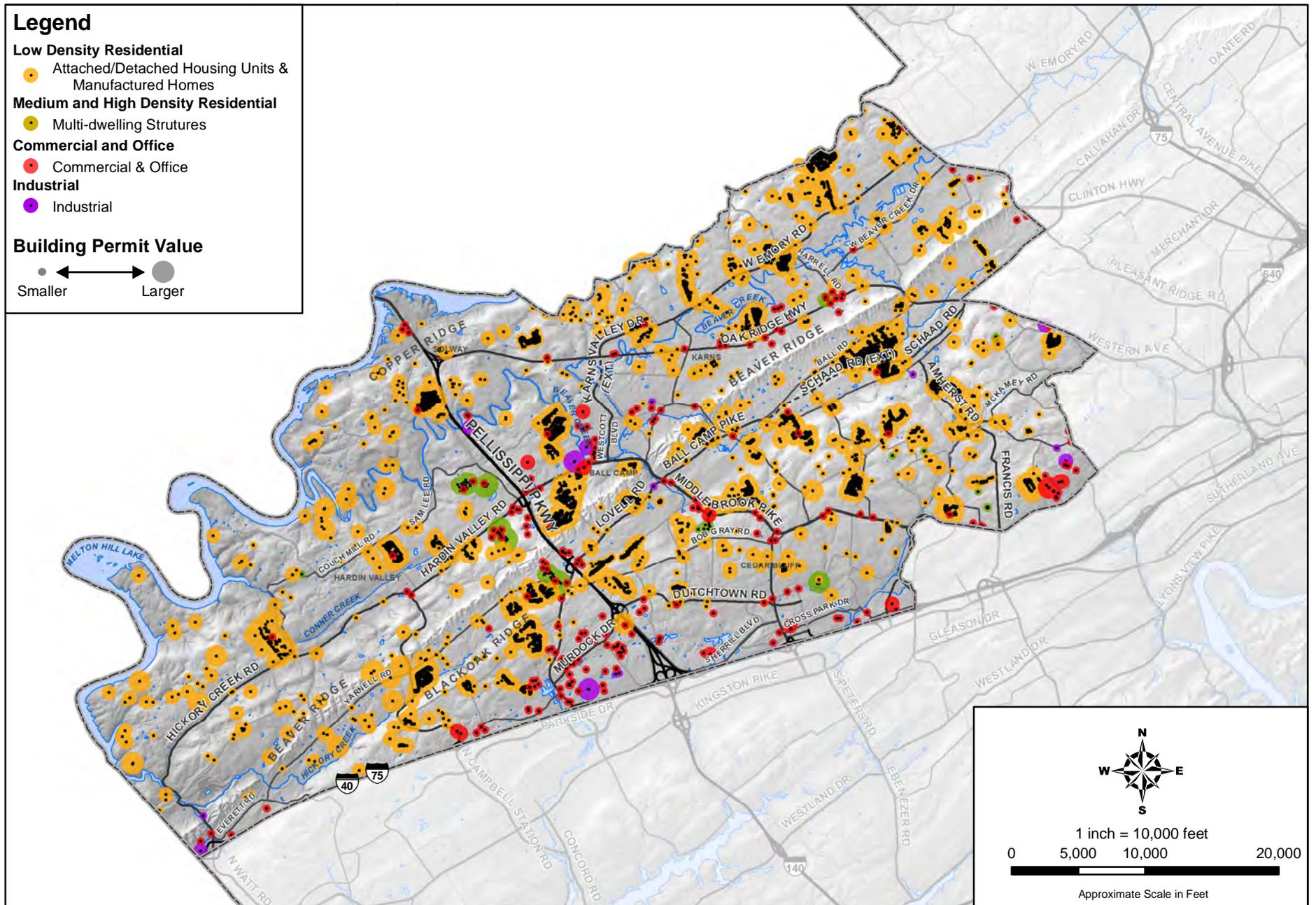
Table 10. Northwest County Sector Non-Residential Building Permits New Construction, 2003-2014		
Non-Residential Type	Number	% Share of All Sectors
Commercial	332	18.9
Industrial	19	12.9
TOTAL	351	

Residential Subdivisions

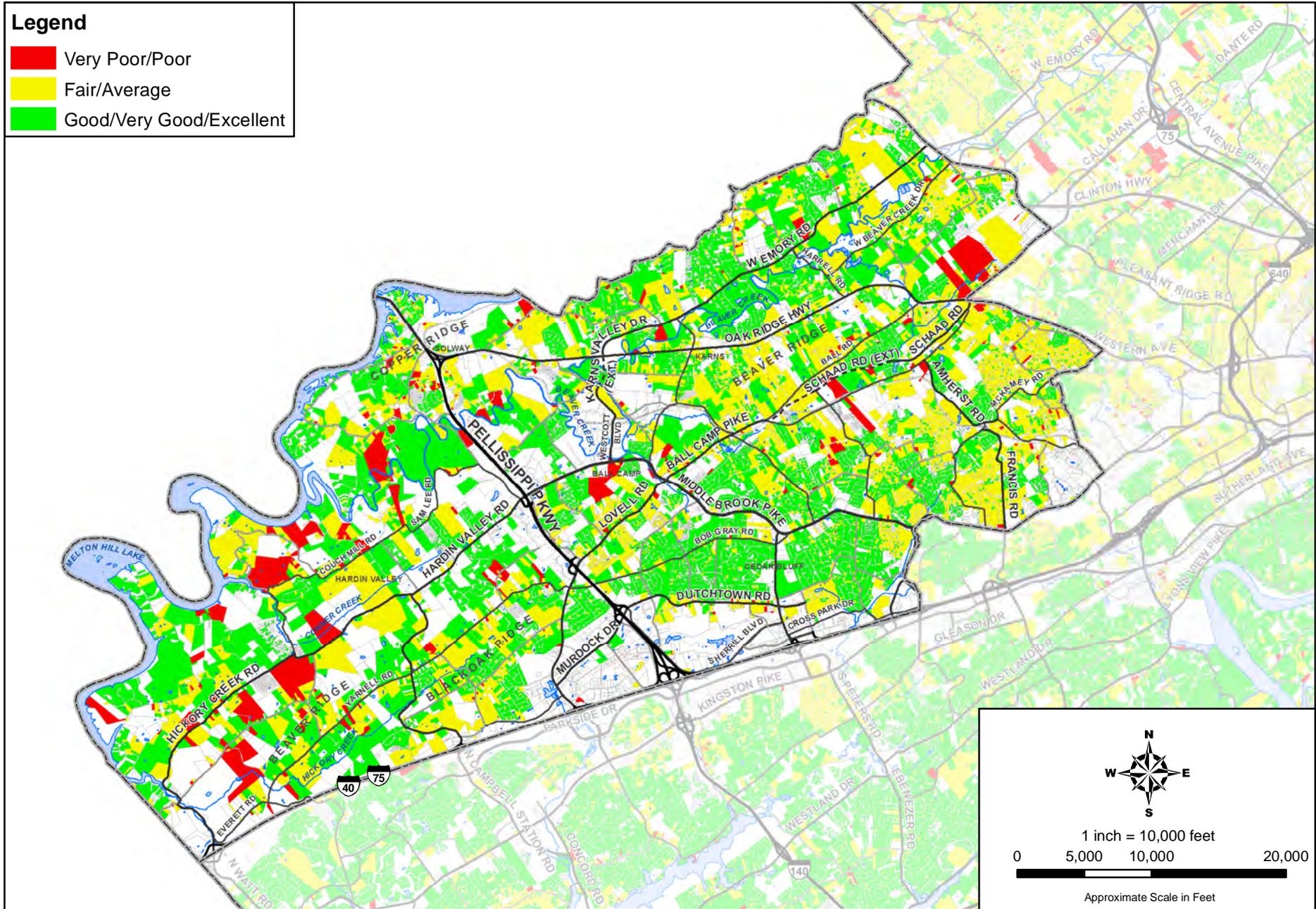
From 2003 to 2013, Northwest County gained 5,140 residential lots distributed among 675 new subdivisions and 4,078.6 acres. The sector also accounted for 30.4 percent of all residential subdivision lots compared to all county sectors during this time.



Northwest County Sector: Building Permits for New Construction (January 2003 - June 2014)



Northwest County Sector: Residential Building Conditions



County Sector	Commercial	% Share	Industrial	% Share
East	60	5.0	30	45.5
North	166	13.8	5	7.6
Northeast	53	4.4	9	13.6
NORTHWEST	332	27.5	19	28.8
South	85	7.0	3	4.5
Southwest	510	42.3	0	0.0
TOTAL	1,206	100.0	66	100.0

Residential Subdivisions	Northwest County Sector	All County Sectors	% Share
Subdivision acreage	4,078.6	15,277.0	26.7
Subdivisions	675	1,834	36.8
Number of Lots	5,140	16,900	30.4

Housing

Since 1990, the total number of residential dwellings in the Northwest County Sector grew 71 percent by adding 14,568 units. The largest net change in growth occurred in detached residential housing units, however, the largest percent of growth was in the attached housing (condos/townhouses) that grew by over 400 percent in the sector from 584 units in 1990 to 3,118 units in 2010. The average number of residential units per month has grown from 170 new units in 1990 to 290 new units in 2010.

Unit Type	1990	2000	Net Change 1990 to 2000	2010	Net Change 2000 to 2010
Detached Dwelling	13,213	17,558	4,345	22,109	4,551
Multi-Dwelling	4,640	5,549	909	7,081	1,532
Mobile Home	1,832	2,212	380	2,654	442
Attached Dwelling	584	1,928	1,344	3,118	1,190
TOTAL	20,269	27,247	6,978	34,962	7,715

Note: 2010 data is based on the U.S. Census Bureau's 2008 to 2012 American Community Survey, 5-Year Estimates.

Building Conditions

The source of the following information is compiled from the 2013 Knox County Tax Assessor's data. MPC tabulated the total number of buildings by building conditions in the sector to show general patterns and percentages regarding existing stock.

Commercial – Industrial – Office Buildings:

The patterns of conditions are depicted on the following "Non Residential Buildings Conditions" map. Not surprisingly, the majority of the sector's commercial, industrial and office buildings in the sector are rated as "fair/average" or "good/very good/excellent." because they are also relatively new (see Non-Residential Building Conditions Map). The office and technology development buildings in the Pellissippi Corridor are generally less than 25 years old and were created via stringent design guidelines. That is also the case for the industrial and warehouse/distribution in West Bridge Business Park and the medical buildings along Sherrill Boulevard. There are fifteen parcels that contain buildings rated as "very poor/poor"

Building Conditions	Number of Structures	Total Square Feet
Unsound/Very Poor/Poor	15	100,309
Fair/Average	571	8,769,025
Good/Very Good/Excellent	481	6,884,696
TOTAL	1,067	15,754,030

Residential Buildings:

The patterns of conditions are depicted on the Residential Building Conditions Map. The majority of residential structures are rated as good/very good/excellent or fair/average. There are 289 residential structures on parcels that are rated unsound/very poor/poor.

Building Conditions	Dwelling Units	Apartment Bldgs	Mobile Homes
Unsound/Very Poor/Poor	222	2	65
Fair/Average	6,331	420	882
Good/Very Good/Excellent	16,025	100	72
TOTAL	22,578	522	1,019

Growth Policy Plan

Approximately 10 percent of the Northwest County Sector is located in the City of Knoxville and about 1 percent is within the Town of Farragut. In 2000, the City of Knoxville and the Town of Farragut designated Urban Growth Boundaries adjacent to their municipal limits within Knox County to accommodate expected growth over the next 20 years and has the right to request annexation within the Urban Growth Boundary under the following guidelines:

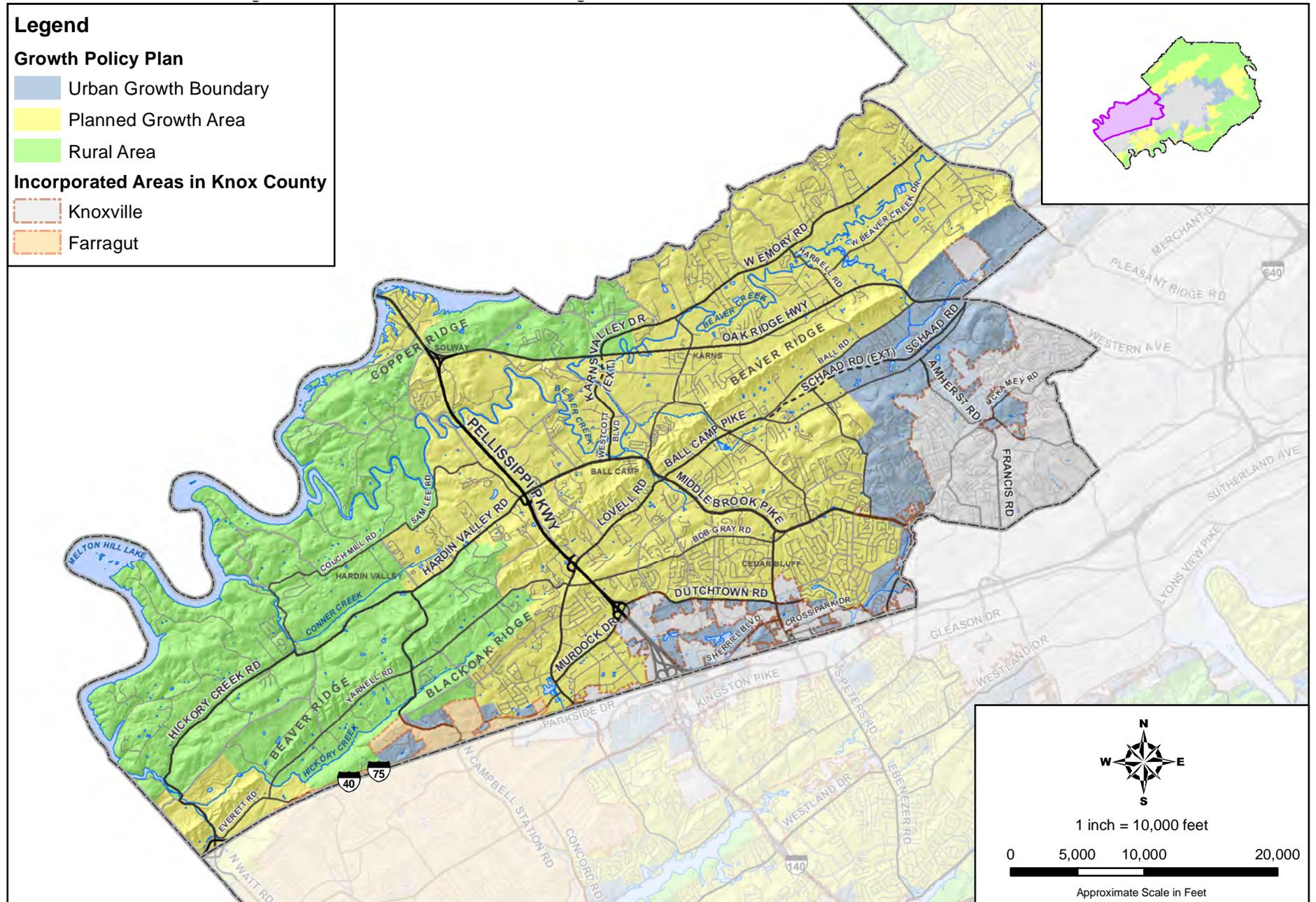
- The city will annex parcels contiguous to an existing city boundary if such parcels are developed or likely to develop in the near future, and
- The city will annex parcels surrounded by at least 50 percent of existing parcels presently in the City if such parcels are developed or likely to develop in the near future.

The remaining unincorporated area in the Northwest County Sector is located in the 20 year Growth Plan. The Planned Growth Area designation accounts for 50 percent and is to foster low to moderate intensities of development, while the remaining 9 percent is within the Urban Growth Boundary for the City of Knoxville and about 1 percent is the Urban Growth Boundary for the Town of Farragut. The remaining 29 percent is of the sector is land to be preserved for farming, recreation and other non-urban uses, this area is referred to as the "Rural Area."

Almost 13 percent of residential building activity between 2003 and 2014 occurred in the Rural Area, while 70 percent occurred in the Planned Growth Area of Knox County.

Permit Type	Urban Growth Farragut %	Urban Growth Knoxville %	Planned Growth %	Rural Area %
Detached Dwelling	1.3	17.7	68.5	12.4
Multi-Dwelling	0	10.2	89.2	0.6
Mobile Home	3.8	5.7	25.8	64.6
Attached Dwelling	0.7	13.0	86.2	0
TOTAL	1.3	16.0	69.6	13.1

Northwest County Sector: Growth Policy Plan



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 growth and conservation in the Northwest County Sector Plan. The land use recommendations and policies put forth in this plan are used by the Metropolitan Planning Commission, City Council and County Commission for decision making with regard to development and land use (including rezonings and plan amendments).

LAND USE PLANNING METHODOLOGY

Six steps were used to develop the proposed land use and are described below.

1. Standard Land Use Classifications Conversion:

In 2007, MPC developed a standard land use classification table to use in all 12 sectors. The table includes descriptions, location criteria, and recommended zoning for each proposed land use classification (See Appendix B). In developing the proposed land use map, the older land use classification used in 2003 was converted to the new standardized land use classification being used in all sector plans.

2. Slope Protection and Stream Protection Areas:

In recent years, MPC started to identify Hillside and Ridgetop Protection Areas and Stream Protection Areas as environmental overlay areas in sector plans. Without an underlying sector plan land use designation, review of rezoning and other applications became difficult and confusing. As a result, Hillside and Ridgetop Protection and Stream Protection Areas have been converted to environmental overlay areas with underlying sector plan land use designations.

3. Knoxville/Knox County 2033 General Plan:

Adopted in 2003, the plan serves as the official 30-year comprehensive plan for Knoxville and Knox County, providing a vision and framework for sector plan development. Several policies set forth in the General Plan are used to guide Northwest County Sector Plan recommendations. An example is General Plan Development Policy #4: Understand the Building Blocks: Neighborhoods, Districts, Corridors and Communities in the Region. The sector plan recommendations emphasize the importance of community facilities, such as schools and parks, as foundations in planning neighborhoods and communities, and the need for car and pedestrian connections between subdivisions to encourage safe access and to reduce car trips around high traffic community facilities, such as schools.

4. Tennessee Technology Corridor Development Authority (TTEDA) Comprehensive Development Plan 2008 Update:

The “Tech Corridor Plan” update in 2008 provided for several newly designated mixed use areas along the corridor and included a proposed land use including the proposed State Route 475 project, which has since been abandoned. The right-of-way land use designations for this area were incorporated into the adjacent mixed use districts. Some mixed use districts were combined as the proposed road project no longer bisected the districts. The former slope and stream protection land use designations within the corridor were converted to environmental overlays and given an underlying land use designation. An additional mixed use area is provided in the corridor along the Solway Road area, recognizing its potential for redevelopment and its role as a gateway into the Tech Corridor and Knox County.

5. Citizen Input:

Through the community input process, citizens voiced concern about and pedestrian safety throughout the sector, but particularly around schools, and the desire for sidewalk and greenway connections, the need for community centers with a mix of uses, the desire for a mix of housing types, loss of farmland, increased traffic volume on roads around schools and at major intersections, and the desire for a new middle school in the Hardin Valley community.

6. 2003 Northwest County Sector Plan and the 2001 Callahan Drive/Schaad Road Corridor Plan:

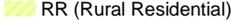
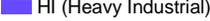
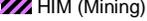
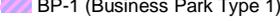
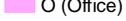
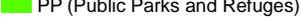
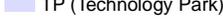
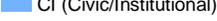
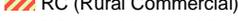
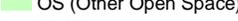
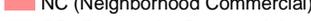
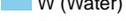
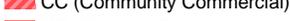
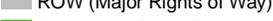
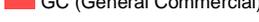
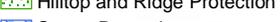
Plan recommendations were evaluated for relevancy, with those determined to be still valid incorporated into this sector plan.

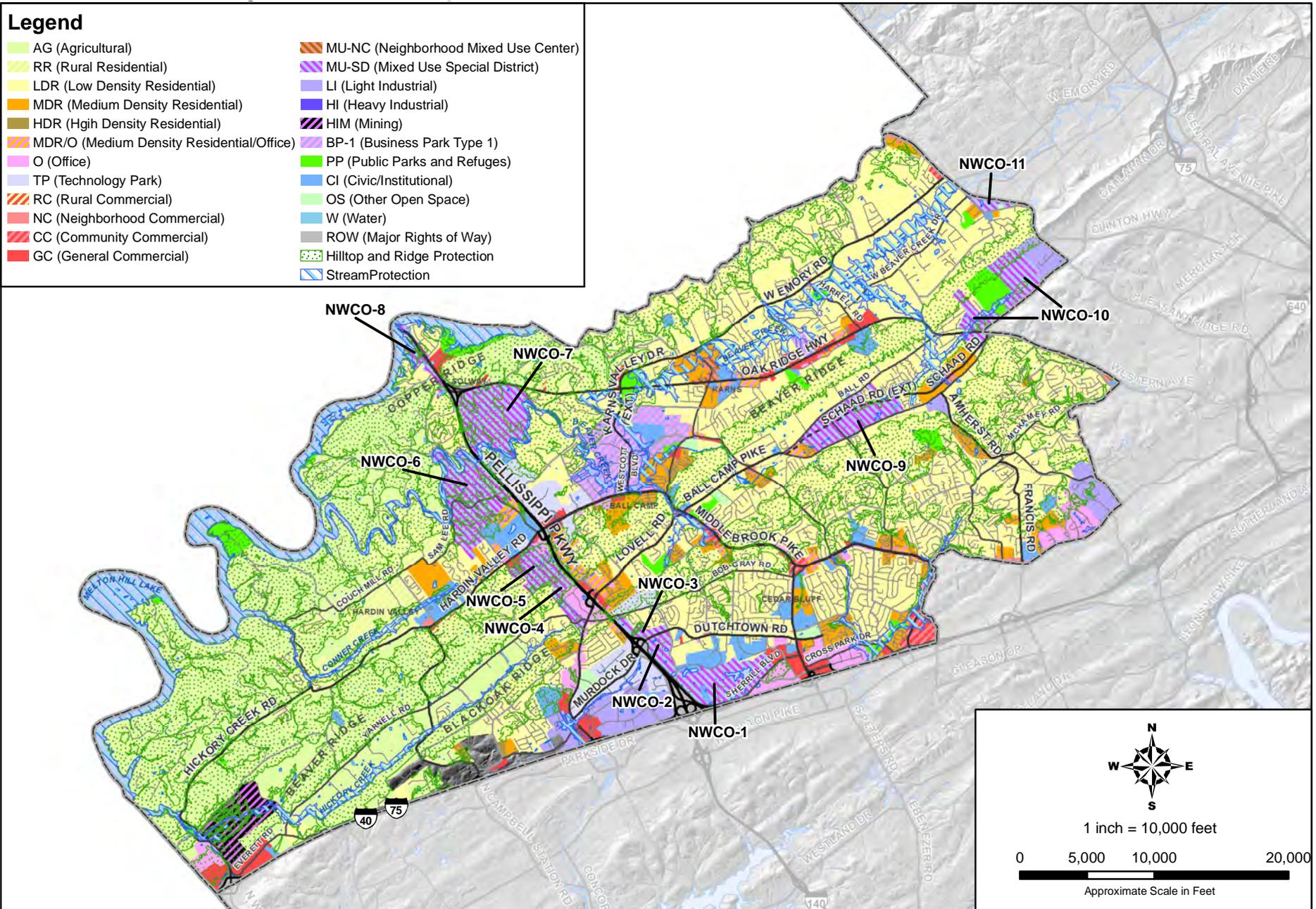
7. Knoxville/Farragut/Knox County Growth Policy Plan:

Adopted in 2001, this plan required city and county governments in Knox County to prepare a 20-year Growth Plan in accordance with the Tennessee growth management law Public Chapter 1101. Growth is guided by three classifications of land designated in the plan which are Rural, Urban Growth, and Planned Growth areas. Each classification is defined by policies that determine the extent development may occur.

Northwest County Sector: Land Use Plan

Legend

 AG (Agricultural)	 MU-NC (Neighborhood Mixed Use Center)
 RR (Rural Residential)	 MU-SD (Mixed Use Special District)
 LDR (Low Density Residential)	 LI (Light Industrial)
 MDR (Medium Density Residential)	 HI (Heavy Industrial)
 HDR (High Density Residential)	 HIM (Mining)
 MDR/O (Medium Density Residential/Office)	 BP-1 (Business Park Type 1)
 O (Office)	 PP (Public Parks and Refuges)
 TP (Technology Park)	 CI (Civic/Institutional)
 RC (Rural Commercial)	 OS (Other Open Space)
 NC (Neighborhood Commercial)	 W (Water)
 CC (Community Commercial)	 ROW (Major Rights of Way)
 GC (General Commercial)	 Hilltop and Ridge Protection
	 StreamProtection



LAND USE CLASSIFICATIONS

Table 17 compares the standardized land use classifications by acreage from 2003 to the existing sector plan and the proposed land use acreage in 2016. Some of the changes in acreage were a result of reassigning approximately 10,300 acres of Slope Protection Area and Stream Protection Area in 2003 to another land use classification in 2016.

<i>Land Use Classification</i>	<i>2003 Sector Plan</i>	<i>Existing Sector Plan¹</i>	<i>2016 Sector Plan</i>
Slope Protection Area ²	2,338	7,946	0
Stream Protection Area ²	8,084	2,320	0
Agricultural and Rural Residential	8,298	7,537	13,888
Low Density Residential	19,067	19,311	20,266
Medium Density Residential	647	825	1,815
Medium Density Residential/Office	0	120	430
High Density Residential	0	3	18
Office	722	739	872
Technology Park	1,376	765	860
General Commercial	980	1,154	715
Neighborhood Commercial	0	7	114
Community Commercial ³	0	0	255
Rural Commercial	0	11	77
Light Industrial	1,980	1,795	850
Heavy Industrial	71	76	5
Mining ³	0	0	396
Business Park Type 1 ³	0	0	765
Civic / Institutional	775	767	1,238
Public Parks and Refuges	901	883	797
Other Open Space	227	195	138
Mixed Use	827	351	0
Mixed Use Neighborhood Center ³	0	0	66
Mixed Use Special District	0	1,134	2,702

1. Changes in acreages of land uses reflect plan amendments that have occurred since the adoption of the 2003 Northwest County Sector Plan.

2. Slope Protection Areas and Stream Protection Areas are now environmental overlay areas with underlying land use designations.

3. This is a new land use designation that was not used in the 2003 sector plan land use designations.

AGRICULTURAL AND RURAL RESIDENTIAL

• Agricultural (AG) and Rural Residential (RR)

This classification includes farmland in the county's Rural area as designated in the Growth Policy Plan. The 2003 sector plan included Agricultural / Rural Residential that no longer exists as one classification, but is now two separate classifications. Rural residential (RR) is very low density residential and conservation/cluster housing subdivisions as typical land uses, also in the county's Rural area. Most of the re-designations from Low Density Residential (LDR) to Rural Residential (RR) occurred to be in compliance with the Growth Policy Plan.

RESIDENTIAL

• Low Density Residential (LDR)

This classification includes primarily residential uses at densities of less than six dwelling units per acre (city) and less than five dwelling units per acre (county).

• Medium Density Residential (MDR)

This classification includes primarily residential uses at densities from 6 to 24 dwelling units per acre (city) and 5-12 dwelling units (county).

• High Density Residential (HDR)

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

• Medium Density Residential (MDR/Office)

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.

OFFICE AND BUSINESS/TECHNOLOGY

• Office (O)

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

• 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.

RETAIL AND RELATED SERVICES

• 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.

• 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.

• Community Commercial (CC)

This category allows retail and service oriented development, including shops, restaurants, and "big box" retail stores; typical service areas include 20,000 to 30,000 residents. The CC category was not available for use when the 2003 sector plan was produced.

• General Commercial (GC)

This category includes previously developed strip commercial corridors providing a wide range of retail and service-oriented uses. Such a land use classification and related zoning should not be extended because of 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.

MIXED USE AND SPECIAL DISTRICTS

• Neighborhood Center Mixed Use (MU-NC)

These are the least intense of the proposed mixed use districts. Residential densities of 5 to 12 dwelling units/

acre 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. The MU-NC category was not available for use when the 2003 sector plan was produced.

• **Mixed Use Special District (MU-SD)**

These districts may be specifically designated to address issues such as urban design, pedestrian and transit-oriented development and vertical mixed use. Such area may include older portions of the city and county where redevelopment and/or preservation programs are needed to revitalization purposes. In this sector, the majority of the proposed Mixed Use Special Districts fall within the Pellissippi Technology Corridor. The MU-SD category was not available for use when the 2003 sector plan was produced, however, it was added to this sector when the Tennessee Technology Corridor Comprehensive Development Plan was updated in 2008.

INDUSTRIAL AND WAREHOUSE/DISTRIBUTION

• **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.

• **Business Park Type 1 (BP-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.

PUBLIC, PARK INSTITUTIONAL, OTHER OPEN SPACE AND ENVIRONMENTAL PROTECTION

• **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.

• **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.

• **Other Open Space (OS)**

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

Coordination between the Northwest County Sector Plan and the Tennessee Technology Corridor Development Authority's Comprehensive Development Plan is important to address the Pellissippi Parkway's Technology Corridor District, as well as between the Northwest County and Northwest City sector plan to address the Callahan and Schaad Road districts, detailed in the following special land use recommendations.

SPECIAL LAND USE RECOMMENDATIONS

The following are special land use recommendations that deal with a specific area or location in the Northwest County Sector.

TTCDA MIXED USE SPECIAL DISTRICTS

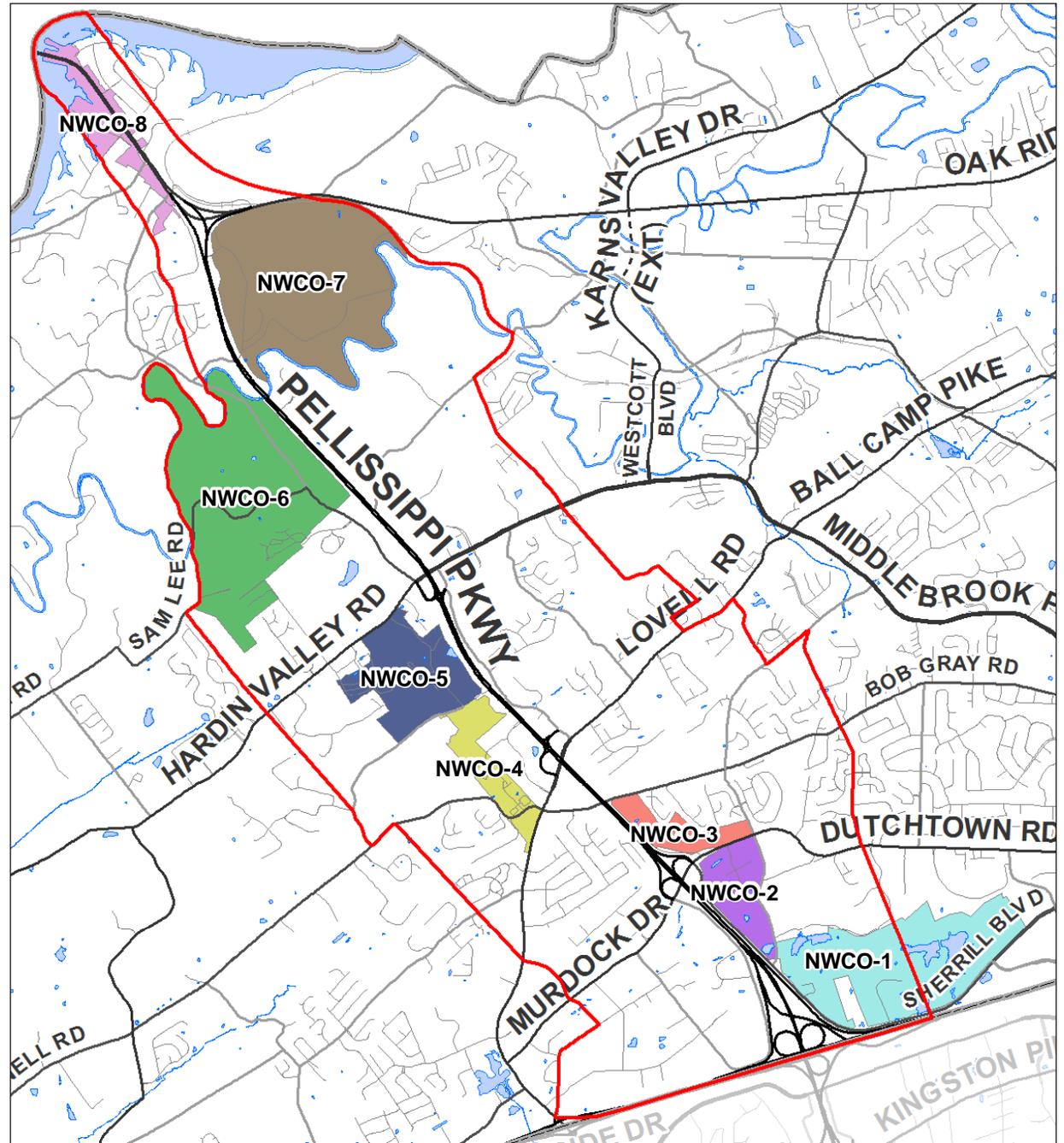
NWCO-1 through NWCO-8

These Mixed Use Special Districts were originally proposed as part of the *Tennessee Technology Corridor Development Authority Comprehensive Development Plan 2008 Update*. All of these districts inside of the Technology Corridor reference the *Tennessee Technology Corridor Development Authority Design Guidelines*, excluding only low density residential and agricultural uses. As part of 2016 Northwest County Sector Plan update these districts have been slightly adjusted to reflect development patterns that occurred since 2008, including the abandonment of the State Route 475 project, that would have traversed a portion of the “Tech Corridor” north of the Hardin Valley interchange.

The proposed land uses and boundaries of the districts remain largely the same, except for in the Dead Horse Lake Mixed Use Special District (MU-NWCO1) and Saddlebrook Mixed Use Special District (MU-NWCO4).

The boundaries of the Dead Horse Lake Mixed Use Special District (MU-NWCO1) changed to include the Dead Horse Lake Golf Course which falls mostly outside of the boundaries of the Tech Corridor, in this area TTCDA Guidelines should be followed as part of any MPC reviews to retain a consistent aesthetic across the site when redevelopment occurs. The Saddlebrook Mixed Use Special District (MU-NWCO4), which noted that a shopping center was to be developed within the district, has since been largely built out as multifamily residential and office uses, leaving little vacant land for retail uses.

Areas identified as Slope Protection and Stream Protection areas within the Tech Corridor, previously did not have an underlying land use classification, as throughout the rest of the sector’s land use plan these areas have been assigned an underlying land use classification with slope and stream protection converted to environmental overlays.



The Mixed Use Special Districts in the Technology Corridor were originally proposed as part of the TTCDA’s Comprehensive Development Plan 2008 Update. The only new proposed mixed use district in the corridor is NWCO-8 in the Solway area.

Mixed Use Special District NWCO-1

DEAD HORSE LAKE

Since the *TTCDA Comprehensive Development Plan 2008 Update* this area has experienced new development including the construction of a church and the addition of a one story medical office. The district is extended to include the Dead Horse Lake Golf Course, outside of the boundaries of the Tech Corridor. For the area within the district outside of the Tech Corridor, MPC should use the TTCDA design guidelines for any reviews of applications for this area for consistency within the district, since it would be outside of the purview of the TTCDA board.

Recommended Uses

There is potential for this area to continue to develop as a mixed use district, which includes office and medium density residential to high density residential, if transit is provided. Retail uses, such as restaurants, which are ancillary but support the mix of uses, may also be appropriate. Offices and institutional uses should be oriented to Sherrill Boulevard. Medium to high density residential and office uses should be developed within the interior of the district (toward the lake).

- Community Mixed Use Center (MU-CC)
- Technology Park (TP)
- Office (O)
- Medium Density Residential / Office (MDR/O)
- High Density Residential (HDR) may also be considered if transit services serve this district.

Site Design Guidelines

- Reference the *Tennessee Technology Corridor Development Authority Design Guidelines* for all development within the district (inside the boundaries of the Tennessee Technology Corridor), excluding only low density residential and agricultural uses.
- Street trees should be planted within medians, sidewalk planting strips and wells.

Transportation Improvements

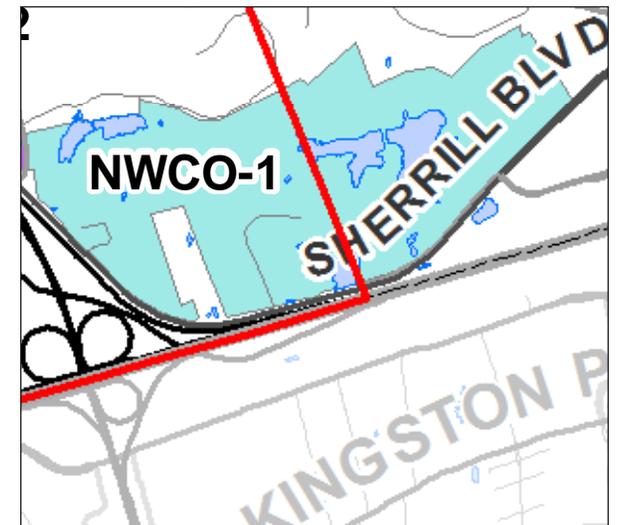
- Direct connections from individual sites to Sherrill Boulevard should be minimized to preserve this street as a traffic mover between the Cedar Bluff commercial/Park West Hospital area and points north. Instead, a network of internal roadway and pedestrian connections between tracts should be developed to improve continuity.

- Transit service should be extended into district, especially since a bus route currently travels down a portion of Sherrill Boulevard on the southernmost boundary of the district.
- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access to Pellissippi Parkway (SR 162) should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.

Community Facilities

- The proposed Knox to Oak Ridge Greenway connects from the Ten Mile Greenway through this district, and would be an amenity for businesses, schools and residents. Easements for this greenway should be sought through this district.
- An open space network and/or vegetated buffer, surrounding the lake should be conserved as development occurs.

The Contemporary Women's Health at 10031 Sherrill Boulevard was constructed in 2015.



Mixed Use Special District NWCO-2

CENTURY PARK

This area should continue to be developed as a mixed use district, allowing office and technology-based development. Since 2008, development in Century Park has consisted primarily of office development. Retail uses, other than a hotel, should be ancillary supportive uses to the office and technology based uses.

Recommended Uses

Development should be composed primarily of a mix of uses, focusing on office development and retail uses that serve the office park and adjacent uses. Vertical mixed use buildings, such as offices above restaurants and related uses, would be appropriate, especially along Sherrill Boulevard to take advantage of the exposure to Pellissippi Parkway. Office uses (at least on the upper floors should be closest to Sherrill Boulevard). Retail that serves the surrounding offices should be concentrated along the south side of Dutchtown Road or as a ground floor use in a multi-story building.

- Community Mixed Use Center (MU-CC)
- Technology Park (TP)
- Office (O)

Site Design Guidelines

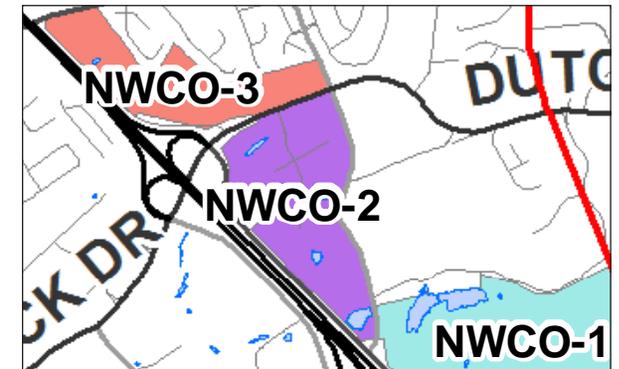
- Reference the *Tennessee Technology Corridor Development Authority Design Guidelines* for all development within the district (inside the boundaries of the Tennessee Technology Corridor), excluding only low density residential and agricultural uses.
- All components of future development should have interparcel access, with more than one means to reach adjoining thoroughfares
- Street trees should be planted within medians, sidewalk planting strips and wells.

Transportation Improvements

- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access to Pellissippi Parkway (SR 162) should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.

Community Facilities

- The proposed Knox to Oak Ridge Greenway connects from the Ten Mile Greenway through this district, along Mabry Hood Road and Dutchtown Road, and would be an amenity for offices, schools, restaurants, and residents in the area. Easements for this greenway should be sought through this district.



A Century Park office building constructed in 2005.



A Century Park office building constructed in 2014.



Office building on Sherrill Boulevard at Mabry Hood Road



Mixed Use Special District NWCO-3

DUTCHTOWN ROAD/LOVELL ROAD

This area can take advantage of parkway frontage for office and technology park uses if a linkage can be established between Dutchtown Road and Lovell Road using the alignment of Sanctuary Lane.

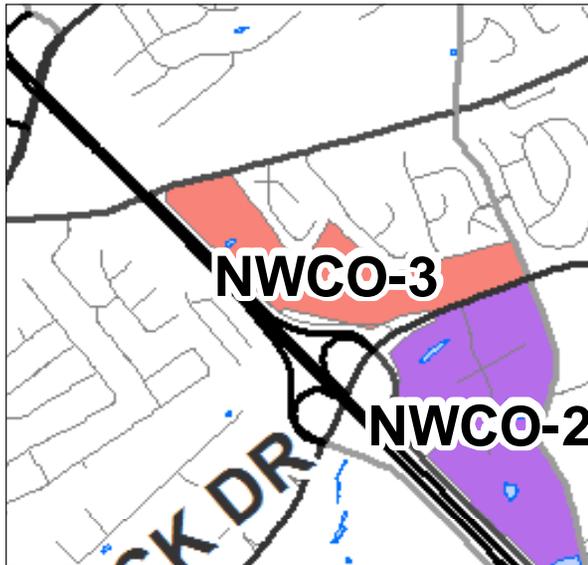
Recommended Uses

A mix of office and technology park uses would be appropriate at this location.

- Technology Park (TP)
- Office (O)

Site Design Guidelines

- Building height should be limited to a level that is complementary with the adjacent residential neighborhoods.
- Orientation of structures should be toward Pellissippi Parkway (SR 162).
- Reference the *Tennessee Technology Corridor Development Authority Design Guidelines* for all development within the district (inside the boundaries of the Tennessee Technology Corridor), excluding only low density residential and agricultural uses.
- Street trees should be planted within medians, sidewalk planting strips and wells.

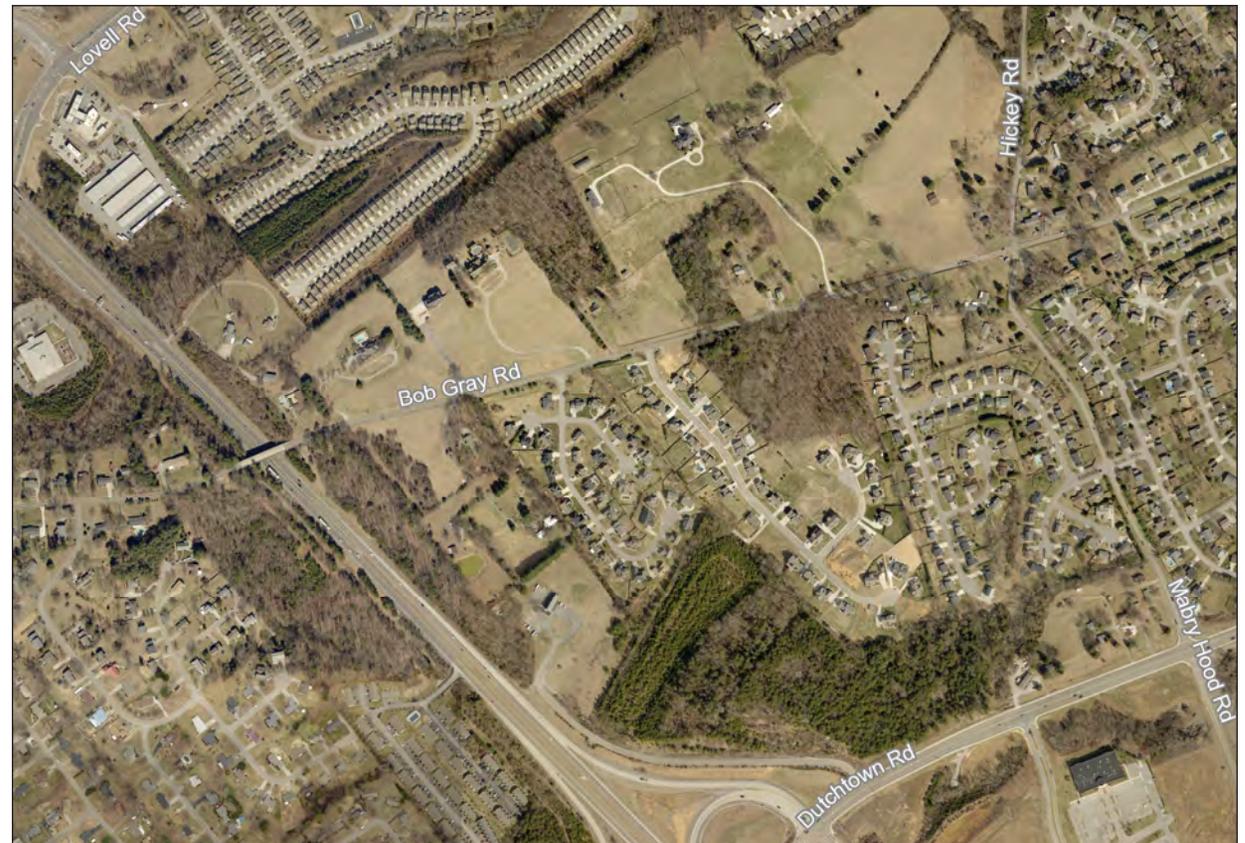


Transportation Improvements

- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access to Pellissippi Parkway (SR 162) should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.
- Right-of-way dedication for a north-south connector road from Dutchtown Road to Lovell Road should be considered as new development is proposed within the district.
- All components of future development have interparcel access, with more than one means to reach adjoining thoroughfares.

Community Facilities

- The proposed Knox to Oak Ridge Greenway connects from the Ten Mile Greenway through this district, along Dutchtown Road and Sanctuary Lane/Pellissippi Parkway (SR 162), and would be an amenity for offices and residents in the area. Easements for this greenway should be sought through this district.



Mixed Use Special District NWCO-4

SADDLEBROOK

This area is predominately developed as medium density residential development and office buildings on the southern flatter side of the site, however, the northern portion of site, abutting Carmichael Road is dominated by the steep slopes of Beaver Ridge and falls mostly within the Hillside and Ridgetop Protection Area. This approximately 37 acre area of undeveloped land consists primarily of slopes greater than 25 percent to 50 percent and greater.

Recommended Uses

Most of the remaining undeveloped portion of the district is on the north end of the site abutting Carmichael Road. This area is characterized by steep forested slopes from 25 to 50 percent and greater. Some of the steepest forested areas of the site should be preserved during development.

The southern flatter portion of the site should be limited to:

- Technology Park (TP)
- Office (O)
- Medium Density Residential / Office (MDR/O)
- Community Mixed Use Center (MU-CC)

The northern portion of the site adjacent to Carmichael Road (including 1,000 feet to the south of the Carmichael Road frontage) should be limited to:

- Office (O) with a recommendation for all new development to go through a Use on Review process due to the steep topography of the site

Site Design Guidelines

- The northern portion of the site within the Hillside and Ridgetop Protection Area, adjacent to Carmichael Road, should be limited to small scale office development with minimal need for large swaths of clearing and grading. Recommendations for building height, clearing, grading, density, revegetation and other principles of the Hillside and Ridgetop Protection Plan should be followed.
- Reference the *Tennessee Technology Corridor Development Authority Design Guidelines* for all development within the district (inside the boundaries of the Tennessee Technology Corridor), excluding only low density residential and agricultural uses.
- Street trees should be planted within medians, sidewalk planting strips and wells.

Transportation Improvements

- A north/south road connection should be studied from Lovell Road/Yarnell Road to Hardin Valley Road to provide an additional connection for movement of

neighborhood traffic without having to access Pellissippi Parkway (SR 162).

- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access to Pellissippi Parkway (SR 162) should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.
- All components of future development should have interparcel access, with more than one means to reach adjoining thoroughfares.

Community Facilities

- The proposed Knox to Oak Ridge Greenway connects from the Ten Mile Greenway through this district, along Pellissippi Parkway (SR 162), and would be an amenity for offices and residents in the area. Easements for this greenway should be sought through this district.
- Pedestrian connections for residents of Lovell Crossing to the existing pathways of the CenterPoint Business Park should also be pursued in collaboration between Knox County and the property owners and residents of the area, as well as providing a connection from the pathways in CenterPoint to the proposed greenway.

Lovell Crossing apartments, 2008



Mixed Use Special District NWCO-5

CARMICHAEL ROAD/HARDIN VALLEY

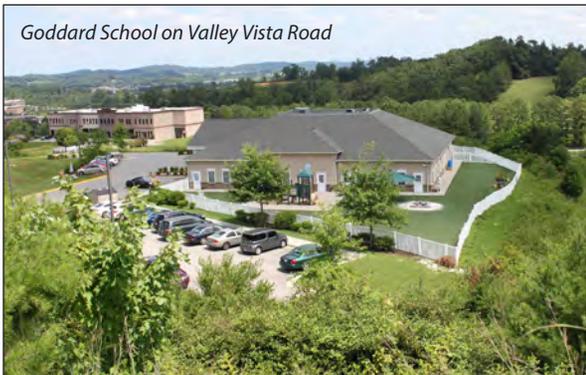
Since 2008, multi-dwelling residential has dominated the western side of the new Valley Vista Road and along Greenland Way. Retail and small office have been developed along the area fronting Hardin Valley. A couple of private educational facilities have been integrated into the district, including The Goddard School and King University.

Recommended Uses

A mix of uses should be considered for the remaining undeveloped portions of the site, allowing office, high technology, retail (especially that which serves developed uses within the area). A mix of uses within the district overall is ideal. Attracting vertical mixed use buildings, such as offices above restaurants or other uses serving the district and immediate adjacent residential areas, should be pursued.



Apartments on Valley Vista Road



Goddard School on Valley Vista Road

Between Pellissippi Parkway (SR 162) and Valley Vista Road:

- Technology Park (TP)
- Office (O)

West side of Valley Vista Road:

- Technology Park (TP)
- Office (O)
- Medium Density Residential / Office (MDR/O)
- Mixed Use Neighborhood Center (MU-NC); also including a zoning recommendation for Planned Commercial (PC); to accommodate vertical mixed use within this district

Site Design Guidelines

- Recommendations for building height, clearing, grading, density, revegetation and other principles of the *Knoxville Knox County Hillside and Ridgetop Protection Plan* should be followed.
- Reference the *Tennessee Technology Corridor Development Authority Design Guidelines* for all development within the district (inside the boundaries of the Tennessee Technology Corridor), excluding only low density residential and agricultural uses.
- Street trees should be planted within medians, sidewalk planting strips and wells.

Transportation Improvements

- Sidewalks and pathways from developments to the Pellissippi Greenway should be conditioned and right-of-way or easements sought for these connections.
- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.
- No direct vehicular access to Pellissippi Parkway (SR 162) should be allowed.
- All components of future development should have interparcel access, with more than one means to reach adjoining thoroughfares.

Community Facilities

- The proposed Knox to Oak Ridge Greenway connects to the Pellissippi Greenway through this district, along Pellissippi Parkway (SR 162), and would be an amenity for offices and residents in the area. Sidewalk and pathway connections to the existing greenway from development in this district should be created for new and existing development.



Development along Greenland Way and Award Winning Way

Mixed Use Special District NWCO-6

PELLISSIPPI STATE COMMUNITY COLLEGE/ BEAVER CREEK

This area is located between the north edge of the Pellissippi State campus and Sam Lee Road. It is well positioned to have office or technology park uses, particularly with the “corporate visibility” being located near Pellissippi Parkway (SR 162) and its proximity to the Community College and the proposed Knox to Oak Ridge Greenway. In the 2008 *TTCCA Comprehensive Plan Update* this area was comprised to two separate MU-SDs separated by the proposed State Route 475, since this project has been abandoned, these mixed use districts have been combined. The district has remained largely agricultural in character, however, apartments have developed in the area in the last 6 years.

Recommended Uses

This district is approximately 520 acres in size and would ideally be well-suited for a master plan for phased development including a mix of uses. Office, technology park, clustered housing, and neighborhood commercial uses that are primarily serving the office and technology based uses within the district, as well as the residential components of the district and those adjacent to the district. Clustered housing is also considered to be a logical use, providing a residential location near Pellissippi State, Hardin Valley schools and employment opportunities in the area.

Between Pellissippi Parkway (SR 162) and Solway Road:

- Office (O)
- Technology Park (TP)

Solway Road and Sam Lee Road intersection:

- Technology Park (TP)
- Office (O)
- Low Density Residential (LDR) and Medium Density Residential (MDR)
- Mixed Use Neighborhood Center (MU-NC); also including consideration of Planned Commercial (PC)

North of Sam Lee Road, west of Solway Road and northwest of Greystone Summit Apartments:

- Technology Park (TP)
- Office (O)
- Medium Density/Office (MDR/O)
- Low Density Residential (LDR)

Site Design Guidelines

- Recommendations for building height, clearing, grading, density, revegetation and other principles of the *Knoxville Knox County Hillside and Ridgeway Protection Plan* should be followed.
- The vegetated steep slopes and floodplains adjacent to Beaver Creek should be conserved with any new development in this district.
- Reference the *Tennessee Technology Corridor Development Authority Design Guidelines* for all development within the district (inside the boundaries of the Tennessee Technology Corridor), excluding only low density residential and agricultural uses.
- Street trees should be planted within medians, sidewalk planting strips and wells.

Transportation Improvements

- Sidewalks and pathways from developments to the proposed Knox to Oak Ridge Greenway should be conditioned and right-of-way or easements sought for these connections.

- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.
- No direct vehicular access to the Pellissippi Parkway (SR 162) should be allowed.
- All components of future development should have interparcel access, with more than one means to reach adjoining streets.
- Consideration for additional road connections between Sam Lee Road to Hardin Valley Road should be addressed and right-of-way acquired as new development is proposed in this district as well.

Community Facilities

- The preferred proposed route for the Knox to Oak Ridge Greenway runs through this district adjacent to Solway Road, and would be an amenity for offices and residents in the area. Easements for this greenway should be sought through this district.
- A greenway along Beaver Creek is also recommended in the *Knoxville-Knox County Park, Recreation and Greenways Plan*.

Greystone Summit apartment development



Mixed Use Special District NWCO-7

PELLISSIPPI PARKWAY/OAK RIDGE HIGHWAY

This district is bounded by Pellissippi Parkway (SR 162) to the west, Oak Ridge Highway to the north and Beaver Creek to the south. The abandoned SR-475 route bisected the southeastern portion of this district. Currently, this area is largely comprised of agricultural and single family residential uses, however, this district will have significant potential for higher intensity development for economic development if adequate infrastructure is provided. The area is characterized by greatly varying topography; the steeper slopes and a former demolition debris landfill are constraints to a portion of its development.

Recommended Uses

A mix of uses is proposed for this site, including office, commercial, technology based and light industrial uses. Consideration of a community park and/or other open space uses should also be considered for the former landfill portion of the site as depicted on the Park, Recreation and Greenways Plan. Development constraints, such as steep slopes and floodplains should be considered as new development is proposed.

The flatter eastern portion of the district adjacent to Oak Ridge Highway, the railroad and the north side of Rather Road:

- Office (O)
- Technology Park (TP)
- Light Industrial (LI)

The central, steep sloped portion of the district and the area south of Rather Road and north of Beaver Creek:

- Office (O) with a recommendation for all new development to go through a Use on Review process due to the steep topography of the site
- Low Density Residential (LDR)

George Light Road adjacent areas:

- Office (O)
- Medium Density Residential/Office (MDR/O)

Site Design Guidelines

- Recommendations for building height, clearing, grading, density, revegetation and other principles of the Hillside and Ridgetop Protection Plan should be followed.

- The vegetated steep slopes and floodplains adjacent to Beaver Creek should be conserved with any new development in this district.
- Reference the Tennessee Technology Corridor Development Authority Design Guidelines for all development within the district (inside the boundaries of the Tennessee Technology Corridor), excluding only low density residential and agricultural uses.
- No direct vehicular access to the Pellissippi Parkway (SR 162) should be allowed.
- All components of future development should have interparcel access, with more than one means to reach adjoining streets.
- Street trees should be planted within medians, sidewalk planting strips and wells.

Transportation Improvements

- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.
- No direct vehicular access to the Pellissippi Parkway (SR 162) should be allowed.
- All components of future development should have interparcel access, with more than one means to reach adjoining streets.
- Sidewalks and pathway connections to the proposed Knox to Oak Ridge Greenway on the west side of the Pellissippi Parkway from this district should be sought.

Community Facilities

- The Three R's Community Park is recommended in the Knoxville-Knox County Park, Recreation and Greenways Plan for this district, particularly at the former demolition debris landfill site with proper remediation for the safety of park users.
- Sidewalks and pathway connections to the proposed Knox to Oak Ridge Greenway on the west side of the Pellissippi Parkway from this district should be sought.
- A greenway along Beaver Creek is also recommended in the *Knoxville-Knox County Park, Recreation and Greenways Plan*.



Mixed Use Special District NWCO-8

SOLWAY CORRIDOR GATEWAY

The Solway area is a gateway into Knox County and the Tennessee Technology Corridor. A greenway trail for walking and bicycling is planned for this corridor linking West Knox County to Oak Ridge. The Solway area abuts Melton Hill Lake, and its redevelopment potential as an area with commercial and office uses adjacent to residential waterfront is high, if challenges to infrastructure such as traffic congestion and safety along Oak Ridge Highway and wastewater service can be addressed. A small area plan and design guidelines should be developed for the corridor.

Recommended Uses

A mix of uses is proposed for this site, including office, commercial, and medium density residential, as well as vertical mixed use are recommended for this district.

South of Solway Road within the Solway District:

- Office (O)

West side of Oak Ridge Highway between Solway Road and Sparks Road:

- Office (O)
- Neighborhood Commercial (NC)
- Neighborhood Commercial Mixed Use (MU-NC)

East side of Oak Ridge Highway between Jim Jones Lane and the Solway Bridge:

- Office (O)

Adjacent to Oak Ridge Highway from Sparks Road and Solway Bridge:

- Office (O)
- Neighborhood Commercial (NC)
- Neighborhood Commercial Mixed Use (MU-NC)

Along the Clinch River and Solway Ferry Road and north of Sparks Road:

- Neighborhood Commercial Mixed Use (MU-NC)

Site Design Guidelines

- A small area plan should be developed with recommendations for design guidelines for the Solway Corridor area to address site design, building design, landscaping and signage should be developed.
- Recommendations for building height, clearing, grading, density, revegetation and other principles of the Hillside and Ridgetop Protection Plan should be followed.

- The vegetated steep slopes and buffer around the Clinch River should be conserved with any new development.
- Continuity, circulation, connectivity in streets, sidewalks and pathways, as well as parking and road access should follow the *Tennessee Technology Corridor Development Authority Design Guidelines*.
- Direct vehicular access (curb cuts) to Oak Ridge Highway should be limited and access consolidated to existing intersections.
- All components of future development should have interparcel access.
- Street trees should be planted within medians, sidewalk planting strips and wells.

Transportation Improvements

- The Tennessee Department of Transportation will implement a spot safety improvement project at

- Pellissippi Parkway (SR-162) and Oak Ridge Highway (SR-62) that will make movement from westbound Oak Ridge Highway to southbound Pellissippi Parkway safer.
- The preferred proposed route for the Knox to Oak Ridge Greenway runs through this district adjacent to Solway Road, and would be an amenity for offices and residents in the area. Easements for this greenway should be sought through this district.

Community Facilities

The preferred and alternative proposed route for the Knox to Oak Ridge Greenway runs through this district adjacent to Solway Road, and would be an amenity for offices and residents in the area. Easements for this greenway should be sought through this district as right-of-way acquisition commences for Oak Ridge Highway/Pellissippi Parkway safety improvements commence.



Concept drawing for the Knox to Oak Ridge Greenway at the Dogwood/Solway Road area along the Pellissippi Parkway

Mixed Use Special District NWCO-9

HINES VALLEY/AMHERST

This area is located between Ball Road and Ball Camp Pike in the Hines Valley/Amherst community. The Schaad Road Extension will be completed in the coming years and will bisect the valley, opening up the potential for new development. Currently, this area consists largely of agricultural, forested or vacant land uses. Commercial zoning has already occurred in the valley even prior to completion of the road extension. Opportunity exists to create a walkable, vibrant community near Amherst Elementary as the population within the area grows.

Recommended Uses

This district falls partially within the planned growth area for the county and urban growth boundary for the city. It is approximately 300 acres and would ideally be well-suited for a master plan for phased development including, conservation subdivisions with connected open space, and neighborhood commercial and office uses that are primarily serving the district.

- Low Density Residential (LDR) and Medium Density Residential (MDR); also including a zoning recommendation for Planned Residential (PR) for flexibility in neighborhood design and conditions for street connectivity between neighborhoods to alleviate traffic, particularly around schools, and to allow for a mix of detached and attached housing types, encouraging conservation subdivisions.
- Medium Density/Office (MDR/O)
- Mixed Use Neighborhood Center (MU-NC); also including a zoning recommendation for Planned Commercial (PC) and Planned Residential (PR) to allow for plan review
- Office (O)
- Community Center Mixed Use (MU-CC) could be a consideration if transit service is feasible.

Site Design Guidelines

- Street trees should be planted within medians, sidewalk planting strips and wells along the Schaad Road extension.

Transportation Improvements

- Connectivity for the road network should be conditioned as new neighborhoods develop to alleviate traffic. Sidewalks and pathways from developments to the Schaad Road Extension pedestrian facilities should be conditioned as development fills in within the valley.
- Curb cuts onto the new Schaad Road Extension should be limited to improve traffic and pedestrian safety.
- All components of future development should have interparcel access, with more than one means to reach adjoining streets.

Community Facilities

- Consolidation of open space via conservation subdivisions to provide for a neighborhood park, as recommended in the *Knoxville-Knox County Park, Recreation and Greenways Plan*, should be considered as development fills in the valley.

The proposed path of the Schaad Road Extension



Mixed Use Special District NWCO-10

SCHAAD ROAD/OAK RIDGE HIGHWAY CROSSROADS

The district covers primarily the north side of Schaad Road from Oak Ridge Highway to the existing industrial areas that is accessed from NW Park Drive. The district wraps around the Knoxville Municipal Golf Course and adjacent low density residential to the east. Existing land uses on the north side of Schaad Road are primarily single-family residential to the west and vacant land to the east. The recommendation from the 2001 Callahan Drive/Schaad Road Corridor Plan are carried forward as design guidelines for the district. The long Range Mobility Plan 2040 identifies Schaad Road for widening in 2019. With Schaad Road/Clinton Highway community commercial center nearby, there is no need to have strip commercial development along this corridor. Approximately 38% of the parcels that front Schaad Road, west of Oak Ridge Highway are zoned commercial.

Recommended Uses

- To the east end of the district is a 165 acre undeveloped parcel (3301 Schaad Road or Parcel # 079-023) which is recommended light industrial (recommended zones LI, LI-1, C-6, PC, PC-1 for warehouse and distribution) or mixed use (recommended zones TC, TC-1, TND-1).
- The area west of the 165 acre parcel is recommended for office and medium density residential (recommended zones PR, RP-1, and any O).
- Site design guidelines are recommended for this district and are included in this section.

Transportation Improvements

- Develop a new street design with four travel lanes, a center median, and sidewalks.
- Plant new medians with trees.

Site Design Guidelines

VISUAL SCREENING

- Screening between incompatible uses should consist of masonry walls, hedges, planted berms, or combination of these screens.
- All loading areas shall be screened from the view of Schaad Road and adjacent residential or office properties.
- Screening of parking and loading areas that face Schaad Road should be based on a combination of native vegetation and berms.

LANDSCAPING

Planned zones are recommended, requiring development according to a landscape plan showing the quantities, sizes, and types of plants to be used. In preparing the landscape portion of the site plans, the following should be addressed:

- A combination of evergreen trees, shrubs, and deciduous trees should be used to enhance the "streetscape" of the corridor.
- Grass, ivy or other natural ground cover, native trees and shrubbery should be used in landscaping. A minimum of 8 canopy trees (such as oaks or maples, capable of growing to a height of 50 feet or more), 4 evergreens (such as magnolia or pine, capable of growing to 50 feet or more) and 8 understory trees (such as dogwood or redbud) are to be planted per acre, with a minimum caliper of 2 ½ inches. Shrubbery should be used on berms located around buildings along Schaad Road.
- Landscape plans should emphasize the conservation of natural features, including stands of trees. Existing trees can be used to meet a portion of the planting requirements.
- Five percent of the hard surface areas (e.g., parking and loading areas) should be landscaped.

SETBACKS

- Provide a minimum of a 30-foot setback when parking is provided to the side of a building. Allow for additional space for automobile parking and detention basins between the right-of-way and building(s) as needed to meet site conditions. Truck loading areas should be oriented to the proposed access road.

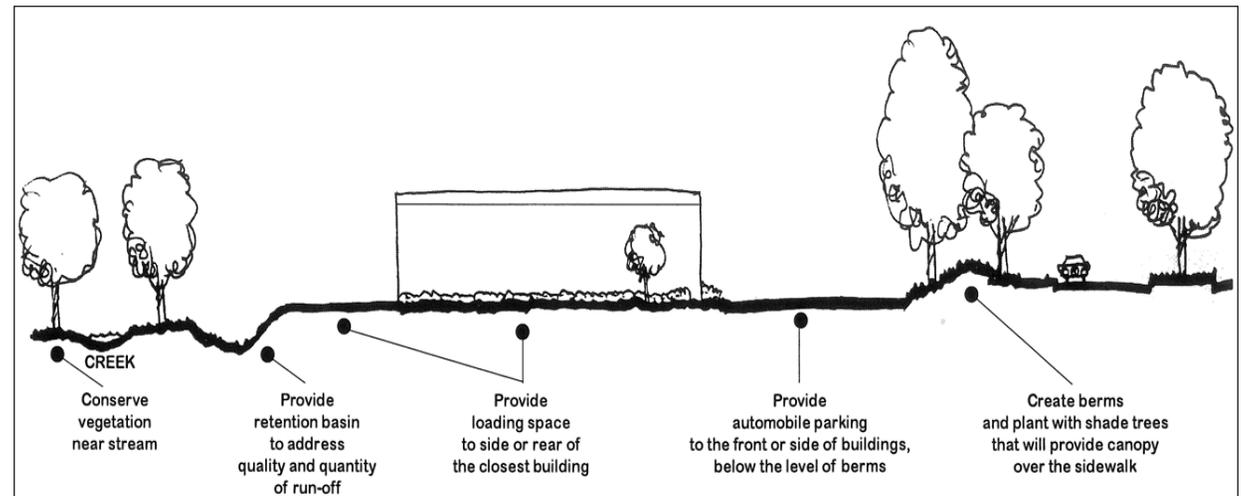
LIGHTING

- The height of lighting should not exceed 30 feet in parking areas.

SIGNS

- In order to preserve views of scenic assets such as ridges along the corridor, monument signs reaching no more than 5 feet high should be used along the corridor.
- For development of parcels of 20 acres or more, monument signs should be no more than 100 square feet.
- For development of parcels between 5 and 20 acres, monument signs should be no more than 60 square feet.
- For development of parcels less than 5 acres, monument signs should be no more than 40 square feet.
- Wall signs should be limited to 1 square foot of signs for every linear foot of building frontage up to a maximum of 100 square feet.

An illustration of some site design guidelines



Mixed Use Special District NWCO-11

CLINTON HIGHWAY/OLD CLINTON PIKE

The extension of Powell Drive into this area is spurring revitalization and redevelopment. In 2012, the North County Sector Plan acknowledged this impending change by designating the Clinton Highway/Powell Drive Mixed Use District (NCO-1). This district carries forward the recommendations made in North County Sector Plan to the south side Clinton Highway and bounded by Old Clinton Pike. Presently, this approximately 55 acre district consists primarily of commercial and office along the frontage with Clinton Highway, while attached and detached residential fronts Old Clinton Pike. The zoning generally reflects the existing land use pattern as well.

Recommended Uses

Old Clinton Pike frontage:

- Low Density Residential (LDR)
- Medium Density Residential (MDR)
- Office (O)
- Medium Density Residential/Office (MDR/O)

Clinton Highway frontage:

- Office (O)
- General Commercial (GC) with a recommendation for Planned Commercial (PC) zoning to allow for plan review to protect adjacent lesser intense uses, such as residential properties though site design (e.g. landscape buffers).

Transportation Improvements

- Sidewalks should be conditioned along Clinton Highway, as per the recommendation for a 'greenway connector' of the *Knoxville-Knox County Park, Recreation and Greenways Plan*.
- Interparcel access should be pursued as redevelopment occurs to limit curb cuts onto Clinton Highway.



Special Opportunity Areas

KARNS COMMUNITY

The intersection with Oak Ridge Highway and Byington-Beaver Ridge Road (“Karns Crossroads”) was identified in the 2003 *Northwest County Sector Plan* as a special opportunity area for pedestrian-oriented development. Participants in community meetings and survey respondents for the 2016 sector plan update noted that they would like to see these recommendations continue to be carried forward. Projected completion for the new Karns Connector road is 2019, which would link Westcott Boulevard with Oak Ridge Highway (SR 62), and reduce traffic congestion around the Karns schools and commercially zoned crossroads area. Sidewalk and greenway connections between neighborhoods, schools, and commercial areas continues to be part of the community’s vision for Karns.

While the larger Karns Community extends beyond the area adjacent to Oak Ridge Highway, the highway is a focal point. Community assets, such as schools, parks, a library, a post office, a community center, churches and commercial nodes are all located along the corridor. Community concerns regarding, pedestrian safety and a loss of rural beauty and open space, can be mediated as the community continues to grow through the following recommendations:

- Pedestrian safety improvements as identified in the *Walk-to-School Prioritization Analysis and Improvement Concept Plans* (2014) should be pursued within the 5 and 15 year transportation improvements for the sector.
- A scenic and highway corridor overlay district should be developed and adopted for Oak Ridge Highway from Karns Valley Drive to Crepe Myrtle Lane. The overlay district should address the following:
 - Signage • Sidewalks • Parking
 - Landscaping and lighting • Building setbacks
 - Interparcel access and consolidated curb cuts onto Oak Ridge Highway
- Beaver Creek Greenway, as proposed in the Parks, Recreation and Greenways Plan, should be pursued to connect neighborhoods to community assets and to preserve greenspace as the population grows.
- Conservation subdivisions should be utilized to incentivize farm and open space preservation.
- A connected road network between subdivisions should be conditioned as new development occurs, and cul-de-sacs should be avoided.



A significant step in pedestrian improvement for Karns Elementary was the construction of sidewalk along Beaver Ridge Road – making it possible for almost 80 elementary and 40 middle school students to walk safely to school.



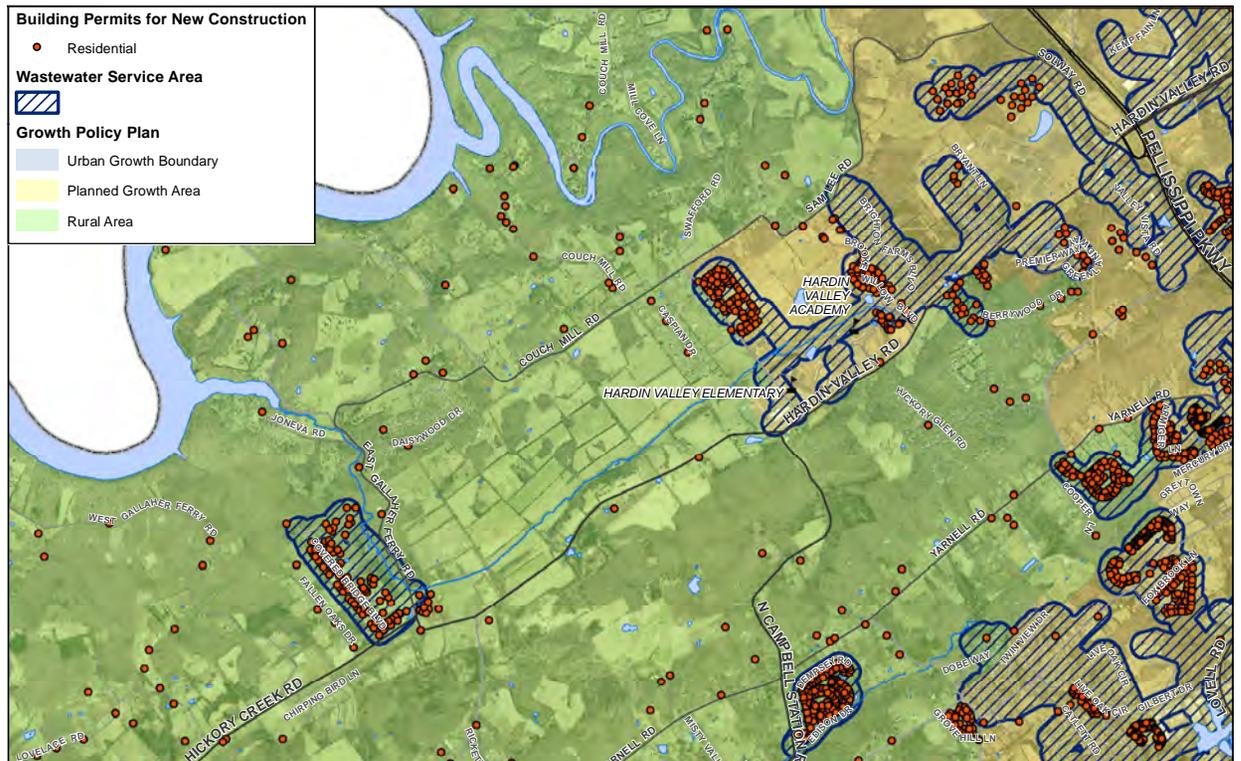
HARDIN VALLEY COMMUNITY

A Village Center opportunity was identified in the 2003 Northwest County Sector Plan update around the intersection of Steele Road because of the land development potential and demand related to the proximity of the Elementary School and the planned high school. This concept called for a mix of housing types, well-connected road and sidewalk network, a park-like neighborhood square, a branch library and neighborhood scale shops. However, since 2003, the area around the intersection with Steele Road has largely continued to develop as mostly single family residential with a strip commercial center.

New schools drive growth and development and this is very well illustrated in the recent growth trends of Hardin Valley. Since 2003 Hardin Valley Academy has been constructed, and currently the Hardin Valley Middle School is under construction. These new schools sit at the edge of the Planned Growth area of the Growth Policy Plan, pushing development pressure further out into the Rural Area. Road connectivity in Hardin Valley is limited, particularly as new cul-de-sac style residential neighborhoods have continued to put pressure on Hardin Valley, Sam Lee Road and Steele Road, as no new north-south road connections across the valley have been constructed.

Recommendations for future development in Hardin Valley should include the following:

- An update for the Growth Policy Plan to extend the Planned Growth Area to areas of the valley that are serviced by utilities.
- Cul-de-sacs should be avoided where possible, and connectivity for the road network should be conditioned as new neighborhoods develop to alleviate traffic on Hardin Valley and maintain a well-connected street network.
- Conservation subdivisions should be recommended to allow for development to occur while maintaining the rural character of the community and providing assets, such as farms, parks, greenways and forested areas.
- Consideration for consolidation of open space via conservation subdivisions to provide for a community and/or neighborhood park, as recommended in the *Knoxville-Knox County Park, Recreation and Greenways Plan*.





Pellissippi Parkway/Lovell Road interchange, 2012

GENERAL LAND USE RECOMMENDATIONS

The Northwest County’s suburbanizing landscape is characterized by rural lands, farms, wooded ridges, intermingling with neighborhoods and major roads crossing the sector lined with commercial and office development. Residents voiced concern at public meetings regarding traffic and pedestrian connectivity between neighborhoods, schools and commercial areas, as well as concerns regarding the changing character of communities related to the rapid growth of the sector.

The following is a list of recommendations to further the General Plan’s Development Policies including:

- Provide Transportation Choices for All Citizens
- Understand the Building Blocks: Neighborhoods, Communities, Districts and Corridors
- Respect and Nurture Our Heritage Areas

Scenic & Highway Corridor Overlay District

There are several major arterials that traverse the sector from the Pellissippi Parkway extending eastward along the valleys on either side of Beaver Ridge. Oak Ridge Highway, in the Karns area, is one such major arterial that residents identified during the public participation process in both the 2003 and 2016 sector plan updates as needing a new zoning tool that

better addresses aesthetics along the corridor (see the concepts for Oak Ridge Highway in Karns). This could establish guidelines or standards for new development, including architectural design, sign regulations, parking requirements, landscaping screening and related elements that would protect the scenic and rural setting, as well help establish and strengthen the long term maintenance of a “small town feeling” in the Karns community. Public comments received also noted that Hardin Valley Road, West Emory Road, and Schaad Road Extension through the Hines Valley Area need better design standards for new development.

Small Scale Innovation District Zone

A small scale innovation district should be a zone that is geared toward fostering connections between research and development institutions and start-ups, business incubators and accelerators. This type of zone district is typically walkable, technically-wired, offers mixed-use housing, office and retail opportunities. These zones may consist of entrepreneurs, educational institutions, schools, start-ups and mixed use development. They generally can be utilized in three types of various areas, but typically they are well-suited for the following three types of areas; 1) reimagined suburban science parks that incorporate new residential growth and office, retail and recreation activities, 2) retrofitting older industrial/warehouse districts to incorporate a mixed of uses, and 3) in downtowns or central cities with a major anchor institution and large scale mixed use development surrounding the institution.

New Agricultural Zone Districts

The following are brief descriptions of new zoning districts that should be considered to sustain and protect farmland/rural landscapes in the Northeast County.

Large Lot Agricultural Zone:

The County has one agricultural zoning classification that permits both residential and farm uses. Some community's separate these uses into two distinct zones to accommodate the unique differences between residential uses and farm uses. By increasing the minimum lot size for agricultural uses, farmland could be preserved.

Small Lot and Cluster Rural Residential Zone:

A new zone should be created that encourages rural residential uses, while still conserving such assets as hillsides and farms. Housing in new subdivisions could be clustered to conserve land.

Conservation Subdivisions

Conservation subdivisions are characterized by clustering residences on smaller lots that would not otherwise be allowed in order to protect open space, agriculture, or sensitive natural resources. Conservation subdivisions allow for the same number of residents under current zoning with the potential offer of a

greater density (density bonus) to encourage this type residential development.

Savings typically are seen in development costs due to less road surface, shorter utility runs, less grading and other site preparation costs. Municipalities also experience lower long-term maintenance costs for some of the same reasons. The preserved land may be owned and managed by a homeowners association, a land trust or the municipality.

The minimum subdivision regulations should be updated to include conservation subdivisions as a development alternative.

Transfer of Development Rights Program

Transfer of Development Rights (TDR) allows a community to transfer the development potential in an area where growth is restricted to a separate receiving area where roads, utilities, and other infrastructure already exist, making it appropriate for growth. Farmland and open space is preserved and growth is targeted to areas where infrastructure such as higher capacity roads and sewers are in place. Through the program, developers purchase development rights to build in a "receiving area," which is an area(s) that is targeted for growth, and those funds are used to permanently preserve land in the "sending area" (for example farmland). This allows a

community to accommodate growth, while preserving open space and farmland in a manner that is fair and equitable for all landowners.

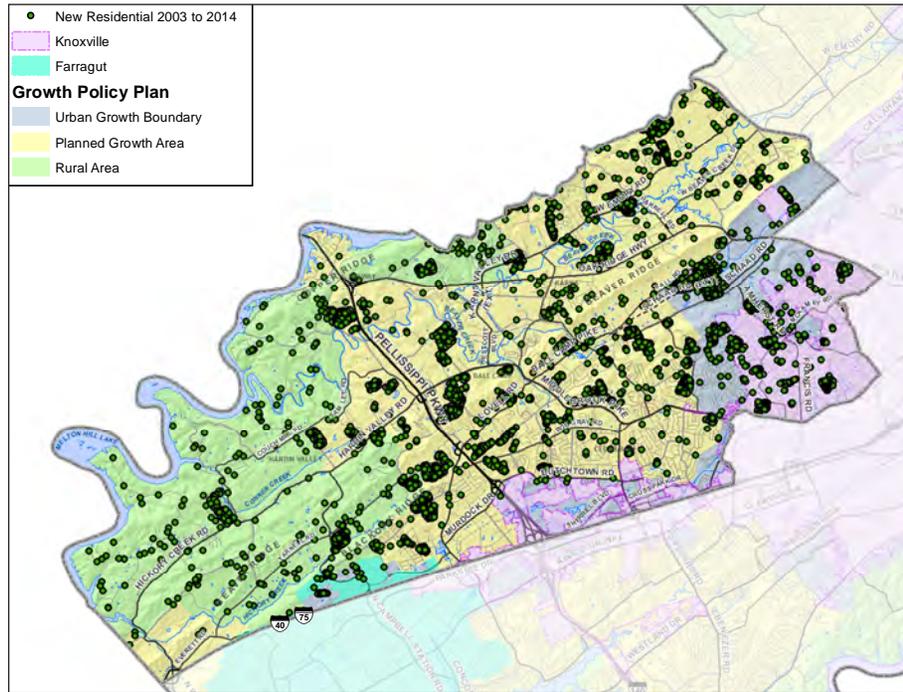
Private, Federal and State Agricultural and Conservation Programs

Work with land trusts and agricultural officials, to assist property owners with programs to conserve land within the Northeast County. Examples vary from programs such as Legacy Parks (local program), Foothills Land Conservancy (regional program), The Land Trust for Tennessee (state program), American Farmland Trust (national program), and U.S. Department of Agriculture's Farm and Ranchland Protection Program (national program).

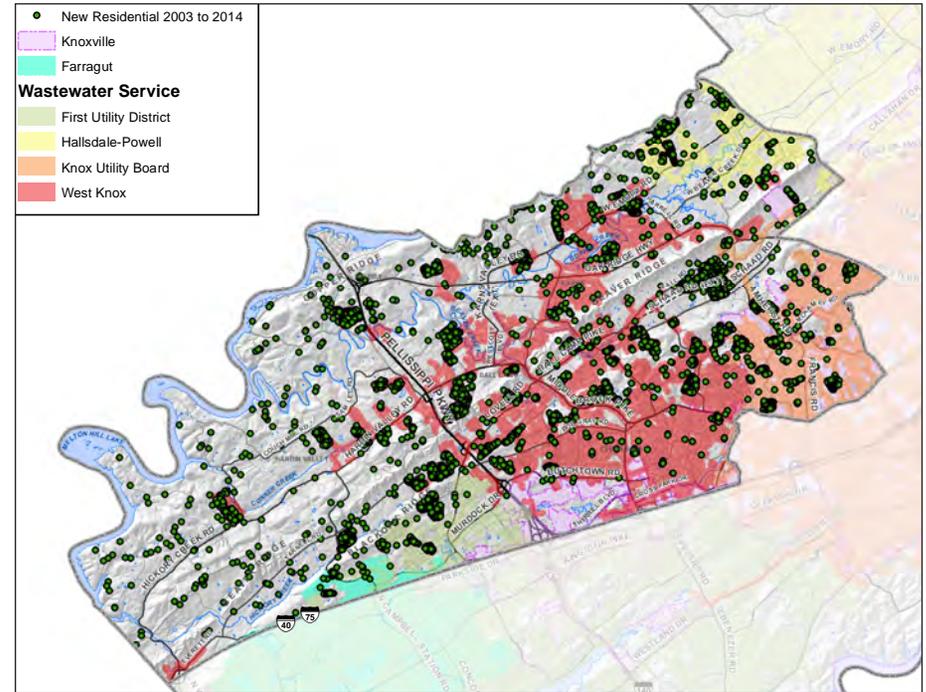
An artist's rendering of a conservation subdivision



Northwest County Sector: Residential Building Permits by Growth Plan Area, 2003 - 2014



Northwest County Sector: Residential Building Permits and Wastewater Service, 2003 - 2014



Growth Policy Plan Update

One of the recommendations in the Growth Policy Plan is to review the plan every three years and amend as necessary. It has been 15 years since the plan was formally adopted with no review or changes to the boundaries. As a result, development continues to encroach into the Rural designation. From 2003 to 2014, approximately 13 percent of residential building activity occurred in the Rural area. According to the Growth Policy Plan, these areas should be reclassified “Planned Growth” when the plan is revised and amended.

Wastewater service is the driver for new construction in the Northwest County as 93 percent of all residential development was within 300 feet of a service line.

The *Growth Policy Plan* needs to be updated. When the *Growth Policy Plan* is updated, land west of Hardin Valley Schools, needs to be reevaluated based on residential development over the last 10 years and current wastewater service offered along Hardin Valley Road. This area is largely classified Rural and development is likely to fill in given existing utility extensions into the rural area and growth of new schools.

COMMUNITY FACILITIES PLAN

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

The community facilities plan incorporates recommendations from the following sources:

- Community input
- Knox County Parks & Recreation Department staff interviews
- *Northwest County Sector Plan (2003)*
- *Knoxville Knox County Park, Recreation, and Greenways Plan (2011)*
- Knoxville Regional Transportation Planning Organization, *Long Range Regional Mobility Plan 2040 (2013)*
- Knox County Department of Engineering and Public Works, *Walk-to-School Prioritization Analysis and Improvement Concept Plans - Phase 2 (2014)*

Schools and Libraries

A new middle school in the Hardin Valley area was the primary concern expressed by many participants during public input. In June 2015, the Knox County Mayor and School Superintendent announced a memorandum of agreement to build a new middle school in the Hardin Valley community. The new middle school will be built on land adjacent to Hardin Valley Academy to the north of the school.

Presently, the Knox County Library Board does not anticipate adding additional libraries to Knox County. Plans are to focus on facility maintenance programs for the foreseeable future.

Recommendations

- Connecting neighborhoods to schools via pedestrian facilities are needed throughout the sector, however, priority for development should occur around Amherst Elementary, Cedar Bluff Elementary and Middle, and Karns Elementary and Middle schools.
 - Safety improvements for pedestrians may include: pedestrian warning signs, flashers and markings, crosswalks, and sidewalks and trails

Parks, Greenways and Recreation Facilities

Parks and greenways have not kept pace with subdivision development in the Northwest County. The population of

this sector is growing faster than all other sectors in Knox County, and neighborhoods are popping up in previously agricultural communities increasing the demand for expansion of park, greenway and recreational opportunities by residents. The following recommendations are taken from the *Knoxville/Knox County Park, Recreation and Greenways Plan* that was adopted in 2011.

Recommendations for Parks

- Neighborhood Parks - Acquire space for new neighborhood parks in the general vicinity indicated on the plan map: Conner Creek, Cate Road, Yount Road, Emory Road Neighborhood, Yarnell Road, Beaver Valley, Lobetti Road and West Bridge.
- Harper Cave Commons - This 55 acre space could be used to create multiuse fields. This site was once a superfund site that has been restored for reuse. A master plan should be created that includes partial use of the site for potential housing, which also addresses, if necessary, a final environmental review.
- Dead Horse Lake Park - This land is currently used for a golf course but development patterns suggest that this area could be redeveloped for a mix of uses. If so, space should be set aside for a greenway trail and neighborhood park space.
- Hardin Valley Community Park - Acquire land between the elementary and high schools to protect the creek and create a portion of the Conner Creek greenway. It should be connected to the schools' recreational facilities. Shared parking with the schools should be programmed.
- Harrell Road Stormwater Park - This area along Beaver Creek, and adjacent to the Painter Farms subdivision, is being constructed as park for both passive recreation activities and an area for stormwater runoff infiltration to prevent flooding. This area is also adjacent to the proposed Beaver Creek greenway. This area is ideal for such a park because of the broad floodplain and good road access.
- Melton Hill Community Center Expansion - Consider a partnership with the owners of this quasi-public facility to expand the grounds and offer long-term park use.
- Plumb Creek Community Park - This former KUB-owned property (approximately 32 acres) is opening soon within the year as a community park, providing a large dog park, playground, shelter, restrooms, paved and unpaved walking paths and disc and foot golf.
- Three R's Park (suggested name refers to environmental principles: reduce, reuse and recycle) - This former landfill should be reclaimed as a recreation resource. It

has been partially restored, that is, "cleaned and capped" so it could be safe for park uses. One possibility would be for northwest county skate park.

- Northwest District Recreation Center - Develop a recreation center and park, providing both indoor and outdoor recreation. Locate along an arterial such as Middlebrook Pike or the Schaad Road extension and program to serve a population upwards of 30,000.

Recommendations for Greenways/Greenway Connectors

- Beaver Creek Greenway - This downstream portion of the greenway could contain a very beautiful corridor where the creek begins to fall and flow more rapidly through the forested hills to the lake. The trail should connect to the various schools and parks in Karns.
- Conner Creek Greenway - Work with Pellissippi State and Knox County schools to provide a greenway, connecting the developing neighborhoods to the schools and parks.
- Grassy Creek Greenway - This greenway trail would connect the proposed Beaver Creek Greenway to Amherst Elementary alongside the creek.
- Hickory Creek Greenway - Acquire land and easements to create a trail, connecting existing and future neighborhoods to the proposed Pellissippi Greenway.
- Melton Hill Greenway - This greenway would connect to the proposed Beaver Creek and Conner Creek Greenways and would provide a trail along the lake through Melton Hill Park.
- West Knox to Oak Ridge Greenway - Conceptual plans for three phases of this greenway have been developed. Easement acquisition, design plan and construction are needed to develop this greenway. This greenway would link to a larger regional network linking Blount County, Knox County and Oak Ridge. This regional separated greenway trail will link these communities, their greenway systems and the schools and employment centers near the route.
- Plumb Creek Greenway - Develop a trail connection between Ball Camp Elementary School, Nicholas Ball Park and Plum Creek (KUB) Park. Continue westward to join neighborhoods to the parks.
- Turkey Creek Greenway North - This segment of the proposed greenway will connect to the Pellissippi Greenway, U.S. Cellular Soccer Complex and the existing Parkside Greenway. A study has been done and a potential route for this greenway has been identified.
- Greenway Connectors—Hardin Valley Road, Lovell Road, Middlebrook Pike and Oak Ridge Highway (all within the County's Planned Growth Area) are the most significant roads that should be improved to safely accommodate both pedestrians and bicyclists.

Northwest County Sector: Parks, Recreation and Greenways Plan

Legend

Proposed Parks: General Vicinity

- C** Community Park
- R/C** District Recreation Center
- N** Neighborhood Park
- General Vicinity 3,000 Foot Buffer

Proposed Park: Specific Location

- Neighborhood, Community, or District Park

Proposed Greenways

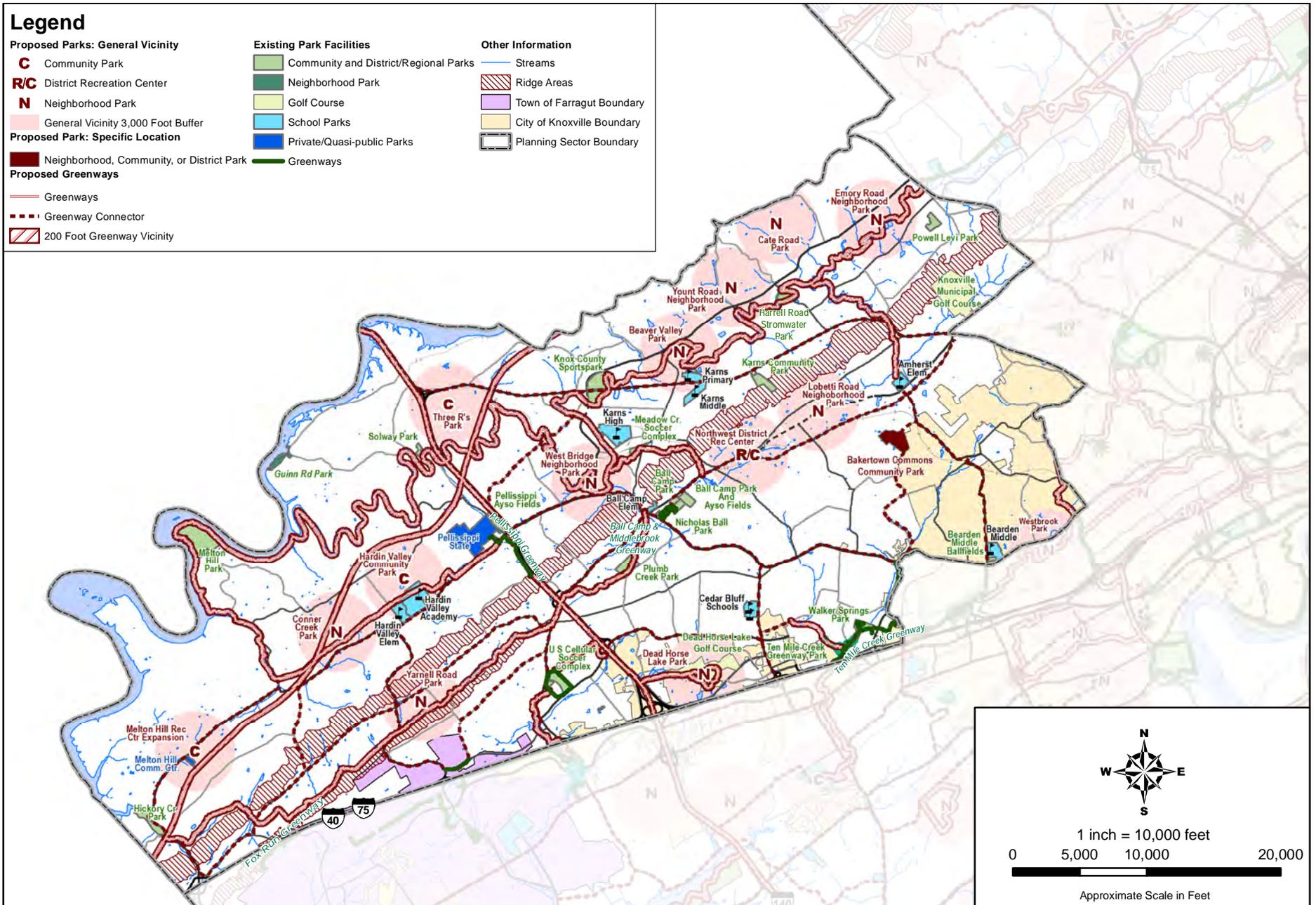
- Greenways
- Greenway Connector
- 200 Foot Greenway Vicinity

Existing Park Facilities

- Community and District/Regional Parks
- Neighborhood Park
- Golf Course
- School Parks
- Private/Quasi-public Parks
- Greenways

Other Information

- Streams
- Ridge Areas
- Town of Farragut Boundary
- City of Knoxville Boundary
- Planning Sector Boundary



GREEN INFRASTRUCTURE PLAN

Green infrastructure represents the natural resources to promote environmental, social, and economic well-being. These elements include streams, wetlands, forests, parks, greenways, along with the recommended incorporation of low impact development techniques. Benefits include clean air and water, increased property values, and healthier citizens.

The goals set forth in this section are:

- To connect residential areas to natural areas and community facilities such as schools or parks
- Balance development and conservation
- Foster the use of development practices that reduce stormwater runoff and protect water quality
- Preserve open space and natural areas

The Green Infrastructure Plan incorporates recommendations from the following:

- Community Input
- *Knoxville Knox County Parks, Recreation and Greenways Plan* (2010/2011)
- *Northwest County Sector Plan* (2003)
- *Knoxville Knox County Hillside and Ridgetop Protection Plan* (2011/2012)
- *Knoxville Knox County Tree Conservation & Planting Plan* (2007)

Existing Policies Related to Green Infrastructure

Floodways and Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Study maps that designate boundaries for floodways (100-year and 500-year floodplains), streams and rivers were adopted by the City and County as part of their flood prevention ordinances. “Open-type” uses (such as parks, parking lots, and golf driving ranges) are allowed within the floodway, however, the clearing of vegetation is limited within water quality (riparian) buffer zones around streams. Structures are only allowed in the floodway if extensive stormwater modeling proves that there is no effect to the 500-year floodplain. The “no-fill line”, which established halfway between the FEMA floodway and 100-year floodplain, does not

allow any type of fill or new construction that reduces flood storage capacity (for example, a parking lot can be constructed but the asphalt cannot be higher than the current ground elevation). New structures are allowed within the FEMA 100-year and 500-year floodplain but they must be approved by the City or County engineering department and certified that all habitable floors are one foot above the 500-year flood elevation and the foundation is designed to ensure the unimpeded movement of floodwaters.

Stormwater Best Management Practices

Stormwater Best Management Practices (BMP's) address the need to manage water quality sources that include bio-retention areas, wetland enhancement and porous paving systems. BMP's help to control stormwater pollution and reduce soil erosion and sedimentation in streams and other waterways. These practices are found in *Knox County's Stormwater Management Manual* and the *City of Knoxville Best Management Practices Manual*. These manuals were included as part of the National Pollutant Discharge Elimination System (NPDES) which requires large and medium-sized cities/counties to obtain a NPDES permit for municipal storm water systems. In order to be compliant with federal and state regulations, both the City and County need to incorporate best management practices to ensure that growth is accommodated in an environmentally responsible manner.

Hillsides and Ridgetops

The *Knoxville/Knox County Hillside and Ridgetop Protection Plan* contains development policies to encourage low density residential development on steeper slopes and recommends minimizing clearing and grading.

Agricultural Areas

The *Growth Policy Plan* has a rural designation to conserve agricultural resources. Additionally, under the Tennessee Greenbelt Law, farmers may elect to request a property tax reduction. Finally, Tennessee has a right-to-farm law, which allows farmers the opportunity to farm even though development may be encroaching nearby.

Schools, Parks, and Greenways

The *Knoxville/Knox County Park, Recreation and Greenways Plan* identifies existing and proposed greenways and parks. Proposed parks are generally located in areas that are currently underserved. The proposed greenways make connections to parks, schools, libraries, and other points of interest. The *Knoxville/Knox County Minimum Subdivision Regulations* also allow MPC to consider dedication of up to ten percent of the subdivision's acreage to education or park land.

Streets and Highways

The *Knoxville/Knox County Tree Conservation and Planting Plan* recommends various transportation corridor strategies to designate scenic routes in rural settings, along with changes to arterials by creating public and private planting programs for roadside trees and parking lot landscaping.

Recommendations

- Promote the conservation of farmland and the continuation of farming by working with the U.S. Natural Resource Conservation Service's Farm and Ranchland Protection Program, allowing farmers to create a legacy of farming while being compensated for their development rights.
- Support initiatives to connect the green infrastructure assets along Beaver Creek as a high priority. This could include public matching funds for acquisition and fostering private sponsorship to acquire easements and trail development.
- Work with public land owners, county parks and recreation, and other non-profit organizations to help establish pedestrian and bicycle connections via greenway connectors (such as sidewalks, bike paths and trails) between neighborhoods, schools, parks and greenways in the Northwest County Sector.
- Identify the most productive soils for personal and community gardening by working with home owners and community groups. The Green Infrastructure map shows that there are many areas within the rural area that have good agricultural soils; additional information can be found through UT Extension Service and the U.S. Department of Agriculture (USDA).
- Work with the City and County Department of Parks and Recreation and State of Tennessee to pursue that portion of real estate transfer taxes dedicated to wetland and park purchases.

- Enact conservation subdivision regulations to foster green infrastructure protection while allowing clustered residential development.
- As part of the new EPA regulations related to water quality, new city and county ordinances should include incentives to encourage infiltration and allow for flexibility in design of stormwater management facilities along streets, greenways, and on the grounds of school and parks. This information should also be provided to private homeowners wishing to reduce their impact on their watershed. Demonstration projects by city and county stormwater divisions can be used as both test sites and teaching aids for property owners to learn about installation, benefits and costs for using green infrastructure best management practices.



Conner Creek

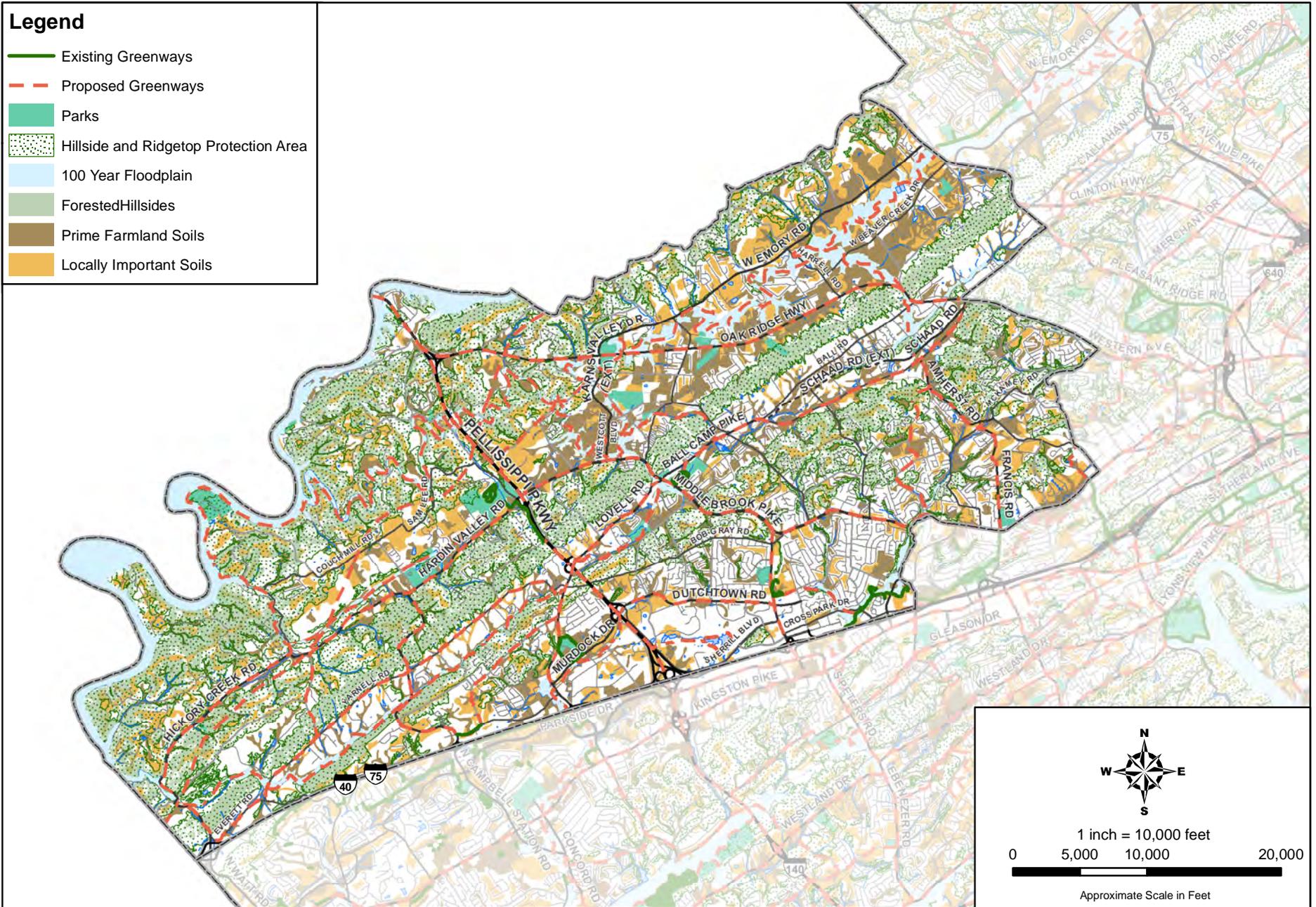


Melton Hill Lake



Williams Bend Road area

Northwest County Sector: Green Infrastructure Plan



HISTORIC RESOURCES PLAN

The Knox County Historic Zoning Commission is responsible for reviewing applications to alter, demolish or relocate properties protected by historic overlay. The Commission also reviews proposed new construction in historic districts, recommends the designation of historic properties and reviews proposed National Register of Historic Places nominations.

The proposed historic resource plan methodology incorporates recommendations from these sources:

- Historic Resources Inventory
- MPC Historic Preservation files
- Community input

The goals for historic preservation program are fourfold:

- Encourage preservation of all buildings that are on the National Register of Historic Places.
- Support additional National Register nominations for historically significant properties.
- Collaborate with non-profits and property owners to develop strategies to stabilize and restore historic resources.
- Update the historic resources inventory for the county.

The following properties in this sector are either listed on the National Register of Historic Places or are considered eligible for listing, but have not been nominated at this time:



Airplane Service Station

6829 Clinton Highway

In 1930, brothers Elmer and Henry Nickle built the Airplane Service Station on Clinton Highway. This structure is exemplary of the mimetic or “fantasy” style of architecture that occurred nationwide during this era. This property is listed on the National Register as of 2004.

Recommendation: Encourage continued preservation



Fox House

3800 Copper Ridge Road

The two-story brick home was built c. 1834 by August A. Fox, Sr., who moved to Knox County from North Carolina. This property is considered eligible to be listed in the National Register. This property has Historic Overlay Zone (HZ) on both the house and barn across the street on Copper Ridge Road.

Recommendation: Support nomination for listing on the National Register to the Tennessee Historical Commission. Encourage continued preservation.



Gallaher Ferry House

12719 Manning Lane

This c. 1870 house is marked by vernacular styling with Italianate influenced details. The two-story house also has a second-story balcony.

Recommendation: Support nomination for listing on the National Register to the Tennessee Historical Commission. Encourage continued preservation.



Kevin W. Bogle

Lockhart Place

2516 Gray Hendrix Road

An early log house (c. 1798) is encapsulated within this two-story frame East Tennessee vernacular structure with neoclassical detailing. The property contains two outbuildings built of railroad ties and Tudor Revival stylistic influences.

Recommendation: Support nomination for listing on the National Register to the Tennessee Historical Commission. Encourage continued preservation.



Knox Heritage

Lones-Dowell House

6341 Middlebrook Pike

This house, built between 1857 and 1859, is one of the oldest historical and continuously occupied sites in Knox County. It was renovated in 2009 and converted to an office use as part of the Dowell Springs Business Park.

Recommendation: Support nomination for listing on the National Register to the Tennessee Historical Commission. Encourage continued preservation.



Google Maps

Williams Bend House

3115 Williams Bend Road

This two-story frame and log house (c. 1875) also incorporates log construction and is an example of early river valley settlement.

Recommendation: Nominate for listing on the National Register to the Tennessee Historical Commission. Encourage continued preservation.

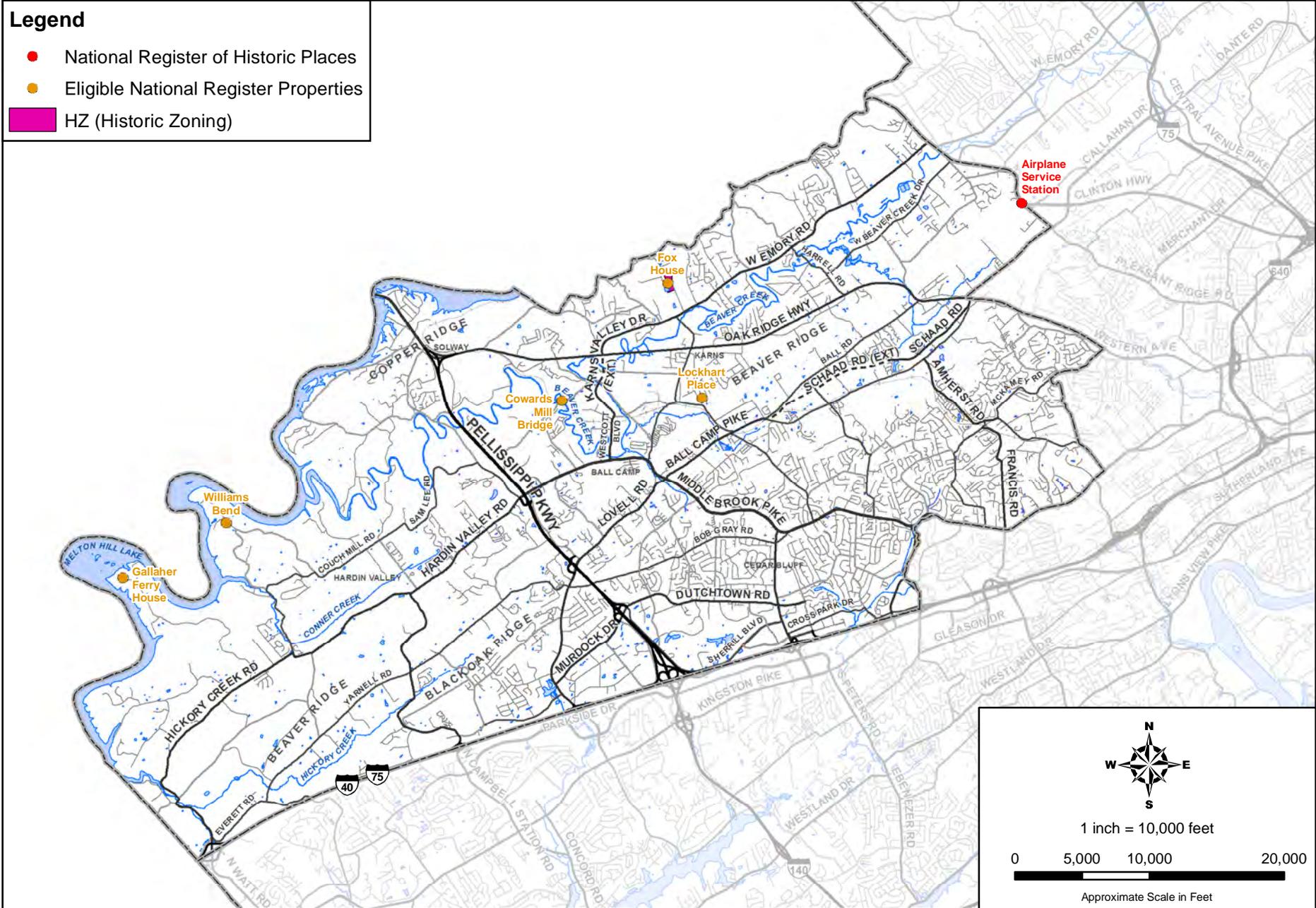
Additional properties were identified as part of the original 1986 historic resource inventory for Knox County, which was updated in 1992 and 1993. Staff noted that many of these properties may be eligible for listing in the National Register but have not been submitted to the Tennessee Historical Commission for eligibility determinations. In late 2014 MPC staff conducted a windshield survey of the Northwest County Sector and noted that a substantial number of properties in the original inventory had been demolished or were in a severe state of neglect. An updated comprehensive field survey and inventory will be necessary to determine the condition and state of these and the other 290 properties that were part of the original 1986 inventory.



Northwest County Sector: Historic Resources

Legend

- National Register of Historic Places
- Eligible National Register Properties
- HZ (Historic Zoning)



TRANSPORTATION PLAN

Transportation recommendations are based on previously adopted plans and studies, including the *Long Range Regional Mobility Plan 2040*. Roadway and sidewalk recommendations from the mobility plan and public input are presented below. The recommendations from the mobility plan include the horizon year (proposed year project would be completed).

Prior to implementation of any proposed projects, there should be opportunities for additional public input to address issues of impacts related to adjacent land use, neighborhood protection, and environmental and cultural resource protection. These are principles that are important in the development of a 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.

Roadways

Table 18 lists currently under-construction or proposed roadway projects in the Northwest County Sector by the Tennessee Department of Transportation (TDOT), City of Knoxville, and Knox County. These projects are from the *Long Range Regional Mobility Plan 2040*.

In 2014, Knox County Engineering completed the *Strategic Transportation Plan Needs Assessment Report*, identifying roads in need of improvement based on the number of crashes, road width and average daily traffic. The report identified 60 segments across Knox County, with the top 25 having recommendations and cost estimates provided.

Nine road segments in the Northwest County were identified in the report, with two making the top 25. The first in the top 25 is a recommendation to widen Fox Lonas Road to an improved 2-lane section from Walker Springs Road to Crest Forest Road. The second project called for a recommendation to widen Joe Hinton Road to an improved 2-lane section from Middlebrook Pike to Bakertown Road, as well as a mini- road safety audit at the intersections of Jenkins Road and Middlebrook Pike.

Recommendations

In addition to the projects listed in the table and transportation plan map, the following are additional transportation projects to consider based on community input:

- Install a 4-way stop at intersection of Schaad Road and Johnson Road
- Install turn lanes for traffic from Byington Beaver Ridge Road to Beaver Ridge Road for Karns Elementary School
- Johnson Road between Ball Camp Pike and Ball Road needs to be reconstructed to a 2-lane section with sidewalks
- Turn lane added on Schaad Road from Johnson Road to Amherst Elementary School

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. Complete streets type policies are in place for the Knoxville Regional Transportation Planning Organization (TPO), Tennessee Department of Transportation (TDOT), and the City of Knoxville.

The greenway connectors, sidewalks, sidepaths, and bicycle lanes form types of complete streets. Future bicycle and pedestrian systems, as represented in the *Knoxville Knox County Parks, Recreation, and Greenways Plan*, could be implemented to bring a more complete street approach to the sector. As roads are improved, those bicycle and pedestrian systems should be constructed.

Considerations for more detailed road designs regarding complete streets should include:

- Amherst Road
- Ball Camp Pike
- Clinton Highway
- Dutchtown Road
- Everett Road
- Fox Lonas Road
- Francis Road
- Hickory Creek Road
- Lovell Road
- Marietta Church Road
- N. Campbell Station Road
- N. Cedar Bluff Road
- Robinson Road
- Schaad Road
- Snyder Road
- Yarnell Road

Sidewalks

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 PRZ's in Knox County. These guidelines state that for elementary schools, students within an area of one mile from the school by the shortest route will not be provided transportation services by Knox County Schools. For middle and high schools, PRZ's are one and 1.5 miles, respectively.

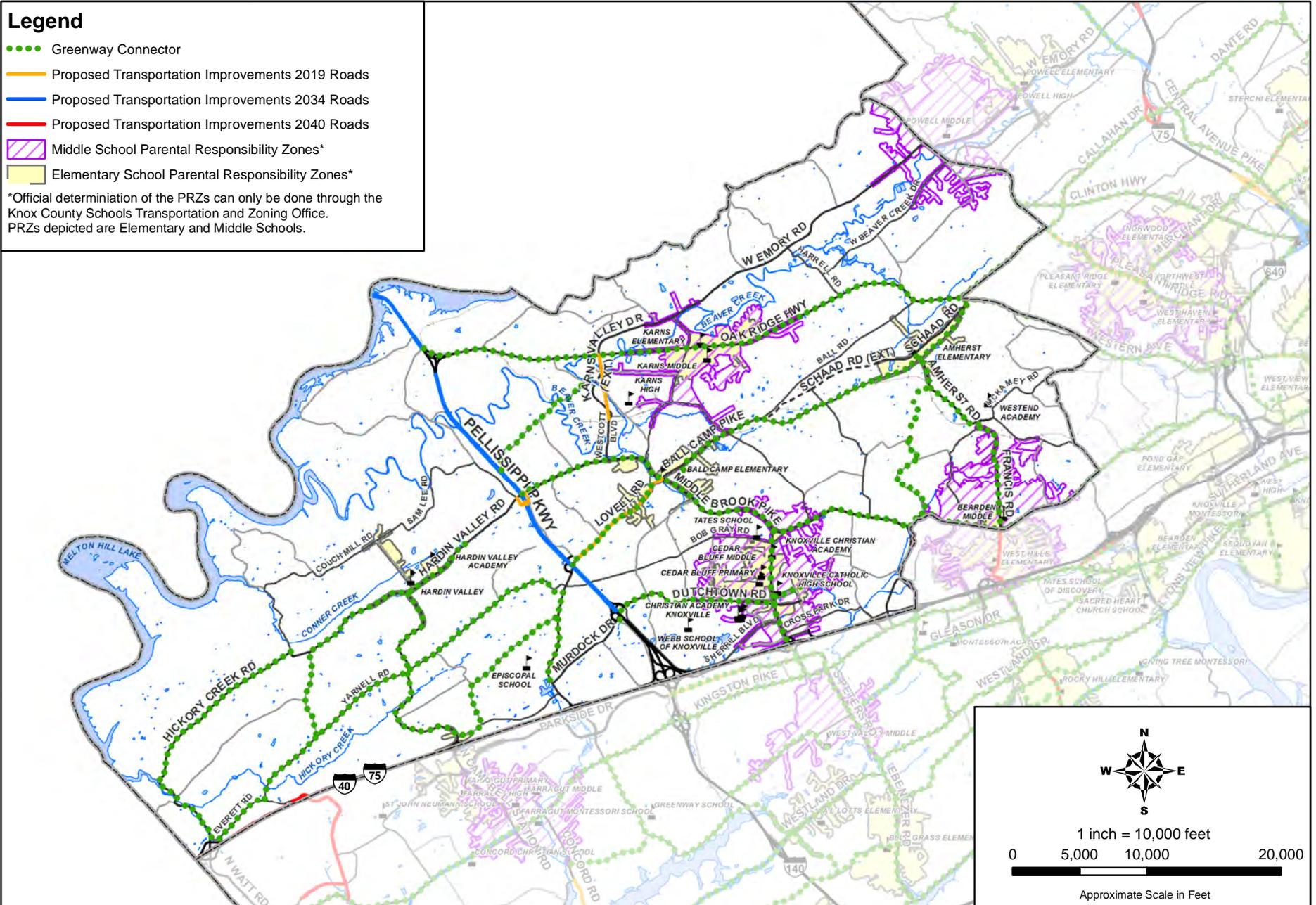
Residents and citizens voiced concern at public meetings over the lack of sidewalks. Participants in the online survey listed 'more sidewalks and pedestrian paths' as the highest transportation priority, with 'improved safety near schools' and 'more frequent and expanded transit service' as second and third highest priorities. Oak Ridge Highway, Ball Camp Pike, Lovell Road were the two major road segments identified in the survey with the largest number of respondents believing better sidewalks/crosswalks should be implemented. The sector plan recommends sidewalks and pedestrian paths be made where placement and connectivity are feasible.



Table 18. NORTHWEST COUNTY SECTOR ROADWAY PROJECTS

<i>Project Name</i>	<i>Project Location</i>	<i>Length (miles)</i>	<i>Project Description</i>	<i>Horizon Year</i>
Pellissippi Parkway (I-140) Restriping	I-40 to Dutchtown Road	0.4	Re-stripe to add one lane on northbound I-140	2015
Pleasant Ridge Road/Merchants Drive Widening - Phase 2	Knoxville City Limits (Country Brook Lane) to Merchant Drive/Pleasant Ridge Road to Wilkerson Road	1.6	Add center turn lane	2019
Schaad Road Widening	Oak Ridge Highway (SR 62) to Pleasant Ridge Road	1.5	Widen 2-lane to 4-lane	2019
Pellissippi Parkway (SR 162)/Hardin Valley Road Interchange Improvements	Interchange at Hardin Valley Road	0	Interchange at Hardin Valley Road	2019
Karns Connector - New Road Construction	Westcott Boulevard to Oak Ridge Highway (SR 62)	0.8	Construct new 2-lane road with center turn lane	2019
Lovell Road (SR 131) Widening	Cedardale Lane to Middlebrook Pike (SR 169)	1.7	Widen 2-lane to 4-lane with median, bike lanes, sidewalk	2019
Schaad Road Extension - New Road Construction	Middlebrook Pike (SR 169) to west of Oak Ridge Highway (SR 62)	4.6	Construct new 4-lane with median, 6' sidewalks, 2 grade-separated rail crossings	2024
Oak Ridge Highway (SR 62) Widening	Schaad Road to Byington-Beaver Ridge Road (SR 131)	4.2	Widen 2-lane to 4-lane with two-way left-turn lane, bike lanes, sidewalks	2024
Pellissippi Parkway (SR 162) at Lovell Road (SR 131) Interchange Improvements	Interchange at Lovell Road (SR 131)	0	Reconfigure existing interchange to improve safety and operations	2024
Pellissippi Parkway (SR 162) at Oak Ridge Hwy (SR 62) Interchange Improvements	Interchange at Oak Ridge Highway (SR 62)	0	Reconfigure existing interchange to improve safety and operations	2024
Byington-Beaver Ridge Road (SR 131) Railroad Underpass	At one-lane railroad underpass	0.2	Widen railroad underpass	2024
Campbell Station Road Widening	Snyder Road to Yarnell Road	1.8	Widening to include addition of center turn lane, bike/pedestrian facilities	2024
Pellissippi Parkway (SR 162) Widening	Edgemoor Road (SR 170) to Dutchtown Road	6	Widen from 4-lane to 6-lane	2034
Emory Road (SR 131) Widening	Oak Ridge Highway (SR 62) to Clinton Highway (US 25W / SR 9)	5	Add center turn lane	2029
Oak Ridge Highway (SR 62) Widening	Byington-Beaver Ridge Road (SR 131) to Pellissippi Parkway (SR 162)	4.2	Widen 2-lane to 4-lane	2029
Vanosdale Road Widening	Buckingham Road to Middlebrook Pike (SR 169)	0.9	Add center turn lane	2040
I-40/75 Widening	I-40/I-75 Interchange to Lovell Road (SR 131) Interchange	6.7	Widen 6-lane to 8-lane	2040

Northwest County Sector: Planned Roadway Improvements



Section 3:

Five- and Fifteen-Year Improvement Plan

The improvement plans recommend 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 a scenic corridor overlay district for commercial and rural corridors - Oak Ridge Highway, Hardin Valley Road, W. Emory Road, Schaad Road Extension	X		County/MPC
Create a new Agricultural zone in the county to protect farmland and rural landscapes	X		City/County/MPC
Update the subdivision ordinance to include conservation subdivisions as a development alternative	X		City/County/MPC
Update the Growth Policy Plan	X		City/County/MPC
Update the subdivision ordinance to include sidewalk and connectivity standards	X		MPC
Draft Small Scale Innovation District Zone	X		City/County/MPC
COMMUNITY FACILITIES			
Work with Knox County Schools on site planning for the proposed Hardin Valley Middle School	X		County/Knox County Schools/MPC
Complete Harrell Road Park	X		County
Complete Plumb Creek Park	X		County
Build the West Knox to Oak Ridge Greenway (along the Pellissippi Parkway Technology Corridor)	X	X	TDOT/City/County
Acquire land in Hardin Valley area for Hardin Valley Community Park X	X		County
Acquire easements and build Connor Creek Greenway (Hardin Valley Area)	X	X	County
Expand playground area at Nicholas Ball Park	X		County
Build Northwest District Recreation Center	X	X	County
Build Hardin Valley Community Park		X	County
Acquire easements and build Beaver Creek Greenway and Beaver Valley Neighborhood Park		X	County
GREEN INFRASTRUCTURE			
Adopt conservation subdivision development ordinance for the preservation of farmland and/or open space	X		City/County
HISTORIC PRESERVATION			
Update the inventory of historic resources in the Northwest County Sector	X		County/MPC
TRANSPORTATION			
Add a center turn lane on Pleasant Ridge Road/Merchants Drive	X		City
Construct new road, Karns Connector, between Westcott Boulevard and Oak Ridge Highway	X		County
Install a 4-way stop at intersection of Schaad Road and Johnson Road		X	County
Install turn lanes for traffic from Byington Beaver Ridge Road to Beaver Ridge Road for Karns Elementary School		X	County
Johnson Road between Ball Camp Pike and Ball Road needs to be reconstructed to a 2-lane section with sidewalks		X	County

TRANSPORTATION...continued			
Pellissippi Parkway and Hardin Valley Road Interchange Improvements	X		TDOT/County
Turn lane added on Schaad Road from Johnson Road to Amherst Elementary School		X	County
Widen Lovell Road from 2 lanes to 4 lanes between Cedardale Lane and Middlebrook Pike with median, bike lanes and sidewalk	X		County/TPO
Widen Schaad Road from 2 lanes to 4 lanes between Oak Ridge Highway and Pleasant Ridge Road	X		County/TPO
Construct new road, Schaad Road Extension, between Middlebrook Pike to west of Oak Ridge Highway, with median, sidewalks and grade seperated rail crossings	X		County
Improve Pellissippi Parkway interchanges at Lovell Road and Oak Ridge Highway		X	TDOT/County
Widen Campbell Station Road to add center turn lane and bike and pedestrian facilities		X	County
Widen Oak Ridge Highway from 2 lanes to 4 lanes between Schaad Road to Byington Beaver Ridge Road, with turning lanes, bike lanes and sidewalks		X	TDOT/County
Widen railroad underpass at Byington-Beaver Ridge Road		X	TDOT/Railroad/County
Widen Fox Lonas Road to 2-lane section, with turn lanes, bike lanes, shoulders, sidewalks and curb and gutter, between Walker Springs Road and Crest Forest Road		X	County
Widen Joe Hinton Road to 2-lane section, with turn lanes, bike lanes, shoulders, sidewalks and curb and gutter, between Middlebrook Pike and Bakertown Road			County
Widen Gray Hendrix Road to 2 lane section, with turn lanes, bike lanes, shoulders, sidewalks and curb and gutter, between Beaver Ridge Road and Byington Solway Road	X	X	County
Widen Byington Solway Road to 2 lane section, with turn lanes, bike lanes, shoulders, sidewalks and curb and gutter, between Byington Beaver Ridge Road and Ball Camp Byington Road		X	County
Build new sidewalks: <ul style="list-style-type: none"> • Amherst Road from Oak Township Drive to Ball Camp Pike to Schaad Road • Byington Beaver Ridge from the school access to Karns Elementary to Garrison Road • Byington Solway Road from Byington-Beaver Ridge Road to Ball Camp Byington Road • Campbell Station Road from Snyder Road to Yarnell Road • Cedar Bluff Elementary to Cedar Bluff Middle service drive • Fox Lonas Road from Walker Springs Road to Crest Forest Road • Garrison Road from Byington Beaver Ridge Road to Gray Hendrix Road • Gray Hendrix Road from Beaver Ridge Road to Byington Solway Road • Harrell Road from W. Emory Road to Oak Ridge Highway • Hickory Creek Road from Buttermilk Road to Hardin Valley Road • Joe Hinton Road from Middlebrook Pike to Bakertown Road • Johnson Road from Ball Road to Schaad Road • Lovell Road from Cedardale Lane to Middlebrook Pike • Oak Ridge Highway from Byington Beaver Ridge Road to sidewalk connection at Karns Elementary School • Oak Ridge Highway from Schaad Road to Byington-Beaver Ridge Road • Schaad Road Extension from Middlebrook Pike to west of Oak Ridge Highway • Sherwin Road to Gray Hendrix Road 		Sidewalks should be added when new development or redevelopment occurs along or within the proposed street segments.	City/County

APPENDIX A: Public Participation

The following is a summary of community input for the Northwest County Sector Plan update from an online survey and public meetings.

ONLINE SURVEY SUMMARY

The survey contains 13 questions that deal primarily with land use, community facilities, and transportation in the Northwest County. A total of 476 survey were completed. The majority of participants, 96 percent live in the sector, and 53 percent work in the sector.

Land Use

The survey showed Hardin Valley Road and West Emory Road areas as the two primary areas that they would prefer to see agricultural and rural land uses preserved. New commercial land uses are most supported along Western Avenue and Clinton Highway. New office is most supported at Dutchtown Road and Parkwest Area, as well as at Middlebrooke Pike around Dowell Springs Road. New multifamily (apartments, duplexes) are most supported around Ball Camp and the Schaad Road Extension area. Watt Road and Westbridge Business Park areas received the most favorable responses for new industrial land uses. Proposed land use projects from the 2003 Northwest County Sector Plan were included in the survey. Participants were asked if the recommendations are still valid. Responses are provided below:

East Hines Valley (Amherst) Proposal

- 58 percent feel an interconnected street network for cars, as well as pedestrians and bicyclists, including a road connecting Ball Road, the Schaad Road Extension and Ball Camp Pike is needed for this area.
- Traffic concerns around Amherst Elementary were also noted.

Village Center at Hardin Valley and Steele Road

- 70 percent would still like to see a “village center” concept in the Hardin Valley Road area, near the intersection with Steele Road and N. Campbell Station Road. However, the original area this concept was proposed for has since developed primarily as a strip commercial center rather than the mix of uses that was proposed, such as a park square, shops, a variety of housing options, sidewalks and a branch library.

- The desire for a new middle school in Hardin Valley was noted in over 90 percent of the responses to the survey.
- Concerns regarding traffic and congestion with increased development was also a concern.

Karns Overlay District

- 63 percent feel that a zoning overlay district with design guidelines to create a pedestrian oriented neighborhood center for Karns is still needed for this area.
- Traffic around schools and the need for pedestrian facilities linking educational, residential, commercial, office and park uses heavily mentioned as well.

Transportation

The survey revealed the top three general transportation priorities are:

1. Improved safety near schools
2. More sidewalks and pedestrian paths/bike trails
3. More vehicle capacity on major streets

The top priorities along specific roads and intersections in the Northwest County are:

- Cedar Bluff Road – less congestion
- Oak Ridge Highway – less congestion
- Western Avenue – less congestion, improved vehicular safety
- Ball Camp Pike – better sidewalks/crosswalks, less congestion
- Clinton Highway – improved vehicular safety
- Pellissippi Parkway – improved vehicular safety
- Middlebrook Pike – bicycle lanes, less congestion
- Hardin Valley Road – bicycle lanes, less congestion
- Schaad Road – less congestion, improved vehicular safety
- Emory Road – improved vehicular safety, better sidewalks/crosswalks
- Lovell Road – less congestion

Community Facilities

The survey yielded the following responses regarding parks and greenways in the Northwest County:

- Respondents noted that Ball Camp Park, Nicholas Ball Park and the AYSO Fields are the most highly used park facilities within the sector.

- Melton Hill Park is the second most highly used park by survey respondents.
- The Knox County SportsPark is also heavily utilized, but more so on a monthly or yearly basis
- The most commonly noted open-ended responses in the survey in regard to desired improvements in park and greenway facilities for the sector were:

1. More greenways and options for safe walking & bicycling
2. Hardin Valley needs a park
3. Splash pads are needed at existing parks

An open-ended question was asked regarding the sector planning process generally for the Northwest County sector and the following is a summary of the most common themes that emerged in the answers respondents provided:

- The Hardin Valley area needs a middle school.
- Better, more transparent coordination between land use planning and school system planning was also noted on several occasions, particularly as the growth of residential in the sector is perceived to be the cause of overcrowding in the schools.
- Rural, agricultural land loss was noted as a major concern in both responses to this question as well as at the first round of public meetings.
- Pellissippi Parkway and Hardin Valley Road Interchange traffic needs to be addressed.
- Traffic near schools was also mentioned frequently.
- Well connected pedestrian and bicycle facilities, such as greenways, sidewalks and trails are needed.
- The need for a southbound turn from Oak Ridge Highway onto the Pellissippi Parkway
- The desire for access control and use of frontage roads was noted for the major arterials in the sector
- Concerns related to lack of implementation of plan policies and concepts were mentioned by several respondents.
- Better access to food and grocery stores are needed for the Pellissippi and Hardin Valley area.
- A desire for better sign control, particularly related to billboards was also noted.

PUBLIC MEETINGS SUMMARY

Round One: Three larger format public meetings were held: September 22nd, 2014 at Pellissippi State Community College (10 attendees), September 25th, 2014 at Cedar Bluff Elementary School (7 attendees), and October 7th, 2014 at Karns Community Club (35 attendees). Staff was also invited to meet with the Northwest Business and Professional Association on November 13th and the Karns Republican Club on February 3, 2015. At each of these five meetings, a presentation was given on the sector planning process, background report and three major components of a sector plan (land use, transportation, and community facilities). Attendees were encouraged to provide comments with opportunities for public discussion. Below is a summary of comments and major themes received during the first round of meetings:

Land Use

- Loss of rural character & “small town feel”
- Growth outpacing infrastructure (roads, schools, parks, etc.)
- Changing dynamics of Technology Corridor; mixed-use interests
- Solway needs design guidelines – “it’s a community gateway”

Transportation

- Congestion at peak hours and around schools
- Need for sidewalks, especially connecting schools & neighborhoods & parks
- Hardin Valley & Pellissippi Parkway interchange improvements needed

Community Facilities

- Would like to be able to walk/bike to parks
- Park facilities needed in Hardin Valley

County Commission Work Session

On February 23, 2015 MPC staff presented to the Knox County Commission during their work session regarding the Northwest County Sector Plan Update.

Karns Community Workshop

On November 3, 2015 MPC staff conducted a workshop at the Karns Community Club in response to community interest in identifying ways to address the concerns related to growth and development that the Karns community is experiencing. A brief presentation on the draft proposed

land use plan for the Karns area was provided for the group, then in small tables the group worked on area maps to identify the strengths and challenges, and identify top priorities for the Karns community. The following is a summary of the responses identified during the meeting.

Strengths

- Rural setting, but centrally located to resources (shopping, medical, etc.)
- Medical facilities nearby
- Knox County Sports park, Karns Senior Center, Karns Library
- Schools (elementary, middle and high schools)
- Community involvement
- Open space, green spaces, parks, farms
- Community pride
- Strong history
- Rural beauty
- Ball Camp Park
- Sidewalk near Karns Elementary
- Fire department nearby
- Karns Community Club
- Lions Park
- Pedestrian bridge between middle and elementary schools over Oak Ridge Highway
- Karns Fair (only one in Knox County)
- Karns’ connection to Oak Ridge Highway

Challenges

- Narrow roads are dangerous
- Traffic around schools is bad (especially during drop off/pick up)
- Lack of sidewalks (need for more)
- Dangerous roads around schools
- Stuck with linear development between two ridges
- “We don’t want to be like Clinton Highway.”

Top Three Priorities

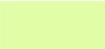
1. Road improvements
2. More sidewalks (more connectivity)
3. Scenic overlay designation for Oak Ridge Highway

Round Two: The Knoxville Knox County Metropolitan Planning Commission held a second round of public meetings for the Northwest County Sector Plan update on April 26, 2016 (Hardin Valley Academy) and May 3, 2016 (Karns Community Club). At each meeting, a presentation was given providing a brief overview of sector planning, results from the online survey and the first round of public

meetings, as well as highlights of the proposed land use recommendations for the Northwest County. Attendees were encouraged to provide feedback on the draft land use recommendations through public discussion. Below is a summary of comments received during the meetings.

- Many requests for making neighborhoods and community more walkable, better sidewalks connecting schools, parks, commercial areas and neighborhoods.
- Concerns regarding residential development outpacing school facility capacity.
- Development doesn’t correspond with the approved plan.
- Concern regarding high density residential (apartments), especially on steep sloped areas.
- Attendees expressed concerns regarding approvals for new development when limitations regarding school facilities are known.
- Prime agricultural land and wetlands should not be used for development.
- Light industrial zone and economic center zone are still too intensive and a better zone is needed that is compatible with residential and schools, specific issues surrounding the WestBridge Business Park and Karns High School area noted.
- Concerns regarding clearing and grading in steep sloped areas being poorly managed, particularly around Hardin Valley and Pellissippi.
- More parks are needed, particularly in Hardin Valley, since it is growing so fast.
- Ability to walk to parks and recreation facilities is needed.
- A sinkhole area in Cedar Bluff, adjacent to All Saints Catholic Church should be shown as Other Open Space because of its environmental constraints and existing walking paths that the community utilizes.
- Oak Ridge Highway in the Karns community should only have neighborhood commercial, lower scale type growth, not just new big box stores like Wal-mart.
- Congestion at Pellissippi and Hardin Valley Road is increasingly a problem, including traffic on Solway Road
- Solway needs better, thoughtful development. This road isn’t built for high traffic. Long term planning is needed for this area.

APPENDIX B: Land Use Classifications

AGRICULTURAL and RURAL RESIDENTIAL LAND USE CLASSIFICATIONS		
 <p>AGRICULTURAL (AG)</p>  <p>AGRICULTURAL CONSERVATION (AGC) <i>This includes farmland in the county's Rural or Planned Growth Areas 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).</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Farmland in the Rural and Planned Growth Areas 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) 	<p>Recommended Zoning and Programs: County's Rural and Planned Growth Areas Additionally, conservation easement and related programs should be considered to preserve prime farmland.</p> <p>Other Zoning to Consider: A or PR at densities of one dwelling unit per acre or less if dwellings are clustered in one portion of a subdivision</p> <p>New Zone Opportunity: County: AC (Agricultural Conservation) is proposed for Agricultural Conservation (AGC) areas, allowing agriculture and one dwelling unit per 30 acres, minimum.</p>
 <p>RURAL RESIDENTIAL (RR) <i>Very low density residential and conservation/cluster housing subdivisions are typical land uses.</i></p>	<p>Location Criteria:</p> <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 	<p>Recommended Zoning and Programs: County's Rural Area: OS, E, RR, or PR at densities of one dwelling unit per acre if dwellings are clustered in one portion of a subdivision</p> <p>Other Zoning to Consider: A or PR in the Growth Plan's Rural Area at densities of up to 3 dwelling units per acre or less if dwellings are clustered in one portion of a subdivision</p> <p>New Zone Opportunity: County: Rural Residential, with densities of one dwelling unit per acre or less</p>
 <p>TRADITIONAL NEIGHBORHOOD RESIDENTIAL (TDR) <i>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.</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Neighborhoods 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 of Knoxville. • 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) 	<p>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 County's Planned Growth Area: PR</p> <p>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)</p> <p>New Zone Opportunity: City: Residential zones based on lot sizes less than 7,500 square feet County: TND zone</p>
 <p>LOW DENSITY RESIDENTIAL (LDR) <i>This type of land use is primarily residential in character at densities of less than 6 dwelling units per acre (city) and less than 5 dwelling units per acre (county). Conventional post-1950 residential development (i.e. large-lot, low-density subdivisions) and attached condominiums are typical.</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Land served by water and sewer utilities and by collector roads • Slopes less than 25 percent 	<p>Recommended Zoning and Programs: City: R-1, R-1E and RP-1 at less than 6 dwelling units per acre County's Planned Growth Area: RA, RAE and PR at less than 5 dwelling units per acre</p> <p>Other Zoning to Consider: City: R-1A and A-1 County: A and RB</p> <p>New Zone Opportunity: City: Residential zones based on lot sizes greater than 7,500 square feet and 75 feet or greater frontage</p>

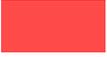
 <p>MEDIUM DENSITY RESIDENTIAL (MDR) Such land uses are primarily residential at densities from 6 to 24 dwelling units per acre (city) and 5 to 12 dwelling units per acre (county). Attached houses, including townhouses and apartments are typical. Mobile home parks are another form of this land use.</p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • As transitional areas between commercial development and low density residential neighborhoods • Site 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 	<p>Recommended Zoning and Programs: City: R-2, R-3 and R-4 (within the 19th and early 20th century grid street neighborhoods of Knoxville, accompanied by an IH-1, NC-1 or H-1 overlay); otherwise, R-1A, RP-1, RP-2 or RP-3. Densities above 12 dwelling units per acre should be within ¼ mile of transit service with sidewalk connections to transit service. County's Planned Growth Area: PR, densities above 12 dwelling units per acre should be within ¼ mile of transit service with sidewalk connections to transit service; Other Zoning to Consider: City's Urban Growth Boundary: R-2, R-3 and R-4 New Zone Opportunity: County: RB at 6 or more dwelling units per acre may be considered with use on review</p>
 <p>HIGH DENSITY RESIDENTIAL (HDR) This land use is primarily characterized by apartment development at densities greater than 24 dwelling units per acre.</p>	<p>Location Criteria:</p> <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 • Relatively flat sites (less than 10 percent slopes) • Along corridors with transit and sidewalks 	<p>Recommended Zoning and Programs: City: C-2, RP-2 and RP-3, R-3 and R-4 (within the 19th and early 20th century grid street neighborhoods of Knoxville, accompanied by an IH-1, NC-1 or H-1 overlay) Other Zoning to Consider: TC-1 and TC (if higher density residential is part or a mixed-use project) New Zone Opportunity: City: Form-based codes (e.g. South Waterfront)</p>
 <p>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.</p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • See Medium Density Residential (MDR) criteria 	<p>Recommended Zoning and Programs: City: RP-1, RP-2, RP-3 County: PR Other Zoning to Consider: City: O-1, O-2 County: OB</p>

OFFICE and BUSINESS/TECHNOLOGY LAND USE CLASSIFICATIONS

 <p>OFFICE (O) <i>This land use includes business and professional offices and office parks.</i></p>	<p>Location Criteria:</p> <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 	<p>Recommended Zoning and Programs: City: O-1, O-2, O-3 County's Planned Growth Area: OA, OC, PC (with covenants)</p> <p>Other Zoning to Consider: In areas that are identified in sector plans exclusively as office land uses, OB</p> <p>New Zone Opportunity: City: Office zone should be created that requires site plan review County: Office park zone should be created that requires site plan review</p>
 <p>TECHNOLOGY PARK (TP) <i>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.</i></p>	<p>Location Criteria:</p> <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 	<p>Recommended Zoning and Programs: City: BP-1 County's Planned Growth Area: BP and PC (with covenants limiting uses to research/development)</p> <p>Other Zoning to Consider: EC (with limitations to require office and research/development uses)</p>

RETAIL and RELATED SERVICES LAND USE CLASSIFICATIONS

 <p>RURAL COMMERCIAL (RC) <i>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.</i></p>	<p>Location Criteria:</p> <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 	<p>Recommended Zoning and Programs: County's Rural Area: CR Other Zoning to Consider: CN</p>
 <p>NEIGHBORHOOD COMMERCIAL (NC) <i>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).</i></p>	<p>Location Criteria:</p> <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 	<p>Recommended Zoning and Programs: City: C-1 County's Planned Growth Area: CN Other Zoning to Consider: SC-1</p>
 <p>COMMUNITY COMMERCIAL (CC) <i>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).</i></p>	<p>Location Criteria:</p> <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 	<p>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)</p>

 <p>REGIONAL COMMERCIAL (RS) <i>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).</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Flat sites (under 10 percent slope) • Locate near interstate interchanges with major arterial highway access • Water, sewer, natural gas utilities and stormwater systems should be capable of handling the development • Vehicular and pedestrian connections should be accommodated between components of the development 	<p>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 area: PC</p> <p>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</p>
 <p>GENERAL COMMERCIAL (GC) <i>This 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.</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Existing commercial areas 	<p>Recommended Zoning and Programs: City: C-6 and PC-1 County's Planned Growth Area: PC C-3, C-4, C-5, SC-1, SC, CA and CB for infill commercial development in areas previously zoned for commercial uses</p> <p>New Zone Opportunity: County: Corridor design overlays, if designated as special districts (see Mixed Use and Special Districts)</p>

MIXED USE and SPECIAL DISTRICTS

A NOTE ABOUT 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.

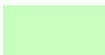
 <p>MIXED USE NEIGHBORHOOD CENTER (MU-NC) <i>These are the least intense of the proposed mixed use districts. Residential densities of 5 to 12 dwelling units per acre are appropriate within the area. Locations at the intersection of a local street and thoroughfare are generally most appropriate. The surrounding 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.</i></p>	<p>Location Criteria:</p> <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 	<p>Recommended Zoning and Programs: TND-1</p> <p>New Zone Opportunity: Other form- or design-based codes</p>
 <p>MIXED USE COMMUNITY CENTER (MU-CC) <i>These centers are envisioned to be developed at a moderate intensity with a variety of housing types (8 to 24 dwelling units per acre). 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.</i></p>	<p>Location Criteria:</p> <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) 	<p>Recommended Zoning and Programs: TC-1, TC</p> <p>New Zone Opportunity: Other form- or design-based codes</p>

 <p>MIXED USE REGIONAL CENTER (MU-RC) <i>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 dwelling units per acre. Downtown Knoxville's Central Business District is a regional mixed use center.</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Flat site (generally less than 10 percent slopes) • 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 	<p>Recommended Zoning and Programs: C-2 in the Central Business District (Downtown); TC-1, TC or new form-based codes (and regulating plans) for other community and regional centers</p> <p>New Zone Opportunity: An adaptation of C-2 for the 'Downtown North' area (Central City Sector) should be created. Other form- or design-based codes</p>
 <p>MIXED USE URBAN CORRIDOR (MU-UC) <i>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.</i></p>	<p>Location Criteria:</p> <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 	<p>Recommended Zoning and Programs: City: Form-based or design-based codes (e.g. South Waterfront)</p>
 <p>MIXED USE SPECIAL DISTRICT (MU-SD) <i>This 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.</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Case-by-case analysis is recommended 	<p>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.</p>
 <p>MIXED USE SPECIAL CORRIDOR (MU-CD) <i>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.</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Case-by-case analysis is recommended 	<p>Recommended Zoning and Programs: Should be noted in the Sector Plan and One Year Plan for each of these districts</p>

INDUSTRIAL AND WAREHOUSE/DISTRIBUTION LAND USE CLASSIFICATIONS

 LIGHT INDUSTRIAL (LI)  HEAVY INDUSTRIAL (HI)  MINING (HIM) <p><i>Typically older industrial areas used for the 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 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.</i></p>	<p>Location Criteria:</p> <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 	<p>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 County's Planned Growth Boundary: LI; EC zone should be used in future development</p> <p>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.</p> <p>New Zone Opportunity: City: A new planned, industrial zone should be created that requires site plan review to address environmental and transportation issues and surrounding community concerns.</p>
 BUSINESS PARK TYPE 1 (BP-1) <p><i>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.</i></p>	<p>Location Criteria:</p> <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 sewer, water and natural gas 	<p>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</p> <p>Other Zoning to Consider: PC</p>
 BUSINESS PARK TYPE 2 (BP-2) <p><i>Primary uses are light manufacturing, offices, and locally-oriented warehouse/distribution services. Retail and restaurant services, 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.</i></p>	<p>Location Criteria:</p> <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 • Can be served with sewer, water and natural gas 	<p>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</p> <p>Other Zoning to Consider: PC</p>

PARK, PUBLIC INSTITUTIONAL, OTHER OPEN SPACE & ENVIRONMENTAL PROTECTION LAND USE CLASSIFICATIONS

 <p>PUBLIC PARKS AND REFUGES (PP) <i>This classification contains existing parks, wildlife refuges or similar public or quasi-public parks, open spaces and greenways. Quasi-public spaces 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.</i></p>	<p>Location Criteria:</p> <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 19th and early 20th century grid street neighborhoods 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. 	<p>Recommended Zoning and Programs: City: OS-1 County: Planned Growth Area - OS, E and OC ; Rural Area - OS, E</p> <p>Other Zoning to Consider: Other zones that allow parks and open space as permitted uses.</p> <p>New Zone Opportunity: A zone should be created to designate parks, schools and similar institutional lands for both city and county jurisdictions.</p>
 <p>CIVIC/INSTITUTIONAL (CI) <i>Land used for major public and quasi-public institutions, including schools, colleges, the university, churches, correctional facilities, hospitals, utilities and similar uses.</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Existing public uses, other than parks and greenways • Quasi-public uses of two acres or more 	<p>Recommended Zoning and Programs: City and County: O-1, O-2, or OC in rural areas</p> <p>Other Zoning to Consider: Other zones that allow civic/institutional as permitted uses.</p> <p>New Zone Opportunity: A new zone should be created for such uses.</p>
 <p>OTHER OPEN SPACE (OS) <i>Include cemeteries, private golf courses, and similar uses</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Existing cemeteries, private golf courses and private open spaces 	<p>Recommended Zoning and Programs: City: OS-1 County's Planned Growth and Rural Area: OS, E and OC</p> <p>Other Zoning to Consider: A-1, and A</p> <p>New Zone Opportunity: A new zone should be created to designate parks, schools and similar institutional lands.</p>
 <p>WATER (W) <i>Typically includes the French Broad River, Holston River, Tennessee River (Fort Loudoun Lake), and Clinch River (Melton Hill Lake)</i></p>	<p>Location Criteria:</p> <ul style="list-style-type: none"> • Rivers, TVA reservoirs 	<p>Recommended Zoning and Programs: City: F-1 County: F</p>
 <p>MAJOR RIGHTS-OF-WAY (ROW) <i>Generally, the rights-of-way of interstates and very wide parkways and arterial highways</i></p>		

APPENDIX C: Summary of the *Beaver Creek Watershed Green Infrastructure Plan*

The Beaver Creek and its watershed have become more significant concerns in terms of bank and upland erosion (particularly as a result of runoff from development processes), pollution, and flooding. Recognizing the increasing urbanization of the watershed, the *Beaver Creek Green Infrastructure Plan* was created to provide a framework for creating “green infrastructure.” While conventional infrastructure includes roads and utilities, green infrastructure is focused on natural and manmade spaces, including forested hillside, stream corridors, parks, and farms. This plan addresses the conservation of those systems and proposes more compact, walkable communities. Its goals are:

- To protect and restore naturally functioning ecosystems;
- To provide solutions to improve water quality and mitigate flooding;
- To enhance recreation opportunities;
- To provide a framework for future development;
- To connect communities and neighborhoods;
- To create stream conservation buffers, offering flood, wetland and habitat protection;
- To identify lands for greenways; and
- To protect lands with significant historical, recreational, or aesthetic value.

The major concepts are outlined below and appear on the following map.

The Land and Its Settlement Patterns

The historical settlement patterns are explored in relation to natural environmental features, such as steep slopes and floodplains, since most early development avoided environmentally sensitive areas in favor of more easily developed locations. Over time, the environmentally sensitive areas become more likely to develop as the less constrained lands that are undeveloped become scarce. In completing this study environmental features were taken into consideration, such as landforms and slope, existing forest, existing land use and existing development intensity. The conclusion is that suburban sprawl is spreading rapidly through the Beaver Creek watershed which is threatening the area’s scenic beauty and rural landscape heritage as farms are converted to new uses. These new uses are spread out and require the use of motor vehicles to get from point to point. Due to this pattern of development, traffic is worse every year.

The Open Space Network

The open space network is an interconnected pattern of open space elements that allow the system to function in an integrated way. Open space is land with a low intensity of development, such as parks, plazas, greenways, farms, wetlands, and forests. In order to determine which areas are best suited for such a network, various aspects of the existing natural and built environment were explored in the watershed, such as the species richness, land value for wildlife habitat, and agricultural land value. The conclusion is that with the rapid suburbanization of the area, it is becoming increasingly more difficult to create a comprehensive open space network.

Protecting the Water Network

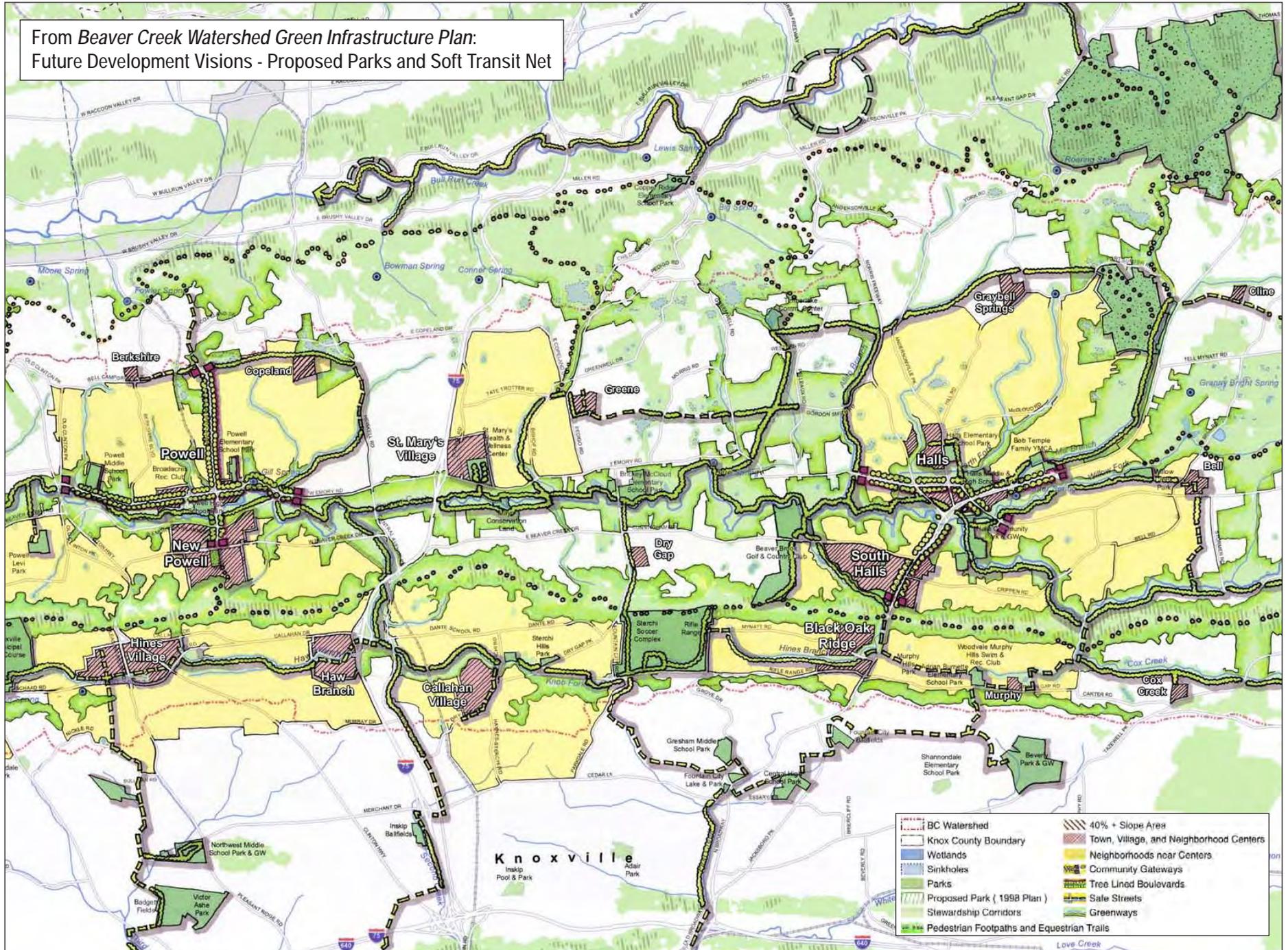
Protecting the water network is one of the primary concerns of this plan. The plan demonstrates that the land development that has taken place in the watershed has implications for public health and safety. As the lands uphill from the streams have been developed, they have created additional stormwater runoff which impacts the stream water quality and made flooding worse. This plan recognizes that there is room for additional development in the watershed but if it is not done properly, the new development could further strain the already impacted stream network. It is suggested that larger riparian buffers than are currently required be utilized to help negate the effects of new uphill development.

A Vision for Future Development

The plan outlays all the aspects of the study and combines the outcomes into the Proposed Parks and Soft-transit Network (greenways) plan which generally outlays areas for open space and development, see the map below. The idea is to have a planned open space network that complements the built environment in a controlled manner. The open space network is to become a viable alternative to motor vehicle reliance for short trips.

This idea is not completely foreign to Knox County, or even the North County Sector. In the Powell community, the Powell greenway runs along Emory Road and stretches from Powell High School to Clinton Highway, creating a soft-transit network connecting two schools, two commercial districts, a park, and multiple residential subdivisions. The *Beaver Creek Green Infrastructure Plan* takes this model for the Powell community and spreads it across the entire Beaver Creek watershed. Many of the park and greenway recommendations of this plan are already in the approved *Knoxville-Knox County Park, Recreation and Greenways Plan*.

From *Beaver Creek Watershed Green Infrastructure Plan*:
 Future Development Visions - Proposed Parks and Soft Transit Net



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