



Connecting Johnson City

The Land Use & Transportation Plan for Johnson City & its Environs

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The Land Use & Transportation Plan for Johnson City & its Environs

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*by re-integrating land use & transportation,
Johnson City places priority on quality long term growth*

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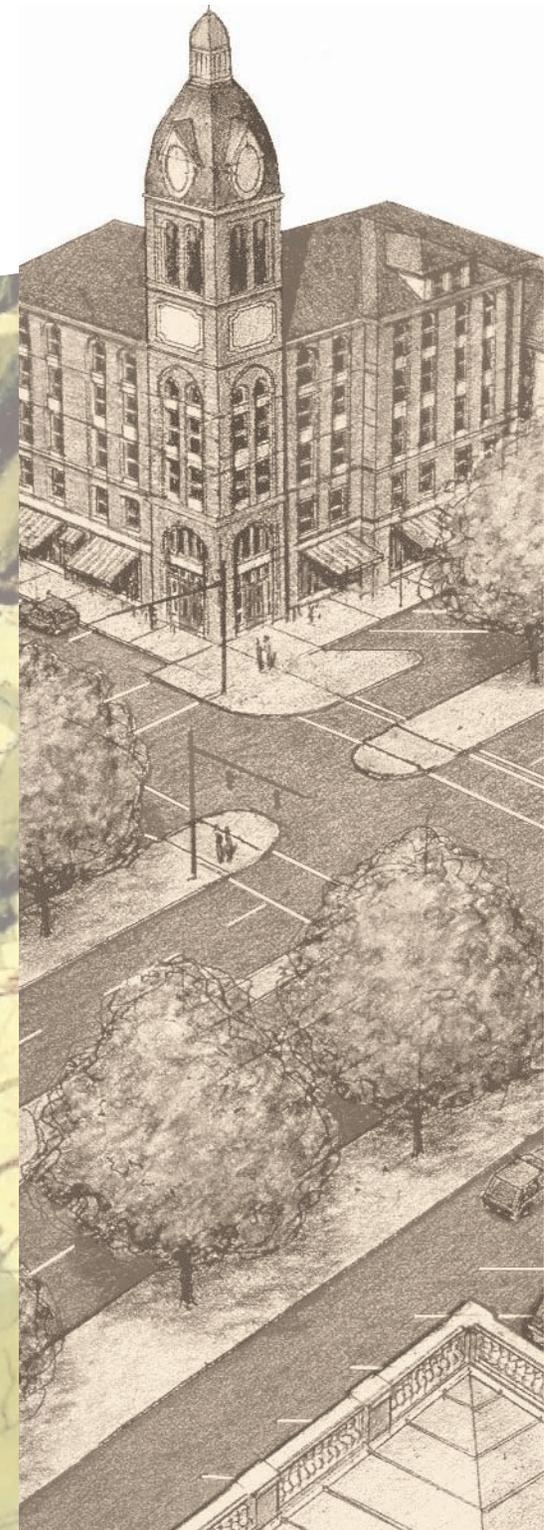
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A National Model

1



Johnson City can be a national model for sustainable change and growth.

Like many cities across the country, Johnson City is redefining itself to remain economically viable and at the same time remain a desirable place to live and work. This historic place at the foothills of the Appalachian Mountains offers a spectrum of ways and places to live, from the urban life of the downtown to the more rural communities such as Boones Creek and Carroll Creek Road, Gray and Piney Flats. The region's combination of scenic backdrop and exceptional job opportunities continues to attract more people. Channeled into positive physical form in the built environment, the healthy economy can lead to growth that is beneficial and enduring. Unmanaged, the growth will diminish the City's character.

Connecting Johnson City: the Land Use and Transportation Plan is proposed as an innovative master planning effort. Johnson City is the recipient of a grant through the Transportation and Community and System Preservation Pilot Program (TCSP). This federal program is a comprehensive initiative of research and grants to investigate the relationships between transportation, community, system preservation, and private sector initiatives. Equally important, the Metropolitan Planning Organization and the State will be eligible for discretionary grants to help implement the master plan strategies. This extraordinary opportunity allows Johnson City to implement aspects of the plan through available federal grants. Johnson City can continue its hard work to be the exceptional city in the region, as well as a national model, through the TCSP Grant Program.

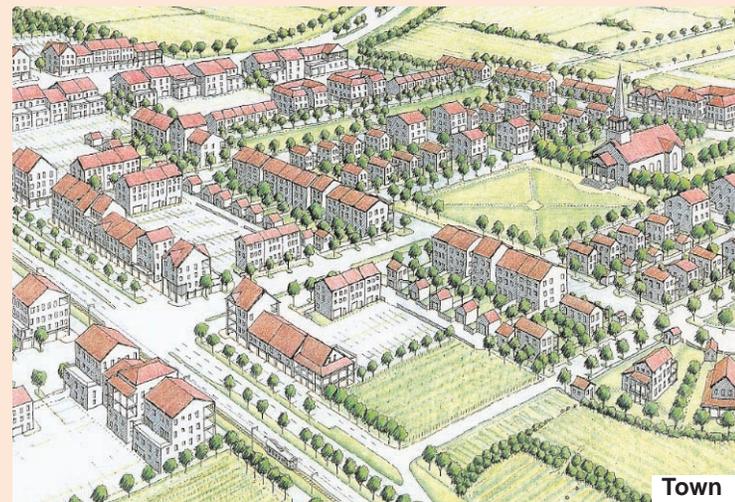
The Master Plan re-integrates Land Use and Transportation, and explains how the two disciplines should work together. The plan places the priority on creating community by using the *neighborhood* as the increment for planning. New development is deliberately thought of in terms of creating new neighborhoods, or completing and improving the existing neighborhoods. This planning approach abandons the pattern of adding and widening roads first, which is then followed by the reactive development of new commercial areas and subdivisions. *Connecting Johnson City* proposes a deliberate, proactive approach to growth while addressing transportation needs as an integral part of the planning process.

This report documents the public involvement process, the analysis and the proposed strategy for future change and growth. The Plan is organized as follows:

Where would you prefer to live?

No matter what its size, every city has people, homes, parks, streets, and places to work, shop, and play. But for all their similarities, what makes one city more enduring, economically vital and livable than another? What elevates a great city above the ordinary?

While each city has all of those pieces, what really matters is how the greater system of physical pieces and policies work and fit together. Are the parts connected to the whole?



All the same pieces, in two very different configurations.

Chapter 2 – The Charrette

This chapter summarizes the desires of the residents, business owners, students, and city officials that interacted with the planners during the weeks of the charrette. A description of the public meetings and presentations is also included. An important aspect of the planning process has been identifying and prioritizing the preferences of the citizens for their specific neighborhood, as well as for the greater city. As part of the meetings, participants were asked to name their number one priority for the plan. These are included in a pie chart. The most frequently mentioned ideas were: develop downtown, protect and connect greenspace, and increase walkability. These three simple ideas become the major themes that are interwoven throughout the remainder of the Land Use and Transportation Plan.

Chapter 3 - Historic and Future Growth

The history of Johnson City from its original settlement as the Watauga Association to the latest rounds of annexation is examined. The effects of the more recent expansion are explored using cost factors, the amount of land used per person, ratio of population per square mile, and the rate of growth. This section is supplemented with charts and other illustrations. After these various patterns have been reported, three different growth scenarios are explained. Each of the three scenarios tells a different story of what can happen to Johnson City in the future. The first is the ‘Status Quo’ scenario which shows if Johnson City continues to grow under its current pattern, we can expect a further separation of land uses, increased driving, and increased investment in infrastructure without significant returns. This scenario would have an overall negative impact on the community’s quality of life. The second scenario explores the ‘Typical Growth Boundary Approach’ as a method for managing growth. This approach has had limited success nationally; the overall result is one of expensive growth and political pressure at the edge to move the boundary. The third scenario is the proposed ‘Connecting Johnson City Approach’ where growth focuses on the creation

of a variety of neighborhoods that can serve the daily needs of the residents. This approach also makes a deliberate effort to preserve and connect greenspace as well as to preserve rural character. This approach sets the stage for the concepts and implementation strategies in the rest of the Land Use and Transportation Master Plan.

Chapter 4 - Making Neighborhoods

Typically in places built before World War II, as well as the more recent *Traditional Neighborhood Developments* (TNDs), we experience neighborhoods that are compact and walkable. A mix of uses, a variety of living and housing options, as well as neighborhood services such as stores, schools and churches can be found within walking distance. This section proposes an approach in which the neighborhood is the basis for future planning. This approach is three-tiered and manages and encourages quality growth at three scales: the neighborhood, the community catchment, and the city.

Neighborhood Scale

First the physical qualities of neighborhoods are explained, such as the size and diversity of building types and uses. The goal is to achieve the desired character in new neighborhoods, as well as redeveloping existing areas to be more complete neighborhoods. This goal is possible through the details of planning and design. A *Traditional Neighborhood Code* is proposed as a new framework, accompanied by an incentive program, that would serve as an alternative to existing regulations and promote the desired character for new development.

Community Catchment Scale

At the larger community scale, the goal is to rely less on the regional road network by providing daily needs, services and jobs within a group of adjacent neighborhoods. The fundamental idea is that not every neighborhood can provide all of the daily needs and services for its residents, but a group of several neighborhoods can. Managing services, and balancing jobs and

housing within a group of adjacent neighborhoods are referred to as a *Community Catchment Plan*. Criteria and an explanation of how these plans work are provided.

City Scale

Connecting land use and transportation at the City Scale is crucial. Included are recommendations on preparing analysis for preferable locations where future growth should occur. Future growth should first be incorporated into existing neighborhoods, where infrastructure already exists. When growth does spread out into the undeveloped lands, then it should do so in a manner that respects natural features, environmental constraints, and agriculture. Creating a systematic approach that uses computer analysis as well as keeping the public involved in the planning process is an important element for future success.

Chapter 5 – Livable Transportation

Most of the current transportation planning policies focus on moving cars and building roads. A more comprehensive approach to transportation planning sets the stage for long-term solutions. This approach looks at transportation from many different perspectives and explains how the existing and proposed infrastructure can create a more complete physical framework through connected pedestrian and bicycle friendly streets, trails and greenways. These are physical options for moving people, not just cars. The framework will define the types of streets, identify where linkages are needed, show where the retrofit of existing streets is necessary, and identify future caps on the number of lanes. The key aspects are to make walking a viable option by making the existing street infrastructure livable, retrofit existing streets to create real mixed-use districts, and reduce the actual amount of travel. All of these ideas coincide with the creation of complete neighborhoods.

Chapter 6 – Completing Neighborhoods

The Master Plan places priority on new homes and businesses within the existing Johnson City limits. Site-specific plans demonstrate techniques on how existing areas can be rethought and redeveloped. These plans emphasize redeveloping with a complete mix of uses and adding to an existing area in a way that complements the neighborhood form. These *example site plans* are scenarios that have transferable value. The approaches illustrated can be used on other redevelopment sites in the future. Redevelopment within the city limits has many advantages. Infrastructure is already present. Providing a mix of uses, options to live and work near each other, creates an alternative to heavy reliance on the regional road network. This approach can also provide a greater variety of housing options.

Excerpts from
The Transportation and Community
and System Preservation Pilot Program
<http://www.fhwa.dot.gov/tcsp>

TCSP-1999 Grant Proposals
<http://www.fhwa.dot.gov/tcsp/grantees/tn01.html>

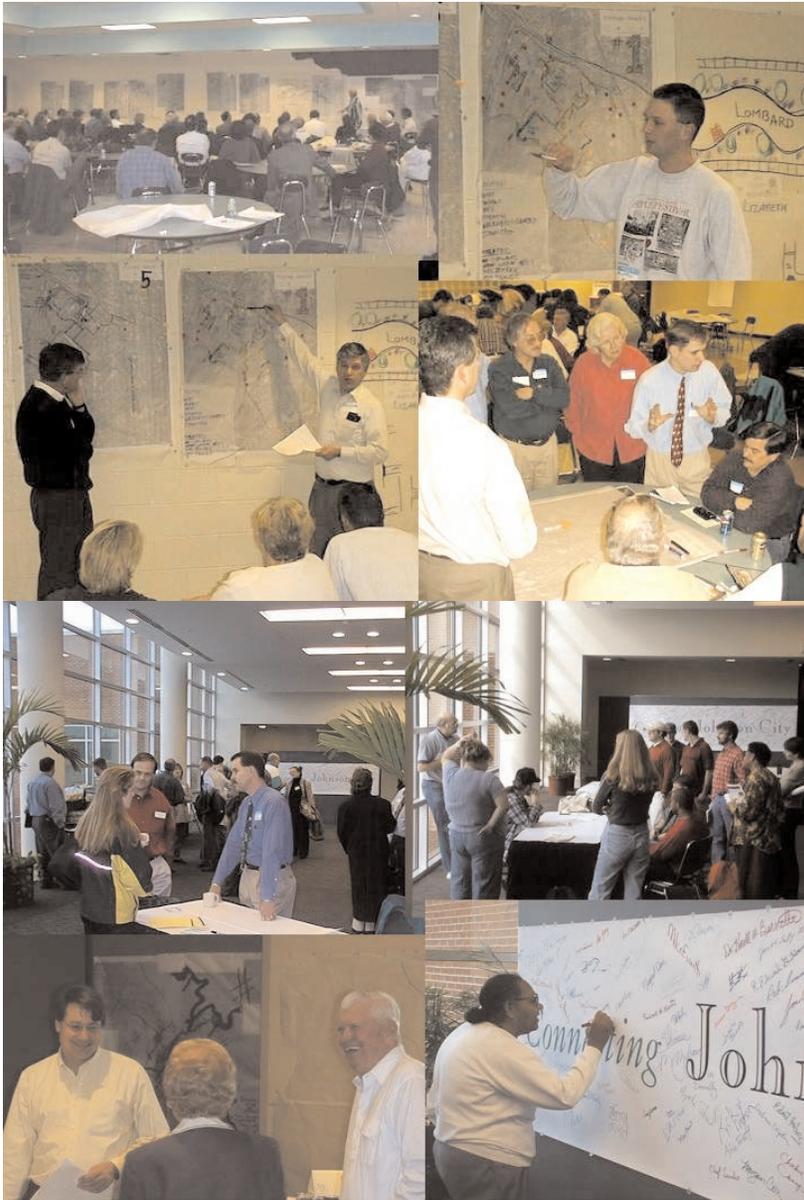
The Charrette

2



How does Johnson City want to grow?

Following months of background work and preparation, the public participation process began in February 2000. One of the first steps was to hold a town planning ‘charrette’ where members of the community met with designers, architects, planners, and traffic engineers in order to share information and come up with basic concepts for the plan. The charrette lasted ten days and was led by Dover, Kohl & Partners.



There were six public sessions held in various areas of the city during the charrette. Each session began with a presentation on urban design principles and current thinking on traffic engineering. The presentation also examined the overall relationship between land uses and transportation.

After the presentations, participants were asked to locate their homes on a map of Johnson City. Using markers and the map, each participant traced the route they took to go to work and to go shopping. Next, everyone was asked to identify both positive and negative aspects of their neighborhood and the city, as well as things they would like to see in the future. After the ideas were drawn on the large maps, a representative from each table presented the ideas that their group had created.

Generally, land uses (schools, offices, stores, homes, etc) are separated with only a few routes connecting them. This scheme leads to everyone having to use the same roads every time they need to run errands, go to work, or visit with friends or family.

There was also a focus group that completed a detailed survey on their daily travel patterns, where they shopped, and different priorities for future growth. Additionally, some members of the community participated in a visual preference survey. They were asked to rank different images of a city. These images helped determine the styles and architectural themes that would be appropriate in the area.

At a comprehensive, citywide event, residents were asked to think about the city as a whole. From this event, as well as the others, five ideas began to emerge as themes that would be the basic framework under which this plan was created:

Mixed-use neighborhoods

A strong, memorable city center

Sustainable mobility

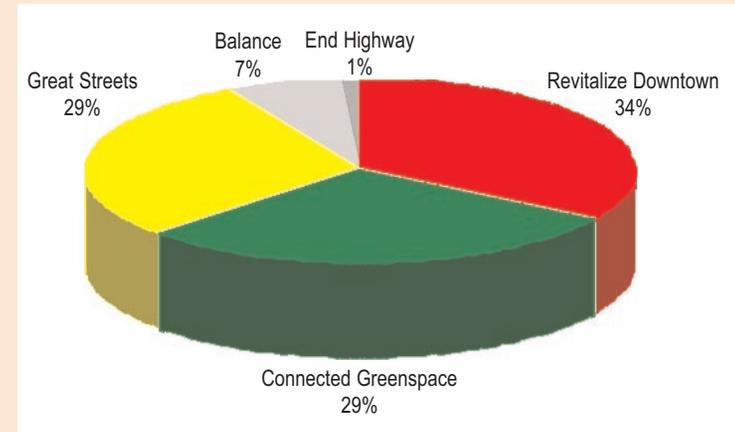
Great streets of varied sizes and types

Beautiful approaches, and parks and open spaces

The remainder of the charrette was spent synthesizing the information and ideas collected during the public meetings. Town planners continued to meet with city staff and other local organizations throughout the week of the charrette, drawing alternative solutions.

Despite the mix of property owners, students, business people, conservationists, city staff, and special interest groups, the participants generally agreed about what they liked and did not like about Johnson City. From all of these meetings and discussions with so many different groups of people, the number of consistencies and degree of consensus was astonishing. It is evident that the residents of Johnson City are not satisfied with the way that Johnson City is developing and can agree upon what needs to change

Number One Ideas



At the citywide session, participants were asked to choose their number one idea for the plan. Community members felt revitalizing Downtown, greenspace, and great streets were all important.

Recurring Themes

Growing congestion and traffic during rush hour coupled with the use of neighborhood streets as a shortcut (in part because of an incomplete network of streets) was certainly an issue for many of the residents who attended the public sessions. Speeding traffic on the neighborhood



streets creates an unsafe environment for adults and children to walk and play. Many residents are unhappy that their streets did not have sidewalks. Even where the streets are comfortable and safe for walking, people complained that there are almost no useful or interesting destinations located within walking distance.

There was also dissatisfaction because there are very few neighborhood parks outside of the downtown area. The sentiment that there is a lack of parks is coupled with a general feeling that there was a lack of green space all over Johnson City. The perception that greenspace is disappearing is especially hard felt on many of the major roads, like Market Street, Roan Street, and State of Franklin Road.

When residents were asked where their neighborhood begins and ends, very few were able to come up with a precise answer. Some described large areas that have similar housing types, others described smaller areas where they felt safest. Generally, there is a lack of neighborhood identity.

Residents were also asked to point out the positive features of their neighborhood and Johnson City. Some did but others had difficulty pointing out any positive features. People are generally proud of the VA and ETSU campuses. But even for those that live close to these campuses, the automobile is the only way to get to and/or enjoy the campus.



Downtown Johnson City was a source of consternation. Many people said that they would like to go downtown, but that there aren't enough reasons to go; there are not many shops or restaurants. The people living further away from downtown have even less reason to make a trip there.

Some of the residents living in and around Gray and Piney Flats were concerned with the development they had witnessed in the last twenty years. Many farms that once belonged to their friends and families are now shopping centers, apartment complexes, subdivisions, or unsightly roadways.

Armed with all of this information gathered from the citizens of Johnson City, the planning team began to formulate the basic concepts for this plan. The remainder of this document describes the strategies for connecting land use and transportation in Johnson City.

Historic and Future Growth

3



Johnson City has long been important for trade and commerce. Originally founded as a depot stop for a train line, the city continues to build on this tradition to be an important regional center. The prevailing mode of travel often dictates the character and quality of the built environment in a city; pre- and post-war development in Johnson City illustrates the physical differences that come from the prevalence of single-mode travel - the automobile. The negative impact of this dominance by cars can be offset by smart strategies to improve the sense of place. This chapter discusses historic growth patterns as well as possible strategies for the future.

The City Begins

It was 1673 when James Needham and Gabriel Arthur first passed through what is now Johnson City. Nearly 100 years later, Daniel Boone killed a bear and recorded the act by carving on a tree in the Boones Creek woods.

In 1769, William Bean and his family settled along the Watauga River. After a few years, about seventy families had settled along the river and the first independent government in America was formed.

During the American Revolution, The Watauga Association, as it was called, asked for protection and came under the wing of North Carolina. After the war, North Carolina released the Watauga Association and it became known as the State of

Franklin. The State of Franklin was only a state for four years, when North Carolina took back control of the lands. In 1796, the area became part of the state of Tennessee.



The Daniel Boone tree which stood until 1920.

Nearly 60 years later, the last spike of the East Tennessee and Virginia Railroad was driven into the ground. By 1854, Henry Johnson had built a store, depot, post office, and residence at the junction of the rail line and Market Street (then Stage Road). The area was first called Johnson's Tank and then eventually Johnson's Depot.



The Gump store located on the first floor of Jobe's Opera House in 1884.

During the Civil War, Tennessee was a southern state and the town was renamed Haynesville after confederate senator, Landon Carter

Haynes. Many families sided with the Union even though the city was under confederate occupation. After the war, the town went back to being called

Johnson's Depot. The city received its first charter in 1869 and Henry Johnson was elected mayor in 1870. Population was estimated to be 500 and the city limits were set as a ½ mile radius circle starting from the depot.

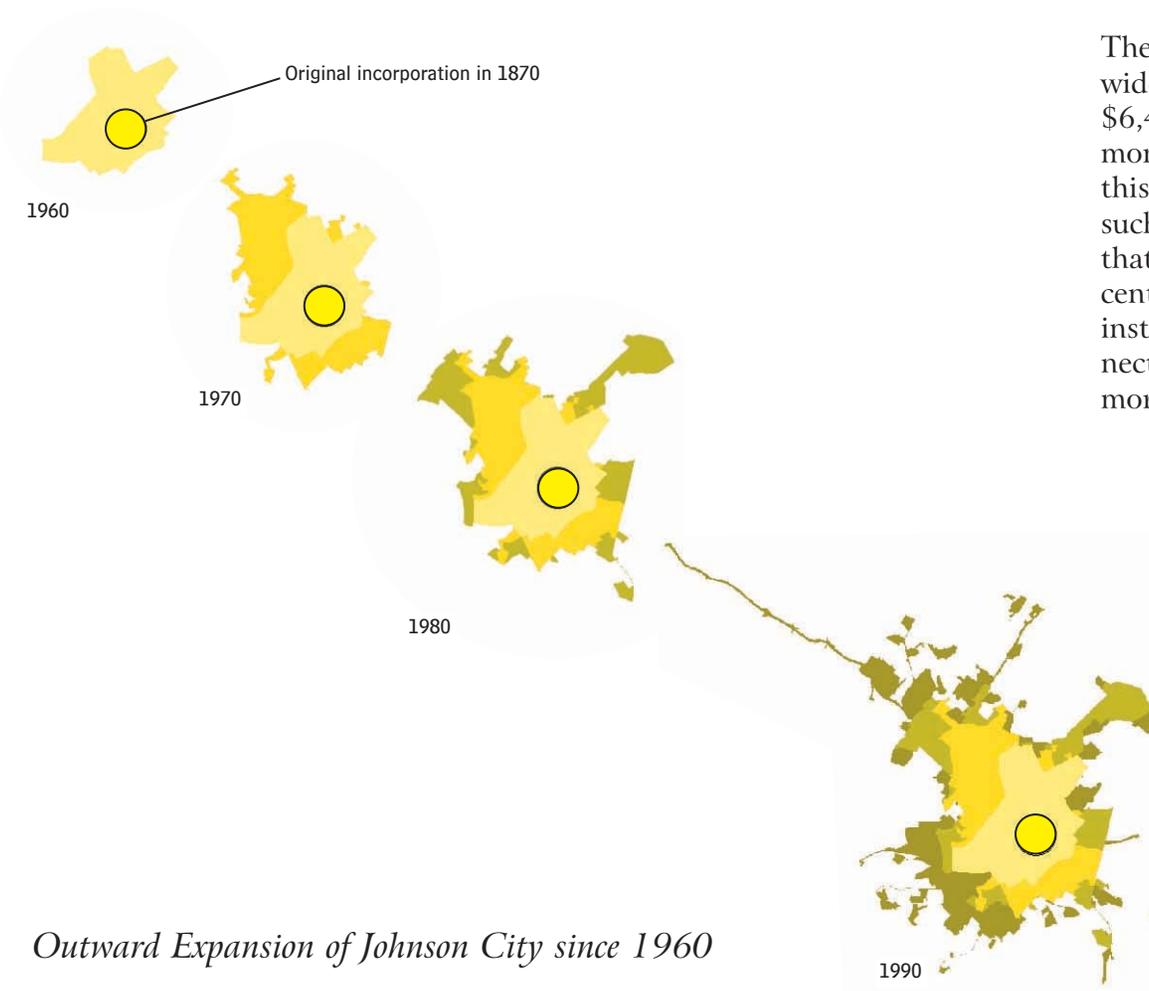
Johnson City first began to “boom” with the location and expansion of the Charleston, Cincinnati and Chicago Railroad. In just twenty years the population had grown to over 4000 people. But, the boom times were short lived. A bank failure in London caused a financial panic and the railroad collapsed. For several years growth in Johnson City was slow, but in 1900, the rail line was bought out by another company, the Ohio River and Charleston Railroad Company. The lines were extended into western North Carolina opening up new trade markets. By 1915, there were three rail lines converging in Johnson City, making it a regional distribution center of food, dry goods, and hardware. In 1920, there were over 12,000 residents of Johnson City. During this period, trolleys and trains served the travel needs of the residents.

By 1930, population had doubled to 25,080. After the World Wars and the Great Depression, the completion of Highway 23 through Johnson City signaled the end of the use of trolleys and the beginning of the automobile era.

The Tennessee Valley Authority (TVA) built a dam on the Watauga River in 1945 and by 1950 the population was just over 27,000. The city was then able to attract industries with its supply of TVA electricity and natural gas. The city grew in population to just over 31,000 by 1960 and the land area was around 11 square miles.



The TVA sponsored Watauga Dam on the Watauga River.

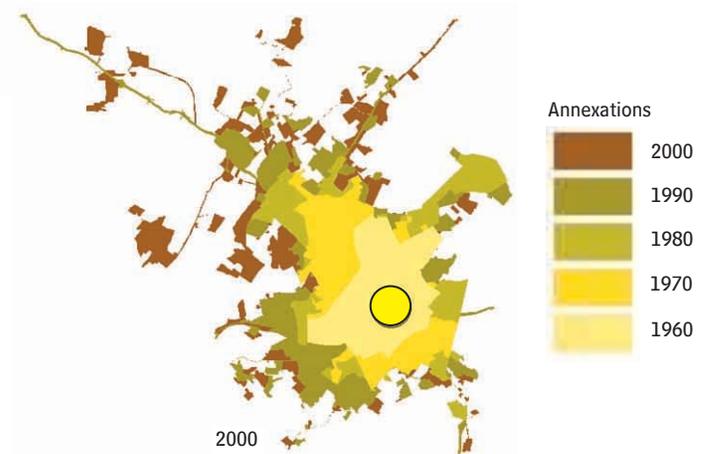


Outward Expansion of Johnson City since 1960

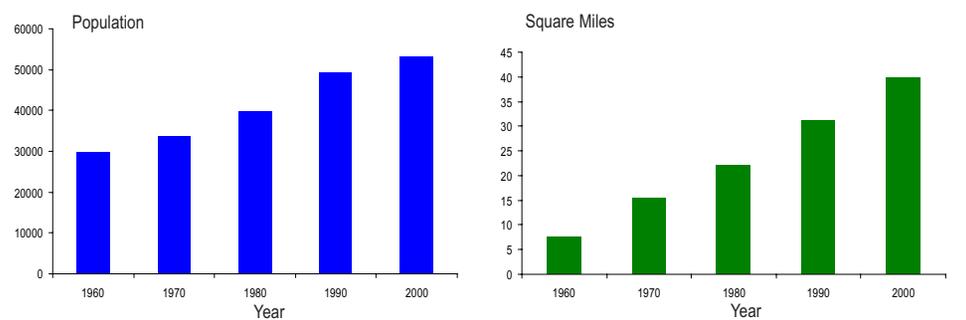
This map sequence illustrates the outward expansion of Johnson City since its incorporation in 1870. These annexation maps indicate an almost-random, non-contiguous pattern of growth shown by the 'islands' of Johnson City that appear to float on the edges of the city. As the municipal boundary stretches outward, services such as sewer, water, electricity, fire, and police protection must be extended to these outlying areas. In 1998, Johnson City spent \$1,310,419 on water and sewer line extensions alone. State and county roads must also be extended and often widened.

These expansion costs can be very large. For example, widening a 1.55 mile section of a road to five lanes costs \$6,462,000 (Johnson City MTPO 20 Year Plan). While money is being spent on the edges to expand outward, this money cannot be spent on other improvements, such as maintaining the original city center. Projects that would help sustain economic vitality in the urban center remain without funding. These include sidewalk installation, bikelanes, or landscaping, that support connections between existing infrastructure and encourage more than one travel mode.

Do Johnson Citians want to pay to extend municipal services outward when existing neighborhoods inside the city limits could be improved instead?

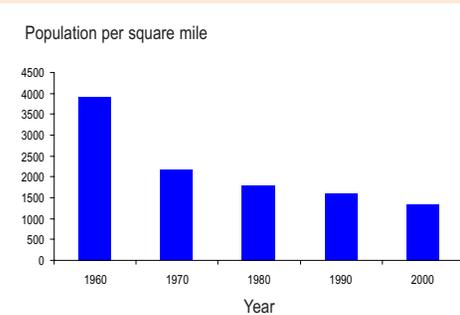


Land Used Per Person



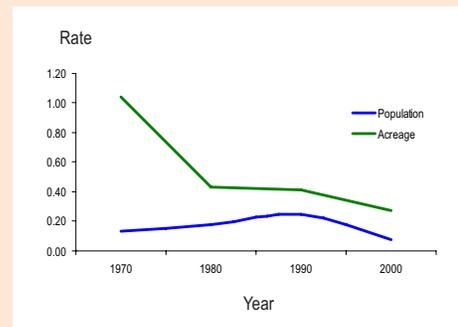
The growth of cities can be expressed in two ways: land area and population. Johnson City has increased both since 1960. Land growth has been much greater - 81% growth since 1960. Population growth has increased, but only by 44%. This difference of 37% is nearly twice as much land per person in the last forty years. The amount of land used per person has grown geometrically as the use of the automobile has increased. This increase in land per person reflects the fact that land uses have become separated and have spread throughout the city. As the land per person continues to rise, the costs of maintaining that land are sure to increase as roads, sewers, and water lines must be properly maintained. When these funds are spent on maintenance they cannot be used for other projects. It is a question of priority: How do the residents of Johnson City wish to spend their money?

Population per Square Mile



A ratio of population per square mile is an estimate of how intensely the land is used. Since 1960, the population per square mile has decreased, even though both the population and area have increased. These differences indicate that the land in Johnson City is being used less and less efficiently.

Rate of Growth



It is also instructive to study the rate of growth - the percentage change from one period to the next. While both the population and acreage have grown in absolute terms, the rate of growth tells a different story. The rate of population growth accelerated from 1960 and then began to slow in 1990. As for the rate of growth for land area, it has been declining since 1960. This decline means that Johnson City is continuing to grow, but at a slower pace. The ZHA report, *Real Estate Market: Conditions and Outlooks*, forecasts a 1% positive growth rate for the year 2020. This slack in growth may be attributed to changes in the structure of population in Johnson City or be a signal that Johnson City is feeling the effects of outward expansion. Within 20 years the largest population group will be 65 years of age and older. As a percentage, people aged 35 to 44 will decline as will people aged 15 to 24.

Can Johnson City continue to grow at the rate and manner that it has grown in the past? Is it time for a change? Are the residents of Johnson City feeling the effects of outward expansion?

Zoning and Disconnecting Uses

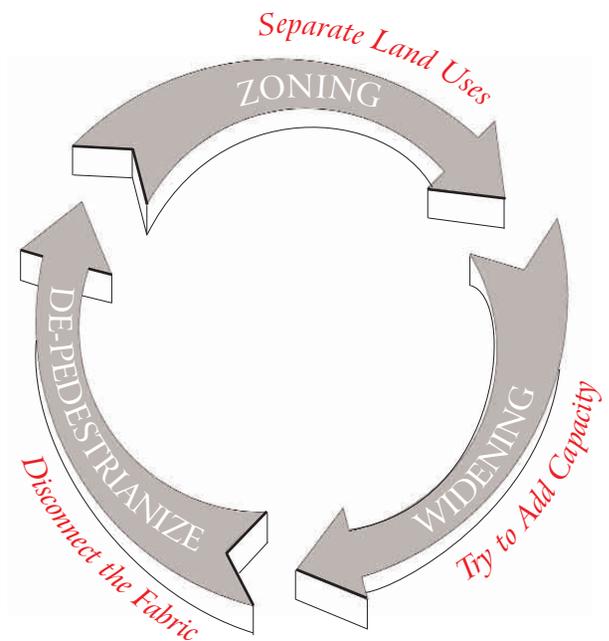
The growth and expansion of Johnson City due to the quantity and timing of post World War II growth is familiar to nearly every city in the United States. In this regard, Johnson City is not unique. It is unique in many other, more important ways. It has been a regional center for trade and commerce. Now, it is becoming a regional medical center. It also has a special tie to Appalachian culture. It should also be applauded for rising to the tough challenge of critically examining where it has been (and where it wants to be). For this reason, the Land Use and Transportation Plan is an admirable task, both for the community, but also for city staff and the elected officials in Johnson City.

Johnson City is also similar to nearly every other US city in that it uses zoning as a primary method to control how the land is developed. Since World War II, zoning has been the primary strategy for regulating growth by controlling how the land is used. The emphasis has been on creating different areas, or zones, for all the different types of land uses; a zone for single-family houses, a zone for commercial, a zone for multi-family housing, etc. The original intent was to prevent incompatible uses (say a paper factory and dwellings) from being too close together.

After a few decades of the zoning experiment, many communities are beginning to sense its shortcomings. The emphasis on “regulating by zone” has affected how we live. At the same time that zoning began to become the dominant method of controlling land use, another factor came into play: the car. Both the prevalence of and dependence on the private automobile exacerbated the problems associated with zoning. In essence, regulating the use of land is not, by itself, the problem. And using a car is not, by itself, the problem. The crux of the problem is the cyclical relationship between strenuously separating land uses, overdepending on the automobile, and an

ever-more-frenzied road building program. A spiraling decline in community character is the inevitable outcome of this self-perpetuating set of habits.

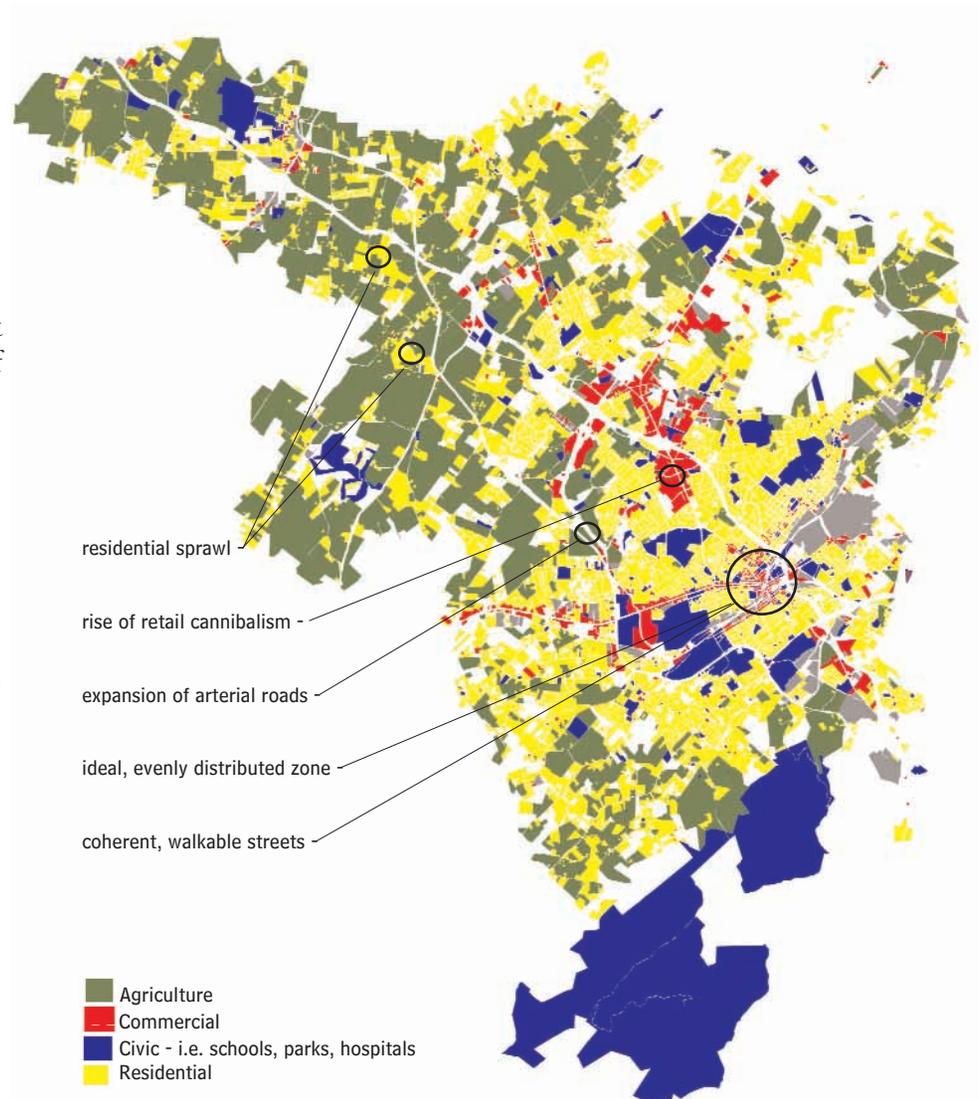
In the typical pattern, stores, offices, and residences, each in their separate zone, begin to spread out. In order to get from one zone to the next, one has to drive, usually on the key arterial roads that become the only links joining these uses together. As more people drive, the roads become crowded, and the first instinctive solution is to widen the roads. Often, when the roads are widened, any pedestrian-friendly qualities are lost. These wider roads induce people to drive even more, as it is now easier to drive. New highway facilities intended to make it easier for people to go *faster* actually encourage people to drive *farther*.



More people on the road opens an opportunity for more commercial development, and naturally this type of development caters to the motorist: strip centers, drive-through fast food establishments, car washes, oil change businesses, etc. Unless careful attention is paid to urban form from the very beginning, these developments will generally cause a visual blight in the area with an abundance of parking lots, signage, and cheaply constructed buildings. Naturally these unattractive corridors are less than appealing places for people to live. This visual blight further stimulates people to move further out, and the new roads only make it easier, at least until they are too jammed with traffic.

The group of people that decide to move away from this blight further disperses the settlement pattern. Again, the number of vehicle miles traveled increases as people drive longer distances. The arterial roads become congested again, but now the first generation suburbs often become alternate routes for cut-through traffic. The increase in traffic stimulates a push to widen the arterial roads again. Closing off adjacent streets within residential areas is a short-term solution that some municipalities use to deal with complaints about cut-through traffic, but with the alternate routes then cut off, even more traffic is funneled onto the arterial roads. More drive-by traffic on the road, with people coming from miles around, becomes an invitation to open regional, big-box, and even more auto-oriented commercial development. This adds to the existing blight and because of the existing regulations that push the buildings back from the road and mandate excessive parking requirements, walking, biking, or taking transit is made difficult. More car use is encouraged because people have so few realistic alternatives. People with the means to do so keep moving farther and farther away, hoping to escape the traffic and visual blight. They are actually exacerbating the problem.

This illustration demonstrates the current land use areas in Johnson City, clearly showing the uneven distribution and separation of commercial needs and services throughout the city.



Current Conditions: The Johnson City Experience

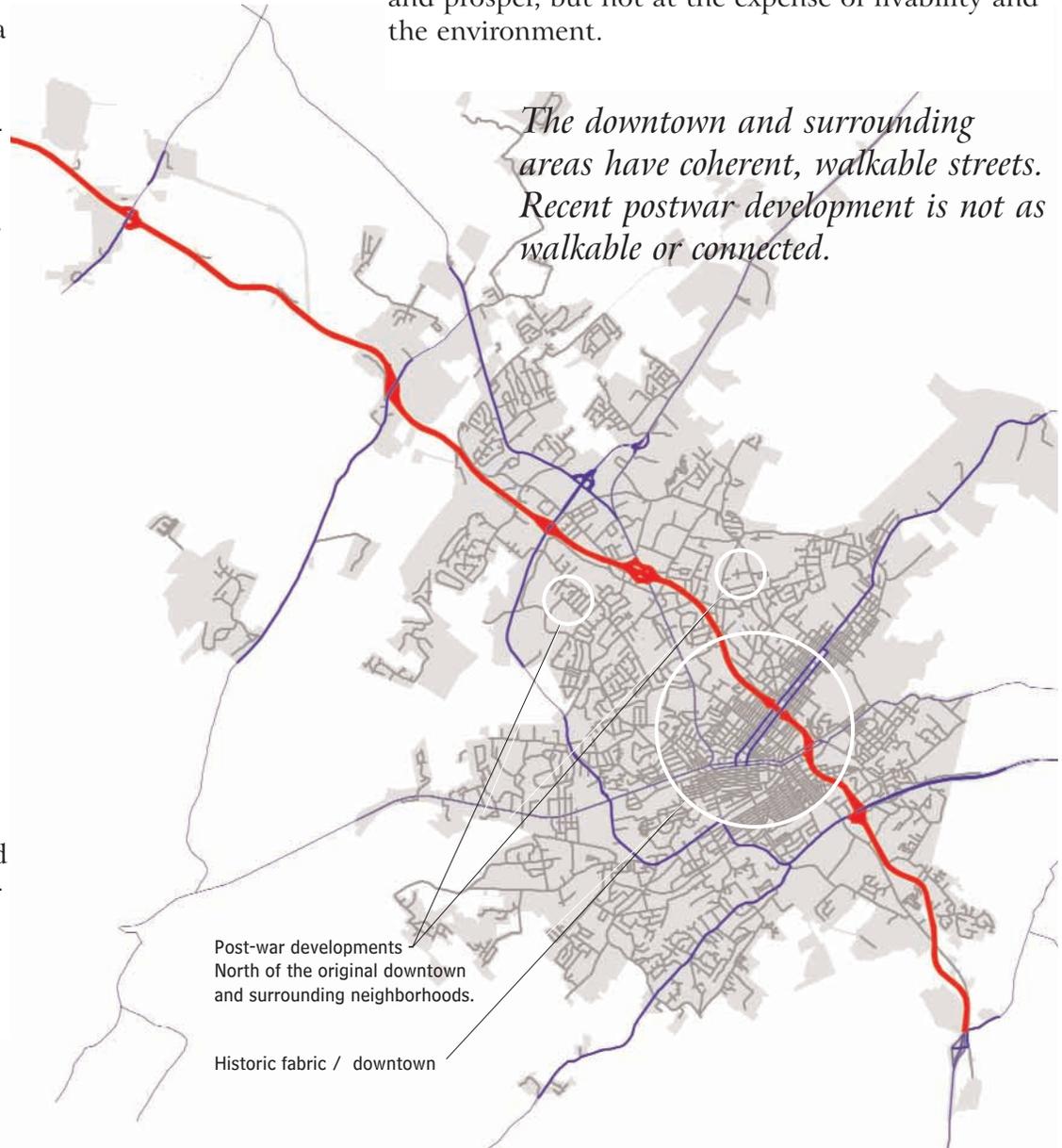
Reviewing current conditions and regulations puts the changes suggested in this plan into perspective. Johnson City, Tennessee is in many ways typical of a medium-sized city in its part of the United States. The proud city grew around the primary transportation connections, the Great Stage Road and the railroad. With development centering on the multi-modal connection, a traditional grid pattern of streets evolved. After World War II, suburban development patterns replaced traditional ones. The multi-modal travel habits devolved into almost total automobile dependence. Commercial development concentrated on certain arterials and then around large shopping malls; housing was built in isolated pockets on poorly connected streets.

Now where do we go from here? There are two choices: the “Atlanta model” of perpetual sprawl, and the “livable city” model.

Sprawling cities like Atlanta and Los Angeles have already reached a crisis state in traffic congestion and air quality. Tax revenue is spent inefficiently as the built environment spreads out into the undeveloped lands.

Other places, like Boulder, Colorado, simply refused to accept decline in their community’s character and quality of their built environment. Many of the residents in these places have been witness to the rapid change, and can remember when cities looked and functioned differently. They can remember the farm that stood where a parking lot now stands.

Johnson City is lucky in that it has an opportunity to learn from the mistakes of other cities, and not make the same mistakes they made. It can still grow and prosper, but not at the expense of livability and the environment.



Urban Form and Land Use

Downtown was the original urban settlement of Johnson City. It began on what is one of the flattest areas in the region. The grid of streets that developed was a result of the economy created by the Great Stage Road and the railroad. Downtown developed predominantly with attached buildings that originally provided a mix of uses for businesses and residents.



The Downtown has suffered the loss of buildings and economic energy due to policies that encourage sprawl and discourage one from doing business or living Downtown. Currently several Downtown streets are over-engineered as one-way streets. Retail has been negatively impacted by the one-way design. Vehicular circulation is biased in one direction. On-street parking, which is necessary for retail, has been removed for turning lanes. Healthy retail environments need two-way streets with abundant onstreet parking, so drivers can park easily and circulate around the block. Overall the current roadway design is about driving *through* Downtown.

First generation suburbs with detached homes, such as the Tree Streets and the Carver area, developed within walking distance of downtown. These neighborhoods have a fairly relaxed grid of streets as a result of the terrain, but they were still well connected. The original settlement plus these “streetcar suburbs” created a group of complete neighborhoods where daily needs and services, such as stores, schools, and places of business were located within walking distance.



Post-war development, during the golden age of the automobile, emphasized large lots and departed from compact urban form. The old pattern of a connected framework of streets and a mix of uses within walking distances was discarded. The ingredients that make complete neighborhoods are not present in postwar subdivisions. Uses are separated; most daily needs and services require lots of driving.

Johnson City has also experienced “cannibal retail”: large format retailers abandoning one location for a more desirable location on a new road or intersection. The attraction is the higher traffic counts and greater visibility of the new location. The strip format retail sites are designed for a large, single use tenant. The structures do not adapt well for other uses. The net effect on the city has been underutilized land within the city limits. There are quantifiable results that show this: population per square mile has decreased from 3925 in 1960 to 1338 in 2000 (see page 3.4). This number means that population is taking up more space, and using more land. Most of this “weight gain” is predicated upon excessive use of the private automobile.

Breaking the Cycle

Many cities across the United States are dealing with this cycle of sprawl, by finding ways to benefit from the positive effects of growth and development while mitigating the negatives. Zoning is probably not the answer. Cities that have endured for centuries were built long before “zoning,” as we know it existed. These are places that have adapted and changed gracefully over time because of good urban form.

Zoning is not what allows these places to endure. Rather, there are recognizable constants in the way good towns and cities were built.

The answers to today's tough problems lie in Johnson City's own inheritance. Today, many planners and traffic engineers recognize that the qualities found in the historic areas of Johnson City lead to more sustainable development. The time is right. The people of Johnson City, along with planners, designers and traffic engineers, have worked together, in a highly open and public process, to recognize these qualities that create more sustainable and effective ways to grow and travel around the city.

History teaches us many lessons. After World War II, our country grew faster than any other time in history. The present day experience is a result of this incredibly fast growth and many cities are now questioning the impacts that this growth has made on the lives of their citizens.

Many of these newer cities that have grown so quickly are markedly different than the older cities in the United States and other countries. The truth is that we often do not see the mistakes in our mature cities. We only see and recognize the final built form. Those exceptional cities of the western world: New York and San Francisco in America; London, Paris, Barcelona, and Prague in Europe. These are places that have been rebuilt, rethought, and improved over generations. Johnson City can do the same.

Rebuilding & Improving

The story of Embarcadero waterfront in San Francisco is an excellent example of physical evolution. In the late 19th century and early 20th century, San Francisco's economic energy was its waterfront, the port was the center of commerce. As trade was increasingly handled by air, the port's role in the City's economy changed. The two-level embarcadero freeway was then added. It closed off views and divided the waterfront from the rest of the city. As a result of the freeway, the nearby properties were not considered the most desirable locations for businesses or homes.

Then the 1989 earthquake in San Francisco destroyed sections of the Embarcadero Freeway; what remained was considered unsafe. The City tore down the elevated freeway and returned the Embarcadero waterfront to a system of streets with fewer travel lanes and less level of service than the freeway. New trolley lines were also added to improve transit service.

The Embarcadero is now much more attractive. The district has experienced revitalization with new businesses moving to the area, redeveloping existing buildings or building new. The waterfront is a much more public destination, benefiting from increased tourism. This is an example of good urban design creating economic benefit and livability for the greater community.

Today, without the freeway, the Embarcadero is used by pedestrians, bicycles, cars and transit.



The freeway during construction.



The freeway isolating the waterfront.



The 1989 earthquake.

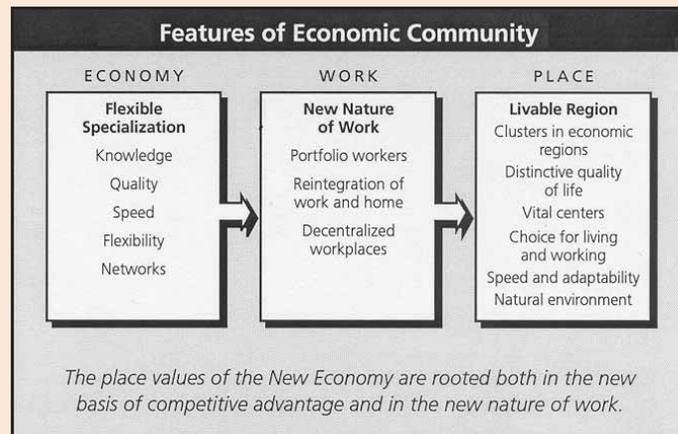


Linking the New Economy to the Livable Community

What does the New Economy value about the tangible aspects of place?
The New Economy values:

- **Economic Regions**, which provide a habitat for clustering
- **Distinctive quality of life**, which attracts knowledge workers
- **Vital centers**, which offer lively amenities and opportunities for interaction
- **Choice for living and working**, acknowledging increasing diversity of career and life paths
- **Speed and adaptability**, which allow quick access to decisions and resources
- **The natural environment** as an important and compatible element of community.

These values are rooted both in the new basis of competitive advantage and in the new nature of work.



New Economy values economic regions

The shift to a New Economy and the changing nature of work place a premium on regions as important places. They do so because the networks at the heart of the flexible specialization model function most effectively when clustered in a region.

--Excerpted with permission from **Linking the New Economy to the Livable Community**, April 1998 by Collaborative Economics for The James Irvine Foundation
www.coecon.com
www.irvine.org

Into the Next Millennium...

What about the future? Johnson City has long been an important regional center, first for commerce and trade and now for medical technology. Johnson Citians enjoy higher salaries, many commercial conveniences, and a greater variety of housing and job opportunities than other places in the region. But as the national and global economies change, Johnson City will need to operate differently if it wishes to remain a competitive regional center.

Using population figures from the City of Johnson City, the population was forecast by age group to the year 2020 (*Real Estate Market: Conditions and Outlooks*, page 18, ZHA). In 1990, the largest percentage of the population were persons aged 15 to 24. In the year 2020, this group will still be the largest group, but will have declined as a percentage of the total. Persons 55 years and older will have *increased* as a percentage of the total. Generally, different population groups demand different housing choices and lifestyles and the largest sectors of the population, both in the year 2000 and 2020, will likely desire smaller homes, condominiums, or apartments. These groups greatly benefit from having many daily needs and services within walking distance; either because they do not, or cannot, drive an automobile.

The following are three different growth scenarios that describe future patterns of development and the quality of life that would likely be realized from certain choices. The descriptions are based on other cities' experiences, national trends, and Johnson City's existing patterns. One describes the *Status Quo* and paints the future if Johnson City continues down the path of unchecked land consumption. The next describes future possibilities arising from relying on a *Growth Boundary* to regulate development. The third scenario describes the *Land Use and Transportation* approach that seeks to coordinate future growth and foster redevelopment.

The "Status Quo" Scenario

The actual land consumption of Johnson City has grown at twice the rate of its population. At this continued rate, how far will Johnson City extend and what will life be like? If land consumption continues at the current pace, rural lands will likely become subdivisions, roads, and shopping centers. Land uses will continue to spread out in a separated pattern, thus continuing the overdependence of the automobile. Following the market to new residential suburbs, commercial activity will continue to flee downtown. There are other related, detrimental impacts. Water quality will worsen as rainwater becomes polluted by run-off from paved surfaces. Air quality will worsen as automobile emissions increase. Development can spread onto the ridges, and mountain views will be replaced by subdivisions and shopping centers. In order to make more room for development, forested lands may have to be cleared. The natural beauty and qualities that have made Johnson City a desirable place to live would more than likely begin to diminish.

This decrease in quality of life will leave Johnson City at a competitive disadvantage, especially for attracting knowledge-based businesses, a crucial part of the New Economy. New businesses will choose other locations and job opportunities will diminish. Residents may need to seek work elsewhere. The population that remains will be left with fewer employment opportunities, environmental degradation, and economic instability.



The character of Market Street is a result of uncoordinated growth.

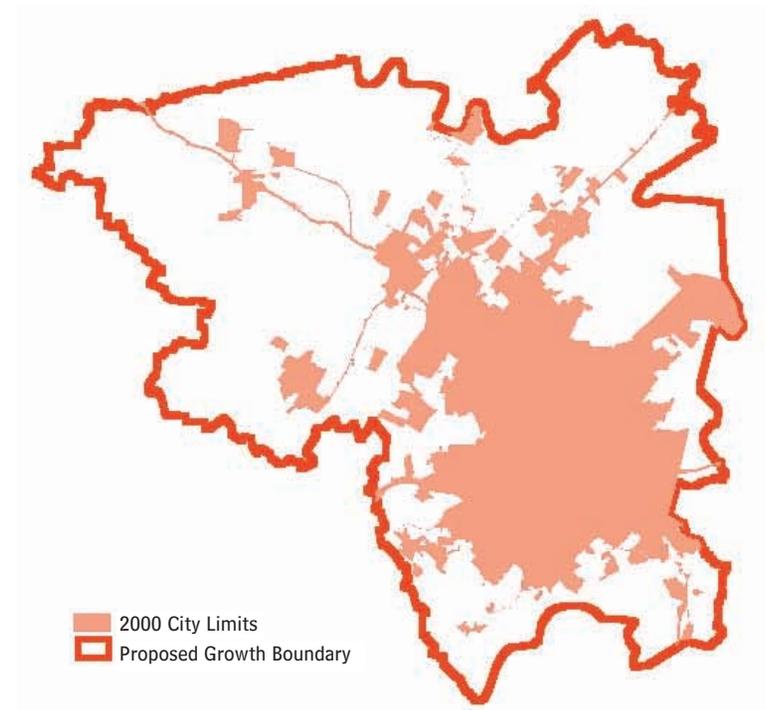
The Typical Growth Boundary Approach

As part of Tennessee’s Growth Policy, Annexation, and Incorporation Act, each municipality is required to adopt a growth boundary and a 20-year comprehensive plan. The Growth Boundary includes Johnson City and surrounding lands and designates places as either a Planned Growth Area or Rural Area. The former is designated for higher intensity growth and the latter for agriculture and lower intensity uses.

Growth boundaries have been used in many other cities; their experience suggests that without additional regulations and development standards within the boundary, this approach will not be successful. Portland, Oregon, often cited as an example of a city that has a growth boundary, used a variety of methods to plan for growth including merging into a regional government and decreasing funds for highway improvements. Nevertheless, most of the development constructed inside the boundary in Portland is conventional low-quality sprawl. Clearly a boundary alone does not guarantee good results.

Other communities around the United States that have adopted similar boundaries have witnessed problems with the pressure put on the edge of the boundary. Where the line is drawn has a distinct effect on the properties on either side. Inside the growth boundary, development proceeds as usual and property values stabilize or rise. Housing costs tend to rise as the property inside the growth boundary increases in value due to limited supply; middle and low-income housing becomes scarce.

Outside the growth boundary, property, from a land speculation standpoint, becomes value-less.



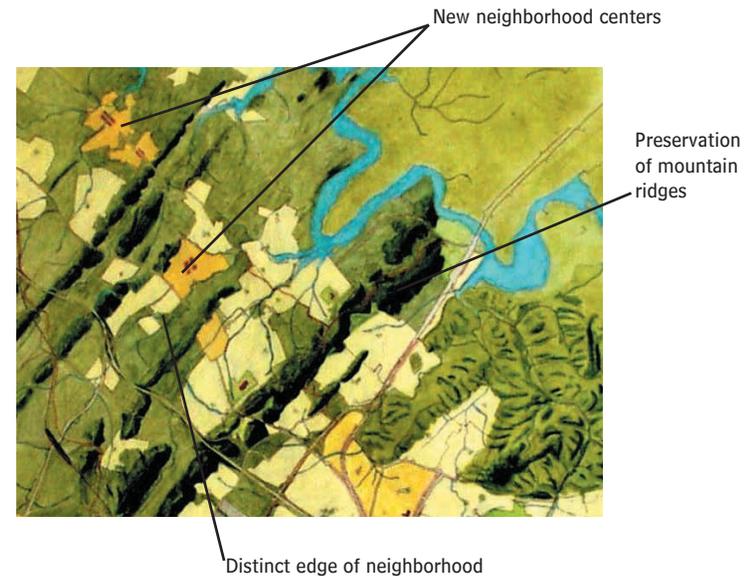
The Smart, Connected Approach

Johnson City adopts this plan created with input from citizens and community leaders. It manages and coordinates how the land is used as well as how people travel around the city. New neighborhoods grow carefully, in a responsible way, taking into account the community's needs and natural resources. Priorities include preserving the rural character and the beautiful mountain landscape as well as enjoying a vibrant Downtown center. Mobility in Johnson City, by foot, bike, car or bus, is an important element of the plan. Mobility is enhanced by providing a mix of uses throughout the City, not just in random locations.

Neighborhoods become an important focus and steps are taken to provide residents with diverse choices to live, work, shop, and experience the outdoors. Different types of complete neighborhoods are created throughout the city from downtown to the rural lands. Each neighborhood provides many daily needs and services for the residents. The variety of housing choices is likely to attract new residents to Johnson City. The network of greenways and surrounding natural lands allow the natural environment and species to flourish.

Example site plans and illustrative codes demonstrate how the existing neighborhoods, subdivisions and shopping centers can redevelop into more complete neighborhoods for the community. Future development is welcomed and complements existing development through city-wide growth management policies.

The title "Connecting Johnson City" expresses the ultimate goals of this Land Use and Transportation Plan, *to create a line of coordination between land use and transportation at all levels*. It establishes a long-term vision of change and growth by creating a more seamless relationship where buildings and roads work together.



Making Neighborhoods

4



Planning at Different Scales of the City: The Land-Use Framework

Both future growth and the redevelopment of existing areas should use *neighborhood* as the basic unit for planning and management. The goal is to plan for livability within the entire city. The Land Use Framework is hierarchical. It describes how to plan and coordinate growth at three levels: the Neighborhood Scale, the Community Catchment Scale and the City Scale.



Managing Growth at the Three Different Scales of the City

The character and quality of growth can be encouraged by managing growth at different scales within the city.

The Neighborhood Scale

Neighborhoods are the organizing “cells” that make up the “body” of the city. At the neighborhood level, the size and physical relationships of urban design form good streets, blocks and public spaces. The character and quality of new neighborhoods should be regulated through a new *Traditional Neighborhood Code*. Adopting such a code will guide the development of more complete future neighborhoods and the redevelopment of existing neighborhoods.

The Community Catchment Scale

At the level of several neighborhoods, the *Community Catchment Plan* will coordinate a balance of housing and jobs, and community infrastructure among adjacent neighborhoods. The goal is to provide daily needs and services and places to work within a group of adjacent neighborhoods, so that residents can rely less on the regional road network.

The City Scale

At the City level, the *Future City Plan* will determine and show where new growth is desirable. Based on environmental studies and community input, it will establish the timing, location, and appropriateness of future neighborhoods within Johnson City’s Urban Growth Boundary, helping the city grow in a sustainable pattern.

The Neighborhood Scale



Neighborhoods are the basic building blocks of cities. They are the time tested way of how towns and cities have been settled, built and grown. It is important to ensure that new development contains the details that create livability and a sense of community. The neighborhood principles identified below are simple and constant. These characteristics can be found in any of the pre-war neighborhoods in Johnson City, such as the Tree Streets.

Identifiable Center and Edge

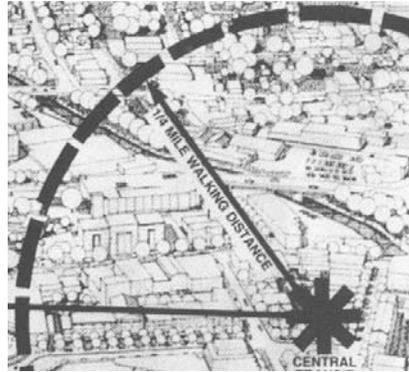
Neighborhoods generally have an identifiable center and edge; one can tell when you have arrived at the heart of the neighborhood. The character of each neighborhood varies from edge to edge. The center is a natural gathering place where there are greater activity and destinations than the rest of the neighborhood.



A school, post office, library, retail or other destination helps create that center. Edges of neighborhoods have a distinct change— a natural feature such as a river, or a man-made feature, such as a thoroughfare. These edges provide the physical change that creates a psychological boundary, giving each neighborhood identity.

Walkable Size

Most people will walk a distance of approximately $\frac{1}{4}$ mile (1,320 feet) before turning back or opting to drive or bicycle instead of walking. This dimension is a constant in the way people have created settlements for centuries. Most pre-WWII neighborhoods are $\frac{1}{4}$ mile from the center to the edge. This distance is also related to how people define the edges of their own neighborhoods. When Johnson City residents were asked to draw the boundaries of their neighborhood, most residents defined them as being a $\frac{1}{2}$ mile across or less. When founded, Johnson City was initially a $\frac{1}{2}$ mile across (*Johnson City: A Pictorial History* by Ray Stahl).



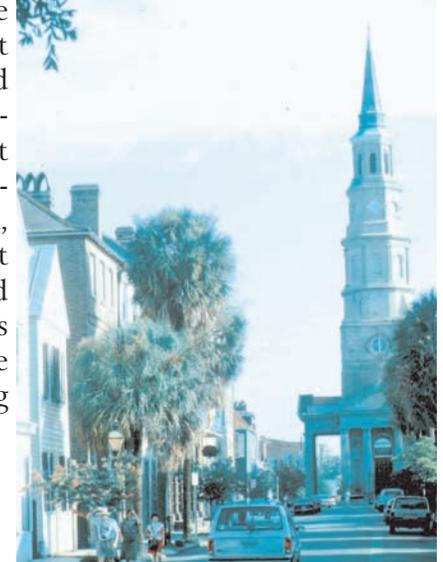
Integrated Network of Walkable Streets

Neighborhoods have a network of streets designed so that pedestrians, bicyclists and motorists can move safely and comfortably through the neighborhood. The street network forms blocks that are a walkable size. To make the streets feel safe, buildings must be oriented to the street. This orientation requires that doors and windows face the street, creating natural surveillance for pedestrian activity by the building occupants.



Special Sites for Civic Purposes

Prominent locations, such as the terminated vista of a road or at the top a hill, should be reserved for civic buildings. These locations include building sites at the end of a long view, terminating the view down a street, and anchoring a prominent street corner or neighborhood square. These unique settings within the neighborhoods are opportunities for expressing community pride.



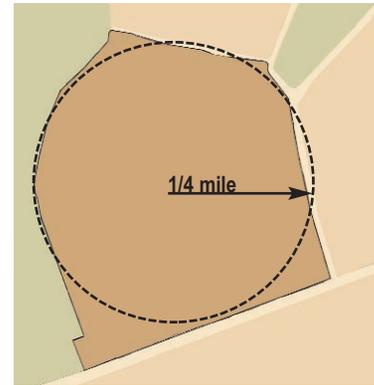
Mix of Land Uses and Building Types

Neighborhoods have a mix of uses and types of buildings. A variety of uses within a neighborhood creates the ability to live, work, shop and have daily needs and services such as schools within walking distance. A variety of building types allows for diverse lifestyle options and incomes to live in the same neighborhood. For example, in a shopfront building, the business owner can live above his or her shop, or rent the upper floors as offices or apartments. Nearby, rowhouses and cottages can be intermingled with detached homes and mansions.



Creating New Neighborhoods

In traditional neighborhood developments the physical details are important. The following are images and text that demonstrate the main concepts and how they can be regulated to create good urban form:



1. Regulate the size of the neighborhood.

Typically, neighborhoods are a 1/4 mile radius across, from the center to the edge. This is a 1/2 mile or 2,640 feet from one edge of the neighborhood to the other. Natural features and thoroughfares create the boundaries to the neighborhood. Because of natural features and boundaries, there is no perfectly shaped neighborhood, so actual distances within different neighborhoods will vary.



2. Create walkable block sizes.

Create a hierarchy of streets based on the transportation network. The perimeter of blocks should be an average of 1,400 linear feet. In the more intense Core areas, the blocks perimeters can be average of 1,800 linear feet.



3. Designate areas within the neighborhood as Core, Center, General, and Edge.

Neighborhoods have different areas: Core, Center, General, and Edge. These names do not refer to a single use. Instead they dictate a range of uses, building types and intensities of development allowing for a wide range of flexibility.



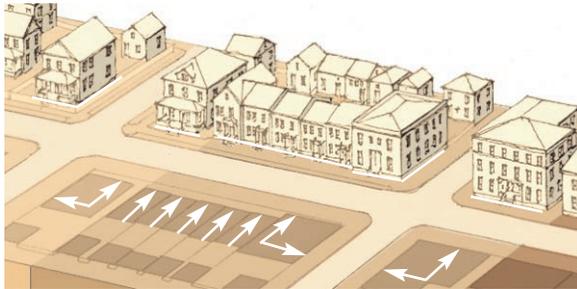
4. Provide for common green space.

Designate general locations and sizes of public spaces for community use and enjoyment. These spaces can vary in size and shape and should not be limited to a specific minimum size. (These parks and green spaces can be coordinated with the goals of the Johnson City Parks and Recreation Master Plan.)



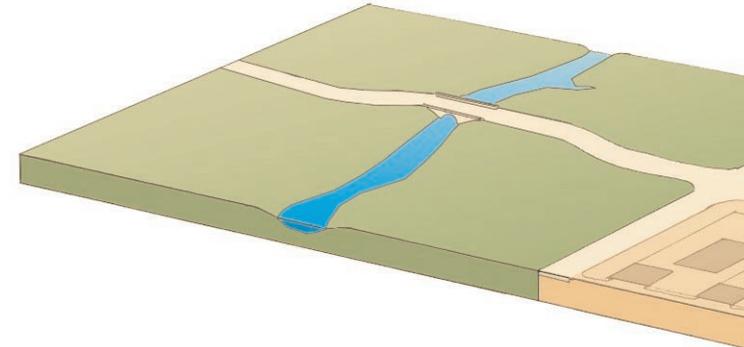
5. Designate special sites for Civic buildings.

Prominent locations, like the end of a street or the top of a hill, should be set aside for Civic buildings. Civic buildings provide 'community infrastructure' and daily needs and services. (Those needs and services are managed at the Community Scale and explained in the next section.)



6. Regulate the placement and orientation of buildings.

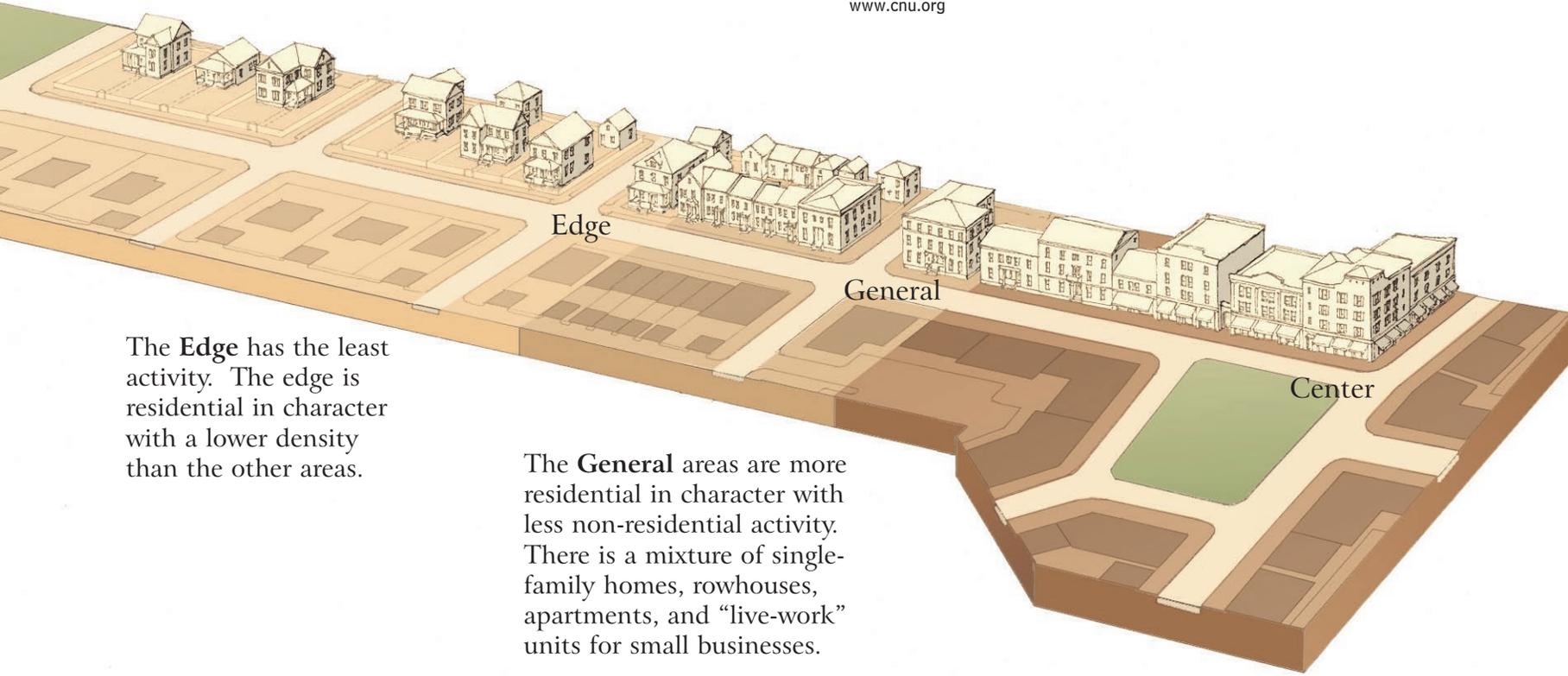
The fronts of buildings should have doors and windows facing the street. Rather than “setting back” buildings and allowing them to be located anywhere behind a line, establishing a “build-to line” determines where buildings are constructed, thus defining the street “wall.” This wall, along with the floor (or street), is what makes the street space feel like a public room and helps define the sense of place. On-street parking should be provided, with additional parking and garages located behind the buildings.



7. Allow a range of uses and building types within each Zone.

Each zone will have a range of allowable uses and intensities. Requiring a mixture of uses and intensities means that neighborhoods have a greater variety of places to live, more choices of where to work or locate a business, and more adaptability. While land uses are to be regulated less rigidly than in conventional zoning, design is to be more tightly controlled.

These neighborhood zones utilized in the Traditional Neighborhood Code are based on the Transect created by Duany, Plater-Zyberk & Company. The Congress for the New Urbanism is promoting the use of the Transect among its members to standardize a sustainable development pattern for communities across the country. www.cnu.org



The **Edge** has the least activity. The edge is residential in character with a lower density than the other areas.

The **General** areas are more residential in character with less non-residential activity. There is a mixture of single-family homes, rowhouses, apartments, and “live-work” units for small businesses.

The **Center** areas are places where a greater range of uses is expected and encouraged. Here many daily needs and services, such as a school, day care, post office, library, small neighborhood retail, offices, and live-work spaces are located. Rowhouses and apartments predominate. The Center is typically more compact and has more attached buildings. Multi-story buildings can accommodate a mix of uses, such as apartments above offices or shops. Within the center, a whole host of options for living and working are provided. The intensity of the neighborhood center will depend on the density of the surrounding neighborhood.

The **Core** has the greatest activity and mix of uses. Cores tend to be linear, typically well-traveled thoroughfares. They often define the boundaries for neighborhoods. The Core is the densest area, forming a business district.

Using a Traditional Neighborhood Code

In order to use the concepts of traditional neighborhoods, the rules in Johnson City should be revised. Recent Johnson City development is a result of using the Subdivision Regulations and the Zoning Ordinances that standardize where on the lot a building sits as well as the types of uses that are allowed. The physical details of urban form, such as well defined walkable streets and a mix of uses are generally missing from these regulations. Essentially the criteria that are needed to make great neighborhoods are often not part of zoning regulations.

Alternative regulations should be provided in the format of a *Traditional Neighborhood Code* so that the physical details that affect the appearance and functionality of growth and revitalization can be improved. This new set of regulations are organized around the time-tested fundamental features of traditional neighborhood development. The neighborhood, defined with specific parameters, becomes the unit for planning.

Each of the areas of the Neighborhood (Center, General, Edge, and Core) have a page in the Traditional Neighborhood Code that specifies the important variables for each one on a single page. The Layout Configuration indicates how buildings may sit on the lot. The Permitted Uses are listed along with the corresponding Frontage Elements of buildings explain the types of uses and what they can look like.

THE TRADITIONAL NEIGHBORHOOD CODE
JOHNSON CITY, TENNESSEE

Frontage Street

Neighborhood Center

LAYOUT CONFIGURATION

Items:	Parameters:
A Lot Width	18 feet Min – 140 feet Max
B Frontage Build-out	100% to 70% of lot width
C Build-to-Line Location	0 ft – 5 ft from front property line
D Side Set-back	0 ft or 5 feet
E Rear Set-back	30 feet from rear property line
F Building Height	2 to 4 stories
G Outbuilding Height	2 stories max.
H Out buildings	Outbuildings have no setback requirements except in the front and therefore may occur within the rear setback. The front setback for outbuildings shall be 5 feet.

PARKING LOCATION

Parking is encouraged to be located within the rear setback. In no circumstance shall parking occur closer to the street than 20 feet behind the front plane of the building.

On-street parking is encouraged and should count toward off-street parking requirements. Parking spaces that are in front of two lots shall count for the lot with the greater length of the parking space's frontage.

Parking may occur in outbuildings, only when located 20 feet behind the front plane of the building.

PERMITTED USES

	Residential	Lodging	Office	Retail	Industrial	Civic
The land uses listed under each category to the right are permitted within this zone.	<ul style="list-style-type: none"> Small Apartment Buildings Row houses Single family detached houses 	<ul style="list-style-type: none"> B & B 25 room max. hotel 	<ul style="list-style-type: none"> Professional services only 	<ul style="list-style-type: none"> Corner Store Art gallery Video Store Small sit-down restaurant 	<ul style="list-style-type: none"> Not permitted 	<ul style="list-style-type: none"> Daycare Center Police sub-station

Note: Uses within outbuildings are limited to parking, residential, home offices or non-commercial storage.

FRONTAGE ELEMENTS

	Residential	Lodging	Office	Retail	Industrial	Civic
At least one frontage element listed under each land use category is required for each building.	<ul style="list-style-type: none"> Stoop Front porch Upper floor balconies 	<ul style="list-style-type: none"> Front porch Upper floor balconies 	<ul style="list-style-type: none"> Colonnades Arcades Awnings Upper floor balconies 	<ul style="list-style-type: none"> Colonnades Arcades Awnings Upper floor balconies 		<ul style="list-style-type: none"> Not required

A sample portion of the Traditional Neighborhood Code

At the time of a developer's application to the Planning Department, a map will be submitted showing the general layout of the neighborhood (or portion of the neighborhood for smaller developments). The map will not identify single use zones such as "RUI" or "BUI," but instead will identify three Neighborhood Areas: the Neighborhood Center, Neighborhood General and Neighborhood Edge. The "Core" is an additional zone that may apply. These Areas vary in character, but encourage an acceptable diversity of building types and uses. Providing a range of uses and housing types is quite the opposite of the separate uses and building types from conventional single-use zoning.

For example, the Center of a neighborhood might have very dense multi-story mixed-use buildings and multi-family buildings in one neighborhood, while another might contain single-family detached houses with a small neighborhood store. The range of intensity of the Neighborhood Areas has the Core being the most intense with commercial and institutional uses to the Edge having only residential uses. The businesses and services typically found at the center of neighborhoods are not necessarily reliant on drive-by traffic of a major thoroughfare. A group of neighborhood businesses becomes a destination. For example a small grocery store or dry cleaner is next to a day care or school.

What about the existing neighborhoods?

In areas that are already developed, the challenge of connecting land use and transportation is much greater. In some places, many residents are content with their lifestyle and do not wish it to change. In others, people are eager to get out of their cars more often and have a more walkable, livable neighborhood. The chapter, *Completing Neighborhoods*, offers example site plans and phasing recommendations for places in Johnson City that are either owned by the city or in private ownership. In either instance, interested parties have been involved in the design process.

For the other areas, especially where neighbors agree they would like to see change, there is still work to be done. A specific Neighborhood Plan should be devised for each part of the City. Unless the residents whose lives will be altered by any future change are involved in the decision-making process, the plan is likely to fail. Showing city staff that a neighborhood desires change and is willing to work together is a good first step. Some neighborhoods are more organized than others and may be ready to hold their own meetings to advance the changes they would like to see. Other neighborhoods may need to begin the community organization process.

Infill offers tremendous opportunities to provide the community with development that complements the surrounding neighborhoods. Recommendations should encompass such things as:

- Identifying sites that have the greatest redevelopment potential and will benefit the surrounding neighborhoods.
- Identifying the preferred type of growth in each neighborhood to achieve a better mix of jobs and housing balance, whether residential, commercial or mixed use.
- Identify sites where community services can be infilled.
- Detailing incentives to encourage redevelopment in specific areas.

The Community Catchment Scale



Neighborhoods

A Community Catchment Area - a group of neighborhoods

Cities that experience rapid growth in population and size often have to provide needs and services in a reactive manner. Often, a community will grow more rapidly than the needs and services, such as schools and parks, can be accommodated for. Even when growth and development remains steady and consistent, it may not be evenly distributed. Perhaps a new store is on one side of town, while a new housing development is built on the other side of town. This mismatch of commercial uses and residential uses will likely add to traffic problems as people travel across town to get groceries. A Community Catchment Plan is the proactive approach to help manage existing neighborhoods and determine the future needs among a group of new and developing neighborhoods.

Daily needs and service provision begin at the neighborhood scale, but realistically every neighborhood cannot provide all the necessary daily needs and services within the limits of a few blocks. In the same way that there is benefit in encouraging a mix of uses within a single neighborhood, there is also great benefit in adjacent neighborhoods proactively coordinating and sharing community needs and services. Groups of neighborhoods can work together to promote a higher quality of life by sharing amenities such as schools and day cares.

A Community Catchment Area is a group of neighborhoods that has a distribution of civic infrastructure: schools, parks, fire stations, day cares, libraries, police stations, meeting halls, community centers, and needs such as a small grocery, etc. The basic idea is that several neighborhoods can come together to provide these things in close proximity that one neighborhood alone could not provide. An intermediate step, the Catchment Area, sets the framework for achieving a better balance of community services and allows people to spend less time in the car while trying to manage their lives.

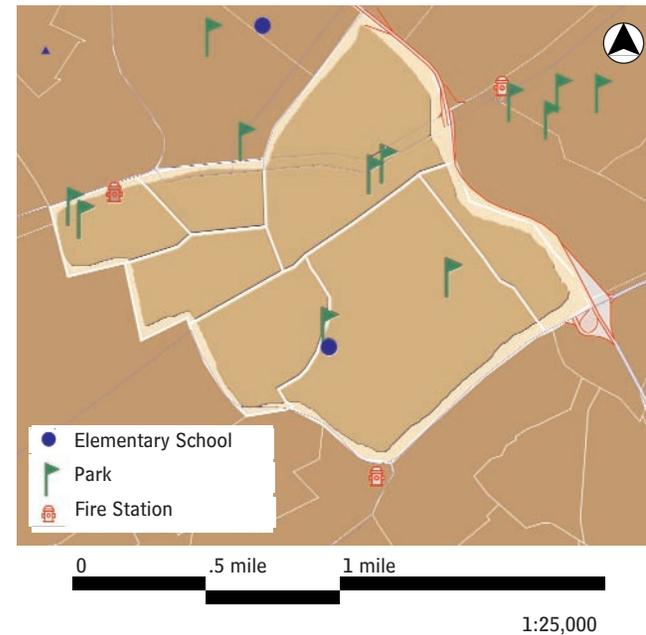
The intent is to make groups of neighborhoods more complete and less reliant on the regional road network. A Community Catchment Plan works to:

- Coordinate the distribution of community infrastructure such as schools, community centers, parks, libraries, fire stations, day care centers, and post offices among the neighborhoods within each Catchment Area; and
- coordinate the balance of homes and work places within the Catchment Area.

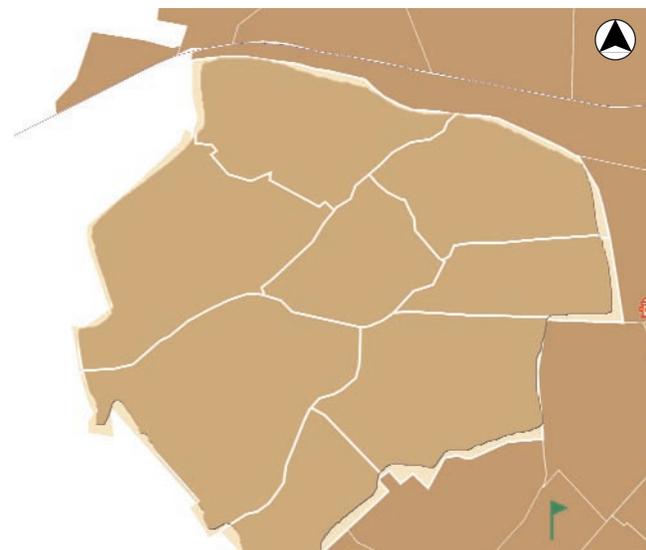
How does a Community Catchment Plan Work?

The Community Catchment Plan acts as a monitoring and planning mechanism. The Community Catchment Plan Team should be managed by the City Manager's office and be comprised of the department heads responsible for the long range planning of Schools, Parks, Libraries, Roads, Infrastructure, Community Services and the like. The intent is to coordinate all disciplines in order to receive the most benefit from future development. This group will:

1. Work as a team to identify the existing Catchment Areas within the existing City Limits.
2. Assess the needs and services provided in each of these Catchment Areas, determining which services might be missing such as schools, parks, utilities, or neighborhood serving retail.
3. Assess the balance of jobs and housing within each Catchment Area, determining where there are opportunities to infill and provide a better balance.
4. Decide the locations and priorities for future Catchment Areas within the Urban Growth Boundary.
5. Make recommendations to the City Commission and Planning Commission to help the Commissioners make informed decisions.



This catchment area in the historic part of Johnson City shows a variation and equal distribution of civic infrastructure. Redevelopment and maintenance of the existing civic infrastructure would be the priority in similar neighborhoods.



This catchment area on the edge of Johnson City shows a group of new neighborhoods with no civic infrastructure within walking distance. As changes to the built environment occur, civic infrastructure must be a top priority. Schools, day care centers, parks, and community centers are all part of the civic infrastructure.

Using information provided by the Johnson City Geographic Information System Division, the location of community services, such as schools, parks, and fire stations was examined in regards to their proximity to neighborhoods.

What's the Jobs / Housing Balance?

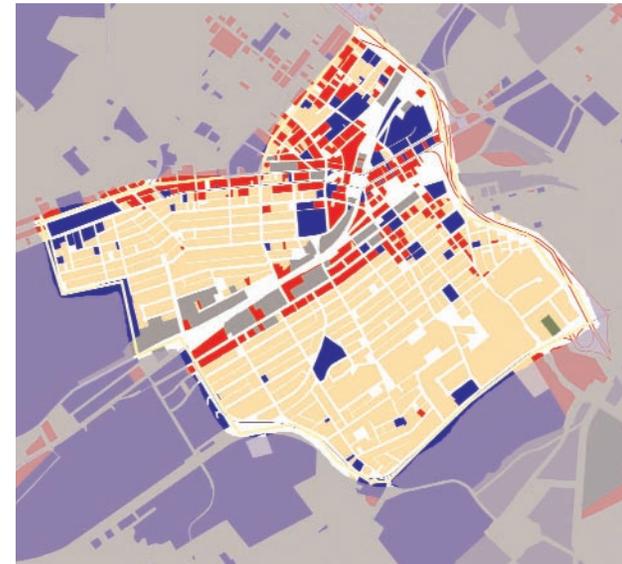
excerpted from **Stuck in Traffic: Coping with Peak-Hour Traffic Congestion**
by Anthony Downs

One strategy for reducing congestion focuses on changing the balance between jobs and housing within each subregion of a metropolitan area. The basic idea is to encourage people to live closer to where they work and thereby shorten average commuting journeys.

...Long journeys often result from imbalances between job sites and the places people reside. Many more jobs than housing units tend to be concentrated in areas with a job surplus or housing shortage. These areas include most downtown business districts, large retail and office clusters around big regional shopping centers, and office and industrial facilities surrounding regional airports. Many people who work there must commute from relatively distant residences.

Areas with a job shortage or housing surplus tend to have many more housing units than jobs. They are mainly outlying suburbs at the frontier of new growth where land is relatively inexpensive and so housing costs less than in areas closer in. That attracts low- and moderate- income households or those who want large homes without paying immense prices. Many people living there must commute relatively long distances to reach their jobs.

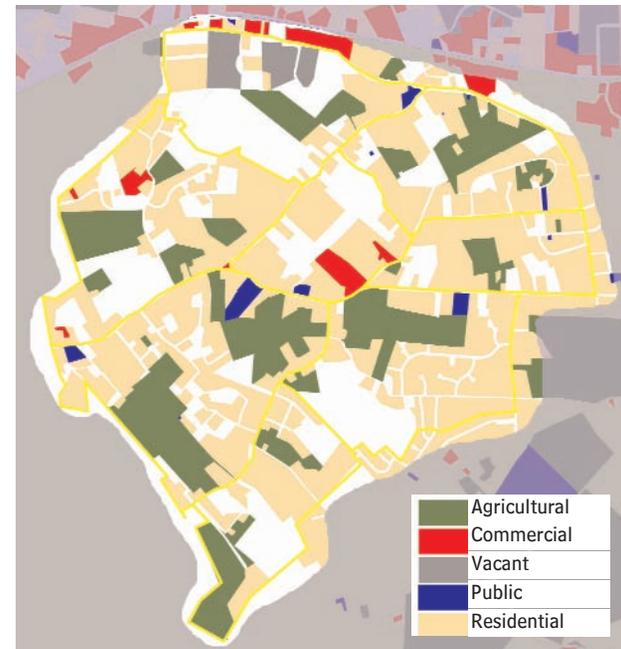
Even if the number of housing units in an area is exactly the same as that required to house everyone who works there, the cost and styles of those housing units may not be appropriate for those workers. For example, low-wage workers employed in a regional shopping center may be unable to afford any nearby housing if exclusionary zoning keeps the prices high. Hence an effective jobs-housing balance can only be achieved by closely matching both the number of local housing units and the prices and styles of those units to the number and economic capabilities of locally employed workers.



With a strong balance of residential and commercial uses, this catchment area has a solid start of a proper jobs/housing balance. Redevelopment efforts should focus on the design and scale of the existing commercial uses. Ensuring that the majority of the stores and offices serve the needs of the immediate residents is another important focus.



1:25,000



Here there is an unequal distribution of land uses. The neighborhoods are comprised of residential land uses. The remainder is vacant land. As new development is constructed, the focus should be improve the jobs/housing balance by adding stores and offices at a neighborhood scale.

Is Bigger Really Better?

The problem of sprawl is a cyclical relationship involving how we build places and how we build roads. Because land uses have been separated, we need more roads to get there. These roads make driving farther easier. Because people will drive farther, we can draw more people in and build in larger formats. The large format way of thinking has created the perception that “bigger is better, there is an economy of scale, we are saving money”—hypothetically that is on salaries and the number of employees and management by concentrating and putting everything under one roof. The national retailer, along with the makers of civic infrastructure such as schools, parks, and libraries have steered to “thinking big.” There are in fact real economies of scale, but are we looking at the true overall cost? And the cost to society? The real question is— are we saving money as consumers and taxpayers on goods and services because of the large format or are we really spending that “saved” money on roads, cars, car insurance, gasoline, time wasted in traffic and the loss of quality time with our friends and family?

The key is to reduce reliance on the regional road network by providing daily needs and services in manageably sized Catchment Areas. This may require rethinking policy regarding the sizes of community services, such as new schools. Schools systems throughout the country have begun to establish smaller neighborhood schools. Port Royal in South Carolina, for example realized removing the town elementary school would lessen their desirability as a place for families to live. The solution was to share the administrative staff with another nearby school. The Port Royal Elementary School is now considered one of the best schools in Beaufort County.



A new neighborhood store is infilled in the town of Port Royal, South Carolina.

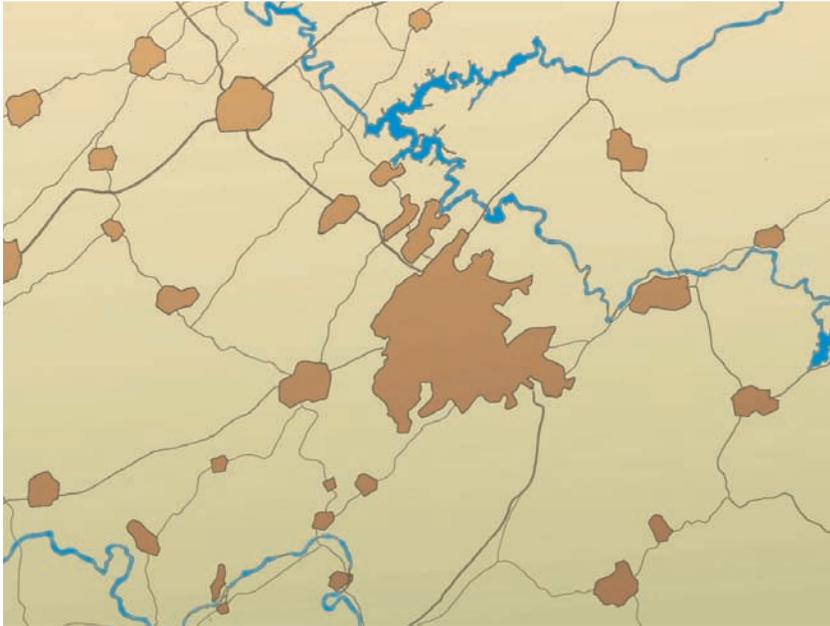


A new neighborhood store in the Haile Village Center, Gainesville, Florida.



The historic new neighborhood school restored in the town of Port Royal, South Carolina.

The City Scale



Just as the Community Catchment Area is an organized group of neighborhoods, the City is an organized group of neighborhoods and Community Catchment Areas. The City Scale requires the coordination of the communities with regional elements such as the regional roadways, parks, public infrastructure and services, and natural features.

One priority of the Master Plan is to contain new growth within the city boundaries by infilling and redeveloping existing areas. The basis for this strategy is from comments heard during the public workshops. Many folks mentioned during the public workshops that restoring Downtown should be a high priority. Being conservative with city expansion will help new commercial and residential development back into areas like downtown. Adding incentives to develop downtown will also help with this strategy. The other side of this strategy is to *discourage* development on the outskirts of Johnson City. Continual annexation, rezonings, and utility availability only *encourages* development in the outskirts. Also, maintaining the balance of the ‘town’ and ‘countryside’ is important because one of the characteristics that everyone loves in Johnson City are the rural scenic views that will otherwise be lost without preserving the area’s natural resources and agricultural lands.

Many of the existing neighborhoods have room to grow. When Downtown becomes a more desirable place, parking garages can replace parking lots, empty buildings can be re-occupied, and storefronts can once again display items for sale. The industrial areas near the railroads will likely become employment centers and offer interesting places to live in “loft” apartments. Other close-in neighborhoods with residential streets that have become regional roadways should be re-developed with multi-family housing. Johnson City has many undeveloped “pockets” that can be developed with a true mix of uses. Most of the commercial “strip” on the edges of town can support infill development, making those corridors better neighbors and making neighborhoods more complete in the process.

The City can accomplish this by creating incentives for the redevelopment and infill development of existing areas. Some of these incentives may include:

- Giving tax breaks for revitalizing structures and property;
- Offering loans or small grants for commercial facade improvements;
- Creating low interest loan pools for redevelopment sites;
- Reducing “hook-up” charges for infill development; and
- Creating partnerships with local developers so both public and private dollars work together to make improvements.

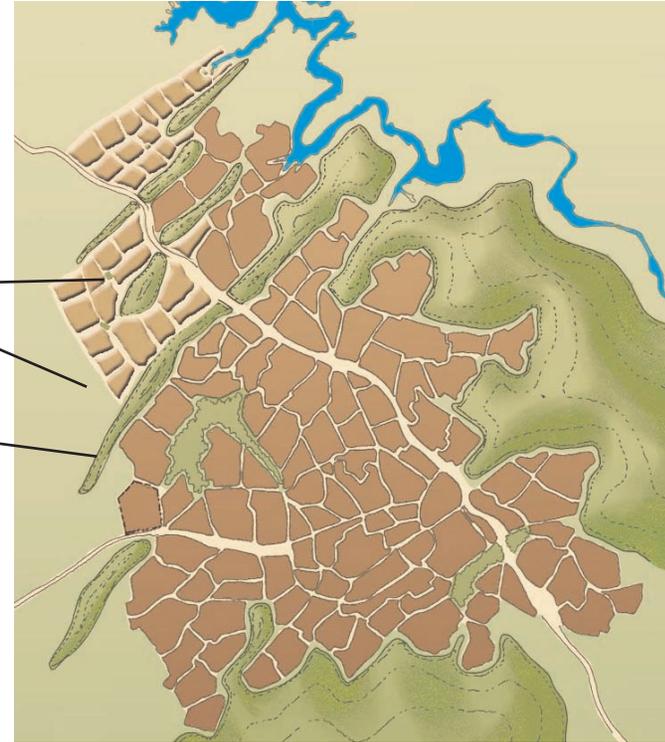
Realistically, there will be times when new growth must encroach upon undeveloped lands. When this development is necessary, Johnson City must be proactively planning and managing where and how that growth should occur. The Urban Growth Boundary alone is not enough!

How to Grow...

Formal parks are designated.

Compact development saves larger tracts of farm land.

Mountain ridges are respected.

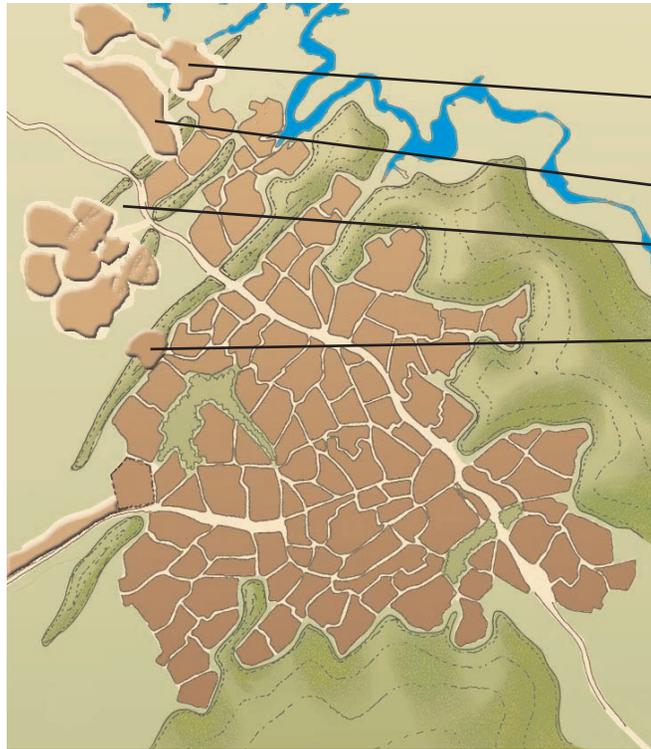


Determining Future Growth Areas

The first step is to determine where growth is desired and where it is feasible. Ideally, growth should occur incrementally and at the edge of the town, or in clustered areas separated by the City from a natural feature or greenway such as a mountain, flood plain, or environmentally sensitive area. Simply allowing new growth anywhere within the urban growth boundary is not the best approach, because inefficient expenditures of public infrastructure will put undue strain on the service providers and likely increase the costs of the municipal services.

Preserving natural features is an important element for the future of Johnson City. Besides being a priority for many of the citizens, land conservation and careful preservation of agricultural lands, is an important environmental responsibility.

How NOT to Grow...



With no block pattern or network of streets, all traffic is funnelled onto existing arterial roads.

No land is saved for parks.

Large tracts of farm land are destroyed by haphazard development.

Development spreads onto the ridges and destroys the mountain views.

Natural features are an integral part of defining the character of any community. Careful attention to topography, long vistas, and any other environmental feature can help determine the areas that should be preserved or maintained as public open space. Future growth should respect these goals:

- To prioritize preservation lands and develop only where appropriate,
- To maintain large tracts of forested land,
- To keep mountain ridgelines free from development,
- To restrict or prohibit development in floodplains,
- To minimize potential contaminants in air and water quality,
- To avoid problems that negatively affect water quality, and
- To create a land preservation trust to preserve more open space.

Several tools should be considered to accomplish the preservation of special lands and green space:

- Establish a Riparian Zone as part of the Zoning Ordinance.
- Purchase lands as City parks or open space.
- Maintain the area through the private landowner or a volunteer corps from the community.
- Transfer ownership (donate or sell) from land owner to civic organization as a conservation easement (thereby realizing a substantial tax break for the land owner).

The City of Johnson City should work to further refine their existing Land Use Map and include the areas that surround Johnson City, as these are the areas that will likely be developed in the future. By adding more information and expanding the geographic information system (GIS), a practical database of knowledge can be created. A GIS map can physically identify natural features and provides analytical tools to help the community make thoughtful decisions, based on more information than political will or financial factors. This map and associated database can identify the opportunities and constraints. The map can also call out environmentally sensitive or threatened areas. Factors to include, but not limited to, are:

- Soil Quality
- Water Quality Impacts
- Endangered Species (Flora and Fauna)
- Proximity to Flood plain
- Topographic Features (i.e. mountain ridges or water systems)
- Areas of Archaeological Significance

A GIS also allows other opportunities and constraints along with straightforward scientific knowledge to be analyzed. Some of the other information that should be accounted for are:

- Terrain and soil suitable for development,
- Adjacency to existing developed areas and transportation corridors,

- Economical “hook-up” to adjacent utilities and services, such as sewer, water, electricity, and telecommunications,
- Community needs that can be met with the new development, such as the addition of schools, parks, water reserves in a specific area, etc.
- Needed roadway connections to extend the transportation system.

All of these ideas and decisions will be incorporated into a plan that will set the framework for future development, guiding the physical features and their relationships. In order to help guide development, the plan should clearly identify:

- Future Community Catchment Areas and where to complete existing Community Catchment Areas;
- Boundaries for all the neighborhoods or special districts (new and existing), approximately one half mile across in size;
- Neighborhood Core, Center, General, and Edge, or special districts to meet the Traditional Neighborhood Code;
- Future and existing transportation corridors;
- Areas designated for conservation and preservation; and
- Sites reserved or intended for civic uses. New civic uses that serve all of Johnson City should ideally be located in the center or along the edge of Catchment Areas.

Most of the work described can be accomplished in various departments of the City of Johnson City. The City Manager’s office and the Planning Department are likely places to begin and spearhead the work. And while much of this planning effort can be done behind the scenes, involving the public in the decision making process cannot be emphasized enough. Decisions about land use and transportation are often made without sufficient public participation. The impacts that they have on people’s daily lives are tremendous, and involving the public early on in the process can help to mitigate and minimize problems that may occur after the fact, when it is too late.

Encouraging Development in Targeted Areas

The Johnson City Commission must make some tough choices. At the end of the planning process, certain areas will be targeted for growth; others will not. Once certain areas are approved for growth, the Commission will have to assess its role in encouraging development of these areas. It may choose to forgo any contribution cost from the developer, or offer to pay for needed infrastructure improvements. The challenge remains in the areas that are not targeted for growth. Where development is less desirable, for instance, far from existing infrastructure, Johnson City could *allow* development, but not offer financial assistance. The developers would have to pay for all community infrastructure and planning costs, including all extensions of roads, utilities, and schools.

One option for the non-growth areas is to purchase them for preservation and conservation. In addition, many communities are adopting programs to transfer or purchase development rights. With these programs, property owners can sell development rights off their land to developers who will then build those dwelling units or commercial square footages in another part of town that is targeted for growth. Sometimes conservation organizations purchase these rights to prevent them from being built altogether. Whichever strategy is chosen, it must be sensitive to individual property rights, although property rights should not be seen as a hindrance that cannot be overcome.

Thinking Locally, Acting Regionally

Planning for the future, or growth management, will have much greater success if it is practiced throughout the region. The City needs to work closely with the Counties and other Cities in developing and administering sound, regional growth management practices. The current planning regulations do not manage growth - land can be quickly rezoned to Residential and subsequently annexed into

Johnson City. This is a surefire method to induce sprawl. Coordination begins with the Land Use and Transportation Master Plan for Johnson City, but until all three counties have a system for coordinating growth, the planning efforts of the individual counties might be continually undermined. It is inefficient if one county is doing the exact opposite of another. This inefficiency can also lead to adversarial relationships between local governments as they begin to compete for possible development investment. If the neighboring governments do not work together, no one wins.

Another way that the Future City Plan will help the community is that its growth management approach will begin a framework for environmental resource management. Air pollution, caused by traffic in cities is directly linked to their urban growth patterns; this can be observed in cities like Atlanta, Los Angeles and Houston. Fortunately, the time is now to begin reducing the dependency on automobile and thereby decreasing air pollution. Johnson City has not yet reached such chronic consequences, so there is still time to act.

Livable Transportation



When we try to pick out anything
by itself, we find it hitched to
everything else in the Universe.
- John Muir

Transportation is a critical component of Johnson City's economic, environmental, and social well-being. Although not important in itself, it is what connects all other components of the city and region. To change the form and function of the city, the transportation system must also be changed. The transportation system influences, and in turn is influenced by, economic development decisions, land use patterns, and real estate investment decisions. This chapter examines and reassesses the transportation system of Johnson City and places it within the larger need for a more livable and sustainable community and region. By tying together the transportation system and the land use pattern described in other chapters, Johnson City can become a more livable community.

Organization

The *Introduction* of this chapter introduces the framework by first examining and understanding the existing condition of transportation systems in Johnson City. After emphasizing the need for both mobility and accessibility, the Introduction describes an expanded view of transportation planning opportunities.

The *Street Character Plan* is the guiding tool of the transportation framework. This section describes a hierarchy of streets found in Johnson City and recommends various cross-sections for specific roadways. Recommended strategies, including the need for roadways to conform to land uses instead of the reverse, are identified.

Implementation provides information on how to take action and implement the selected strategies within the context of the built environment and regulatory setting of Johnson City. The *Conclusion* of this report is a narrative summary of the entire plan and process plus a concise listing of the Street Character Plan recommendations.

Introduction

In order to understand the role of transportation in Johnson City, it is necessary to review the history, present conditions, and anticipated future in the community. The following snapshot of the transportation systems will serve as the foundation of the plan and basis for identifying potential implementation strategies.

Existing Conditions

Roadways

Major activity centers and commercial corridors draw thousands of workers and shoppers into the city each day. For example, Downtown Johnson City, including ETSU and Med-Tech, serves as a regional hub of activity - employment, entertainment, academics, shopping, and dining. The ability of

people to reach and economically support these places is partially dependent on the transportation network. The transportation facilities within the center of Johnson City are excellent, with the newly annexed and adjacent areas underserved. Urban parkways such as University Parkway, State of Franklin Road, and John Exum Parkway provide efficient movement through the western and southern areas of the city. However, traffic continues to increase on the primary routes in and around Johnson City. Although traffic is increasing and will continue to increase on many roadways, most roadways offer sufficient capacity for the next 20 years of forecasted traffic.

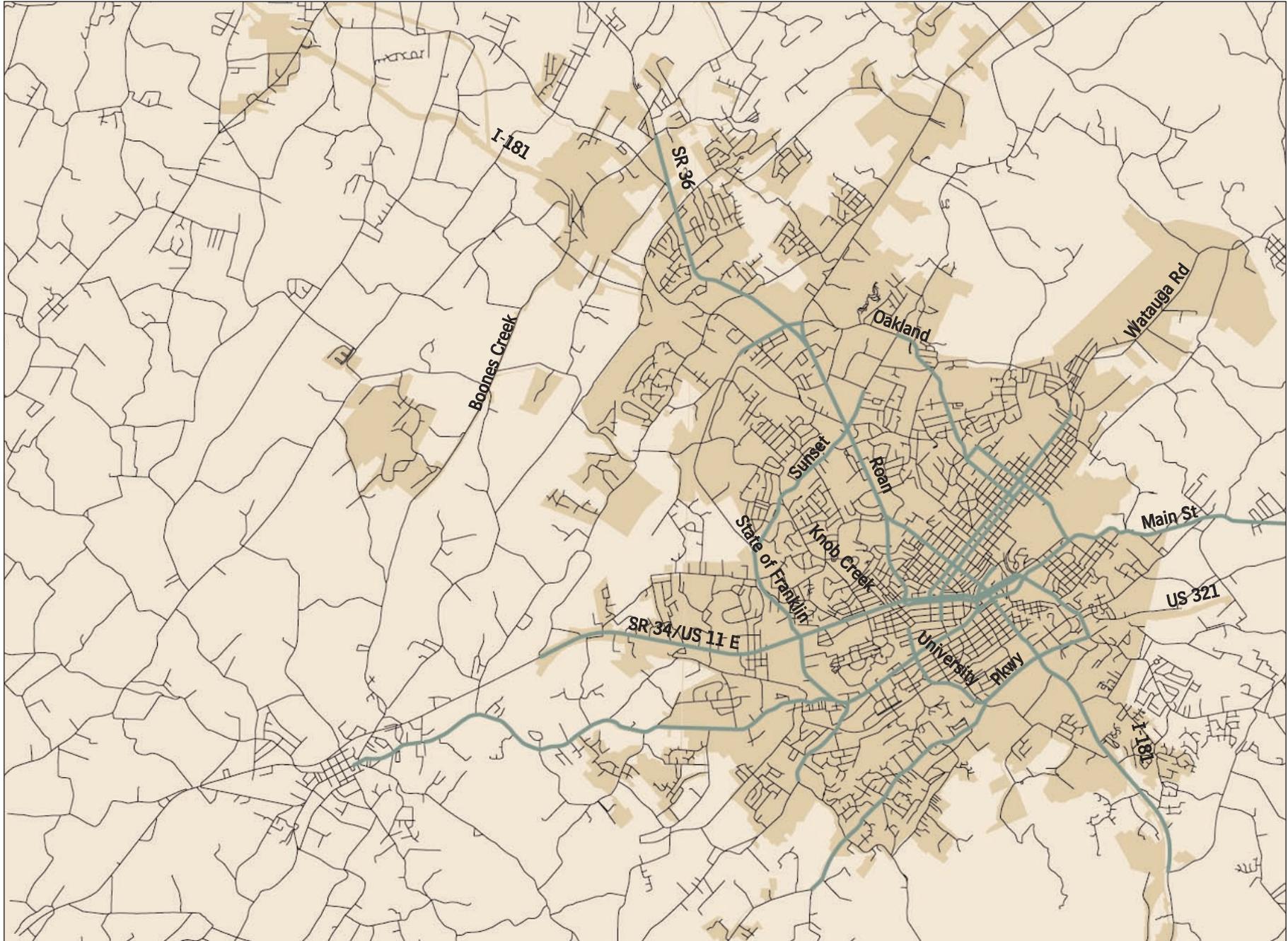
Deficient roadways, or roadways operating at or below an acceptable level of service, include Roan Street near the Mall of Johnson City and the two-lane roadways that serve residential neighborhoods northwest and south of the city. Faced with rapid residential expansion, these formerly rural roadways are now operating more like their urban counterparts. Residents are also noticing the increased congestion, delivering frequent complaints about high traffic on State Route 36, Boones Creek Road, and Carroll Creek Road.

Bicycle Facilities

Despite some topographic challenges, Johnson City's large residential and university populations and moderate climate almost ensure high utilization of bicycle facilities. Johnson City is fortunate to have an existing trail along State of Franklin Road, as well as a planned and funded trail to Buffalo Mountain.

These two trails begin to form a skeletal bicycle facility system that Johnson City can continue to expand. The city has a planned system of bicycle routes. The planned system, available through the city's planning department, contains a few routes that welcome all riders, but the majority of routes are rated for experienced riders and there are many dangerous intersections.

While biking is possible on two-lane neighborhood roadways with limited traffic, roadways such as State of Franklin Road,



The majority of Johnson City streets are safe for bikers (shown in black). However, there are significant barriers to safe inter-neighborhood bike travel (green).

with a posted speed limit of 40 mph, are dangerous for all but the most experienced rider. Roadways that are perceived as unfriendly to cyclists and pedestrians psychologically separate neighborhoods that may physically be located side by side.

Johnson City needs to pursue its current bicycle plan, making street design and intersections on these designated routes safer for cyclists. Yet the entire city should be safe for cyclists and other nonmotorized modes. As new streets are built and existing streets are reconstructed, bicycling and walking must be promoted, whether or not those streets are designated on the city's bike route plan.

The recommended street designs contained in the Street Character Plan accommodate and promote cycling on appropriate roadways. In addition, the land development recommendations in Appendix B help promote bicycle-friendly development and building patterns.

Pedestrian and Transit

Pedestrian access in Johnson City may be measured by the availability of sidewalks and slower moving vehicles on the roadways. The existing sidewalk network in the traditional center of Johnson City is excellent, reflecting a history when walking was the primary mode of transportation. However, in newly settled and more rural areas, there is an appalling lack of sidewalks on the roadways. Vehicular speed is also higher on these roadways, providing for an uncomfortable and dangerous environment for pedestrians.

Johnson City Transit (JCT) began operations in 1979. This limited service provider serves the elderly, handicapped, and transit-dependent residents of Johnson City. Currently, JCT provides service on 12 fixed routes. For all routes, the one-way adult fare is \$0.60 and \$0.30 for students, seniors, and handicapped individuals. Paratransit service is also available.

With Johnson City's limited sidewalk network and transit service citywide, the only activity center that is welcoming to the pedestrian is the traditional core of Johnson City.

Mobility and Accessibility

Transportation is not an end in itself, but only the means by which members of the community connect to their basic needs in housing, jobs, health care, education, social services, cultural facilities, and community services. A livable transportation system serves the city's entire population, including those that drive private vehicles as well as those that walk, bike, and take transit. For example, a livable transportation system promotes context-sensitive design, so that the roadway, bike path, or transit line supports, encourages, and respects the surrounding land uses and users.

Many questions regarding transportation investments and priorities ultimately rest on the competing demands of mobility and accessibility. Among the many roles that a street must assume, the job of moving people and vehicles quickly and allowing them to move efficiently are frequently at odds.

Mobility is the movement of people, vehicles and goods across distances - moving freight from Knoxville, commuting from Boones Creek to ETSU, or delivering mail by truck. Speed and a minimum of interference with getting to the destination are the primary concerns. Efficient mobility is critical, not only in reducing time- and resource-wasting traffic congestion for Johnson City residents, but also to supporting economic growth. When goods and construction equipment are stuck in the same traffic congestion as residents, the whole region of Northern Tennessee can suffer and growth can be hampered.

Accessibility, a similar concept, is the ease in which people, vehicles and goods can leave their origins and reach their destinations. Getting from one store to another within a shopping center, walking to school, and going to church or the grocery store are example of where accessibility is important. To maximize accessibility, the transportation system should allow free movement and minimize barriers.

Although they are similar concepts, mobility and accessibility frequently conflict in transportation facility design. Methods to increase mobility like increasing speed and limiting the

amount of local traffic are in direct conflict with accessibility goals of unrestricted movement and using the street other than for through traffic. Pedestrian and cycling improvements, better delivery services, and mixed land use can improve access while reducing vehicle traffic and mobility. Conversely, strategies for improving traffic and mobility can reduce access. For example, increased vehicle traffic can degrade the pedestrian environment, and automobile-oriented land use can reduce access by dispersing activities and reducing travel choices.

It makes sense to design for mobility on interstates and for accessibility on cul-de-sacs. It is the balance between mobility and accessibility on other roads that must be examined.

Nationwide, conventional transportation planning has concentrated on mobility at the expense of accessibility. In times of limited financial resources, municipalities have done a good job at accomplishing the goal of moving as many vehicles as quickly as possible. However, in residential areas that goal may have been partially misguided. While widening a street may improve mobility in a corridor, continuous widenings may prove destructive to surrounding neighborhoods. Although they increase vehicle speed, very wide streets separate lower income residents from jobs, children from schools and parks, and neighborhood residents from surrounding neighborhoods. Watauga and Unaka Avenues, while they were primarily residential, now separate instead of unify a neighborhood.

Johnson City should increase its concentration on balancing accessibility with mobility, in proportions that are appropriate to the type of street and surrounding land uses. The next section describes methods that additional accessibility can be provided. The *Street Character Plan*, described later in this section, provides a more balanced transportation system and creates different transportation priorities in different parts of Johnson City.

Toolbox of Transportation Planning

The provision of only mobility results in a concentration of transportation resources on the automobile. A car-oriented system – many wide roads, land uses separated by large distances, ample parking in front of every building, drive-throughs, missing sidewalks – provides the greatest mobility. When balancing accessibility with mobility, the options available to the transportation planner expand. Providing accessibility includes not only automobiles but also pedestrians, cyclists, transit riders, and others. Livable transportation considers all options in providing a balance of accessibility and mobility.

The Conventional Approach is the currently standard view of transportation planning. With the explosion of private automobiles since World War II, transportation departments have been focused on the safe and efficient movement of automobiles. This choice proved successful to a degree, as vehicles in most cities move at an acceptable level of service, efficient road systems promote trucking and lowers the cost of goods to consumers, and residents are provided the opportunity to locate anywhere within the city or its outskirts.

However, negative consequences to the Conventional Approach, such as congestion in the suburbs and the abandonment of urban centers, have prompted communities and transportation departments to recognize the need to broaden their approach and use a variety of methods for providing mobility. The additional transportation planning methods, part of the Lateral Approach, can be divided into four categories:

Move People, Not Cars: The primary goal of transportation is to move people, and automobiles are only one means. In many communities that fact is lost when the movement of vehicles overshadows all other modes. Transit, bicycling, and walking are also effective ways to move people, and in many circumstances are more effective and cheaper than automobiles.

Improve Quality of Travel: Due to limited resources and competing demands, some congestion cannot be "solved." Yet it's not only the congestion but also the driver's experience that are important, and there are a variety of methods that may not speed up travel but make it safer and less stressful for the driver, walker, biker, and transit rider.

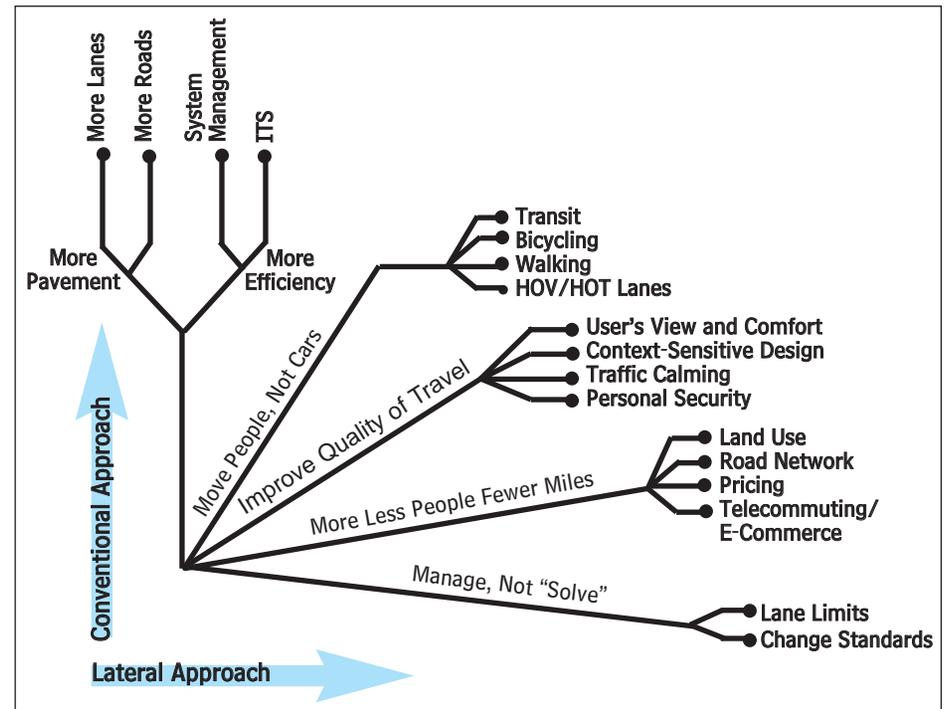
Move Less People Fewer Miles: Instead of treating the effect of many cars on the road, this approach addresses the cause of the problem – the need for people to travel long distances. If convenient stores and jobs are near homes or if some trip purposes can be accomplished on the Internet or by telephone, congestion will decrease by limiting its source.

Manage, not "Solve": The country's increasing wealth and resulting increased mobility needs means the goal of traffic engineers to solve all congestion is an impossible one. Instead of considering all congestion bad, some transportation planners are shifting their efforts toward managing congestion and minimizing its effects on communities.

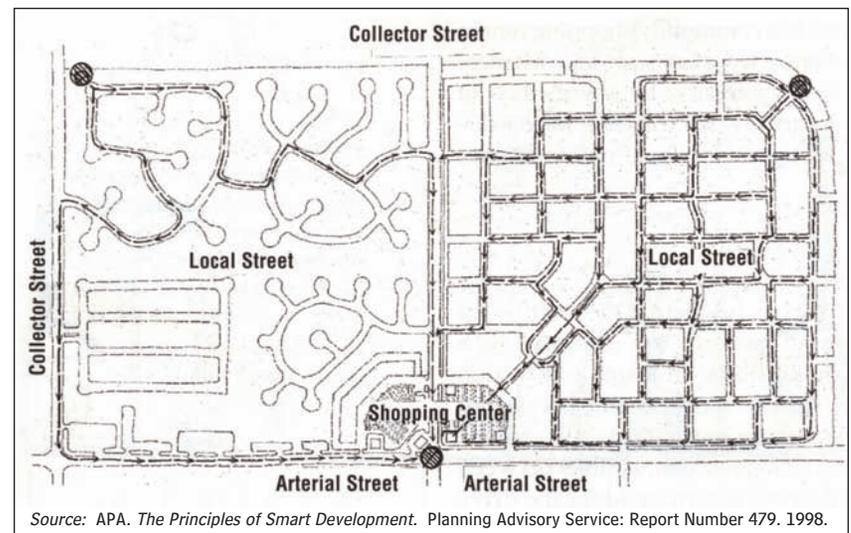
By combining these additional methods of transportation planning with the conventional method of building more and wider roads, the mobility and accessibility needs of not only drivers but of all community members can be accommodated in a way that improves everyone's quality of life. These methods, combined with the land use and urban design recommendations suggested in this book, will reshape and restyle Johnson City in the manner that its citizens have requested.

Roadway Network

In the context of Johnson City, one of the tools of transportation planning deserves greater attention. Road network is one method of moving less people fewer miles. Contrary to the advertisement slogan, wider is not better. A network of smaller roads provides greater traffic carrying capacity than one multilane road. Adding lanes may increase the capacity of the road, but the increase in capacity of each new lane gets pro-



Toolbox of Transportation Planning



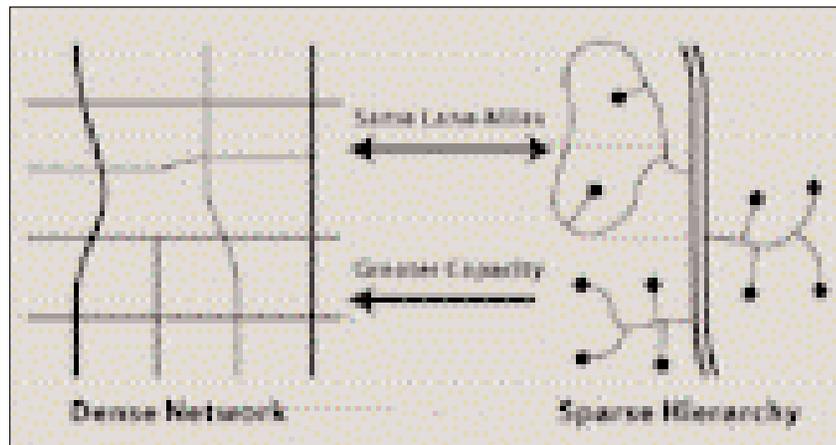
Source: APA. *The Principles of Smart Development*. Planning Advisory Service: Report Number 479. 1998.

The conventional street pattern on the left forces all neighborhood traffic onto the wide, fast streets. On the right, the traditional street network offers a high number of choices, all direct and child-friendly.

gressively smaller. In short, two small roads are better than one big one.

Besides the greater traffic carrying capacity of multiple smaller roads, there are other benefits as well. Overall, a well-connected system of two-lane roadways – supported by a dense network of supplementary linkages in areas of greater activity – provides a number of benefits.

- *Efficient vehicular flow* - The separation of short local trips from longer regional trips minimizes traffic friction and supports sustainable flow of vehicles. The turning movements of purely local trips on smaller neighborhood roads don't interfere with through movement of regional trips on larger arterials.
- *Increased route choices* - A well-connected two-lane network provides drivers with many route options between their origins and destinations, instead of holding them hostage to a single thoroughfare.



With the same investment in road dollars, the network provides more capacity.

- *Development focused at intersections* - While conventional multilane roads typically carry 30,000 to 40,000 vehicles per day, each two-lane roadway of the Street Character Plan carries only approximately 20,000 vehicles per day. In the conventional model, the typical traffic criteria for commer-

cial development (exposure to approximately 25,000 vehicles per day) are satisfied at every point along each major arterial. Conversely, in the Street Character Plan, these criteria are fulfilled only at intersections, where two or more two-lane roads meet. Instead of endless strip development that eats away at mountain landscape and generates erratic local trip patterns, development in the network of streets is organized into country crossroads that are easily served by alternate routes and modes.

- *Increased mode choices* - When development is located in country crossroads rather than spread out across the landscape, alternate modes of transportation become attractive options for both regional and local travel. The efficiency of transit is increased because stops can be located at clusters of activity rather than at relatively indiscriminate points along strip corridors. Additionally, because development is clustered together, many people will choose to walk within the country crossroads rather than drive from strip center to strip center.

In addition to providing network for longer trips, connections on the local scale are also important. Dead-end streets and roads in adjacent subdivisions that do not connect are not as effective for transportation and not an efficient investment. Roads that connect neighborhood to neighborhood provide opportunities to get to the neighborhood school, nearby shopping, and a friend's house without getting on the large arterial. Connected neighborhood streets also allow children on bikes and walking to get to school safely.

Trying to cure traffic congestion with more capacity is like trying to cure obesity by loosening your belt.

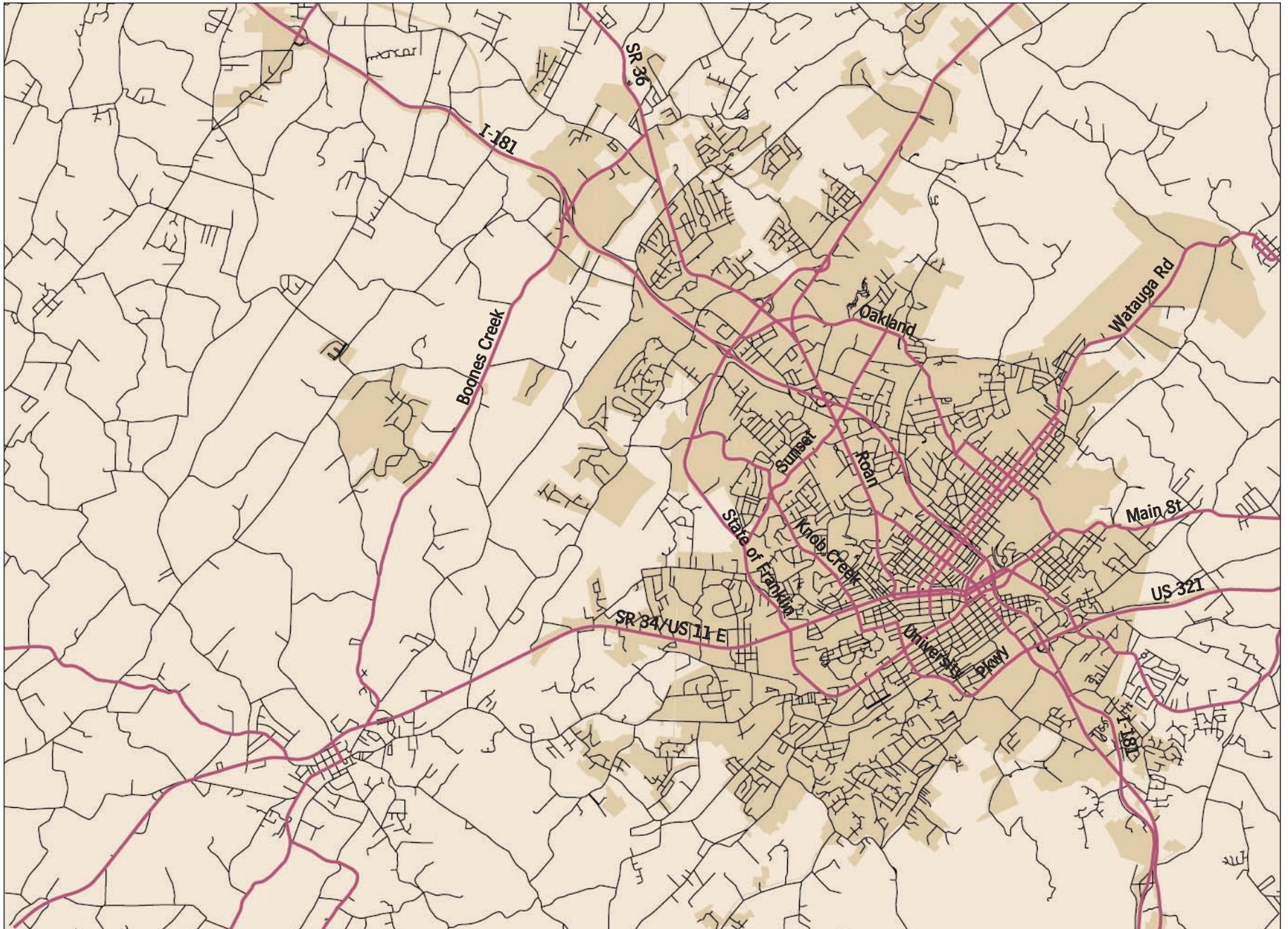
- Glen Heimstra, Futurist

The next two pages show versions of Johnson City's road network. The first includes all the roads in the region. The second is the effective network – showing those streets that actually connect two other roads. Cul-de-sacs and other dead-end roads are removed. In some areas of the city, there exists an integrated network. In others, there are few road choices, and all neighborhood residents and regional through traffic are forced onto the same crowded roads.

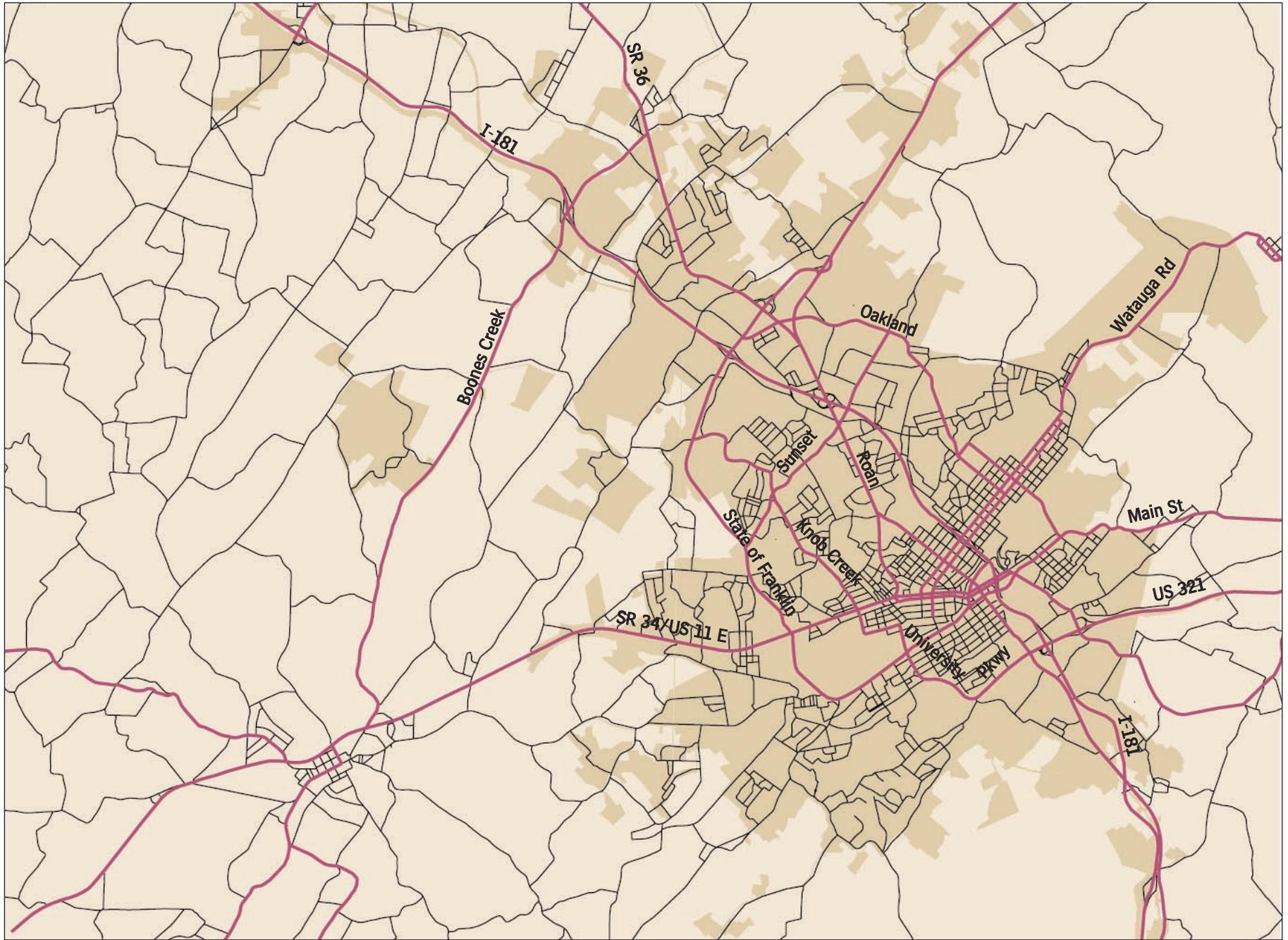
Johnson City's road network is complete in some areas, but lacking in others. The number of roadways built in recently developed areas is high. Yet, because they are not connected, they do not serve the neighborhoods and through traffic as effectively as those in connected networks like in Downtown, the Tree Streets, and the Watauga/Unaka area. In the new developed areas, connections to the existing and greater network are missing, decreasing the effectiveness of each newly constructed road mile.

The Land Use and Transportation Plan encourages the creation of new network and new connections. By limiting road widths to established character-supporting standards, the Street Character Plan encourages the establishment of new smaller roads. For example, instead of the continuous widening of Kingsport Highway to support both regional and local traffic, other smaller roads like Old Gray Station Road might be not widened but improved to provide network, instead of wider single routes. The Land Use and Transportation Plan also encourages development practices that encourage connections on the neighborhood level.

The institutional barriers to creating effective networks instead of conventional wide but congested roads and cul-de-sacs are numerous. How the Tennessee Department of Transportation regularly funds transportation improvements is one barrier, while just the difficulty of overcoming developer inertia is another. Creating street network is a result of the joint efforts of transportation planners and development regulations. The Street Character Plan in the next section describes the role of the transportation planner, while the development principles that support connected neighborhoods are located in Appendix A and B.



On maps like the one above, Johnson City appears to have a dense street network.



When dead-ends and other streets that do not connect roadways are eliminated, the map above is the result. Only traditional Johnson City - Downtown, the Tree Streets, and the Unaka-Watauga neighborhood - has an effective road network.

Street Character Plan

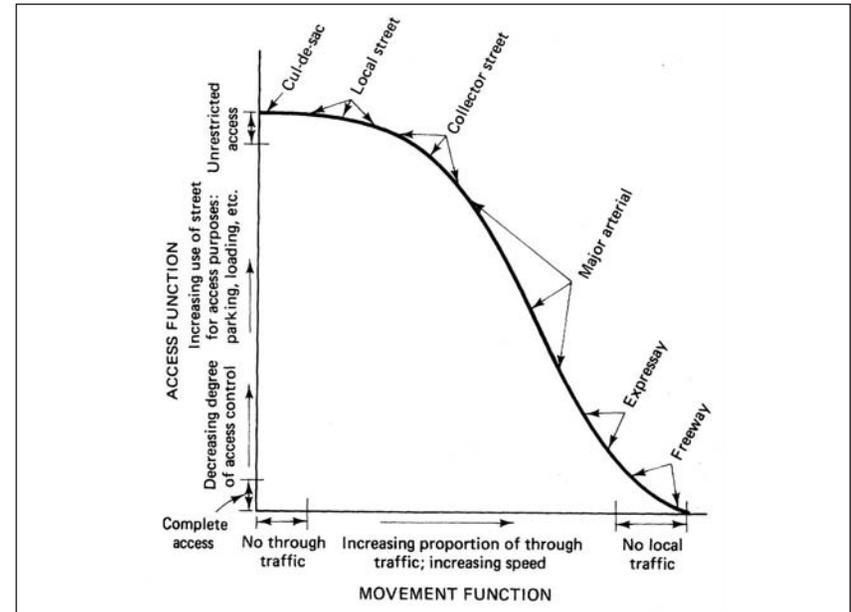
Traditionally, roadways across the nation and in Johnson City are separated into the following functional classifications: local, collector, arterial, and freeway. Through this hierarchy, all design standards including speed, signage, and geometry are applied. This plan embraces not only the functional use of a roadway, but also the role of adjacent land uses.

Clearly, this is not a "one-size fits all" philosophy; it implies that different guidelines – ones that respect the context of the surrounding land uses – may be applied to roadway corridors as divergent as South Boone Street and Claude Simmons Road. Transitional corridors will benefit the most from this portion of the plan. The Street Character Plan allows Johnson City to shape the future of developing rural corridors before incremental and haphazard investments create traffic congestion and visual blight.

This Street Character Plan illustrates the character that the existing Johnson City roadway network can have in the future. Street character elements include the inclusion of street trees, bike lanes, sidewalks, and on-street parking. Roadways that require widening can still follow the overall intent of the Street Character Plan.

The recommended hierarchy of streets, designed and tailored for Johnson City's current roadway network and land uses, is composed of ten different roadway types. The roadway types are separated between rural and urban cross-sections, the residential or mixed use character of the surrounding land use, and traffic demand. Mixed use roadways are applicable in areas with existing commercial land uses and mixed-use activity. Each of these roadway types and their applicability to roads in Johnson City is described within this section.

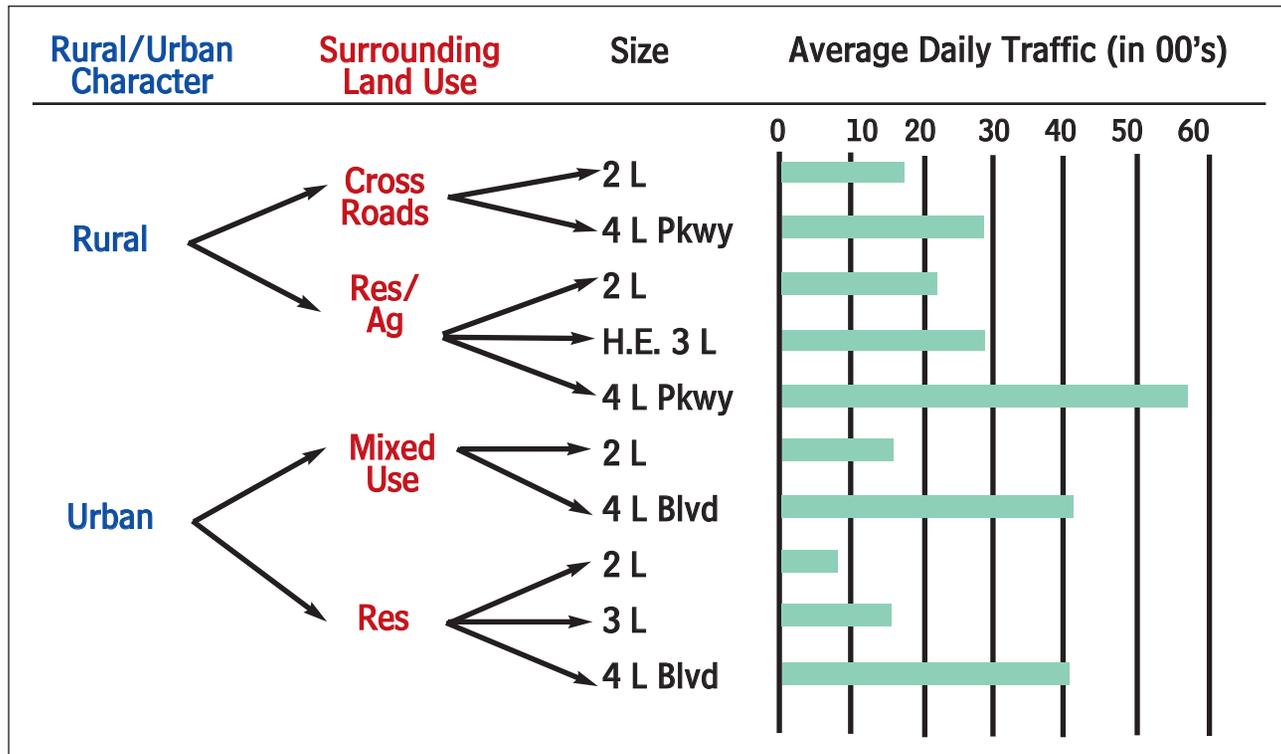
Interestingly, state departments of transportation also have a menu of roadway types, but read them in reverse. Starting from the project traffic demand, transportation planners choose the width of the road. Land use is not considered.



Functional Classification of Roadways: Mobility and Accessibility

Source: Kell, James, in *Transportation Planning Handbook*, ITE, 1992.

The Street Character Plan allows land use to influence the street design, instead of the current lack of connection. When choosing road widths, start with what you want to hold on to.



Street Character Tree with Approximate Capacities

Rural Roadways

Rural roadways should respect the nature and form of rural areas surrounding Johnson City. Rural roadways form the basic network that connects cities and allows farmers and rural residents access to the market and services in the city. Mobility is a higher goal than accessibility for rural roadways. The basic cross-section specifies two travel lanes with shoulders and drainage swales. Because of low projected traffic volumes, pedestrians and cyclists are expected to share the right-of-way. Given the long distance between land uses and cross streets, over-engineered rural cross-sections that encourage motorists to drive at speeds detrimental to other modes are discouraged.

Residential/Agricultural Land Use

Rural communities are characterized by agricultural and low-density residential land uses. The role of roadways in this type of development is basic: trucks use routes to carry agricultural goods to market, automobiles use routes to get from one city to another and to and from their rural homes. A dense street network, often found in the center of cities, is unnecessary and commonly unwanted in rural communities.

Residential/Agricultural 2-Lane Roadways

For most low-density areas, such as those areas with less than 0.5 households per acre, two travel lanes are adequate for mobility. Unlike highly engineered urban streets and the interstate network, rural roadways easily conform to their surroundings. Geometric standards for alignment are less rigid and tighter curves are permitted. For example, many of the roads west of Johnson City outside the city boundaries have tight curves and very little excavation was done despite natural grade changes. Yet these roads perform well in their ability to respect the surrounding environment and allow drivers to be aware of the rural nature of the corridor. These roads not only carry a sufficient amount of traffic, but also conform to natural grade changes and preserve the rural landscapes.



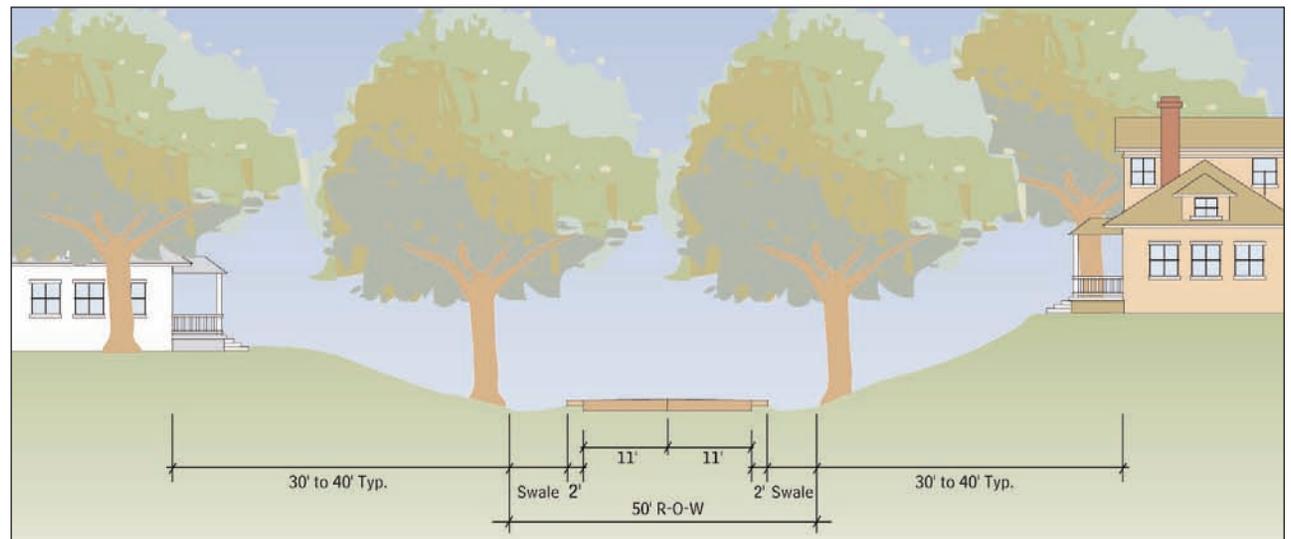
The recommended cross-section has a narrow maximum width, allowing minimal disturbance to the rural landscape. Two eleven-foot travel lanes provide adequate width for trucks and automobiles. Drainage swales on either side are preferred over expensive curb and gutter drainage systems. Cyclists and pedestrians are expected to share the right-of-way, and thus the provision of wide shoulders is important.

Rural residential/agricultural 2-lane roadways are recommended for:

- All of the roadways outside the Johnson City city limits.

Exceptions include:

- SR 34/US 11E to Jonesborough outside the city limits,
- SR 34/US 11E Bristol Highway, between Carroll Creek Road and Bluff City,
- US 321, between county line and Elizabethton,
- Interstate 181,
- SR 75, and
- those roadways that are within a commercial crossroads area.



Recommended Rural Residential/Agricultural 2-Lane Cross-section

Adding to the character of Johnson City's rural 2-lane roadways are the 1-lane railroad underpasses. Serving as natural traffic calming features, these underpasses should remain 1-lane. Safety improvements need be undertaken, such as installing signalization at the tunnels and establishing emergency services centers on the west side of the railroad tracks.

Residential/Agricultural Highly Engineered 3-Lane Roadway

When a rural/agricultural road has assumed a role in providing regional mobility, but the traffic volumes are not high enough to justify the expense of a full four lane with median parkway, the highly engineered 3-lane road provides the needed boost in capacity while preserving the rural nature of the road. The highly engineered geometrics of the roadway are described on the next page.

For very rural areas with no development, there are two lanes or two lanes with median. In developed areas and at major turning movement points, the road expands to accommodate a continuous left turn lane. The left turn lane removes slowing and stopping vehicles from the road, allowing through movement to continue at constant speed.

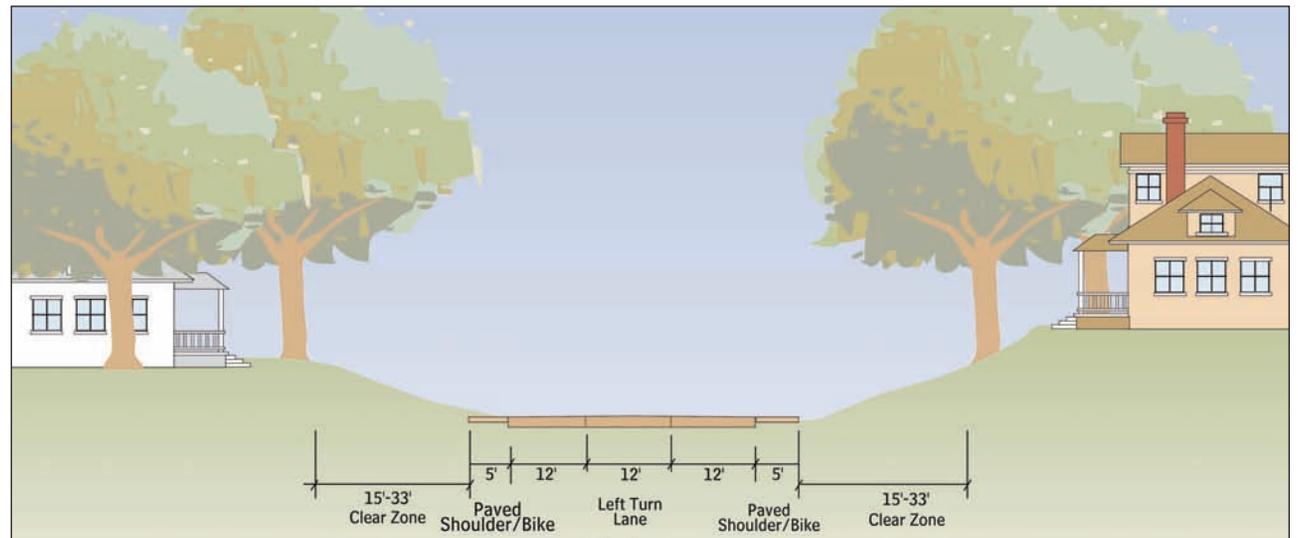
Like other rural residential/agricultural roadways, there are no sidewalks or other urban amenities. More experienced long-distance cyclists can use the paved shoulder, while more recreational cyclists should share the right of way on the network of slower, safer rural residential/agricultural 2-lane roadways.

Rural residential/agricultural highly engineered 3-lane roadways are recommended for:

- Boones Creek Road, between Interstate 181 and 11E in Jonesborough
- Kingsport Highway (SR 36), between Boones Creek Road and SR 75,
- South Roan Street, between Sinking Creek and Okolona Road, and
- Watauga Road, between Lakeview Drive and the Watauga River



This very rural section shows the elements of the highly-engineered 3-lane. A continuous left-turn lane is added in developed areas and at intersections.



Recommended Rural Residential/Agricultural Highly Engineered 3-Lane Cross-section

What does Highly-Engineered Mean?

Typically, the vehicular capacity of roadways is increased by adding pairs of lanes. For example, widening a two-lane road to a four-lane road, a four-lane road to a six-lane road, and so forth. Usually, these widenings are accompanied by alignment changes (straightening curves, flattening hills, etc.) that raise the design speed of the road. Invariably, these measures require the purchase of additional right-of-way and the resulting destruction of adjacent land uses and vistas.

Traffic carrying capacity can also be increased significantly by a variety of measures that maximize the capacity of a two-lane highway, without requiring two additional lanes and without raising the design speed. This type of highway, termed the “highly engineered” two-lane highway, maximizes the capacity of the existing two lanes of a highway through the following measures:

Design speed: the speed established by geometric design elements for a particular section of highway at which the typical motorist is comfortable. The posted speed limit is usually set somewhat below the design speed.

- 60 miles per hour in rural areas
- 50 miles per hour in built-up areas

Cross-section elements:

- 3 lanes of traffic: one through lane in each direction and a continuous two-way left turn lane, transitioning to single-direction left-turn lane at intersections
- At isolated signalized intersections, widening to two through lanes upstream and downstream of the signal
- Intermittent segments of a second through lane (passing lane)
- Lanes 12 feet in width
- Paved shoulder/bikepath 5 feet in width

Horizontal curves: how sharp a turn the road can make

- 1210-foot radius in rural areas
- 770-foot radius in built-up areas

Stopping sight distance: how far ahead a driver can see so that she can spot objects in the road, react to them, apply brakes, and stop the vehicle

- 525 feet in rural areas
- 400 feet in built-up areas

Clear zone: the total roadside border area, starting at the edge of the travel lane, available for safe use by errant vehicles

- 20-33 feet in rural areas
- 15-20 feet in built-up areas

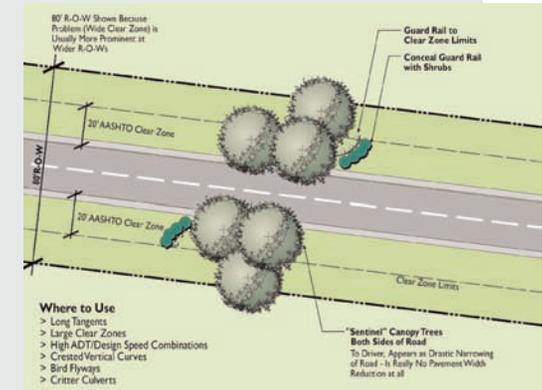
Rural Traffic Calming

Traffic calming is the deliberate attempt to slow down traffic and make it behave in appropriate ways. Roundabouts and speed humps are becoming familiar to urban drivers, but traffic calming is not completely an urban transportation strategy.

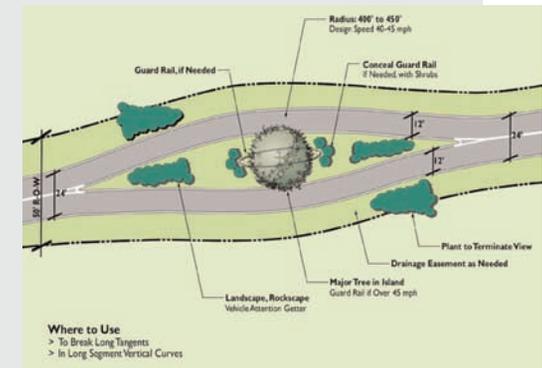
Motorists on rural roads can also drive in ways that are inappropriate for the surrounding areas.

Unimproved rural 2-lane roads feature natural traffic calming, with limited sight distance, narrow lanes, and obstructions like trees and mailboxes close to the road. Newly constructed or reconstructed rural roads have these traffic calming methods removed, following the conservative recommendations of conventional highway design. With wide shoulders, wide lanes, and plenty of sight distance, motorists on newly constructed or reconstructed rural roads travel at faster speeds than is safe or appropriate.

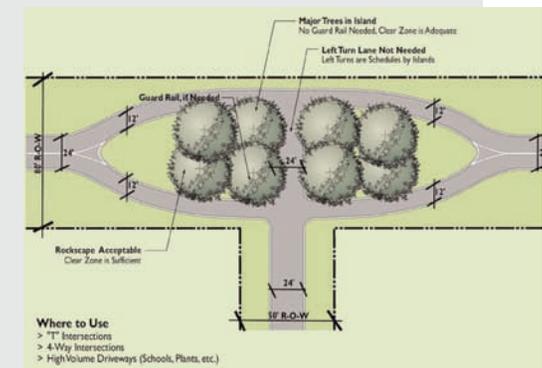
Like urban traffic calming, rural traffic calming seeks to slow driver speeds without directly impeding them. Speed humps, chicanes, and roundabouts are inappropriate in a rural area, since appropriate speeds are still high. By using techniques like the apparent narrowing of the road, the removal of long straight-aways, and bulbed-out intersections, rural traffic on modern roads can be coaxed to slower speeds that are appropriate for the adjacent residential and agricultural uses. Examples of rural traffic calming are depicted above.



Faux Narrowing



Full Splitter



Intersection Splitter

Residential/Agricultural 4-Lane Parkway

Intercity routes provide higher speed mobility for longer distances between rural communities. Since 2-lane rural roadways channel traffic onto intercity routes, they carry higher traffic volumes. For example, routes such as US 11E to Jonesborough and Bristol, as well as US 321 to Elizabethton serve this regional mobility function. With existing levels of intercity travel in the Tri-Cities region (where average daily traffic does not go above 25,000 vehicles per day), four-lane rural parkways provide adequate vehicular capacity.

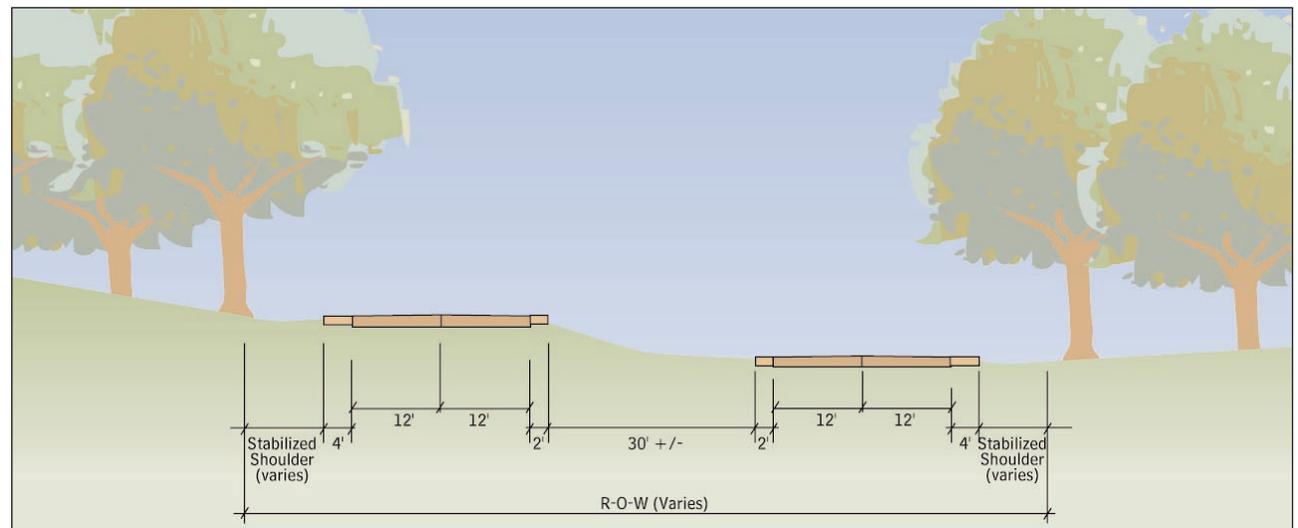
The recommended four-lane rural parkway provides twelve-foot wide travel lanes, the standard width for interstates. No sidewalks or bike paths are provided since these roadways are designed to be high-speed through routes with little or no adjacent development. Intercity bike routes should be provided on parallel rural residential/agricultural 2-lane roadways.



Although these roadways are designed for high-speed through travel, they still cross the rolling hills of the rural areas outside Johnson City. To minimize the impact of these roadways on the landscape, a split profile is provided. Similarly, billboards and strip commercial should be controlled to preserve rural vistas.

Rural residential/agricultural 4-lane parkways are recommended for:

- Kingsport Highway (SR 36) between State of Franklin and Boones Creek Road
- Interstate 181,
- SR 34/US 11E to Jonesborough outside the city limits,
- SR 34/US 11E Bristol Highway, between Carroll Creek and Bluff City,
- SR 75, west of Interstate 181 and east of SR 36,
- State of Franklin, between Interstate 181 and 11E, and
- US 321, between county line and Elizabethton.



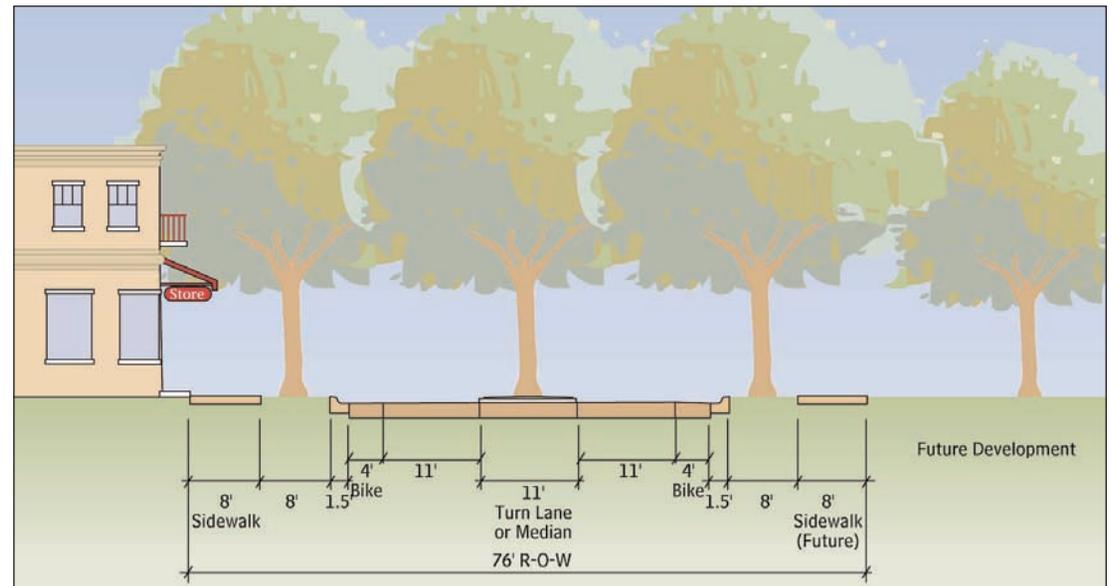
Recommended Rural Residential/Agricultural 4-Lane Cross-section

Commercial Crossroads

Commercial crossroads are the genesis of town and village centers. At one point of time, Market Street, Main Street, and Commerce Street in downtown Johnson City functioned much like the today's crossroad of SR 36 and Boones Creek Road. As rural commercial crossroads grow and evolve, they function more as village centers. New streets and development standards should respect and reflect this new role.

Much like a pocket of urban trading in the middle of rural life, commercial crossroads have urban traffic patterns, albeit on a smaller scale. Within the commercial crossroads, accessibility assumes a higher priority than mobility, and walking and bicycling are realistic. The preferred pedestrian scale is a circle of 1/4 mile radius centered on the crossroads.

As rural residential/agricultural 2-lane roadways and 4-lane parkways enter a crossroad, their cross-section should change to their urban counterparts, the urban mixed use 2-lane roadways and 4-lane boulevards. The recommended roadway cross-section reflects this role. In the transition, rural residential/agricultural 2-lane roadways and 4-lane parkways gain curb and gutter, sidewalks, and on-street parking. Rural residential/agricultural 4-lane parkways also gain a bike lane.

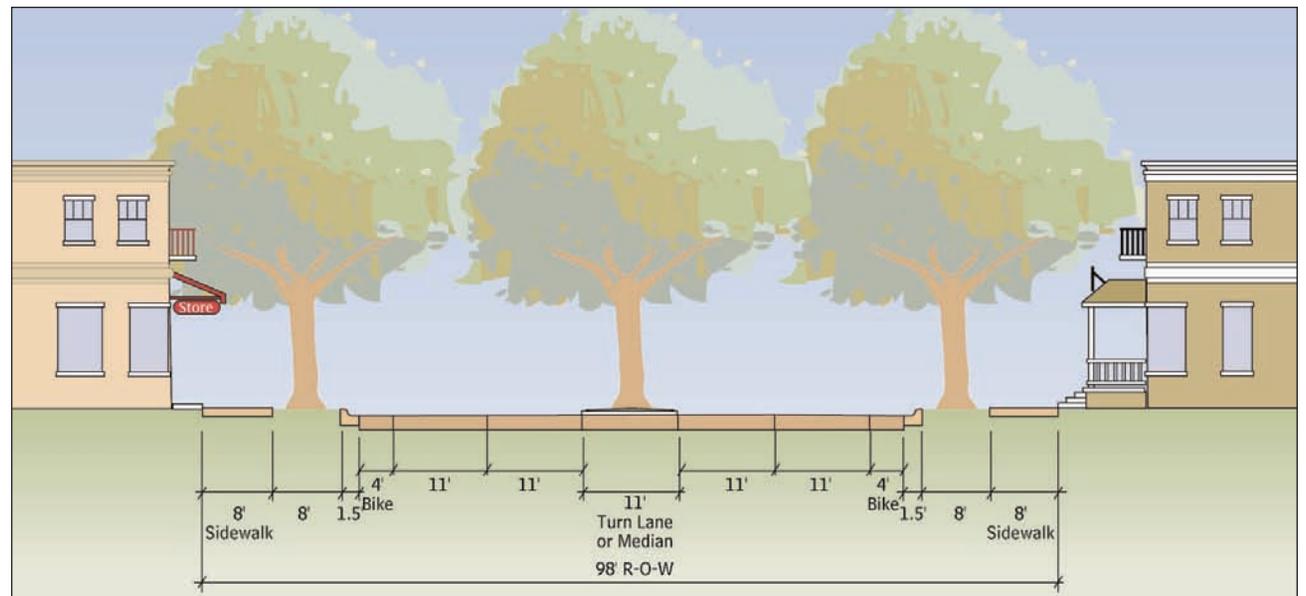


Recommended Commercial Crossroad 4-Lane Cross-section

Commercial Crossroads Areas include the following intersections:

- SR 36 and Carroll Creek Road
- SR 36 and Boones Creek Road
- SR 36 and Boring Chapel Road
- Boones Creek Road and Old Boones Creek Road

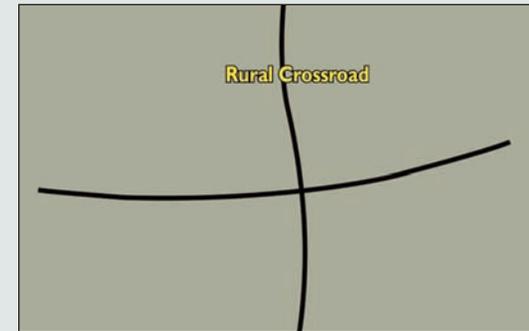
The choice between the 2-lane roadway and 4-lane parkway cross-sections is dependent on existing local and regional traffic levels and is left to Technical Review Committee. The Technical Review Committee can designate additional Commercial Crossroads Areas in coordination with the Future Transportation Plan and Neighborhood and Community Catchment Areas.



Recommended Commercial Crossroad 4-Lane Cross-section

Evolution of a Commercial Crossroads

Many commercial crossroads begin from a loose collection of rural developments, spaced far apart. In the transition between sparse rural development and commercial crossroads, there exists an inefficient development pattern that has distances between land uses that are neither automobile-nor pedestrian-friendly. The evolving crossroads of SR 36 and Boones Creek and SR 36 and Carroll Creek are now in this transition state. Commercial crossroads can side-step this inefficient development pattern by initially developing an urban street system. Streets and buildings "center" development from the very beginning, and urban street networks and building setbacks can create a functional and attractive commercial crossroads area.

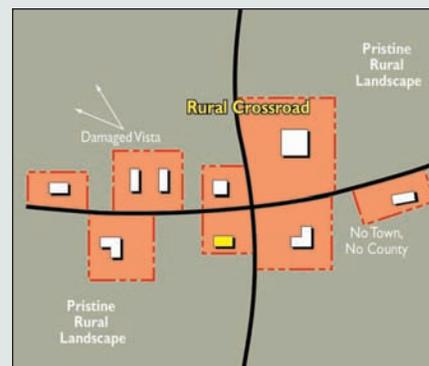


Rural Intersection Before Development Occurs

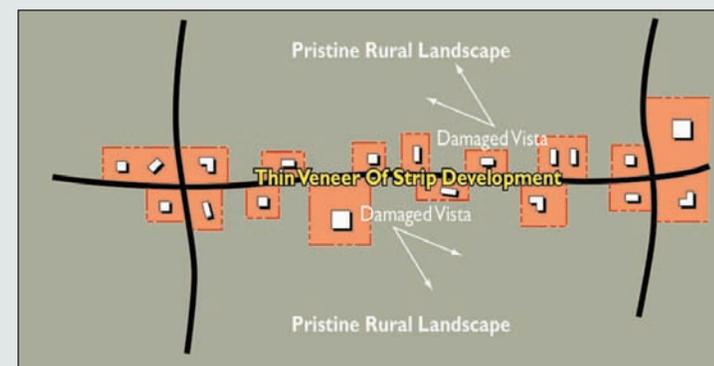
Conventional Rural Development



First development is set back from the street.



Subsequent development follows the lead and a piano key-like pattern develops.

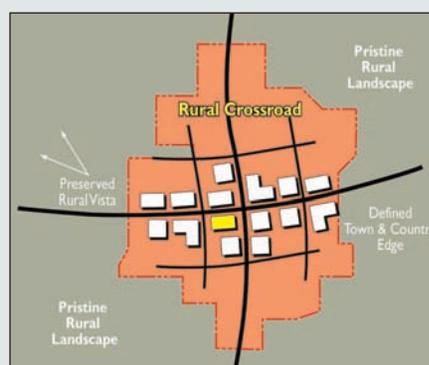


Although the country is virtually preserved, rural roads are lined with strip development, vistas are damaged, and walking is impossible.

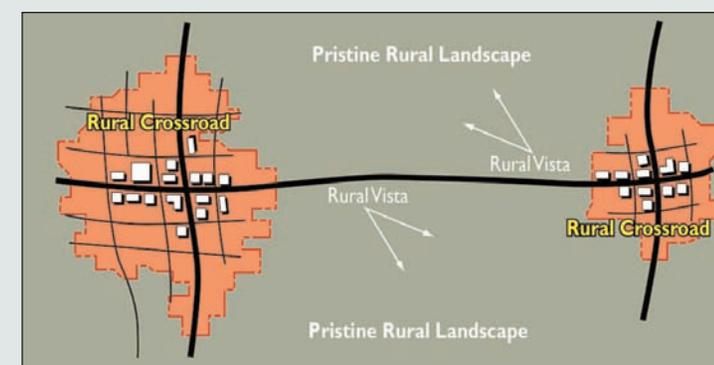
Country Crossroads Development



First development creates a corner, and the county/city begins the block pattern.



Subsequent development follows the block pattern.



Commercial crossroads evolve, with walking possible within them and rural vistas preserved between them.

Urban Roadways

Urban roadways that provide mobility and accessibility within developed areas form the second category of roadways. Due to the high number of vehicles traveling at higher speeds, urban roadways are designed to higher and more stringent standards. Concrete curbs and gutters, striped or landscaped medians, and street lights are but a few features found within the urban roadway right-of-way. Facilities for other modes, such as sidewalks and bike lanes, are separated from the vehicular travel lane due to high automotive usage of the roadway. The six types of cross-sections described here include three types for residential areas and three types for mixed use areas.

Residential/Institutional Land Uses

Most urban residential areas in Johnson City are formed by single family homes on traditionally-sized lots. Neighborhood streets, in addition to serving as local transportation connections, are places where neighbors congregate and children play. Therefore, in residential areas, the movement of traffic is not the only function of the roadway; a dual role must be met.

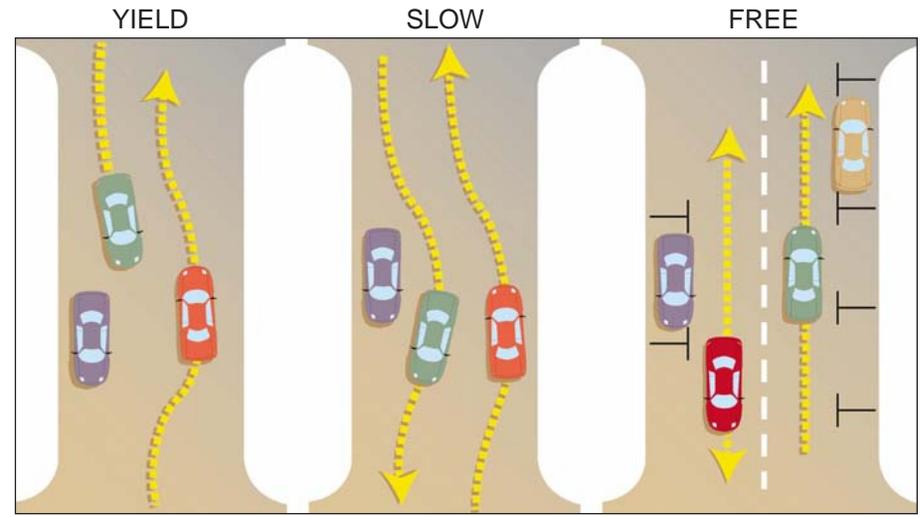
The role of the roadway as public amenity is further encouraged and emphasized by the provision of street trees, sidewalks, small cross-sections, and bike lanes. A pedestrian-friendly street provides residents with attractive mode choices for shorter, local trips and thus reduces the need for excess capacity on existing roadways while increasing the mobility of all. Achieving this balance is critical and begins with the provision of physical infrastructure. Therefore, it is recommended that all urban residential cross-sections include sidewalks, and all three- and four-lane cross-sections also include bike lanes.

Three different travel lane widths are recommended, each associated with escalating traffic volumes.

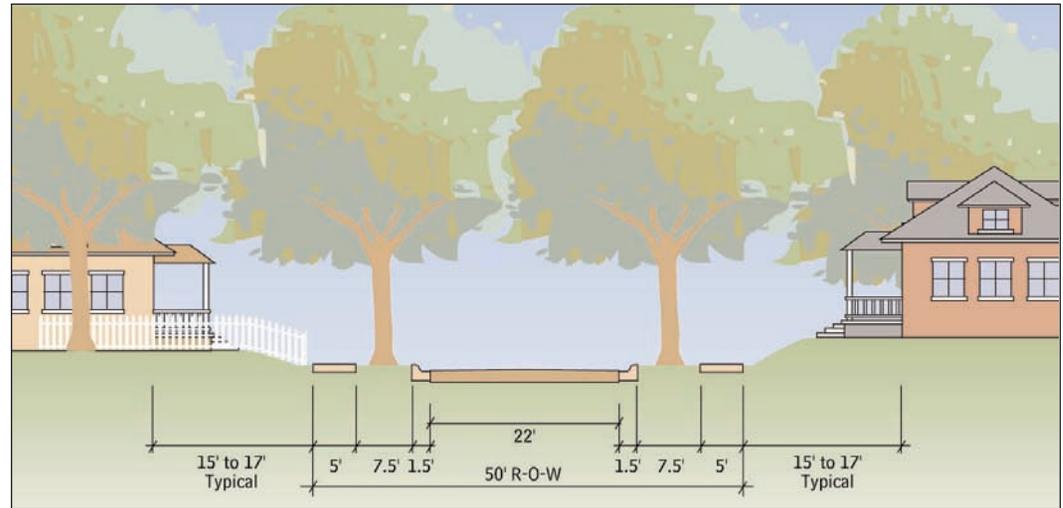
Residential 2-Lane Roadway

Like the traditional streets found in the Tree Streets neighborhood, the residential 2-lane roadway gives free access to automobiles but designed to also serve as neighborhood “open space”. The street has eleven-foot travel lanes, five-foot sidewalks, and on-street parking. When the roadway intersects a moderate to high volume road, the two lanes may temporarily widen to three to allow for a left-turn bay.

As shown in the Traditional Neighborhood Code, on-street parking is provided on 2- and 3-lane residential cross-sections. On 2-lane roadways, there is not sufficiently safe width for a parked car and two moving vehicles simultaneously. Vehicles must slow or stop to allow oncoming traffic to pass. On these small residential streets, a yield or slow flow mode is acceptable and preferred since it serves as a form of traffic calming.



Flow Modes on Residential Roadways with On-Street Parking



Recommended Urban Residential/Institutional 2-Lane Cross-section

Urban residential 2-lane roadways are recommended for:

- Greenwood Drive, between State of Franklin and the Johnson City limits
- Unaka Avenue, between West Market Street and Lakeview Drive (two-way operation),
- Watauga Avenue, between West Market Street and Guy Street (two-way operation),

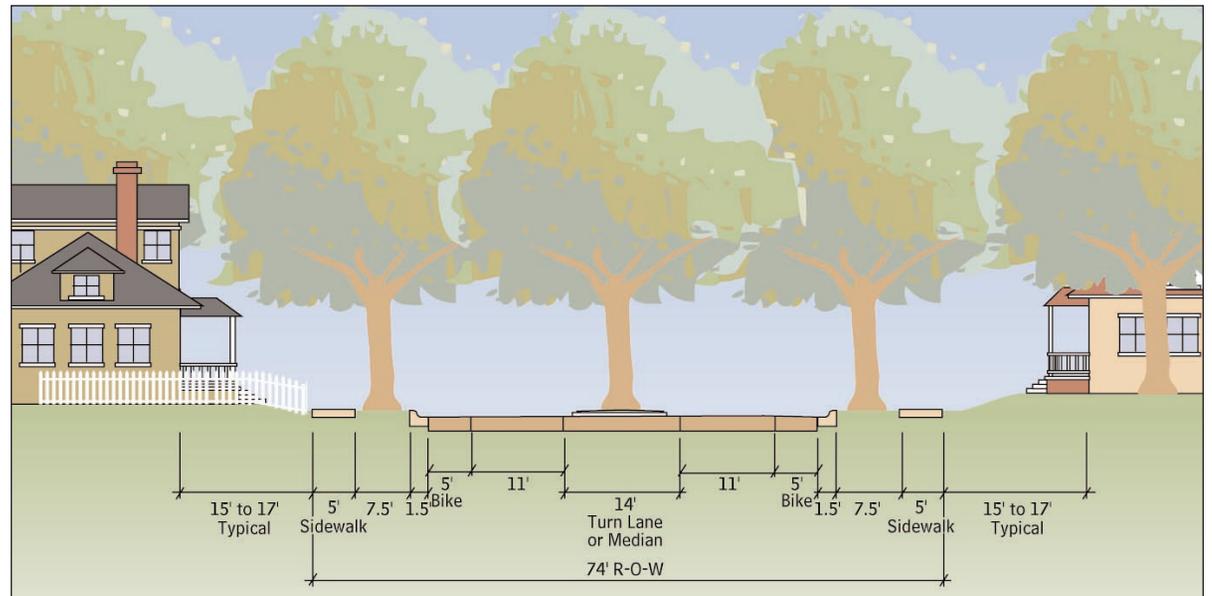
- All other residential roadways inside the city limits that are otherwise not designated.

Residential 3-Lane Roadway

Three-lane urban roadways include two lanes of travel, one in each direction, bike lanes, sidewalks, and a median that tapers down to form left-turn bays at intersections.

Urban residential 3-lane roadways with bike lanes are recommended for:

- Knob Creek Road, between West Market Street and the railroad underpass
- Legion Street,
- North Roan Street, between Downtown and John Exum Parkway,
- Oakland Avenue, between North Roan Street and Unaka Avenue,
- Princeton Road, between North Roan Street and Oakland Avenue, and
- South Broadway Street.



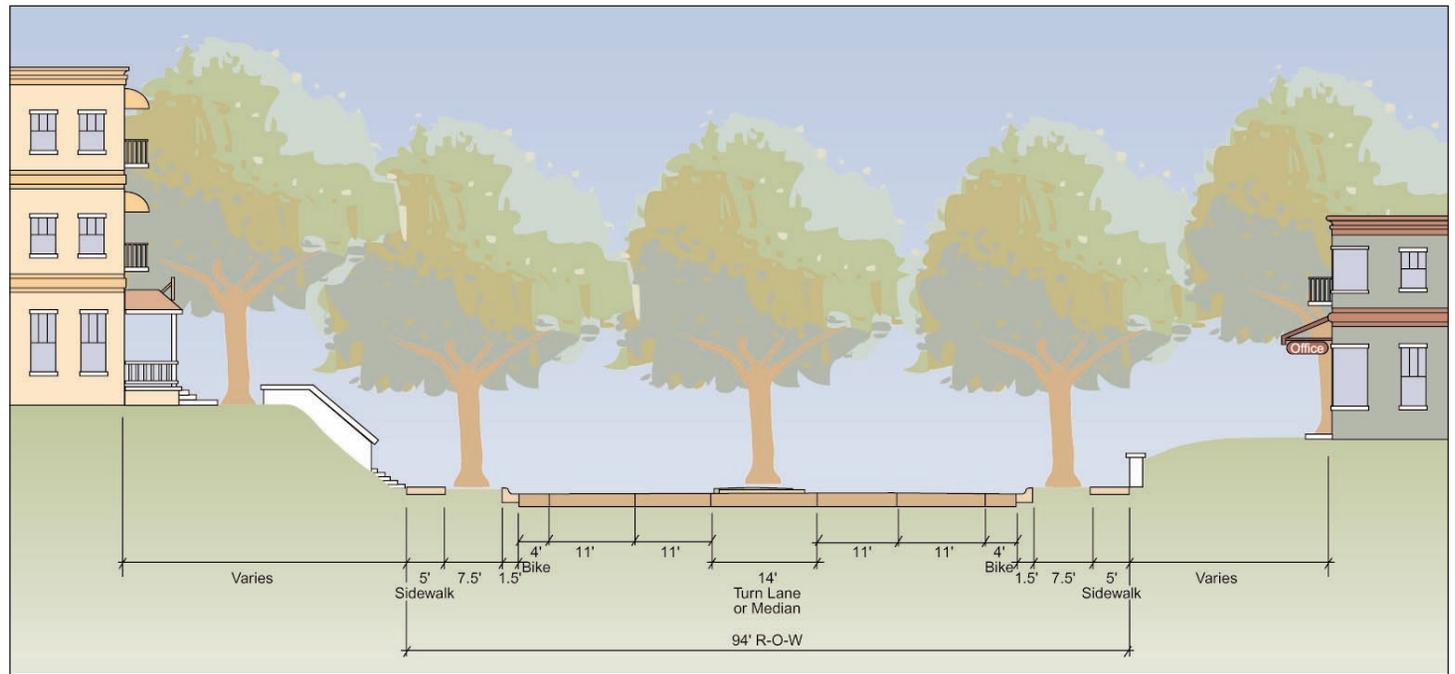
Recommended Urban Residential/Institutional 3-Lane Cross-section

Residential/Institutional 4-Lane Boulevard

The urban residential/institutional 4-lane boulevard allows for the highest volume of traffic by providing two travel lanes in both directions. Bike lanes and a landscaped median not only complete the boulevard look, but also provide safe facilities for cyclists (separate travel lanes) and pedestrians (safety islands). Reflecting a greater need for mobility than accessibility on residential/institutional four-lane boulevards, on-street parking is not provided.

Urban residential/institutional 4-lane boulevards with bike lanes are recommended for:

- John Exum Parkway,
 - Liberty Bell Boulevard,
 - Main Street, between Legion Street and the city limits,
 - State of Franklin: residential/institutional sections,
 - Sunset Drive, between State of Franklin and North Roan,
 - Tennessee Street,
- between State of Franklin and West Market Street, and
- University Parkway/US 321, between State of Franklin and the county line.



Recommended Urban Residential/Institutional 4-Lane Boulevard Cross-section

Narrowing the Road

Basic Four Lanes Transformed to Multi-Modal and Attractive Three Lane

In several areas of Johnson City, there are four-lane roadways, such as parts of Princeton, Knob Creek, and Legion. Generally four-lane roadways are formerly two-lane roads that were intended for expansion to five-lane roadways, but sufficient right-of-way wasn't available. Predictably, sidewalks, if they are present, are squeezed into the right-of-way and are directly adjacent to the travel lane. Knob Creek in the figure demonstrates how this treatment of sidewalk makes this street hostile to pedestrians and cyclists.

When five-lane roads are not possible, the elimination of one lane in the design compromise has a disproportionate impact on traffic capacity. Left-turn lanes are critical for traffic flow, especially in times of peak usage. On four-lane roads without left-turn lanes at intersections, vehicles must stop and wait for a break in oncoming traffic. The stopped vehicle reduces the shared through/left turn lane's traffic-carrying capacity and four-lane roadways effectively become two-lane roadways with left turn lanes. That is, a four-lane road does not have 4/5 of the capacity of a five-lane road, but closer to 3/5 of the capacity.

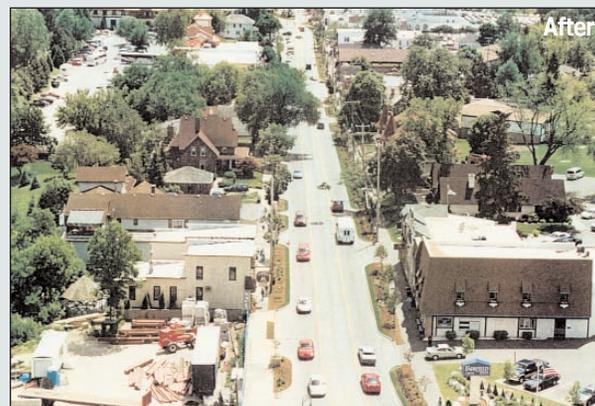
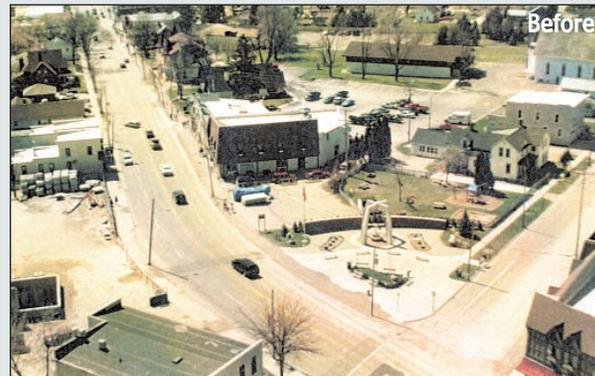
If four-lane roads effectively have only two travel lanes and a left-turn lane, then the scarce extra pavement in the limited right-of-way is not being fully utilized. The 12 feet of extra lane can be reconfigured for accessibility-enhancing bike lanes, visually-appealing landscaping, widened and welcoming sidewalks, or a combination. These improvements to street can be created with little loss in traffic-carrying capacity and no extra right-of-way required.

While narrowing a four-lane road may sound good in principle, the basic question is "can it work?". Emergency personnel are concerned that the elimination of a lane will increase congestion and increase response times. Operators of very large vehicles like fire engines and agricultural equipment argue that a three-lane road just doesn't offer enough space for maneuvering.

In 1999 city leaders in Frankenmuth, MI temporarily reduced the four-lane roadway that is their Main Street to three-lanes, dedicating the extra lane to widened sidewalks and landscaping. Before and after pictures are shown. After a ten-month test, evaluations by city engineers, the Chief of Police, Fire Chief, emergency medical services, and other frequent users demonstrated support for the three-lane configuration. The Chief of Police noted that the reconfiguration made the street more pedestrian-friendly and improved its appearance.



Current 4-Lane Knob Creek. Sidewalks almost seem as an after-thought and biking is especially dangerous.



To Whom It May Concern:
July 19, 2000

As the person who spends more time walking mainstreet than anyone I thought I would give my opinion on the three-lane concept. At first I thought it would cause long traffic backups and make it hard to cross the street. I have since realized that the traffic backups have been minimal and crossing the street has been both easier and safer. The entire safety issue is my main reason for liking the three-lane setup. Not only has walking the sidewalks become safer and more relaxed but driving through town feels much safer because the pedestrians are farther from your vehicle and you don't feel like someone could step in front of you at any moment...

Gary Gavitt
Letter Carrier Route 3
Frankenmuth MI 48734

Mixed Use Land Use

Urban roadways that serve mixed use areas have the burden of serving many and often conflicting roles of transportation. They carry more vehicles than the residential roadways that feed into them and thus must allow for efficient mobility between trip origins and destinations. Yet adjacent commercial land uses generate high numbers of vehicular trips, which result in large numbers of turn movements onto and from the mixed use roadway. Therefore, additional vehicular conflicts and dependence on the private automobile limits accessibility.

The section of North Roan Street near the mall illustrates this dilemma. The wide roadway was designed with multiple lanes to serve both through traffic and slower moving turn movements. However, numerous driveways closely spaced encourage uncontrolled turn movements and impede the forward movement of through traffic.

This street character plan describes three types of urban mixed use roadways, each for different traffic volumes.

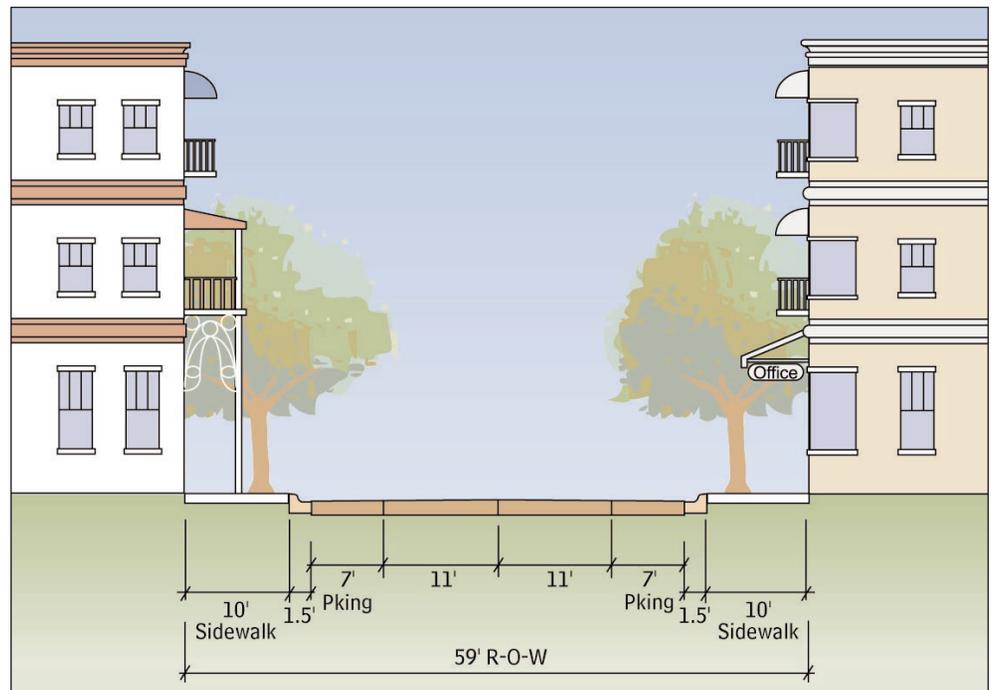
Mixed Use 2-Lane Roadway

The urban mixed use two-lane roadway is appropriate in downtown Johnson City and other areas of the city that have or will have more compact commercial development and a dense network of streets serving the area. Two 11-foot travel lanes, on-street parking on both sides, and sidewalks safely accommodate both pedestrians and vehicles. At intersections, travel lanes will expand into on-street parking space to allow for left-turn lanes.

The provision for on-street parking not only benefits commercial businesses, but provides an additional buffer of safety between moving vehicles and pedestrians. Unlike in residential areas, traffic flow on mixed use roadways is important to maintain, so a free flow mode is needed.

Urban mixed use 2-lane roadways with on-street parking are recommended for:

- Main Street, between Legion Street and Delaware Street (two-way operation),
- South Roan Street, between University Parkway and Sinking Creek,
- Urban commercial roads, including those in Downtown and the redeveloped Johnson City Mall, and
- West Market Street, between John Exum Parkway and Legion Street (two-way operation).



Recommended Urban Mixed Use 2-Lane with On-street Parking

Mixed Use 4-Lane Boulevard

The urban mixed use 4-lane boulevard serves the high traffic demands commonly found in areas with big box retail and a lack of dense street network. In areas that are growing quickly in the conventional strip development, mixed use 4-lane boulevards are the preferred option for retrofitting the road and spurring redevelopment. Found in cultural capitals of the world as well as in significant corridors in small American cities, 4-lane boulevards provide for mobility along with dramatic landscaping and pedestrian-serving opportunities.

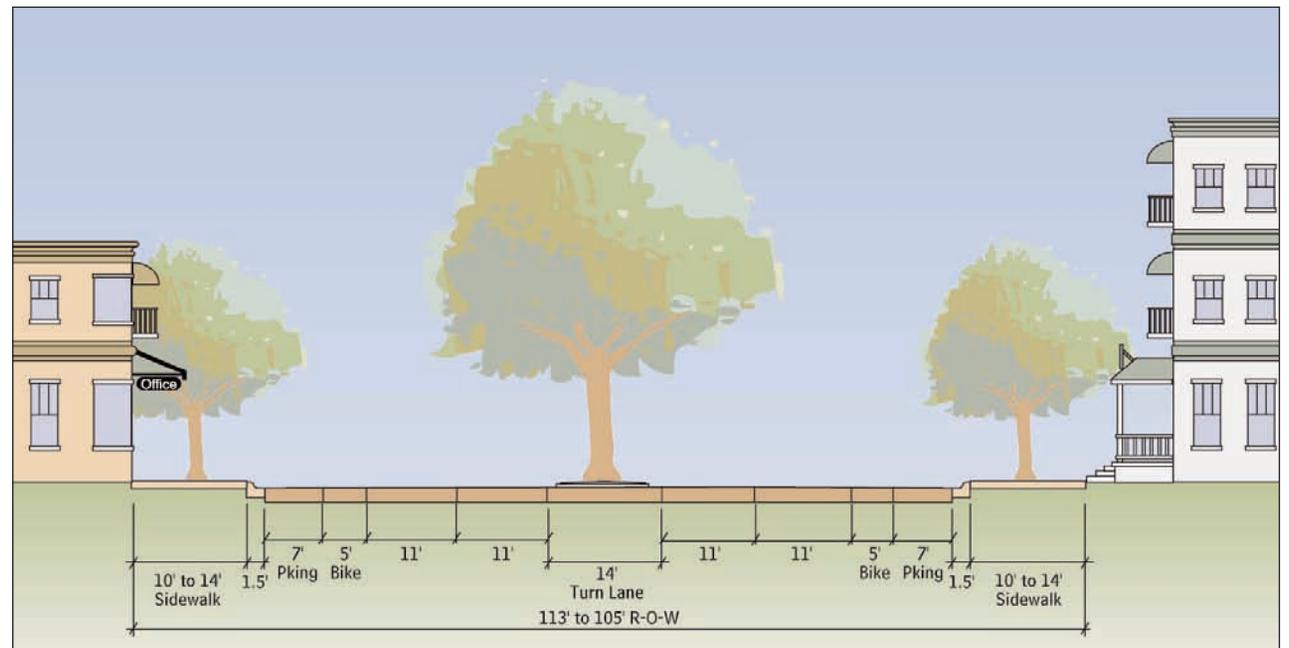
The provision for on-street parking depends on traffic volume and the nature of traffic using the roadway. For roadways operating at or above an acceptable level of service with a high percentage of local internal trips, on-street parking is recommended.

Urban mixed use 4-lane boulevards are recommended for:

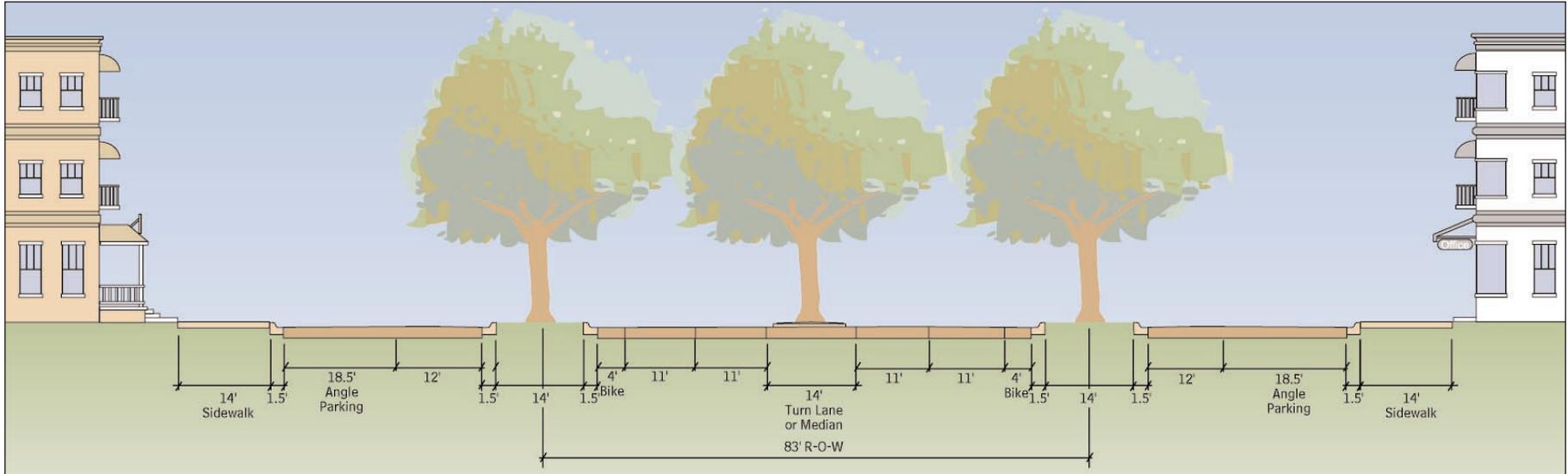
- Boones Creek Road, between Kingsport Highway (SR 36) and Interstate 181,
- Kingsport Highway (SR 36), between State of Franklin and Boones Creek Road,
- Oakland Avenue, between State of Franklin and North Roan Street,
- SR 34/11E Bristol Highway, between SR 36 and Carroll Creek Road,
- SR 75, between Interstate 181 and SR 36,
- State of Franklin: Commercial sections, and
- West Market Street between the western Johnson City limits and John Exum Parkway, and between Legion Street and eastern city limits.



This Mixed Use 4-Lane features a continuous left-turn lane, due to a high number of driveways. With access management, the middle lane can be a landscaped median.



Recommended Urban Mixed Use 4-Lane Boulevard



Recommended Urban Mixed Use 4-Lane Boulevard with Side Access Roads.

On-street parking is less appropriate for roadways with a large number of through traffic and turning movements.

Urban mixed use 4-lane boulevards with side access roads are recommended for:

- North Roan Street, between John Exum Parkway and State of Franklin Road.

For roadways that require widening, the boulevard cross-sections provide attractive alternatives to conventional lane additions.



High speed through lanes



Side access road

Street Character Summary

The character of the street is paramount. Where the street is poorly designed and does not support the surrounding land use, the land uses will degrade to match. Conversely, roadways can maintain and enhance the land use that they pass through. For example, a 2-lane rural roadway, while still providing convenient service for everyday travel and economic development, bolster community pride by preserving the images that express the character of the Johnson City community.

The street characteristics recommended in this section are meant to serve as guidelines for the future development of roadways and the land uses that surround them. Johnson City staff should ensure that any variations on these cross-sections continue to conform to adopted federal and state design standards.

Johnson City's transportation network must not neglect its responsibility to provide adequate mobility for its citizens, visitors, and goods movement. Yet it must balance the needs of accessibility and explore those alternative scenarios that promote a livable transportation system.

Summary of Recommended Cross-Sections:

Boones Creek Road, between Interstate 181 and 11E in Jonesborough: Rural highly engineered 3-lane

Boones Creek Road, between SR 36 and Interstate 181: Urban mixed use 4-lane boulevard

Browns Mill Extension, between Carroll Creek Road and Boones Creek Road: Rural residential/agricultural 2-lane

Carroll Creek Road, between SR 36 and Bristol Highway (11E): Rural residential/agricultural 2-lane

Greenwood Drive, between State of Franklin and the city limits: Urban residential 2-lane

Interstate 181: Rural residential/agricultural 4-lane parkway

John Exum Parkway: Urban residential/institutional 4-lane boulevard

Kingsport Highway (SR 36), between State of Franklin and Boones Creek Road: Urban mixed use 4-lane boulevard

Kingsport Highway (SR 36), between Boones Creek Road and SR 75: Rural Highly Engineered 3-lane

Knob Creek Road, between West Market and the railroad underpass: Urban residential 3-lane

Knob Creek Road, between the railroad underpass and Boones Creek: Rural residential/agricultural 2-lane

Legion Street: Urban residential 3-lane

Liberty Bell Boulevard: Urban residential/institutional 4-lane boulevard

Main Street, between Legion Street and city limits: Urban residential/institutional 4-lane boulevard

Main Street, between Legion Street and Delaware Street: Urban mixed use 2-lane

Maranatha Way, between West Mountainview Road and Carroll Creek Road: Rural residential/agricultural 2-lane

North Roan Street, between Downtown and John Exum Parkway: Urban residential 3-lane

North Roan Street, between John Exum Parkway and State of Franklin Road: Urban mixed use 4-lane boulevard with side access roads

Oakland Avenue, between West Mountainview Road and State of Franklin: Rural residential/agricultural 2-lane

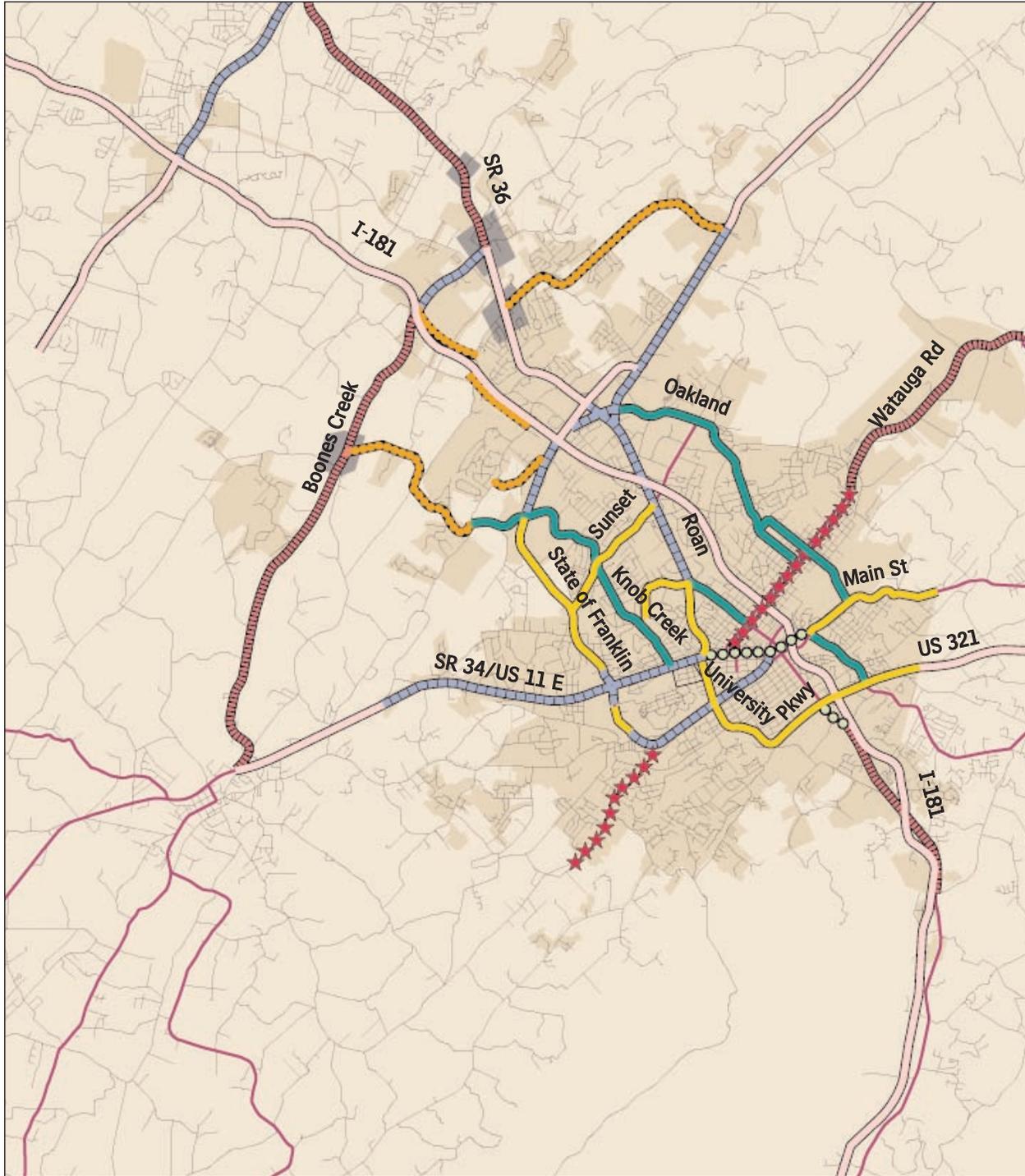
Oakland Avenue, between State of Franklin and North Roan Street: Urban mixed use 4-lane boulevard

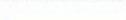
Oakland Avenue, between North Roan Street and Unaka Avenue: Urban residential 3-lane

Princeton Road, between North Roan Street and Oakland Avenue: Urban residential 3-lane

South Broadway Street: Urban residential 3-lane

South Roan Street, between University Parkway and Sinking Creek: Urban mixed use 2-lane



- Key**
-  Rural Residential/Agricultural 2-Lane
 -  Rural Residential/Agricultural H.E. 3-Lane
 -  Rural Residential/Agricultural 4-Lane
 -  Commercial Crossroads
 -  Urban Residential 2-Lane
 -  Urban Residential 3-Lane
 -  Urban Residential 4-Lane Parkway
 -  Urban Mixed Use 2-Lane
 -  Urban Mixed Use 4-Lane

South Roan Street, between Sinking Creek and Okolona Road:
Rural highly engineered 3-lane

SR 34/US 11E to Jonesborough outside the city limits: Rural residential/agricultural 4-lane

SR 34/US 11E Bristol Highway, between SR 36 and Carroll Creek Road: Urban mixed use 4-lane boulevard

SR 34/US 11E Bristol Highway, between Carroll Creek Road and Bluff City: Rural residential/agricultural 4-lane parkway

SR 75, between Interstate 181 and SR 36: Urban mixed use 4-lane boulevard

SR 75, west of Interstate 181 and east of SR 36: Rural residential/agricultural 4-lane parkway

State of Franklin, between Interstate 181 and Bristol Highway (11E): Rural residential/agricultural 4-lane parkway

State of Franklin (commercial sections): Urban mixed use 4-lane boulevard

State of Franklin (residential/institutional sections): Urban residential/institutional 4-lane boulevard

Sunset Drive, between State of Franklin and North Roan: Urban residential/institutional 4-lane boulevard

Unaka Avenue, between West Market Street and Lakeview Drive: Urban residential 2-lane

University Parkway/US 321, between State of Franklin and the county line: Urban residential/institutional 4-lane boulevard

Tennessee Street, between State of Franklin and West Market Street: Urban residential 4-lane boulevard

US 321, between county line and Elizabethton: Rural residential/agricultural 4-lane parkway

Watauga Avenue, between West Market and Guy Street: Urban residential 2-lane

Watauga Road, between Lakeview Drive and Watauga River: Rural residential/agricultural highly engineered 3-lane

West Market Street, between western city limits and John Exum Parkway: Urban mixed use 4-lane boulevard

West Market Street, between John Exum Parkway and Legion Street: Urban mixed use 2-lane

West Market Street, between Legion Street and the eastern city limits: Urban mixed use 4-lane boulevard

All other roadways outside the city limits: Rural residential/agricultural 2-lane

All other residential roadways inside the city limits: Urban residential 2-lane

Areas:

Downtown: Urban mixed use 2-lane

Redeveloped Johnson City Mall: Urban mixed use 2-lane

Intersections:

SR 36 and Carroll Creek Road: Commercial crossroads

SR 36 and Boones Creek Road: Commercial crossroads

SR 36 and Boring Chapel Road: Commercial crossroads

Boones Creek Road and Old Boones Creek Road: Commercial crossroads

Improved: 1-Lane Railroad Underpasses

Claude Simmons Road/Mountain View Road/Knob Creek Road

Carroll Creek Road

Fairridge Road

Implementation

The Johnson City Land Use and Transportation Plan provides the framework for future issues, decisions, and projects. In order to carry future projects through to implementation, specific policy tools and the investments necessary to successfully realize the livable city illustrated in this plan are outlined.

Implementation of the plan is one of the most important and often overlooked components of land use and transportation planning. Early buy-in by the public is the key to success. Partnerships, whether in the form of intergovernmental agreements or project-based coalitions, are required to advance the vision towards reality. The role of each agency and stakeholder working collectively towards a common cause must be emphasized.

This section outlines transportation improvement strategies and actions to meet the mobility and accessibility needs of Johnson City. The strategies, which guide the development of each action, include supporting mobility of all modes, improving the quality of travel, moving fewer people fewer miles, and managing not "solving" traffic. Proposed future improvements include extensions and connections of local roadways, traffic calming programs, access management, and beautification on arterial roadways.

The mechanisms necessary to implement the recommended actions fall into three general categories: investment of funds; development guidelines, regulations and incentives; and roadway design standards.



Investment of Funds

Funding for each project is the necessary and driving factor in planning, design, and final construction. Full implementation of the Land Use and Transportation Plan will require additional financial resources and a reallocation of some existing funds to address transportation improvement needs. There are many avenues for funding the projects recommended in this plan.

Standard Federal and State Funding

To be eligible for state gasoline taxes and federal TEA-21 (Transportation Equity Act for the 21st Century) funding, transportation projects must be adopted as part of three documents:

- Long-Range Transportation Plan: 20-year plan, updated every five years.
- Transportation Improvement Program: 3- to 5-year schedule, updated at least every two years.
- Unified Planning Work Program: 1-year schedule, updated annually.

All three documents are produced by the Johnson City Metropolitan Transportation Planning Organization (MTPO) and are approved by the Tennessee Department of Transportation (TDOT).

Projects are put on the these three lists after analysis by the MTPO and the cities and counties in its jurisdiction. Computer models at TDOT and the MTPO predict where congestion will occur in 20 years, and expected road expansions or network improvements are listed. When sufficient funding is available, long-range projects get on the Long Range Transportation Plan. The Transportation Improvement Program is the financially feasible portions of the Long Range Transportation Plan, and similarly, the Unified Planning Work Program is formed from the Transportation Improvement Program.

By federal law, the MTPO must consider the views of citizens during the updates of all three lists. The MTPO publishes the Transportation Improvement Program and the Long-Range Transportation Plan on its website, at <http://www.jcmpo.org/>.

In addition to the federally funded projects overseen by the MTPO, the Public Works Department of the City of Johnson City oversees transportation projects that are funded primarily with local funding. These projects, though smaller in scale than MTPO projects, are critical in creating a livable transportation network. For example, sidewalks, greenways, and bikeways are normally funded with local dollars. The current list of Public Works projects is available through the Engineering Division of the Public Works Department. Citizens can affect the inclusion of projects on this list by contacting the Engineering Department and their City Commissioner.

Flexible Use of Standard Federal and State Funding

Some of the recommended transportation projects, such as neighborhood traffic calming and streetscape enhancements on arterial roadways, are typically not funded with gas tax revenues by TDOT. However, these projects are intended to improve regional mobility and accessibility and will ultimately reduce future needs for expansion of arterial roadways within Northern Tennessee. Therefore, several mobility and accessibility enhancement strategies might be funded by shifting gasoline tax revenues away from traditional roadway capacity improvements.

Combining Transportation Improvement with Environmental Mitigation

The portions of the recommended transportation projects that are not normally funded by federal and state funds could be implemented by taking advantage of the opportunities associated with the environmental mitigation requirements of other projects. These projects include those in utility corridors, new roadway construction, and roadway safety improvements. Within rural corridors especially, the blending of environmental mitigation requirements with scenic enhancement represents a potentially underused source of planning and capital resources.

Local Option Gasoline Tax

Under Section 67-3-1013 of the Tennessee Code Annotated, counties, municipalities, and metropolitan governments are authorized to impose a local option gasoline tax. Dollars generated from these taxes could be used to finance network improvements to local roadways, traffic calming programs, public transportation, and aesthetic improvements to local roads. With this type of a tax, the city typically hold a referendum vote asking for approval of no more than 1 cent of gas tax per gallon. Local option gas taxes, when indexed to gasoline prices, represent a potential flexible funding source for mobility and accessibility projects. While overcoming public disdain for gas taxes would be the greatest obstacle, this funding source should be considered, especially since that cities in urban areas can annually generate approximately \$1.8 to \$2.5 million.

Private Sector Support: Benefit Assessment Districts

Some municipalities have funded roadway projects by assessing special levies on districts that benefit from a roadway improvement. These special districts are equitable because the property owners responsible for the financing of the improvements are the same property owners receiving the economic benefits from the improved transportation facilities. Benefit assessment districts can in part fund local roadway connections, traffic calming, and visual improvements to major roadways.

Private Sector Support: Contribution Cost

Johnson City can offset the cost of transportation improvements through contribution costs. With contribution costs, the private developer offers to pay his or her portion of the cost to the city of any new infrastructure that is needed because of the new development. By contributing part of the costs of the infrastructure improvement, the city or state can more quickly build those projects that are listed on its Transportation Improvement Program.

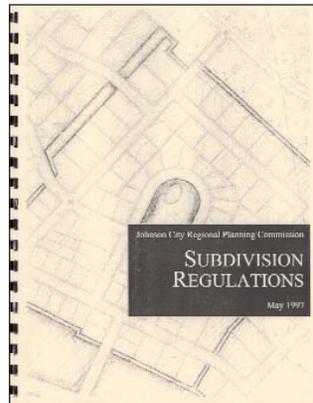
Development Guidelines, Regulations, and Incentives

Private development responds to the regulatory environment in which it occurs. Regulatory tools help ensure the development of a livable city. Johnson City's traditional regulatory tools monitor the sound construction of buildings and healthy separation of noxious land uses from residential areas. This regulation should be expanded to include site and urban design to work toward a safe, healthy, and functioning community.

Land Development and Subdivision Regulations

The large majority of land development actions are implemented through amendments to Johnson City's zoning code and land development and subdivision regulations. Whereas zoning governs the use of land, land development and subdivision regulations guide the character, intensity, and density of future development.

Land development regulations that can help implement the Land Use and Transportation Plan include: sign guidelines, setback requirements, maximum parking requirements, minimum floor area ratios, architectural standards, landscape standards, and viewshed preservation guidelines. A detailed examination of design guidelines is in the Making Neighborhoods section, and transportation-specific land development guidelines are located in Appendix A and B.



Development Incentives

Changing land development regulations is only one part of a comprehensive approach to achieving the desirable development pattern outlined in this plan. It is also important to manage development through financial incentives for private developers.

Initially, current development incentives must be examined to ensure that they support the plan's goals. For example, due to the placement of full responsibility on owners to clean a site of past contamination, it is usually much cheaper to build on farmland than to redevelop an abandoned warehouse downtown. At the least, Johnson City officials should equalize the cost of developing on existing urban spaces and on fringe locations.

To counteract economic forces that encourage developers to build on the fringe of the urban area, the city can offer economic incentives for projects that support the city's Land Use and Transportation Plan. By entering into public-private partnerships with developers, the city can use federal and state funds to guide private development for maximum benefit for the city. For example, subsidized public services and tax breaks via tax incremental financing can make downtown development a smarter investment. However, the city must guard against the liberal use of incentives, and use them only for good projects that need a small boost to come to fruition.

Roadway Design Standards

In roadway design, every project is unique and has its own challenges and opportunities. The setting and character of the area, the values of the community, and the needs of the highway users are unique factors that designers must consider with each roadway project.

The accompanying photo and its enhancement demonstrates the use of standard but inappropriate design. A section of Kingsport Highway north of Boones Creek Road is shown in its current condition and after the proposed widening to five lanes. While the additional lanes make the street unwelcoming for pedestrians and bicyclists, it is the inappropriately high



This photo enhancement demonstrates the use of standard but inappropriate design standards. A section of Kingsport Highway north of Boones Creek, is shown in its current condition (top photo) and after proposed widening to 5 lanes (bottom photo). While the additional lanes make the street unwelcoming for pedestrians and bicyclists, it is the inappropriately high design speed that causes the most environmental damage.

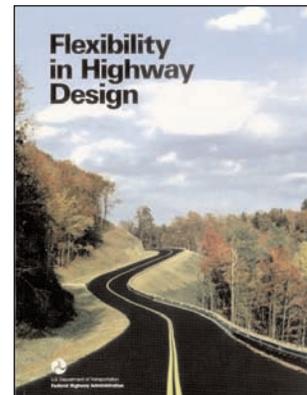
design speed that creates the most environmental damage. There are a number of options available to TDOT and Johnson engineering officials that can assist and aid in achieving a balanced road design and to resolve design issues. These options include the following:

- Using flexibility within the adopted TDOT standards.
- Recognizing that design expectations may be optional,

where as environmental consequences are great.

- Being prepared to reevaluate decisions made in the planning phase.
- Lowering the design speed when appropriate.
- Considering developing alternative standards, especially for scenic roads.

These and other flexible approaches to roadway design standards can be found in U.S. Department of Transportation's *Flexibility in Highway Design* (1997) and the FHWA/AASHTO Context-Sensitive Design clearinghouse website, <http://www.fhwa.dot.gov/csd/>.



Completing Neighborhoods



Fixing the Existing City

While careful attention must be applied to the physical character of new neighborhoods, Johnson City's older neighborhoods also deserve care and hold much promise. Existing neighborhoods within the City limits should be the highest priority in community redevelopment. Rethinking these places sensitively can both enhance the community's quality of life and benefit the local economy and businesses. This chapter explores a range of ways to improve neighborhoods, from traffic calming, so that citizens are safer and comfortable in their own neighborhoods, to transforming underutilized strip shopping centers into more viable mixed-use centers, to strategic infill development as an alternative to sprawl.

To illustrate how this evolution can occur, this Plan contains several example site plans for real-world situations in Johnson City. Through the public involvement process, specific areas were identified as important locations that should be improved. The community proposed the physical qualities they preferred and the kinds of uses and daily services that are currently needed and would be convenient. The plans show how new development should occur to complement the character of the surrounding neighborhoods and be beneficial to the community. These examples were created with the extensive involvement of citizen volunteers. For each, the *example site plans* can help guide the desired change and growth in specific locations, but also serve as models for other locations in Johnson City.

The *example site plans* include:

The Armory Property: How to create a network of blocks and mix of uses where none exist, creating an urban village.

North Roan Shopping Center: How to redevelop an aging mall as a major mixed-use center

South Roan Shopping Center: How to redevelop a strip mall as a small neighborhood center

Downtown: How to revitalize the heart of the city by fine-tuning the existing fabric

Towne Acres: How to make “great streets”, adding better connectivity and traffic calming to existing suburban neighborhoods

The benefits of mixed-use redevelopment within the City limits include:

1. Decrease development pressure to expand the City limits by accommodating growth within the City limits
2. Make more efficient use of urban land by redeveloping in a multi-story format
3. Reduce the impact on surrounding natural resources by stemming sprawl
4. Leverage prior investments by utilizing infrastructure already in place
5. Provide opportunities for housing, jobs and retail to complement the surrounding neighborhoods
6. Adapt and reuse existing buildings, extending their usable lifetime
7. Improve the network of streets by creating better connections, thus handling growth without choking on traffic
8. Lessen impact on the regional road network and reduce unnecessary travel
9. Create diversified and sustainable business opportunities for property owners and merchants

Good Planning Principles

A range of ways to improve and complete neighborhoods is illustrated in the plans. There are basic planning principles that always apply, regardless of scale or density. The site plans reflect these principles.

1. Create or improve the network of streets

Where ever possible, establish a fine-grained network of streets. The length and the perimeter (which determine the walking distance around the block) should be as small as possible.

- On predominantly residential streets, the blocks should be 300 to 400 feet long. The perimeter of a block should be approximately 1,200 to 1,400 linear feet.
- On predominantly commercial and institutional streets, larger blocks are required to accommodate more substantial buildings and midblock parking facilities. Blocks should be 300 to 500 feet long. The perimeter of the block should be a typical maximum of 1,800 linear feet.

Ideally the perimeter of blocks should be as small a possible to create a finer network of streets, giving pedestrians, bicyclists and motorists more options to move about. At the same time, this will reduce the reliance on only a few streets. When creating new streets, connect them to existing streets at both ends.

2. Design streets for everyone

Streets should accommodate pedestrians, bicyclists and motorists.

- Sidewalks should be provided and made as wide as possible.
- Crosswalk distances from one side of the street to the other should be minimized.
- Routes for bicycles should be designated.
- Travel lanes should be narrow and designed with built-in traffic calming, to discourage speeding.

3. Building placement

Memorable neighborhoods have well-defined public spaces. Buildings should define the street. Streets and squares derive their character from a deliberate, designed relationship between buildings and streets. Pedestrians are the most comfortable in relatively enclosed spaces that result from having buildings close to the sidewalk. People will walk more when the scene is sufficiently enclosed and interesting. Therefore, the location of buildings must be regulated to ensure that defined public spaces will be created.

4. The fronts of buildings should face the street

Public spaces feel right when they are faced by the fronts of buildings for many reasons:

- The fronts of buildings provide natural surveillance by having “eyes on the street.” The front sides of buildings are generally more detailed, and they have public rooms with more windows.
- The back sides of buildings accommodate the service functions like parking, garages, and waste collection.
- Similar building types should face each other across streets.

5. Provide a mix of uses and building types

Livability is not just about being able to walk on the street, but having the things we need nearby. Wherever possible, create a variety of workplaces, daily needs and services, and housing options within walking distance of each other. Make walking and bicycling a viable option.

The Armory Site

The property is part of the Med-Tech Corridor, adjacent to many of the larger job providers in Johnson City, such as East Tennessee State University and the hospitals. For planning purposes, the parcel of land referred to as “the Armory” is defined by West Market Street as the north boundary, State of Franklin Road as the east boundary, McKinley Road as the south boundary and the CSX tracks as the west boundary. The existing Regional Health Center and Woodridge Hospital are within the boundaries of the site.

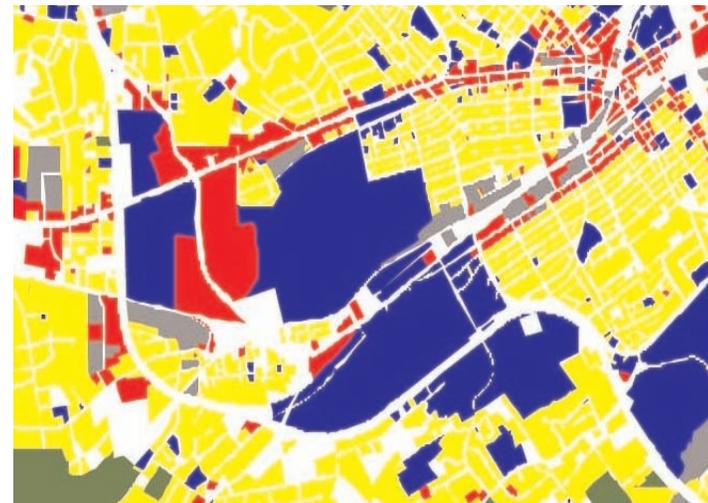
Although the Armory site is considered a redevelopment site because it did possess prior uses, it can be thought of as an *infill* or *greenfield* site because it does not have as many physical constraints typically found in redevelopment sites. Currently, the property does not have a network of streets. Surrounding the site, existing roads have sidewalks but do not encourage pedestrian activity. Buildings are set back from the street and on-street parking is not provided. Walking next to the moving cars is not a comfortable pedestrian experience.



A view looking southeast. The current format of development does not create a safe pedestrian experience.

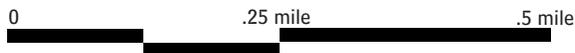
The Med-Tech Corridor’s spine is State of Franklin Road. Linking medical, educational, and employment uses within the corridor and to the region, the road carries a high number of trips. In fact, the Tennessee Department of Transportation’s 20-year forecasts for traffic volumes were exceeded in the road’s first two months.

A 1998 *State of Franklin Road Corridor Traffic Study* projected traffic levels based on development patterns and investments. The study estimated that a 6- or 7-lane with median State of Franklin Road would probably be adequate to handle forecasted traffic levels, which should increase due to planned development and an increase in background traffic. The study’s authors also noted that road widening would probably be both very expensive in right-of-way purchases and result in unacceptable accident rates. Rejecting a 6- or 7-lane cross-section, the 1998 study suggested a network of alternate routes, intersection improvements, and increased transit usage.



One assumption that was not tested was the mix of uses within the Armory Site. The study created in 1998 underscores the impact of purely medical office facilities developed on the Armory Site would have on State of Franklin Road. With high levels of traffic peaking at the same times in surrounding facilities, expansive road widenings and/or alternate network would be required. The report analyzes the effect that a spread-out peak would have on the traffic carrying capacity of State of Franklin Road. Market Street west of State of Franklin Road, for example, would be able to carry 7,000 additional vehicles daily (up from 32,000 to 39,000) on the same roadway, if the traffic is staggered. By mixing uses within the Armory Site to include residential, retail, as well as medical offices, additional traffic can be carried without expensive and destructive road widening required.

The Armory site should be developed in a coordinated manner that best utilizes the land. Instead of more single-use towers with parking lots, it should be a true mixed-use, walkable area that complements surrounding development and effectively diminishes the number of car trips generated. This location is an opportunity to completely mix uses including jobs, medical services, institutional uses, retail, daily needs and services, and housing all in an urban village setting.



Redeveloping the Armory site

The plan demonstrates a network of streets that are sized for walkability and can also accommodate larger buildings needed for medical facilities and institutional uses. The plan illustrates how a variety of uses, and types of buildings, from large institutional buildings to apartments and rowhouses can exist within close proximity of each other. It is important to note that the benefits of a mixed-use environment will not occur if the urban design details are watered down. It is crucial to require streets defined by buildings. The exact mix of uses and locations of streets will be refined as the site is developed.

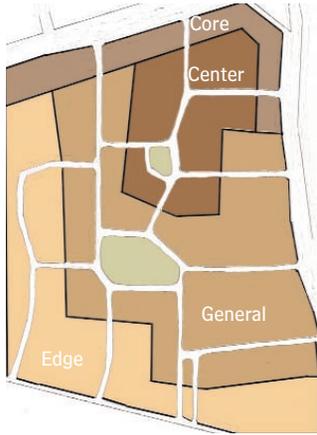
In the conceptual plan for the Armory urban village, a boulevard-style side access lane is introduced adjacent to the existing roads. The side access lane should not be an after-thought. It is a key element, a way to proactively reduce the impact of local traffic on both State of Franklin Road and Market Street, while creating a pedestrian friendly and safe street. The addition of the median, travel lane, on street parking and wide sidewalk creates the walkable environment, which is currently missing, by separating the local traffic from the faster through-traffic.

The final design for the side access lane should be in place prior to any redevelopment. When the redevelopment of the Armory site is ready to begin, the new median, travel lanes and parking can then be built through a cooperative effort of the various entities developing the site.

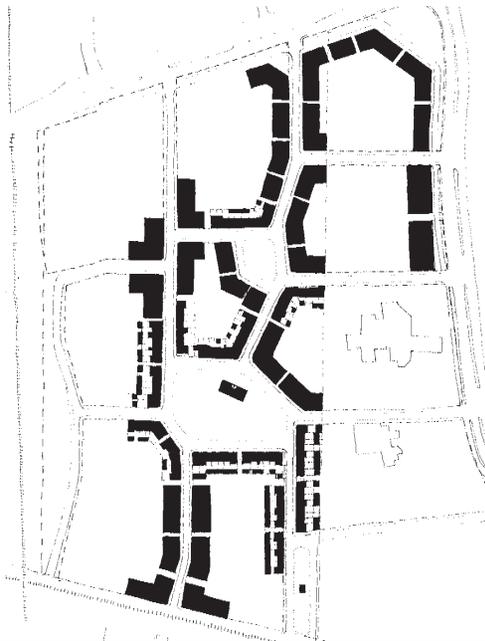
The Armory site will most likely be developed by more than one entity, which is typical of mixed-use projects. Zoning should be in place for the entire site so that all redevelopment occurs in a coordinated manner. This can be accomplished with the proposed Traditional Neighborhood Development Code, or a regulatory mechanism that would allow mixed-use and shared parking, and that would specify the placement of buildings to create streets. (This could be MX or RP2-5 zoning; for example.) Regardless of which regulatory mechanism is used, the site should be zoned in such a way that the built result is a cohesive environment. For instance, as another portion of the site is redeveloped, the new streets would connect to existing streets, enhancing the network.



Redeveloping in Phases

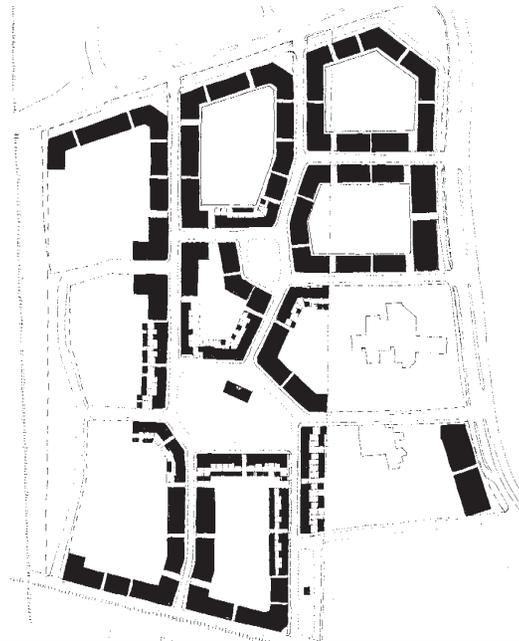


In the planning stage, requiring a network of streets is the most important element. A Traditional Neighborhood Code would use utilize a diagram like the one on the left, to coordinate future development. The diagram depicts a network of streets and Sub-areas in which a range of uses and types of buildings can occur. Streets and buildings can be phased and constructed as needed. The key is defining a network of streets at the beginning of the redevelopment process.



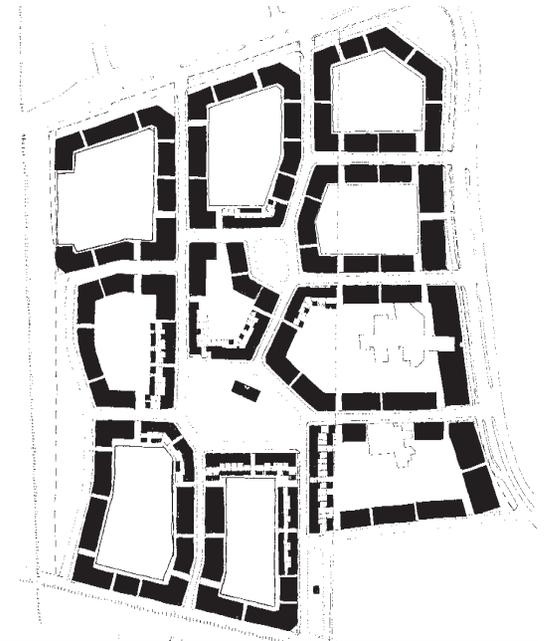
Short Term

A network of streets is established, with a frontage road. New buildings are constructed next to each other forming several complete streets with buildings on both sides. A variety of uses begins to create a viable mixed-use environment. Parking is shared throughout the development.



In Our Lifetime

Additional buildings are added, completing the appearance of other streets. Parking structures are built where necessary.



Long Term

Buildings have filled in any gaps, making the entire network of streets complete

Looking south, a view of the Armory site redeveloped with walkable streets and a mix of uses. The illustrations depict the importance of maintaining good planning principles, creating a network of streets, placing the buildings close to the street and having doors and windows facing the street.

The two renderings depict the same location at the center of the site with the same street network. The top illustration is more residential in character; the bottom illustration depicts offices and medical facilities.



North Roan Shopping Center

The North Roan shopping center site is defined by North Roan Street on the east, Sunset Drive on the north, Sundale Drive on the west and a small shopping center and theater on the south edge next to homes on Hemlock Street. The site includes a regional mall, a bank, several office buildings, a shopping center, hotel and a movie theater. West of the mall is undeveloped property, adjacent to existing single family residences.



There are workplaces, residences and some needs and services, but the area does not function as a mixed-use district. Currently, the roadway design of North Roan as well as the businesses located on the street are designed for automobiles. Getting across North Roan on foot is difficult because of the width of the roadway.

Existing commercial buildings are generally in the center of the property, surrounded by parking lots. From the aerial we can see every building or use providing parking on individual lots. The result is a disregard for pedestrian safety and needs. The streets do not feel safe or interesting because the 'blocks' are built in typical strip format. People are not comfortable walking where there are no sidewalks or fronts of buildings defining the street. Residents and people who work in the immediate area will typically drive instead of walking a few short blocks. Overall, the existing uses do not benefit from being near each other.

There is tremendous opportunity to better direct the character of development, to transform a shopping center into a true walkable mixed-use center that serves the community. This reflects the national trend in which aging suburban malls are being transformed into successful urban places.

Goals

- Improve existing streets so they are pedestrian friendly.
- Design new streets to connect and complement the existing network.
- Create a more complete balance of residential and neighborhood uses.
- Create a “park once environment,” by creating a balance of uses that share parking.
- Improve productivity of the land, promoting economic development and increasing real estate value.



Improved mall facades at the entrances create stronger retail visibility.

Streets have wide comfortable sidewalks with on-street parking. Additional parking is provided behind the buildings. Shared parking is possible because of the mix of uses.

Design new blocks to accommodate parking structures behind the buildings in the future, should they become necessary.

Attached rowhouses and apartments add greater variety for places to live. These new buildings provide a good transition in the neighborhood to the more active movie theater.

Existing buildings become part of the network of streets.

A new street with single family homes serves as a good neighbor to existing single family homes nearby.

0 .125 mile .25 mile

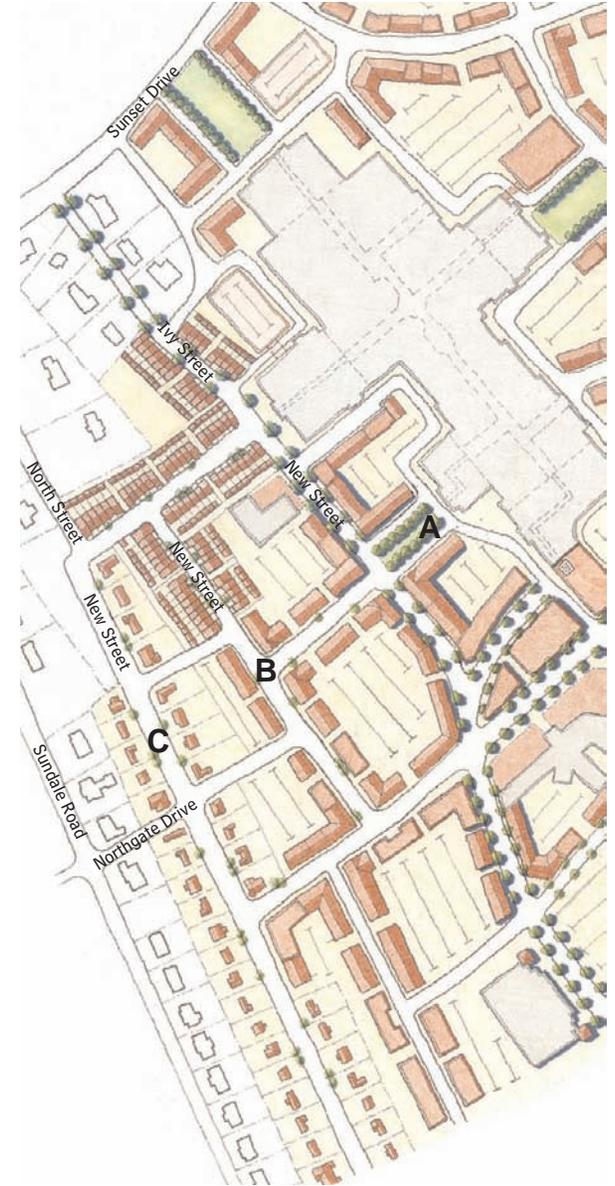
New Development Should Complement Existing Homes and Businesses



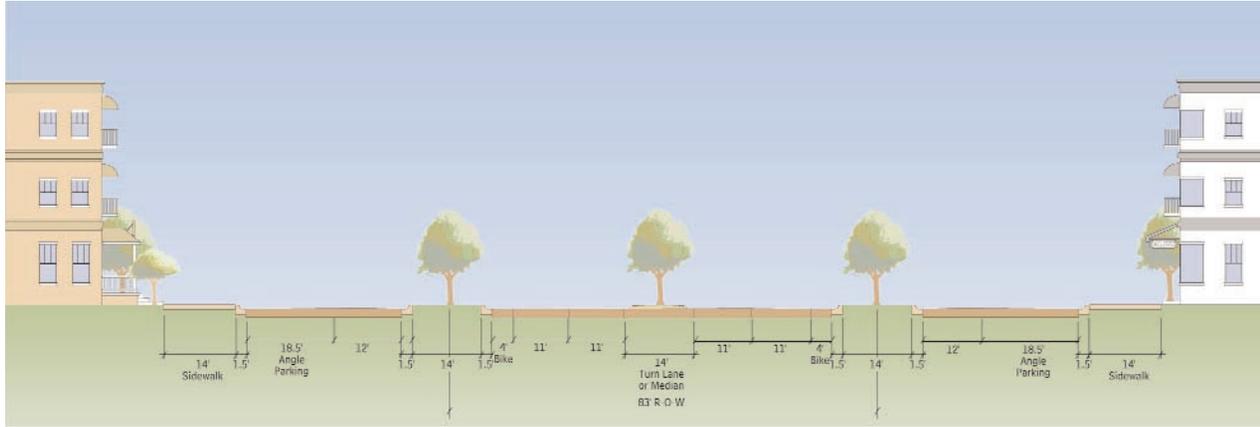
A As existing parts are redeveloped, they should fit in and create new streets. New streets require that the orientation of existing buildings be an acceptable and pleasing neighbor. For example, the relatively blank wall and parking lots of the western side of the mall will not be a good neighbor to any future homes or businesses because it is a back of a building. As the mall continues to expand, the new buildings should create fronts onto the street. Facades should be appropriate for a street, with operable doors and windows, and sidewalks with on-street parking. Anchor tenants within the mall can maintain their visibility by becoming part of the network of streets. The edge of the mall can become a new street that is basically an extension of Ivy Street.

B Undeveloped tracts of land should create new streets that connect. Between the western boundary of the mall and the existing homes on Sundale Road, two new streets can be constructed. The first new street is a transition between Sundale Road, a residential street to the west, and the existing mall. This street is close to the already busy mall. A layer of single family homes in the outer perimeter of the property will improve the relationship of the redeveloped mall and existing homes nearby. New buildings will make a transition between the physical scale and uses of the commercial areas to the east and residences to the west. Neighborhood-serving uses such as a small grocery store, live/work units, rowhouses, small apartments and offices can fit comfortably in the neighborhood.

C A second new street can be placed east of Sundale Road, as a continuation of North Street. Single-family homes can make a good neighbor to the existing homes.



When Redeveloping, Make Walkable Streets



Transform North Roan into a 4-lane boulevard with side access lanes. This design will separate local traffic from regional traffic. The median, travel lane and onstreet parking will separate the faster “pedestrian hostile” traffic from the sidewalk. This more pedestrian friendly design along with regulations can allow buildings to be constructed up to the street.



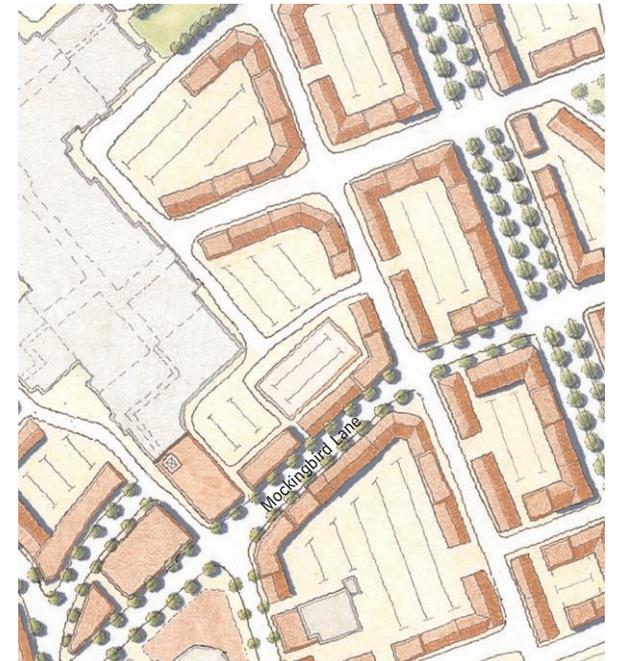
Interior Streets

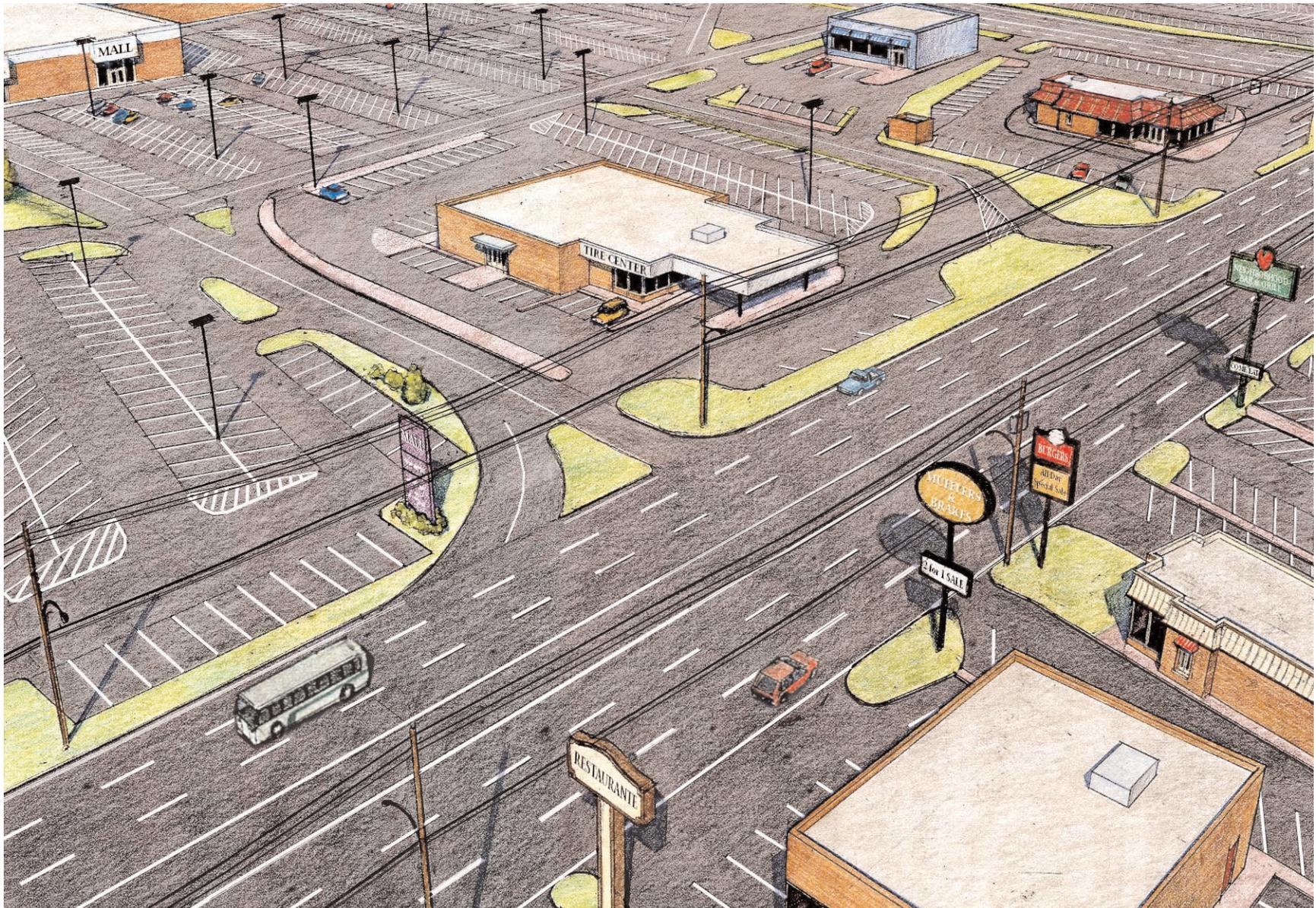
These existing streets establish a network that can be improved with new streets. The key is to begin to redevelop these streets so they encourage walking from one destination to another.

New Buildings and Sidewalks

When new buildings are added, they should define the street specially. They should have facades that are appropriate, with operable doors for destinations and windows that create pedestrian interest and comfort. Sidewalks should be wide enough to accommodate several people passing each other. On-street parking is a catalyst for successful retail. Parked cars will make pedestrians more comfortable by creating a barrier between themselves and moving cars. Additional parking can be provided behind the buildings.

New buildings forming a mixed-use environment with walkable streets can create a *park once environment*. With shared parking, different types of businesses and residents can use the same parking spaces at different times of day. Complementary uses and services near each other will provide merchants with a customer base of residents and office workers.





North Roan Avenue as it exists today, looking down Mockingbird Lane. Destinations are separated from one another. One can see that the land is predominantly used for moving and parking cars.



North Roan is transformed into a memorable, walkable boulevard. A median is added with side access lanes. Buildings form pedestrian friendly streets with onstreet parking and wide gracious sidewalks. Rearranging the physical relationships between buildings and streets creates many benefits in how we maximize the land. For example, in this pedestrian environment parking can be shared between businesses and residents so valuable land is no longer underutilized by parking.

South Roan Shopping Center

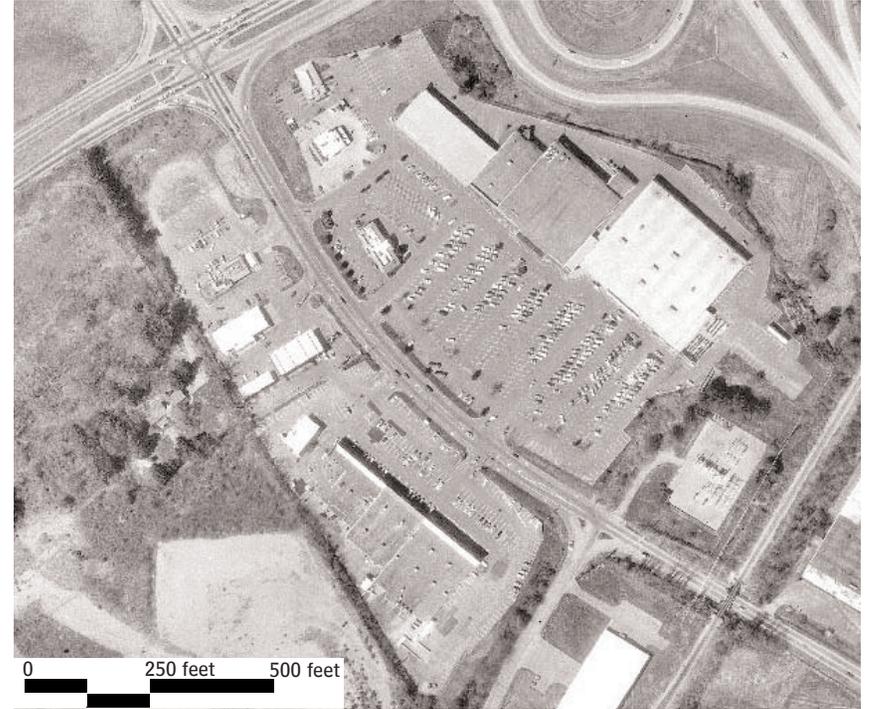
Many residents identified the South Roan shopping center as being the best commercial location for providing daily needs and services to the community at the southern end of the city. This shopping center, when compared to North Roan mall is substantially smaller, but has the same kinds of opportunities to improve and redevelop.

Currently the shopping center is disconnected from residences. Walking to the shopping center is unsafe and uncomfortable. State Road 67 from the north and I-181 from the east act as boundaries. South Roan, a street that is excessively wide and unsafe for pedestrians, provides the only access to the shopping center. Along South Roan, there are also many curb cuts that create driveway entrances into the parking lots. Parking has been provided in excessive amounts. Overall, walking to the shopping center as well as walking across South Roan is difficult. This shopping center can be an even more valuable part of the community once accessibility is enhanced.

Goals

- Transform from a typical shopping center format to a true mixed-use center.
- Redesign South Roan so it is a walkable street.
- Share existing parking.
- Add buildings to enhance circulation for both pedestrians and motorists.
- Revitalize the economic activity as a center.
- Motivate property owners to redevelop according to the plan.

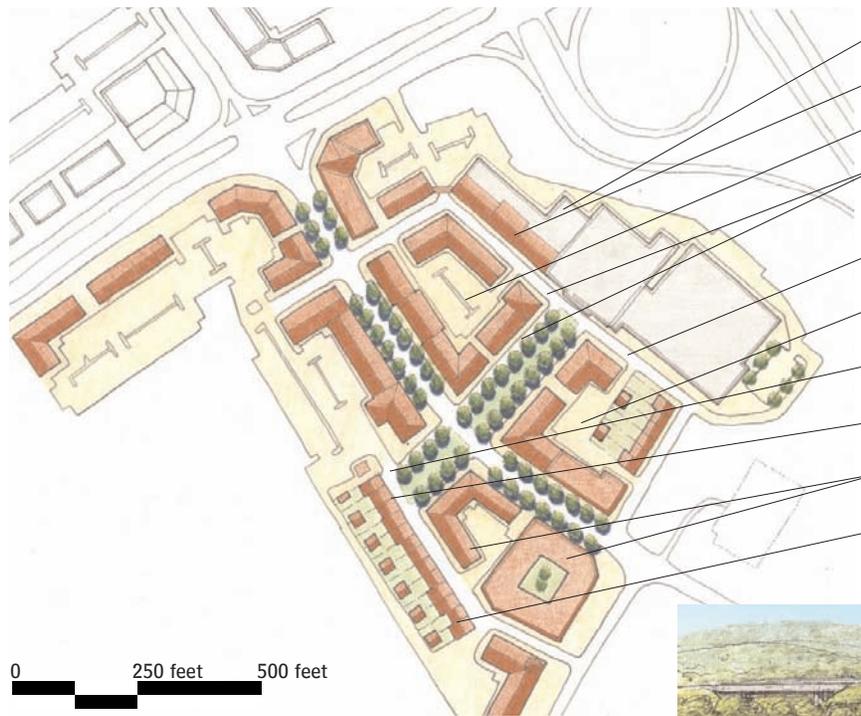
The Street Character Plan recommends a 2-lane commercial street with parking lanes, transforming the overly wide road to a narrower, pedestrian-friendly design. The new street design and accompanying regulations will allow new buildings that are constructed to create a well-defined street. This will give property owners the opportunity to further develop their property.



The number of required parking spaces needed is reduced as parking is shared throughout. New buildings shown in the conceptual plan have intentionally small footprints. They will contain uses that do not require large amounts of parking, so additional spaces may not be necessary.

Appropriate Uses:

- Live/work units; flexible spaces that typically look like rowhouses or lofts. They allow owners to have their businesses on the first floor and live above. Live/work units are a perfect fit for shared parking.
- Apartments can share existing parking with retail and offices because they utilize the parking spaces at different times of day.
- Small retail stores that offer services to the community do not require large amounts of parking, for example, dry cleaners or a video store or sidewalk cafe



- Existing buildings can be maintained
- Existing buildings can be maintained
- Additional parking is provided behind buildings.
- A new street is added to create better circulation.
- On-street parking is provided.
- If necessary, underground parking can be constructed taking advantage of the change in topography.
- Circulation is improved by a new street and drive aisles.
- New uses and buildings can be incorporated.
- Apartment buildings or small offices are facing the street.
- Rowhouses and live/work units.

0 250 feet 500 feet



A view looking northeast; existing buildings have been improved with new facades. New buildings define new streets. On-street parking is provided with additional parking behind buildings.

Downtown

Downtown has great resources: fine historic buildings, a blend of uses, a good street network, and a variety of street-oriented building types. The original settlement of Johnson City is already among the most walkable parts of town, and has at the potential to be its most livable and economically vibrant part. There are signs of an encouraging, spontaneous revitalization underway, too but Downtown remains incomplete. Now is the time to seize the opportunity, improving upon what already exists.

Currently Main Street and Market Street are one-way streets. The one-way design is not the best for retail or pedestrians. One-way streets only provide optimal visibility to motorists going in one direction, limiting the amount of exposure stores have. One-way streets also make it difficult for motorists to circulate back to the store they intended to visit. If a shopper becomes frustrated or disoriented, they may opt to bypass the store. Main and Market Streets also have dedicated left turn lanes at most intersections; as a result, on-street parking spaces have been removed to accommodate the turn lane. The left turn lanes may not be necessary.



Downtown has made great progress. The recommendations in the part of the plan re-affirm those efforts and provide more detail.

Creating the Downtown Advantage

The Downtown has suffered from a pattern seen in many other downtowns across the country: market share has been lost to nearby commercial because of competition. Improving Downtown requires physical design, organization and promotion, as well as economic incentives.

In order to compete, Downtown businesses should apply some of the lessons learned at other modern retail and mixed-use developments. Being organized is the starting point for competitiveness with the newer outlying development. (Note that this does not mean that Downtown should adopt a “mall mentality” or try to physically reconfigure itself to more closely resemble a strip mall!)

The downtown community can also become more economically competitive by building upon the existing business framework. Creation of additional retail stores and restaurants is fundamental. What is required is to re-establish a loyal following of customers, drawn from both nearby and outlying areas. Downtown’s greatest competitive advantage is to continue to foster a unique, satisfying, people-friendly environment.

There is also evidence of a newly sophisticated marketplace, in which discriminating customers demand a better experience when they shop or dine. In addition, the hundreds of citizens who participated in creating this plan were adamant that revitalization of Downtown is among their primary goals. Therefore, the timing is excellent for re-establishing Downtown as a vibrant center, based on its prime competitive advantage, its charm and physical sense of place.

Making downtown a more pleasant place to walk is a fundamental aim. The resulting environment will be sought after by, among others, “New Economy” businesses and their employees.

The Downtown Strategy for Success

1. Use new buildings to fill in strategic locations. Capture lost space downtown by building upon strategic lots as they become available. Adding more places to live and work will ensure the viability of downtown merchants. Note that retailers need not occupy all of the new buildings' downstairs levels, especially on the edges of the core area; most functional main streets are less than 1000 feet long.

Redeveloping Downtown requires public/private cooperation. Improving the condition of existing streets is important to create confidence in the development community. With civic leadership, public/private initiative can spawn mechanisms such as "location-efficient mortgages", providing better interest rates for mortgages Downtown, low interest loan pools, and tax incentives.



Walnut Street, 1999.



The street is made pedestrian-friendly, with wide



A fully revitalized Walnut Street.

2. Provide more opportunities for living downtown.

Adding new buildings as identified in the Master Plan will encourage a balance of people living and working downtown. This has several benefits:

- Merchants benefit from people living downtown because they will frequent and support the local businesses;
- Living and working in the same area removes daily trips that rely on the regional road network;
- New housing downtown can provide a greater variety of housing options in Johnson City.
- The presence of residents adds around-the-clock vitality, security, and dedicated advocates for downtown.

3. Convert Main Street and Market Street into two-way streets. Remove dedicated left turn lanes, except in the most necessary intersections, and add on-street parking. The only significant expense will be traffic signals to service two-way traffic. In the short-term, curb cuts can remain where they are. Streets are rebuilt for routine infrastructure improvements, widen the sidewalks wherever possible. Converting Main and Market into two-way streets will support economic revitalization and create the environment that is required to attract credit-rated, national retailers. National retailers serve as anchors in Downtowns, complementing the local businesses.



4. Maintain the safety and appearance of downtown streets. Keep the physical details of Downtown attractive and clean. This is an indicator to the community and those wanting to invest that this is a cared-for place. These details include:

- Regular maintenance of trees, benches, lights, awnings and sidewalks;
- Adding and replacing street furniture and trees where needed;
- Pressure cleaning sidewalks; and
- Repainting or pressure cleaning buildings when necessary.

5. Keep the street well merchandised. Merchants should work together to keep Downtown interesting. Attractive shopfront windows have traditionally been a way to advertise and entice people to enter the store. The fronts of retail stores and restaurants should be welcoming; pedestrians should be able to see inside. Retail shops should frequently rearrange their windows and merchandise to maintain interest. Merchandise in the display windows should be well lit both during the day and at night, when stores are closed.



A view looking east to the new Downtown Green. The parking lot at Main and Market Street is transformed; new buildings on Main Street help define the green. Additions are made to the sides of buildings on Commerce Street. Doors and windows on the additions signal new destinations facing the green. Facades of existing buildings are restored, making the Downtown Green the centerpiece of a larger revitalization.

6. Eliminate the perception of a parking shortage. Provide signage indicating the way to all locations of off-street parking. Promotional brochures for the downtown should point out the locations of all available off-street parking. Update and keep implementing the parking plan.

7. Set and promote common operating hours. Downtown merchants should agree on particular evenings to stay open later and advertise these hours. Eighty percent of all retail purchases occur during the workweek after 5:00 pm and on Sundays (source: Gibbs Planning Group). These are precisely the hours that many stores are not open downtown. Participation in the common-hours program can be voluntary, but should be required for any businesses or landlords that wish to take part in incentive programs, such as funding for façade improvements or tax incentives.

8. Promote ‘best of kind’ businesses. Celebrate businesses that allow people from the community and outside to enjoy the things that you cherish. The major advantage downtown has over the strip development is that it can provide a unique retail environment with local products and services that major chain retailers cannot.

9. Encourage more businesses downtown. Make tax incentives, loans, and grants available to merchants and business owners in the downtown in order to encourage people to start or expand businesses downtown (e.g. rent for \$1 a month, property tax deferrals, etc). Clearly there will be more sales and success downtown if a “critical mass” is generated.

10. Create development incentives and fix the regulations. Architectural and design standards should be tied to an accelerated approval process. Faster permitting of specific development types can encourage the desired type of development. Relieve downtown properties of any burdensome parking requirements, lot-size minimums, lot-coverage or setback requirements, and impediments to mixed uses, while holding downtown developers to higher design standards, such as build-to lines and glazing criteria. Adopt “smart building codes,” like those recently made law in Maryland and New Jersey, to make renovation of old buildings feasible and profitable.

11. Ensure confidence. Invest in a Downtown market study, if it is needed to prove the vitality of Main Street shopping to investors or the community at large. Nationally, the trend is that many retail stores and other businesses are rejecting malls and returning to main streets. A market analysis, for example, can identify a retail tenant mix based on categories. The analysis can identify the specific types of retail that are supportable and those that are vulnerable to overcompetition.

Towne Acres: Traffic Calming Plan

Existing Conditions and Context

Towne Acres is a residential subdivision northwest of Downtown Johnson City and just east of State of Franklin Road. As State of Franklin Road and Peoples Street were being constructed and development around the State of Franklin Road and Interstate 181 loomed, the residents of Towne Acres expressed concern over neighborhood cut-through traffic on Greenline Drive.

Residents called for the closure of Greenline Drive between Peoples Street and Red Sandhill Avenue. In 1993, the Johnson City Public Works Director, Planning Director, Traffic Engineer, and Public Safety Director wrote a memo encouraging that Greenline Drive remain open but that other measures to be applied to control neighborhood cut-through. The 1993 memorandum to the Johnson City Regional Planning Commission made several points:



- The traffic was primarily neighborhood traffic (73% internal, 23% external);
- Traffic levels on Greenline Drive were not high (1300 vehicles/day) and
- Traffic levels were low relative to other residential streets in the area, but average traffic speed was high (40-42 mph in a 25 mph area).

In 1995, against the staff recommendation, the Board of City Commissioners voted to permanently close Greenline Drive 140 feet north of Red Sandhill Avenue. Commercial big-box development has continued on Peoples Street.

The closing of Greenline Drive, while decreasing the volume of cut-through traffic, has not significantly affected the average speed. With the street closing and the evidence of high speeds north of Willmar Street, it is clear that it is “friends and neighbors” within Towne Acres that are driving at unreasonably high speeds. The city has recently installed additional traffic calming measures on Steven Road and other roads. The traffic calming measures have been limited to speed humps and crude roundabouts.

Recent development adjacent to Towne Acres has intensified the calls for control of neighborhood cut-through traffic. A parcel on Peoples Street is now being developed into a funeral home, for example; significantly, the business will be located on the corner of Peoples Street and an extended Sharon Drive. Connecting Sharon Drive to Peoples Street will create a connection to Towne Acres that has not been available since the closing of Greenline Drive. The Towne Acres neighborhood organization has agreed to the Sharon Drive connection as long as an extensive traffic calming program be put into effect.

The City’s concern about livability with Towne Acres is appropriate and should continue. Livable and attractive neighborhoods are critical to the long-term health of any city. While commercial areas ebb and flow and are continuously redeveloped, residential areas need to be more stable.

Within neighborhoods, the provision of *accessibility* is more important than mobility. Walking and biking is most important on the residential street, high vehicular speed is not so critical. Towne Acres residents have long recognized that high vehicular speeds detract from the safety of walking and biking, especially since sidewalks are missing from many of the neighborhood streets.

This plan recommends continued work on the livability of Towne Acres on three fronts:

**1. Install More Kinds of Traffic Calming;
Blend beautification with Traffic Calming**

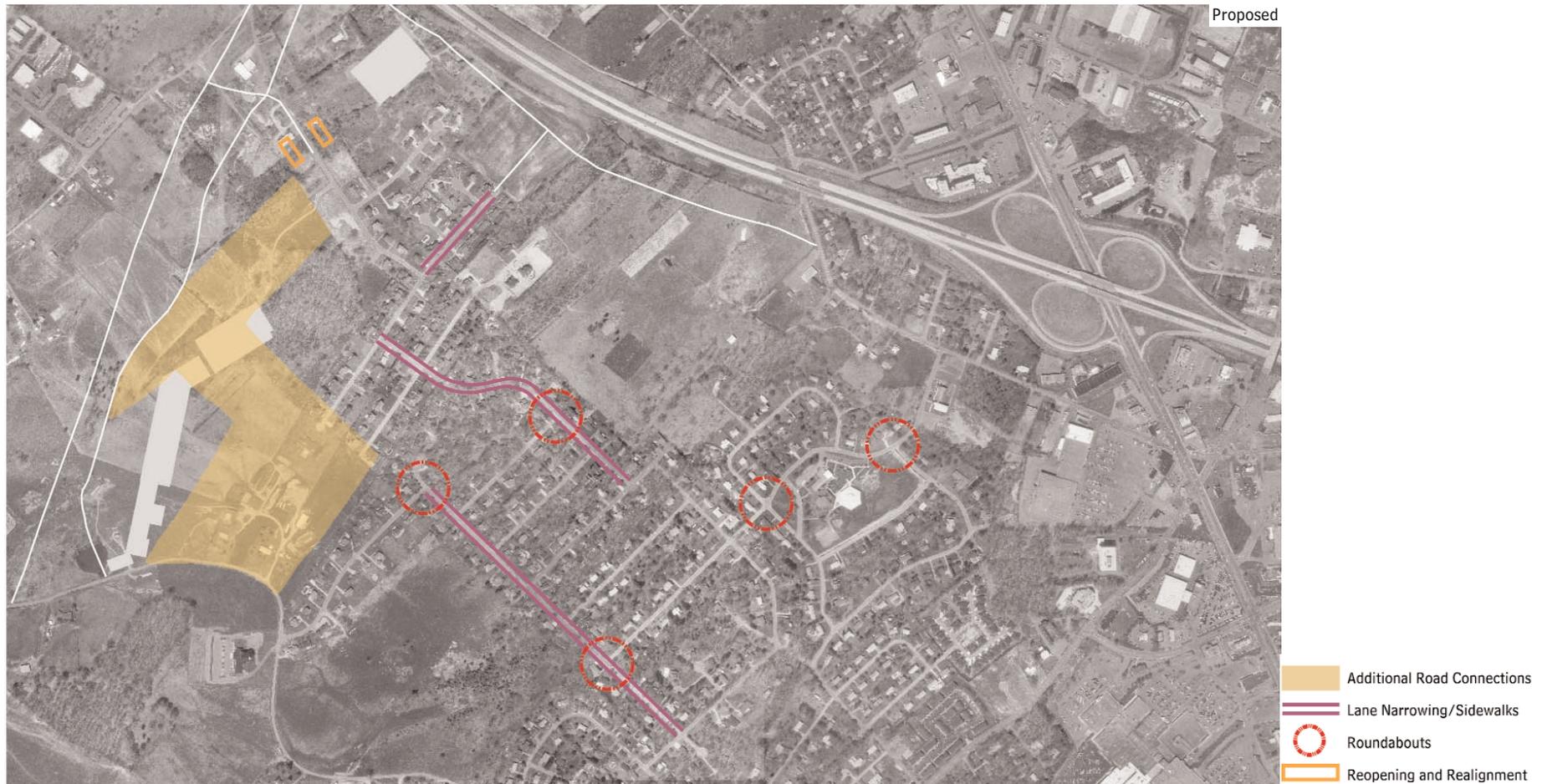
Additional traffic calming measures should be installed in Towne Acres. The two types of measures now installed are speed humps and roundabouts. Speed humps are not recommended as effective ways to slow down traffic. Although speed humps have low installation costs and can possibly cause speed reductions, volume reductions are improbable and an increase in traffic noise occurs. In addition, speed humps are not recommended on grades greater than 5 percent.

Roundabouts reduce speed, as shown with the two roundabouts now installed in front of Towne Acres Elementary School. By slowing down traffic and breaking up straight sections of a road, roundabouts can control the speed of neighborhood cut-through traffic. In addition, roundabouts also offer landscaping and neighborhood gateway opportunities.

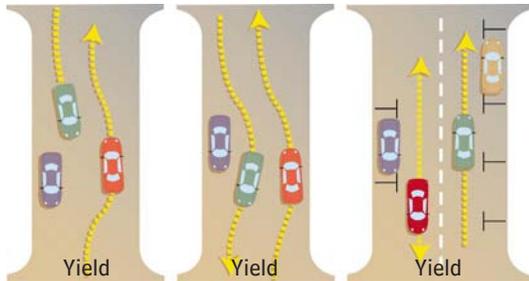
Roundabouts should be placed at major intersections on known cut-through routes. Additional roundabouts would be effective at the following intersections:

- Steven Drive and Willmar Street
- Ferndale and Avondale Drive
- Lizabeth Street and Avondale Drive (landscaping can also be used as neighborhood gateway)

Lane narrowing is also an effective traffic control measure. Wide streets invite high speed traffic since there is often enough pavement width to easily accommodate two passing cars and on-street parking. *Residential Streets*, a book published by the American Society of Civil Engineers, the National Association of Home Builders, and the Urban Land Institute,



recommends that local streets have parking lanes that are 6-7' in width and one 10' multi-directional travel lane. For subcollector roads, which may include Sharon, Steven, and Avondale Drives, the parking lanes should be 8' in width. Residential streets with these widths operate with “yield” conditions, a scenario in which vehicles are often required to wait for opposing traffic to clear, occurring when the available travel surface is limited to a single multi-directional lane.



Neighborhood Streets: Roads of different widths have different traffic flows. Yield flow is common on traditional neighborhood streets, while free flow is common on suburban neighborhood streets and arterials. Conservative engineering standards support all three flow modes, while only yield and slow provide traffic calming benefits.

Narrowing selected streets in Towne Acres offers another opportunity. The impact of higher speed traffic within the neighborhood is exacerbated by a general lack of sidewalks on all streets, especially those close to Towne Acres Elementary. By narrowing selected streets, Towne Acres can retrofit its streets to include sidewalks, at least on one side of the street. It is common in hilly terrain for sidewalks to be located directly adjacent to the travel lane, further enabling the provision of new sidewalks without the need for new right-of-way. Due to the faster and higher level of traffic on Sharon, Steven, and Avondale Drives, it is particularly important that sidewalks are present.

The City of Johnson City should narrow these three streets to a width appropriate for a subcollector – one 10' travel lane with one 8' parking lane. Further narrowing should be explored on connecting streets within Towne Acres. Other traf-

fic calming measures are available and should be considered options. Corner bulb-outs, medians, and midblock chokers are all effective at *slowing* traffic, although their effects on traffic capacity are minimal.

Traffic calming measures provide opportunities for improving the appearance of the neighborhood. While it is recognized that by their nature traffic calming devices are retroactive and “band aids”, they need not look substandard (as speed humps can often look). The medians and bulb-outs depicted add to the greenspace and attractiveness of the corner. Roundabouts, street narrowing, and other traffic calming measures provide similar beautification opportunities.



2. Expand Street Network and Add Additional Connections

The extension of Sharon Drive to Peoples Street is a good beginning in opening Towne Acres to the greater network of streets. Located away from the intensive development near Peoples and Greenline, the Sharon Drive extension is unlikely to experience the moderate level of cut-through traffic that Greenline did just prior to closure.

Additional connections to the greater street network, designed properly, can themselves be considered traffic calming measures. With the closure of Greenline Drive, all high-speed traffic on Steven and Avondale Drives is generated by Towne Acres residents that live north of Willmar Street. All residents in this area of Towne Acres are funnelled down these two streets. Due to the great distance that they must travel along inviting straightaways to get to Browns Mill, Sunset, or Knob Creek, there is little wonder why these residents choose to travel above the recommended speed limit.

With another access point for these Towne Acres residents, they will not be forced onto one or two streets for every trip, and may leave the neighborhood through the newer, more convenient access point. For example, with the extension of Sharon Drive, residents of McGregor Place and Kay Court wanting to shop at Super K will not need to circle by the roundabouts in front of Towne Acres Elementary.

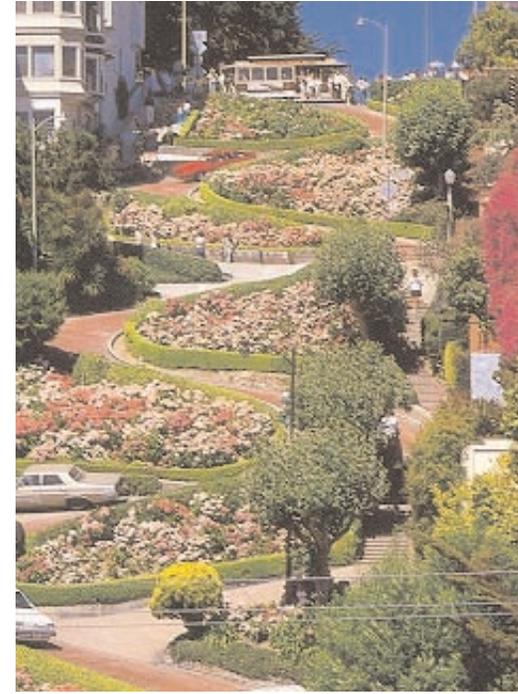
Additional connections are recommended as they become available. Along Peoples Street between Greenline and Knob Creek, there exist “big box” retailers, effectively blocking many possible street extensions. Along Knob Creek to Elizabeth Street, it is also developed. As these parcels are developed or improved, the city in cooperation with the Towne Acres neighborhood organization should pursue the extension of further roads such as Wayshire, Sharon, and Douglas Drives. As further connections to the neighborhood are opened, not all traffic will be funneled onto singular roads and each access point

will share a moderate amount of traffic. Traffic calming measures must be included in any plans for additional access points to control vehicular speeds within Towne Acres, however.

The closure of Greenline Drive was, and remains, an emotionally-charged technical issue within the Towne Acres neighborhood and with city staff. Regardless of the arguments at the time, the street was closed and Towne Acres has adopted to new traffic patterns and new vehicular speed problems. In the long run, for further amelioration of neighborhood cut-through and for the safety of Towne Acres residents, Greenline Drive should be reopened.

Greenline Drive should not be reopened until several elements are in place. First a “cooling off” period is needed. The emotion created the closure debate are still warm, and this emotion may complicate further objective discussion. In addition, more street extensions and connections, such as Sharon Drive, should occur before a reopening of Greenline Drive is considered. Before the closure, Greenline was the only northern access point for an entire neighborhood. Until this situation is remedied with the creation of other access points, traffic conditions before the closure will reoccur.

Before Greenline Drive is reopened, an alternate street configuration is recommended. One contributing factor to the moderate level of cut-through that Towne Acres experienced was the manner in which Greenline Drive connected with Peoples Street. This intersection is the size of two collector streets, necessary to handle the high volume of vehicular traffic associated with the nearby “big boxes.” The wide cross-section of Greenline Drive and the straight alignment up the hill into the neighborhood suggested to those outside the neighborhood that this was a collector road and suitable for neighborhood cut-through. By redesigning Greenline Drive with a narrower cross-section after it passes the big box parking lots and by adding curvature as it climbs the hill, the impression that Greenline Drive invites cut-through traffic will be diminished.



Lombard Street in San Francisco is one of the most famous examples of a road navigating steep terrain. Its switchback design is inherently traffic calmed. The design forces cars to drive slowly and carefully. Lombard Street is also a great point of pride for the community and City. The Street is always meticulously landscaped and surrounding homes are very desirable places to live.

Phasing – which steps should occur first

The phasing of these three recommended actions is determined by budget priorities of the city and redevelopment opportunities.

Install More Kinds of Traffic Calming;

Blend Beautification with Traffic Calming:

With the impending opening of the Sharon Drive extension, traffic calming measures should be installed on Sharon, Steven, and Elizabeth Drives. Other installations are dependent on the citywide program of traffic calming and the needs of other neighborhoods. The city budget dedicated to traffic calming or neighborhood issues will determine the timeframe and phasing.

Expand Street Network and Add Additional Connections:

Currently, there are few opportunities for creating additional street network connections westward toward Peoples Street and Knob Creek. As commercial parcels along this corridor are redeveloped or improved, the city and neighborhood organization should incorporate street extensions into the site plans.

Reopening of Greenline Drive: As mentioned in the previous analysis, the reopening of Greenline Drive should occur after other neighborhood access points have been established and sufficient time has passed for equilibrium to be established in travel patterns. Greenline Drive should become the third access point to the north.

Implementation – recommended policy strategies or code changes to incentivize the redevelopment

The City of Johnson City should strengthen its existing neighborhood traffic calming program, establishing a procedure for the determination of new measures on a citywide basis. City planning staff should work with neighborhood residents and organizational representatives to ensure that Towne Acres cut-through concerns are included in city deliberations.

The Next Steps: Implementation

Connecting Johnson City: The Land Use and Transportation Plan illustrates methods of directing and coordinating growth so that future development will have an improved physical character and provide a better quality of life for the community. Revisions to City policies, land development regulations, and the Transportation Improvement Program are necessary to insure this improved quality in the built environment.

The summary of implementation steps:

1. Adopt “*Connecting Johnson City: The Land Use and Transportation Plan*”
2. Direct the City Manager to initiate the next steps to realize the Plan
3. Promote “*Connecting Johnson City*” and the Code
4. Revise the Zoning Ordinance according to specific recommendations
5. Revise Subdivision Regulations
6. Adopt the proposed Traditional Neighborhood Development Code
7. Adopt the use of Future City Plan
8. Continue the public/private dialogue
9. Incentivize Traditional Neighborhood Developments
10. Assist in developing a Model TND project
11. Create a City of Johnson City Capital Improvements Plan and prioritize its projects
12. Revise the MPO’s Transportation Improvement Program and Recommended 20-Year Roadway Projects
13. Revise Land Development Regulations to support connectivity and many modes
14. Manage parking Citywide

1. Adopt “Connecting Johnson City: The Land Use and Transportation Plan”

The Planning Commission and the City of Johnson City should pass an Adoption-in-Concept resolution giving this plan official standing. Adopting the plan will send an important message to property owners and residents that the Planning Commission, the City of Johnson City, the Tennessee Department of Transportation, and the Johnson City Metropolitan Planning Organization support the Plan and intend to implement its principles. This resolution will give clear direction to staff and other development officials to instruct applicants to meet the goals of the Plan.

2. Direct the City Manager to initiate the next steps to realize the Plan

Within 60 days after adoption of the Land Use and Transportation Plan, the City Manager should present to the City Commission and Planning and Zoning Commission an outline of departmental responsibilities and time limits for carrying out recommendations in the Plan. Responsibilities would include but not be limited to: Finalization of the **TND Code** and projected date for adoption of the Code. Identify the team of Staff to manage the **Community Catchment Plan** and the **Future City Plan**. Identify a schedule and dates in which team will provide findings.

3. Promote “Connecting Johnson City” and the Code

The City needs to:

- Secure press coverage of the new plan as well as any new projects completed under the guidance of the Plan;
- Spread the message that the Plan specifies the desired pattern of development and how these improvements are beneficial to the community;
- Parade the images of the first successful project in the press, at public meetings, at service clubs, on television, in traveling exhibits, and on posters and postcards;
- Provide realtors with handouts highlighting what is coming soon in Johnson City;
- Promote the Plan so that it will take on a life of its own and continue to work for the City long after changes occur in government staff and elected officials.
- Distribute a copy of the plan to each local member of NAHB, ULI, ICSC, AIA, CNU, NTBA, ASLA, APA, Economic Development Council. Convene a training seminar regarding the code for local design professionals.

4. Revise the Zoning Ordinance according to specific recommendations

The large number of existing zoning categories does not promote or encourage better development. It is confusing and may deter good projects from being built. The purpose of zoning is to keep incompatible uses from being next to each other, and, while an elementary school and slaughterhouse are not ideal neighbors, houses and neighborhood businesses (i.e.: deli, coffee shop, bank) that serve the neighborhood can be.

Simplify the current thirty-one zoning categories, encourage mixed-use.

a. Collapse Residential Districts:

R-1 through R-2C becomes Residential 1
R-3 through R-4 becomes Residential 2
R-5 through R-6 becomes Residential 3
and allow neighborhood retail as a use.

There are simply too many residential categories. It is confusing and does not offer any productive element to any development effort. The difference is small, e.g. a ten foot difference in lot width or setback.

For Multi-family Housing:

Reduce front setback (alternatively, use build-to lines).
Increase height limitations (alternatively, set a height minimum).

For Single Family Housing:

Reduce front setback, maintain a minimum setback for garage doors (alternately, use build to line and require entrances to garages or carports to be well behind the front of the house).
Allow features such as fences, walls, balconies, stairs, porches, and roof overhangs to encroach into the setback area.

b. Delete the following:

RP-2,3,4,5
RO-1
MS-1
B-5

Again, it simply adds more confusion to an already confusing process.

c. Revise and collapse the following:

B-1 – Rename as Neighborhood Business and allow additional uses, such as outdoor dining and apartments/offices above shops

B-2 through 5 – Rename as Business District

Area Regulations should have a build-to line; add height (2 story minimum); parking on-street or behind or beside, not in front of buildings.

Business zoning regulations are too complicated. The process for permitting the desired type of development should be simple. Another way to mitigate that problem is to impose standards on the buildings. For example, having the building come right up to the street, requiring landscaping, sidewalks, street trees, having doors and windows facing the street will maintain the character of the area much more than zoning. Also, for businesses that may have potential adverse environmental effects (dry cleaners, factories, etc.), there should be monitoring standards in place.

d. Strengthen A-1:

This category needs to encourage the preservation of rural lands. Only 3 of its 19 allowable uses have anything to do with agriculture, this list should be expanded to allow more agriculture and eco-tourism related businesses. Preservation of farmland can be both environmentally and fiscally beneficial.

e. Collapse the overlays:

HC, BP, RTP, MX, PB, HCO, HVO, CCO should be combined and revised, where appropriate into a smaller number of overlays that new development will be required to follow. These overlays have worthy intentions, but they can be simplified. It may be useful to keep the HCZO (Historic Overlay) separate. It will offer additional protection for historic places.

5. *Revise Subdivision Regulations*

Revise the Subdivision Regulations to reflect the street sections proposed in *The Land Use and Transportation Plan*.

6. *Adopt the proposed Traditional Neighborhood Development Code (TND)*

A framework for a new regulation governing Traditional Neighborhood Developments has been drafted. The framework identifies the variables that should be regulated and how to regulate them. This framework has been provided so that planning staff can further fine tune and adapt the code for Johnson City.

The important factor in a TND code is regulating not just USE, but DESIGN. The new code simplifies land uses into six categories: residential, lodging, office, retail, industrial, and civic. It also emphasizes the way buildings relate to the street. Building placement and orientation, and the provision of

doors and windows facing the street, creates the most basic ingredients for a pedestrian friendly environment. These new categories are important for new development, as well as for redevelopment. It is the way that properties already mired by the complex zoning structure can become part of the Land Use and Transportation Plan without violating the existing rights of property owners or neighbors.

The proposed TND Code, which has been drafted and is being revised at the time of this report, will be a main implementation vehicle for this Plan. The City and its citizens should continue to review and refine this code and make it official as soon as possible.

This code is different from the existing rules in that:

- It is focused on prescribing the physical built results that are intended, instead of just specifying those aspects that are not permitted.
- It is graphic by nature, showing photographs and drawings to illustrate the intent.
- It uses Regulating Plans to specify street and lot patterns.
- It uses Building Placement Standards to specify the basic parameters that govern building location, form, and size.
- Because the new code is more specific about what the built results will be, the approval process can be streamlined to accelerate the time required for the applicants with compliant proposals. If an applicant is requesting variances, of course, then the approval process should require more scrutiny.

7. Adopt the use of Future City Plan

Manage the character and location of future growth by creating a Future City Plan that can target growth where it is desirable. (See Chapter 5 for more detail.) Provide an incentive for developers to continue to create the character of development that the City and the community desire, design each district plan in a public process first, offering the developer free design services. To save them more money and reduce the risk, create a specific “fast-track” approval process when they follow the Plan. The developers’ savings can be spent on enhancing their project, providing more of a benefit to the whole community.

8. Continue the public-private dialogue

The Builder-Developer Forum and the ZHA “Real Estate Market Conditions and Outlooks” document were part of a dialogue for better addressing the needs of the community. Identify and addressing any concerns the development community may still have. At the same time, keep the regulators aware of current development trends and practices. It is also worthwhile to seek out relevant information from organizations such as the National Association of Home Builders on trends and economics of traditional neighborhoods.

Take tours to peer communities and recent Traditional Neighborhood Developments, and meet with the developers of these projects. This is a way to share information and show local developers and elected officials both good and bad examples of growth, helping them make better decisions for Johnson City.

9. Provide incentives for Traditional Neighborhood Development

Provide incentives for development built under the TND Code, or compact mixed-use development that follows the Plan. Time and money are excellent incentives.

- Offer a faster permitting track, less permitting fees and require less public hearings for TND projects, than development done under other regulations.
- Create low interest loan pools, waive fees, subsidize loans for mixed-use compact development.
- Offer city-owned or county-owned land, couple public improvements within the rights-of-way with private projects
- Provide free and pre-approved designs.
- Above all, cut red tape for developments which follow the plan.

On the other hand, do not grant incentives such as these to development that does not follow the plan and continues construct low-density housing and single use commercial, i.e. sprawl.

10. Create a model TND project in partnership with the private sector

The development industry may be hesitant building in a TND format. In addition to steps 8 and 9, the City can opt to work in partnership with the private sector to help build traditional development by providing city-owned or county-owned land and offering a phased selling of the land. Built results that are economically viable and accepted by the community as good physical design is a great convincer and will create confidence on the part of the local development community. This may require working with an out of town developer that is comfortable with Traditional Neighborhood Developments and already has experience with them.

11. Continue using Capital Improvements Plan and prioritize any new projects

This schedule of capital improvements identifies all projects and improvements that are linked to development. These include, but are not limited to, purchase of rights-of-way, under grounding of overhead utility lines, sewer extensions, water line extensions, road improvements, sidewalk construction, landscape enhancements, parks and open space, schools, fire stations, and stormwater management facilities. Including an estimated funding source (either public or private), a time schedule, and the person or entity responsible for implementation helps maintain organization and prioritizes the projects.

12. Revise the Johnson City MTPO's Transportation Improvement Program and Recommended 20-Year Roadway Projects and the City's project list

Planned transportation projects are listed in three different places, depending on their funding source and how soon they will happen.

The Johnson City Metropolitan Transportation Planning Organization (MTPO) oversees projects that are funded with federal or state money. The MTPO's Recommended 20-Year Roadway Projects list is a "wish list" of projects that are thought to be needed in the next 20 years. The Transportation Improvement Program (TIP) is the short-term, more financially realistic version of the same list. The TIP contains those projects that have dedicated funding and will occur in the next five years (plus a few "illustrative" projects if extra money is found).

The Engineering Division of Public Works Department of Johnson City oversees the projects that are primarily funded by local money. That division keeps a list of projects and their status.

All three lists must be revised to match the goals and visions of *Connecting Johnson City*. Due to Johnson City's current land use and transportation *disconnect*, many of the scheduled transportation projects are not related to land use plans, but only to forecasted traffic needs. If road projects are to be used to support land use planning and community building, many projects currently on these lists must be reevaluated.

Over half of the funding for Johnson City’s road projects comes from the federal government, but it flows through the hands of the Tennessee Department of Transportation. TDOT picks the types of projects for which they would like spend federal dollars, so when TDOT is willing to fund a road widening with a small local funding match, its hard to turn TDOT down. Unfortunately, by allowing TDOT to choose projects with little local input besides acquiescence, Johnson City is abdicating its transportation planning and thus land use planning responsibilities to the state. Johnson City grows in the way favored by TDOT engineers, not by Johnson City citizens.

Federal transportation law not only allows but also encourages the flexible spending of transportation dollars. Federal dollars must not be spent solely on highway projects, but can also fund projects like bike trails, sidewalks, and transit improvements. Johnson City and MPO officials must negotiate with TDOT to ensure that federal transportation dollars continue to flow into Johnson City, but only on projects that support the livability of Johnson City. For projects that are completely funded by locally raised dollars, the City through the Public Works staff has complete control over their design and impacts.

a. Revise the Transportation Improvement Program

Two of the projects listed in the current TIP are not consistent with *Connecting Johnson City*. However, these two projects are already designed, right-of-way has been purchased, and some construction has begun. It may be too late to redesign these projects, but future road widening projects like these must be reevaluated.

- Boones Creek Road between I-181 and SR 36 (Kingsport Highway): TDOT is widening the road from 2 lanes to 5 lanes. The plan recommends a rural residential/agricultural 4-lane parkway.
- SR 36 (Kingsport Highway) between SR 381 (State of Franklin) and Boones Creek Road: TDOT is planning to widen this roadway from 2 lanes to 5 lanes. The plan recommends an urban non-residential 4-lane boulevard.

Also inconsistent with *Connecting Johnson City* are three of the “illustrative” projects, those projects where there is no dedicated funding but if some is found they will be the first to move forward. These projects are in their infancy, and can and should be altered.

- SR 34 (Bristol Highway), between SR 381 (State of Franklin) to SR 36 (Kingsport Highway): The Land Use and Transportation Plan recommends an urban non-residential 4-lane boulevard
- Knob Creek Rail Underpass reconstruction: The Land Use and Transportation Plan recommends maintaining the one-lane underpass, but improving its safety through signalization and other measures.
- I-181 Reconstruction: The Land Use and Transportation Plan recommends maintaining the current 4-lane highway

b. Revise the Recommended 20-Year Roadway Projects.

Most of the recommended Johnson City roadway projects are inconsistent with *Connecting Johnson City*. While this list is much of a “wish list” and adequate funding will never be available, Johnson City must ensure that these projects do not get moved to the TIP. Instead, Johnson City transportation planners should work toward including more equally expensive community building projects on the list. Below are listed recommended projects that are occurring in and near Johnson City, and the differences between the current and the recommended projects.

<i>Roadway</i>	<i>Project Boundaries</i>	<i>MTPO Plan</i>	<i>Land Use and Transportation Plan</i>
Railroad Underpasses: Carroll Creek Rd., Fairridge Road, Claude Simmons Road/Mountainview Rd.		Modify to Full 2 Lane Section	Maintaining current underpass with signalization or other measures to ensure safety.
Boones Creek Rd.	I-181 to US 11E in Jonesborough	Widen to 4 Lane Divided Road	Rural highly-engineered 3-lane roadway.
Tennessee Street Extension	Lamont St. to John Exum Pkwy.	Construct a 5 Lane Road	Urban residential 4-lane boulevard.
SR 34/US 11E Widening	John Exum Pkwy. to Jonesborough	Widen to 6 Lane Divided	Corridor-level design, 4-lane roadway, aggressive access management, and complementary connecting streets.
I-181 Widening	University Pkwy. To Sullivan Co. Line	Widen to 6 Lanes	Maintaining a 4-lane with median cross-section.
Watauga Rd.	Broadway St. to Watauga River	Widen to 5 Lanes	Rural highly-engineered 3-lane roadway.
Greenwood Dr.	State of Franklin Rd. To Brush Rd.	Widen to 5 Lanes	Corridor-level design, 2-lane roadway, aggressive access management, and complementary connecting streets.
Kingsport Hwy (SR 36)	State of Franklin Rd. (SR 381) to SR 75	Widen to 4 Lane Divided and 5 Lanes	Corridor-level design, highly-engineered 3-lane roadway, aggressive access management, and complementary connecting streets.
SR 75 (Suncrest Dr.)	I-181 to Delmer Salts Rd.	Widen to 5 Lanes	Rural residential/agricultural 4-lane with median.

c. Revise the Workplan for Johnson City Public Works

Unlike the projects that are directed and funded by TDOT, most of the locally funded projects support livable transportation and are consistent with *Connecting Johnson City*. Johnson City staff and citizens need to ensure that the design of these projects support many travel modes and respect the land uses that surround them. Below are the roadway projects currently planned by Public Works. The city’s many sidewalk and bike/greenway projects, while not listed here, all support livable transportation.

<i>Roadway</i>	<i>Project Boundaries</i>	<i>City Plan</i>	<i>Land Use and Transportation Plan</i>
Browns Mills Extension	Carroll Creek to Boones Creek	2-lane road	Rural res/ag 2-lane
Carroll Creek Road	North Roan to Bristol Highway	3-lane road and 2-lane with grass median	Rural res/ag 2-lane
Knob Creek Road	Sunset Drive to Peoples Street	2-lane road and 2-lane with median	Urban res 3-lane
Maranatha Way	W Mountainview Rd and Carroll Creek	2-lane road	Rural res/ag 2-lane
Oakland Ave	Princeton Road and Lake Drive	3-lane road	Urban res 3-lane
Oakland Ave	State of Franklin and W. Mountainview	2-lane road	Rural res/ag 2-lane
Sunset Drive	Sundale Road and North Roan St	5-lane road	Urban res 4-lane
Tennessee Street	Lamont St and W Market	4-lane with median	Urban res 4-lane

13. Revise Land Development Regulations to support connectivity and many modes

While roadway projects can enhance the mobility of an entire city or region, development patterns have a larger impact on accessibility on the neighborhood and intersection scale. The placement of buildings, building appearance, connections among properties, and connections to sidewalks and streets controls how easy it is for drivers, bikers, and walkers to get around. It is the Land Development Regulations that govern and shape these factors.

Johnson City must re-examine its Land Development Regulations with livable transportation in mind. Appendices A and B outline specific goals and recommendations for accomplishing this task. The Land Development Regulations re-examination must occur concurrently with the reassessment of roadway projects described previously. Even if TDOT and Johnson City Public Works were to build a livable and connected street network, if current development patterns do not change, accessibility on the small scale will suffer and livability will be unattainable.

14. Manage Parking Citywide

Parking is necessary in an automobile-oriented society. While most communities are willing to pay for and build parking in some form (surface lots, structured parking, on-street), parking need not dictate urban form. In many places in Johnson City, there is an overabundance of parking; in others there may be enough physical parking spaces, but the perception and cost of the existing parking makes it useless. Four basic changes need to occur citywide:

- Reduce parking requirements to provide for the minimum number of spaces.
- Encourage shared parking and adopt provisions to share parking.
- Allow on-street parking to be included in the total parking requirement.
- Expand current regulations to prohibit parking in front of the building line for new construction.

Appendix A

Measures of Effectiveness that Promote Livable Transportation



The step between a final plan and the realization of a livable community is the hard task of implementation. To change development patterns and not get "the same old thing", the process of development itself must be questioned and modified. This Land Use and Transportation Plan is a set of recommended guidelines. Johnson City's decision-makers – including the City Commission, Planning and Zoning Board, Tree and Appearance Board, city staff in planning and engineering, the Johnson City MTPO, active citizens, among others – must critically judge each new development and project, compare it to these guidelines, and question whether it can contribute to the livability of Johnson City. This appendix provides a methodology for that review.

This appendix provides a performance methodology for evaluating planned future development in Johnson City. The recommended methodology is meant to be a starting point and it should evolve as Johnson City Transit (JCT), the Johnson City Metropolitan Transportation Planning Organization (MTPO), Tennessee Department of Transportation (TDOT), and local governments become familiar with the process.

This evaluation methodology is not intended to provide an absolute evaluation of planned future development, and should not be used to conclude that the development will be a "success" or a "failure." Instead, this framework is one method by which Johnson City can implement this Land Use and Transportation Plan. The measures of effectiveness (MOEs) are a tool to use in identifying areas of improvement in the planning and design process of future transportation improvements and development projects. For this reason, the evaluation is not completely quantitative and is in the form of a checklist. The corresponding *Appendix B: Site-Level Design Elements that Promote Livable Transportation* describes recommended site-specific elements that support the principles of accessibility and mobility, precisely what these MOEs attempt to measure.

The evaluation framework is divided into two sections: the first section addresses the initial planning process while the second section addresses the final development plan or alignment produced through this process. The planning process evaluation may not be applicable to every project. For example, an intensive and formal public planning process examined in 1.0 is generally limited to large-scale developments and transportation improvement projects.

1.0 The Planning Process

Evaluation of large-scale development begins with the initial planning process. The quality of this process determines both the physical design of the development as well as how the community views the development. While the public involvement program of transportation improvements is often very detailed and well scripted, the effectiveness of such a prescribed pro-

gram is questionable. For example, property owners within an area of impact are often contacted and notified about various meetings. However, this level of notification overlooks rental tenants. In areas with a low number of owner-occupied homes and high rental stock, this means that the majority of the residential community is left out of the process.

The checklist below provides an evaluation methodology for the initial planning process:

1.1 Extensiveness of public involvement

A public involvement program does not have to incorporate all of the study methodologies provided below. Whereas a citizen survey may be effective in measuring local priorities and issues in one setting, a charrette in that same setting may not be as successful.

- Was a workshop or charrette held that actively involved stakeholders in the design process?
- Were focus groups created?
- Was a citizen task force formed?
- Were citizen surveys conducted?
- Did the process have an adequate and active representation of community stakeholders (developer, JCT, local government, disadvantaged groups, citizens)?

1.2 Responsiveness of public involvement program

The public involvement process should be a two-way discussion. The purpose of developing a project in a highly public forum is to encourage and facilitate feedback. Simply providing information to the community without any room for flexibility is self-defeating.

- Were the goals and objectives of the project refined to reflect the public input received?
- Did the process include a diversity of ideas?
- Were these ideas integrated through public discussion?
- Was a wide range of solutions considered? (I.e. for transportation projects, are transportation demand management (TDM)/pricing/landuse/pedestrian programs considered and funded as well as capacity expansion projects?)

2.0 The Development Plan and Project

A development project may be a large-scale planned development, redevelopment of an existing facility, transportation improvement project such as road widening, or one site-specific land use. The outcome of the development process, depending on the type of project, often consists of a development program, alignment and typical section, and/or site plan. The wide variety of potential projects requires that the measures of effectiveness be applied on at least two different scales: one that is site specific, and another that relates to the entire Johnson City region.

Rather than just determine the development project's transportation impact, social and economic impacts of the project are also considered. Infill development and roadway widening are often surrounded by existing development and well-established neighborhoods. Consequently, the social and economic impacts on nearby neighborhoods become an especially important part of the evaluation process.

The evaluation of the impacts associated with development projects is divided into three categories: physical characteristics, economic impacts, and social impacts.

2.1 Physical Characteristics

The physical aspects of the project should work towards creating an environment where all modes of transportation are convenient, safe, and comfortable. At the same time, the design of the project should be sensitive to surrounding uses. Engineering documents and architectural plans are produced in great detail and with care, yet the successful incorporation of each element with the existing surroundings and complementary design elements does not always occur. While the elements of the design are not impacts themselves, they do affect the transportation, economic, and social impacts created by the project.

The following checklist provides an evaluation methodology for specific elements of the site design as well as for the overall site plan.¹

2.1.1 Buildings

- Are building entrances oriented along the street and side walk?
- Is the building architecture sensitive to the surrounding context?
- Are buildings designed with overhangs, awnings, and highly articulated facades?

2.1.2 Streets and Parking

- How well connected is the street network?
 - Are there cul-de-sacs and/or dead end streets?
 - Are there multiple access routes to destinations within the site?
- What pedestrian amenities are provided?
 - Are there street trees to provide shade for pedestrians?
 - Are benches and other seating areas present?
- Does the placement of parking facilities interfere with pedestrian movement?
- Are surface lots placed behind buildings?
- Are pedestrian pathways provided through parking lots?
- Is joint/shared parking used?
- Is on-street parking (parallel or angled) used?

2.1.3 Transit

- Are transit stops located close to building entrances?
- Are transit stops located near major employment and commercial centers?
- Do waiting areas at transit stops include seating and weather protection devices?

2.1.4 Pedestrians

- Are public gathering spaces such as parks and plazas present?
- Is there a convenient, well-connected network of side walks throughout the development?
- Are sidewalks provided along all streets? Are they wide enough to accommodate pedestrian movement?

¹ For more information, see model evaluation methodologies such as Tri-Met's *Planning and Designing for Transit*, 1992 and LYNX's *Central Florida Mobility Design Manual*, 1994/1995.

(Commonly used standards for sidewalk width are 5' in low-traffic areas and 10-15' in high-traffic residential and commercial areas.).

- Are there sidewalk connections between adjacent buildings?
- Are there pedestrian connections from the development to surrounding areas?

2.1.5 Bicyclists

- Are streets designed to be bicycle-safe?
 - Are "Share the Road" signs posted along low-volume streets?
 - Are high volume streets (ADT of 10,000+ cars per day) designed with bike lanes?
 - If high-volume streets cannot be designed with bike lanes, is the street traffic calmed with posted speed limits of 25 to 30 miles per hour?
- Are secure bicycle parking facilities provided at transit stops, commercial districts, office buildings and at automobile parking areas?

2.1.6 Site Plan

The overall site plan should establish an appropriate relationship with surrounding neighborhoods. The design along the edges of the site should be compatible in scale and appearance with adjacent uses. Just as important, however, is that the site be well integrated into surrounding areas and not be designed with barriers to isolate it from nearby developments. This makes it easier for the pedestrian-friendly environment created on the site to spread into surrounding areas.

- Are the buildings along the edge of the site oriented outward along existing streets?
- Does the site contain multiple connections to surrounding neighborhoods?
- Does the development contain a high mix of land uses (proximity of residential, commercial, and employment centers)? More is better.

2.2 Economic Impact

The measures described herein point to specific issues of economic development. It is important to note that the type of economic development – whether newly created or recently lost – and the diverse mix of uses also contribute to the vitality of the proposed project within the community. Jobs are an important livability issues, as evidenced by their prominent ranking in most livability surveys and by the fact that participants mentioned employment at almost every focus group session.² In addition, providing access to these jobs either through close proximity or alternative modes of travel reduces transportation as a barrier to employment.

- Does the development or transportation project create living wage jobs?
- Does the development or transportation project improve access to services or employment locations for those who cannot afford a car?
- Does the development or transportation project improve the quality of delivery services (couriers, food stores, etc.)?

2.3 Social Impact

It is important to evaluate the social impacts of proposed developments and transportation projects because they determine how residents perceive growth in relation to their community. However, it is difficult to quantify diversity, interaction, welcoming, opportunity and other measures of sociability. The application of some of these measures to a project such as a roadway widening is also suspect.

- Does the development contain land uses that support daily activity (dry cleaners, day care centers, convenience stores, etc.)?
- Does the development or transportation project improve the average commute trip time (by income class, household car ownership and physical disability)? Lower is better, particularly for disadvantaged populations.

² Transportation Research Board. *TCRP Report 22: The Role of Transit in Creating Livable Metropolitan Communities*. National Academy Press. 1997, 51.

Appendix B

Site-Level Design Elements that Promote Livable Transportation



A community is comprised of people, activity, and the physical environment that surrounds it all. A livable community is one where all these elements blend together seamlessly. To realize the vision of integrated land use and transportation planning and design, a change in the physical environment is needed. This appendix describes and recommends various site-specific elements that provide a starting point for balancing accessibility and mobility. The role of this primer is one of education. Johnson City officials should use it as inspiration and as a base for their own land development code revisions. For a city to grow within its own character, the land development code must reflect the local values and standards. The site-level design elements that promote livable transportation presented herein are divided into five sections: Building Placement, Building Appearance, Connections within Developments and to Adjacent Properties, Parking, and Support and Connect to Municipal Infrastructure.

1.0 Building Placement

1.1 Re-Arrange Building Orientation

Building orientation in much of current development is mixed up. The “backs” and “fronts” are reversed, with residential garages facing the street and commercial front doors facing parking lots. By putting the front on the front and the back on the back, a building can reduce walking distances and make roadways and sidewalks more welcoming for bikers and walkers.

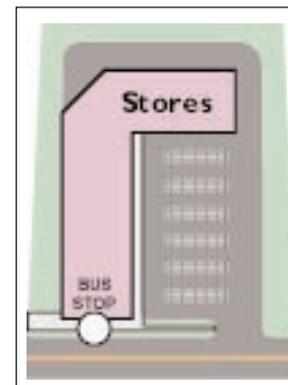
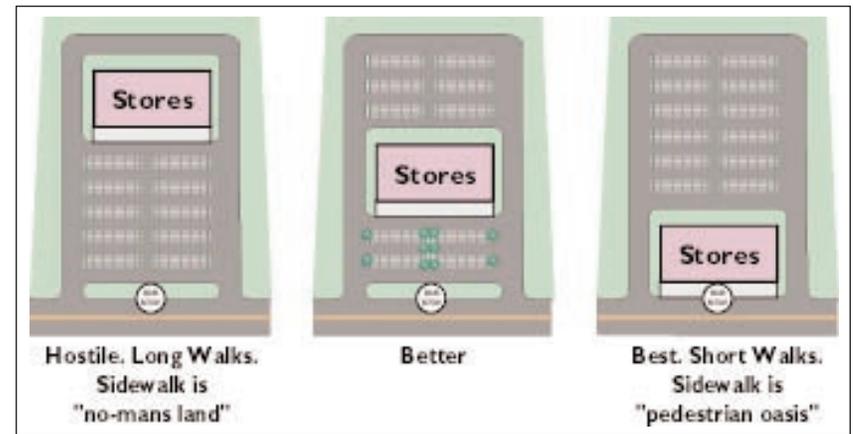
Goal: Encourage walking by minimizing pedestrian travel distances, providing visible direct access to buildings, and creating a pedestrian-friendly streetscape.

Site Design Review Recommendation: Encourage operating doors and windows on the street. When expanding/retrofitting commercial strips, bring the building extensions to the street, so that part of the building fronts the street.

Typical Standard:

Commercial: Require at least one operating door to face the street. Disallow parking between the sidewalk and the operating door.

Residential: Require that one operating door be featured on the front of the home and that garages are faced away from the street.



Orienting buildings and their entrances along the street reduces walking distances and also helps create a continuous street wall over time.



Residential homes should respect the street and the neighborhood (right), instead of ignoring it through the prominent display of doors (left).

1.2 Move Parking from Between the Front of the Building and the Street

A vast sea of parking adjacent to sidewalks and surrounding buildings favors automobile drivers while discouraging other modes of travel. Shifting the parking to the side of the building reduces the walking distance from the sidewalk and helps create a continuous street wall. Parking, unchanged in quantity but rearranged in layout, is as accessible as before.

Goal: Encourage pedestrian and transit ridership by reducing the walk time between the sidewalk and the front door.

Site Design Review Recommendation: Discourage parking between the building and primary street. Commercial establishments that require parking directly accessible from the street may change the building/parking orientation 90 degrees to allow for additional building street frontage, visible parking, and an operational front door on the sidewalk.

Typical Standard: Prohibit off-street parking between a public street or pedestrian way and the building, other than in a driveway accessory to residential development.



By changing the orientation of conventionally-designed buildings and parking lots, parking is moved to the side of the building. With the parking rearranged, the street becomes more pedestrian-friendly.

1.3 Create Enclosure/Definition

Enclosure/Definition measures the degree to which the edge of the street is defined. Commercial streets typically lack enclosure when parking lots dominate the streetscape. Residential streets lack enclosure when trees fail to make up for large setbacks and empty space between residences.

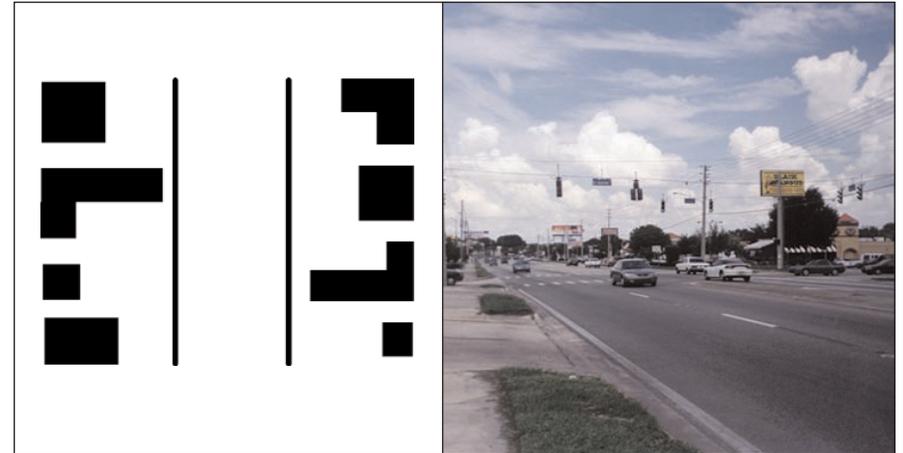
Goal: Encourage walking by creating a pedestrian-friendly environment.

Site Design Review Recommendation: Establish maximum setbacks in commercial areas and visually fill space between the sidewalk and residences.

Typical Standard:

Commercial: The maximum street wall setback (formed by buildings) should be 10 feet.

Residential: Require two shade trees between sidewalk and residence.



Enclosure creates a human-scaled pedestrian environment by clearly defining the edge of the street (bottom). Features such as street trees and buildings are placed near the street in order to minimize vast open spaces beside the paved roadway (top).

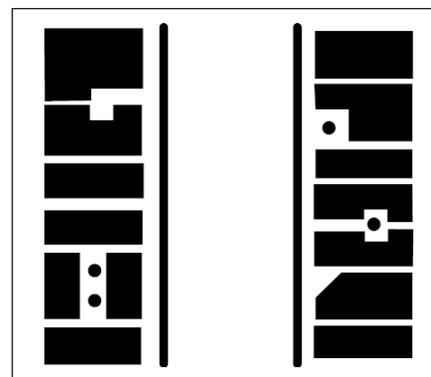
1.4 Create Complex Spaces within the Streetscape

Pedestrian-oriented spaces such as plazas and courtyards create an interest-filled pedestrian environment. Rapidly changing views, as facilitated by courtyards, plazas, and parks, add interest to the pedestrian experience.

Goal: Encourage walking by creating a pedestrian-friendly environment.

Site Design Review Recommendation: Promote courtyards, plazas, and parks.

Typical Standard: Require a courtyard, plaza, or park on all parcels over 1 acre.



The inclusion of courtyards and plazas creates variation within the streetscape.

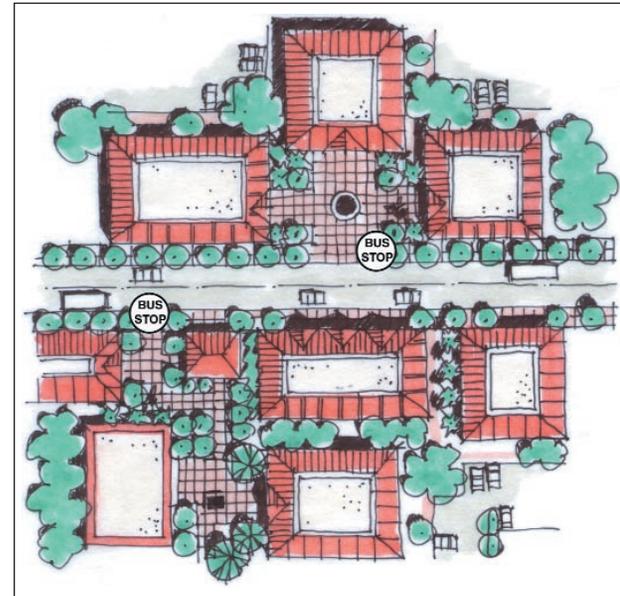
1.5 Cluster Buildings on Multi-Building Sites

In multiple-building sites like corporate campuses, buildings are often separated from each other, frequently by parking lots. As a result, walking, biking, and transit become problematic.

Goal: Encourage walking by minimizing pedestrian travel distances and accommodating transit service.

Site Design Review Recommendation: Group buildings so that each are within sight and walking distance of each other.

Typical Standard: Require the clustering of buildings on multi-building sites, either along a short pedestrian spine or around a single focal point surrounding a transit or multi-modal stop.



Multiple buildings centered on a single pedestrian-friendly plaza or spine encourage walking and transit use.

1.6 Fill Corners with Lively Pedestrian-Oriented Uses

Pedestrian activity needs safety, comfort, and interest. Having useful stores and activities at corner intersections is necessary to encourage walking.

Goal: Create a pedestrian-friendly environment to encourage walking for local daily trips.

Site Design Review Recommendation: Fill corners with attractive, lively retail uses, such as fast food, convenience shopping, and services. Zone the street level of corner parcels retail, commercial, or similar.

Typical Standard: Require that every corner parcel contain pedestrian-oriented elements that serve the general public.



Encourage walking for daily errand trips by placing high-activity retail and commercial uses at street corners. Zoning street level spaces for pedestrian-oriented uses is essential, but may also require economic subsidies.

1.7 Provide Street Trees, Landscaping, and Open Spaces

In many valued business districts, businesses are located close to the street and features such as sidewalks and street trees are present. Trees offer shade to pedestrians, and, when planted between the sidewalk and the travel lane, trees shield pedestrians. These elements create a person-friendly development and pleasant walking environment.

Goal: Encourage walking by enlivening streetscapes with natural features.

Site Design Review Recommendation: Encourage street trees, landscaping, and open spaces. Optimal is a tree strip that is 4 to 10 feet in width, filled with indigenous shade trees planted approximately 30 feet apart, 10-foot minimum height.

Typical Standard: Landscaped public space should constitute 10-20% of the total site area.



The provision of landscaping and public open spaces demonstrates a balance of priorities between the pedestrian and the motorist. By including natural features such as trees and plantings into the urban environment, the impact of street asphalt and vehicular exhaust are softened.

2.0 Building Appearance

2.1 Promote Highly Articulated Buildings

Highly articulated storefronts and houses add interest and variety to the pedestrian experience. Detailed building facades generally provide unique visual sequences, which focus pedestrian attention on the environmental setting rather than the walk. Many studies conducted throughout the country have documented how redundant environmental forms and visual sequences have the ability to extend an individual's perception of time and distance.

Goal: Extend acceptable walking distances by creating a pedestrian-friendly streetscape.

Site Design Review Recommendation: Encourage the use of interest-creating features on ground-floor façades.

Typical Standard: At least 75 percent of any new or reconstructed first-story wall shall be devoted to interest-creating features.

Techniques available:

- Façade modulation - stepping back or extending forward a portion of the façade.
- Repeat the window patterns at intervals equal to the articulation interval.
- Provide a porch, deck, or covered entry to the articulation interval.
- Provide a balcony or bay window for each interval.
- Change the roofline by alternating dormers, stepped roofs, or other roof elements to reinforce the modulation or articulation interval.
- Change materials with the change in the building plane.
- Provide a lighting fixture, trellis, tree, or other landscape feature with each interval.



Highly articulated buildings, such as these in downtown Jonesborough and Johnson City, visually shorten distances, thereby encouraging walking further than normally acceptable.



- Use paint and material colors that blend with historic properties.
- Use landscape materials and plantings that are similar to those used on adjacent properties.

2.2 Encourage Overhangs, Awnings, and Balconies

Drivers and passengers in automobiles have a climate-controlled air conditioning system to protect them from inclement weather. This luxury is not readily available to pedestrians. Overhangs, awnings, and balconies provide shade and cover during inclement weather conditions.

Goal: Create a pedestrian-friendly streetscape by providing weather protection to pedestrians.

Site Design Review Recommendation: Where possible, building designs should attempt to incorporate awnings, arcades and shelters into facade architecture to protect pedestrians from the snow, rain, and sun.

Typical Standard: In retail districts where street trees do not offer adequate weather protection, require inclusion of overhangs, awnings, or balconies.



Awnings and overhangs protect pedestrians from both rain and sun.

2.3 Promote Transparency

Pedestrians and cyclists must feel safe, both in reality and in perception. Blank walls or blocked windows in commercial areas remove the “eyes on the street” protection factor, as do high hedges in residential areas.

Goal: Create a pedestrian-friendly streetscape by smoothing the transition between public space and private space.

Site Design Review Recommendation: In business areas, transparency is promoted through the use of two-way windows, outdoor displays, and sidewalk cafes, through which the pedestrian can get a feel for what is inside the commercial space. In residential districts, front yards and porches facilitate a smooth transition between the public street and the private house.

Typical Standard:

Commercial: 60% of the building façade must be non-reflective, transparent glazing.

Residential: All homes on lot sizes less than 1/4 acre to have a front porch or a stoop.



Window facades bridge the realm between public and private space, making an inviting street (top). Conversely, privacy hedges and fences create a hostile streetscape and discourage walking and biking (bottom).

2.4 Incorporate Transit Stops into Building Architecture and Provide Shelters, Waiting Areas and Seating

The responsibility for encouraging transit ridership does not solely belong to transit agencies. Private employers can better utilize land wasted on expansive parking lots by encouraging transit ridership. Employers should provide waiting amenities at transit stops not located adjacent to a building. By incorporating the transit stop into the building architecture, the employer formally supports walking and transit ridership.

Goal: Encourage walking and transit ridership by creating a transit-friendly streetscape. Incorporate transit stops and terminals into building design in order to eliminate the physical barriers associated with riding transit.

Site Design Review Recommendation: Encourage inclusion of transit stop waiting area into building architecture.

Typical Standard: If a development is located within 250 feet of an existing or proposed transit stop, developers shall work with the transit agency in locating a transit stop and shelter directly adjacent or as close as possible to the main building entrance. New or renovated buildings that have minimal setback and are located on a transit line shall include transit stops and waiting areas. Non-residential property owners shall provide shelters, waiting areas, and seating at transit stops on or adjacent to their property.



Higher transit ridership is good for everyone: less expensive transportation for transit riders, less land wasted on parking lots for land developers, smaller transportation subsidies for employers, less congestion for drivers, and cleaner air for everyone. Land developers and employers can support transit by providing convenient and comfortable transit waiting areas.

3.0 Connections within Developments and to Adjacent Properties

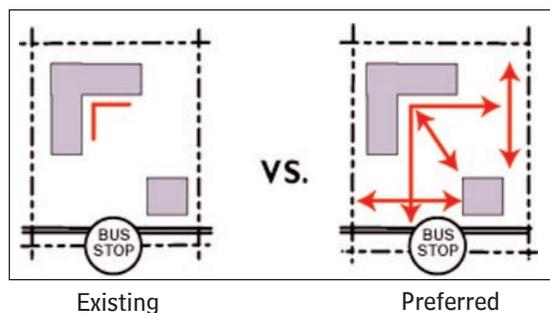
3.1 Provide Linkages for All Pedestrian and Bicycle Movements

Improved internal pedestrian circulation is a fundamental element of a "park once" environment, where individuals can comfortably walk between buildings and are not required to use the automobile for any trip other than their arrival and departure.

Goal: Promote walking and cycling by increasing its convenience relative to the automobile.

Site Design Review Recommendation: Require new developments to feature pedestrian walkways among all buildings, recreation areas, and parking areas. Additionally, there should be direct linkages to neighboring land uses without requiring use of the street.

Typical Standard: All developments that contain more than one building shall provide walkways between the principal entrances of the buildings and to parking areas and on-site recreation areas. Walls, fences, and other physical barriers that extend the entire length of the property lines shall not be erected unless public easements are established at convenient intervals.



By providing walkways between buildings and properties, the needs of pedestrians are better balanced with those of the driver. Without walkways, the pedestrian must navigate earth berms and asphalt expanses and cannot safely walk to adjacent buildings (Existing and top). Development design should provide pedestrian choices with walkways that link all major entrances, as well transit stops and adjacent parcels (Preferred and bottom).

3.2 Design Direct Pedestrian and Bicycle Routes

Many times, pedestrian paths and connections are circuitous and indirect. Circuitous routes considerably lengthen the actual walking distances for pedestrians, discouraging pedestrian activity. A dense network of streets and paths between activity centers offers route choices to pedestrians and cyclists. Greater choice allows walkers and cyclists to choose more direct routing and streets that are friendlier.

Goal: Promote walking by increasing its convenience relative to the automobile.

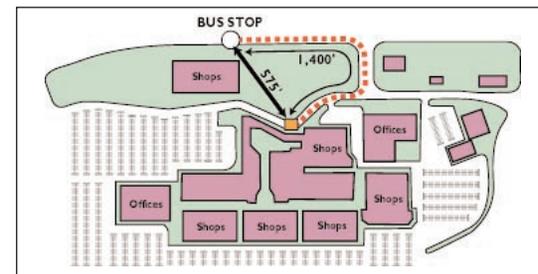
Site Design Review Recommendation: Within sites, pedestrian and bicycle pathways should provide the most direct and convenient routes possible between the roadway or transit stop and building entrances or bicycle parking. Encourage through-block connections.

Encourage parking lots to have automobile and pedestrian exits on all streets they border. Encourage the inclusion of direct pedestrian and bicycle connections between residential subdivisions and primary streets.

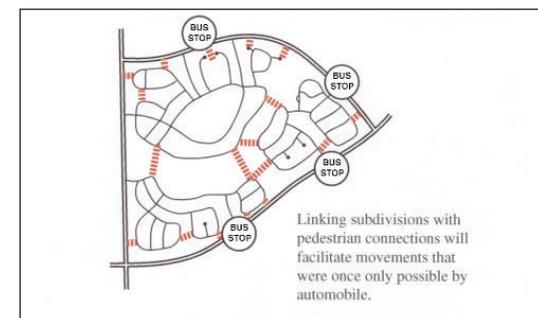
Typical Standard: Require pedestrian easements of 10 feet in width for blocks that are more than 600 feet long. Sidewalks or pedestrian ways must connect the required pedestrian system to existing pedestrians on the adjacent developments if adequate safety and security can be maintained. Convenient pedestrian access to transit stops shall be provided.



The Tree Streets, like most of the highly valued locations in the Johnson City region, has a complete, well-connected street system. The benefits of the street layout assist in enhancing property values and desirability of these places.



On large or oddly shaped blocks, pedestrians need to walk an additional distance in order to access the other side. Through-block connections are a convenient method for walking between buildings to development on a parallel street.



3.3 Allow for Future Street Extensions

New developments should provide street connections for vehicles in all major directions to and from a site. They should also connect the development to existing neighborhoods, as well as anticipated neighboring development with street dedications or interim "stub-outs". The future developer of adjacent property must then connect to the stub-outs, maintaining a permeable street network. As development intensifies, street connections will evolve into a complete street system, providing a high level of mobility and greatly adding to the value of the served properties.

Goal: Promote walking and cycling by increasing their convenience relative to the automobile.

Site Design Review Recommendation: Encourage the establishments of stub-outs, at locations that are consistent with proper block length.

Typical Standard: Where the subdivision or partition is adjacent to land likely to be divided in the future, streets, bicycle paths, and accessways shall continue through to the boundary lines under the same ownership as the subdivision or partition, where the planning or public works director determines that such continuation is necessary for the orderly division of such adjacent land or the transportation and access needs of the community.



Stub-outs, like that pictured above, reserve space for future street extensions as adjacent subdivisions are developed. Requiring stub-outs is an initial step, but it is necessary to require developers to coordinate stub-out connections.

4.0 Parking

The automobile's greatest detraction from livability is its need to be stored. Over half the land use area in most urban areas is impervious pavement, much of that parking lots.

4.1 Break Up Large Parking Lots

Large seas of paved parking lots discourage pedestrians and cyclists. Dividing a large parking lot into smaller ones diminishes the impact.

Goal: Promote walking by reducing the visual impact of parking.

Site Design Review Recommendation: Require large parking lots to be divided and separated by landscaping or a building. Site design should ensure that front entrances of buildings of multi-building sites are clustered.

Typical Standard: Parking lots in commercial areas should be broken in blocks no larger than 300 feet on each side (two acres), and within transit-oriented districts, no larger than 200 feet on each side.



Where parking minimums cannot be changed, such as areas not well-served by transit, large single parking lots should be rearranged into smaller multiple lots. The parking lot on top is the standard format: all stores facing the vehicle storage location. The configuration on the bottom demonstrates the same parking, but broken up and dispersed.

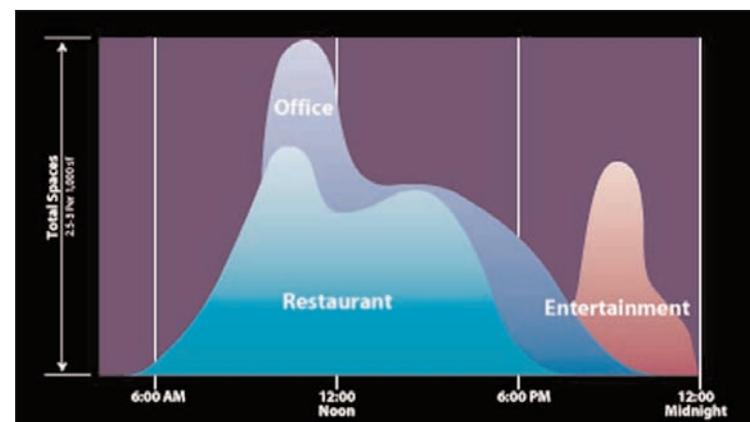
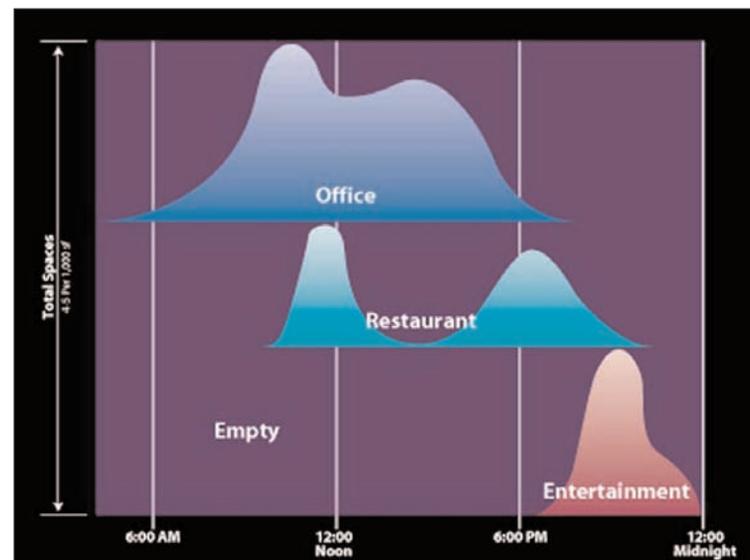
4.2 Revise Existing Parking Requirements to Better Match Demand

Current parking regulations are based on formulas and minimum parking numbers. But oversized parking lots create disincentives for people to walk and use transit by creating void spaces. In areas where there are credible transit alternatives to private cars or there is a mix of uses, parking minimums may be reduced or eliminated. Mixed-use developments can create "park once" environments, where shoppers patronize several businesses without the need to drive between them.

Goal: Promote walking and transit ridership by limiting the amount of private automobile parking.

Site Design Review Recommendation: Eliminate parking requirements for transit-oriented developments, downtowns, and pedestrian zones that are well served by transit. Allow developers to negotiate for reduced parking minimums for mixed-use developments.

Typical Standards: Exempt Downtown from parking requirements. Set the maximum parking for retail sales and services uses at 4 parking stalls for each 1000 square feet of retail. Pending review, two separate but complementary uses within one development enables a 5% reduction in parking minimums; three uses: 10% reduction; four or more uses: 15% reduction.



Uses that operate during different times of the day do not need their own parking (top), but can share parking facilities, reducing the amount of space needed for parking lots and structures (bottom).

Parking minimums often create seas of parking surrounding and separating buildings. Because the required number of spaces is pegged to the highest possible demand, these parking lots sit empty most of the year (left).

4.3 Balance Pedestrian Needs Within Parking Lots

At some point in time all users of a parking lot, including drivers, are pedestrians. Parking lots must allow for efficient vehicle circulation as well as safe passage for pedestrians and cyclists. Planners and designers should provide clearly delineated paths through parking lots to safely accommodate pedestrian activity.

Goal: Encourage walking by raising the safety and comfort level of pedestrians within parking lots by creating safe walking paths and reducing the visual impact of parking.

Site Design Review Recommendation: Encourage safe pedestrian/automobile interactions through pedestrian pathways and clearly marked pedestrian crossing areas. Encourage the inclusion of landscaping within sufficiently large parking lots. Some recommend that all aisles be separated by a tree strip that is 5 feet in width, filled with indigenous shade trees planted approximately 30 feet apart, 10-foot minimum height. Encourage planting strips to separate parking lots and sidewalks. Cities must be clear on the density and hardiness of the landscaping, as well as maintenance requirements.

Typical Standard: A protected, raised accessible route, walk, and circulation path a minimum of five-feet wide shall be installed through any parking lot of 50 or more spaces, designed to connect to the front building sidewalks. Interior landscaping must be provided at the rate of 20 square feet per stall. At least one tree must be planted for every 200 square feet of landscaped area. Planting strips must be at least seven feet in width, and must contain high canopy horizontally branching trees and shrubs that are 30 inches high within two years.



When parking lots must abut the public right-of-way, screening is essential to create a pedestrian-supportive environment (top). Pedestrian pathways within parking lots help create park-once environments (bottom).

4.4 Create a Fee-In-Lieu-of-Parking Option

A fee-in-lieu-of-parking option allows public parking facilities to be constructed for multiple tenants. Individually, adjacent developments may not have the critical mass for a parking garage, and instead may need a series of large parking lots. By allowing a fee-in-lieu-of-parking option, a municipality or parking improvement district can assemble the parking needs and build a parking garage for multiple tenants and the public.

Goal: Promote walking by limiting the amount of automobile parking.

Recommended Site Design: If a handful of adjacent sites are developed in a central business district or other compact high traffic area, offer developers the option of fee-in-lieu-of-parking.

Typical Standard: Within the central business district, allow developers to build less than the required parking spaces for \$6000 per deficient space.



Dedicating valuable downtown space to parking is an expensive necessity in today's car culture. Parking garages minimize parking's impact on compact areas, and privately-supported public parking garages enable common purchase and use.

4.5 Parking Structures

Improved parking structure façades may facilitate pedestrian activities. Blank walls discourage walking while transparent faces to retail stores are welcoming.

Goal: Promote walking by reducing the visual impact of parking.

Site Design Review Recommendation: Encourage all new parking garages to be built with ground-floor retail.

Typical Standards: Street level openings must be only for vehicle and pedestrian entrances. All other street-level frontage must be dedicated to occupied retail space or an architecturally articulated façade.



The parking garage on the left offers an unwelcoming front for pedestrians. The garage on the right, although fronting a moderately busy street, creates a pleasant sidewalk experience.

4.6 Providing Adequate Space for Bicycle Storage

Automobile parking minimums are standard in development codes. Yet bicycle parking is infrequently mentioned and rarely required. In an effort to balance the modes, safe and convenient parking should be provided for bicycles as well as automobiles. While many development designers do not provide bike parking because few customers bike to the location, the reverse is often more true.

Goal: Promote cycling by increasing its convenience relative to the automobile.

Site Design Review Recommendation: Encourage the provision of safe and convenient bicycle parking spaces.

Typical Standard: Many cities require bicycle parking spaces as a standard percentage of automobile spaces (5% Austin, TX; 10% Madison, WI; 15% Ashland, OR). However, when the goal is to increase bike travel relative to automobile, requiring bike spaces as a percentage of auto spaces is not effective in the long term. Other cities designate bike parking needs based on land use, recognizing that biking to some land uses is inconvenient (following page).



Official and convenient bicycle parking (bottom) encourages bicycling for commuting and small errand trips and removes the need for unsightly and uncontrolled bike locking (top).

Minimum Bicycle Parking Standards

College Town (Gainesville, FL)

Category	Percent of Vehicle Parking
Entertainment and Recreation	
Theaters, Auditoriums, Sports Arenas	10 %
Dance Halls without fixed seating	5 %
Billiards/Pool Rooms	20 %
Bowling Alleys	15 %
Health Spas & Gymnasiums	25 %
Swimming/Public and Private Clubs	25 %
Education Service	
Libraries	20 %
Day Care Centers	1 per every 4 employees
Elementary Schools	100 %
Middle Schools	10 %
High School	100 %
Trade, Vocational, Business	20 %
Service Uses	
Finance, Banks, Insurance	10 %
Self Service Laundry	3 Spaces
Dry Cleaning Pick-Up	3 Spaces
Barber & Beauty	10 %
Repair Service	5 Spaces
Medical & Dental	5 %
Hospital	5 %
Trade	
Food & Convenience	10 %
Eating & Drinking Establishments	10 %
Eating & Drinking Establishments w/o Seating	None
Neighborhood Shopping Centers 150,000 sq.ft.	10%

Leader in Livability (Portland, Oregon)

Category	Minimum Bicycle Parking Standard
Residential	
Household Living	Multi-dwelling - 2, or 1 per 10 auto spaces, All other residential types - none
Group Living	1 per 20 auto spaces
Commercial	
Retail Sales and Service, Office Drive-up Vehicle Servicing Vehicle Repair	2 or 1 per 20 auto spaces, whichever is greater None None
Commercial Parking Facilities, Commercial Outdoor Recreation, and Major Event Entertainment	4, or 1 per 20 auto spaces, whichever is greater
Self-Service Storage	None
Industrial	
	2, or 1 per 40 auto spaces, whichever is greater
Service	
Basic Utilities	Park&Ride Facilities - 2, or 1 per 20 auto spaces All others - none
Community Service, Essential Service Providers, and Parks and Open Areas	2, or 1 per 20 auto spaces, whichever is greater
High schools	4 per classroom
Middle schools	2 per classroom
Elementary schools	2 per 4th and 5th grade classroom
Colleges, Medical Centers, Religious Institutions, and Daycare Uses	2, or 1 per 20 auto spaces, whichever is greater
Other	
Agricultural	None
Aviation Facilities, Detention Facilities	Per municipal review
Mining, Radio and TV Towers, Utility Corridors	None

5.0 Support and Connect to Municipal Infrastructure

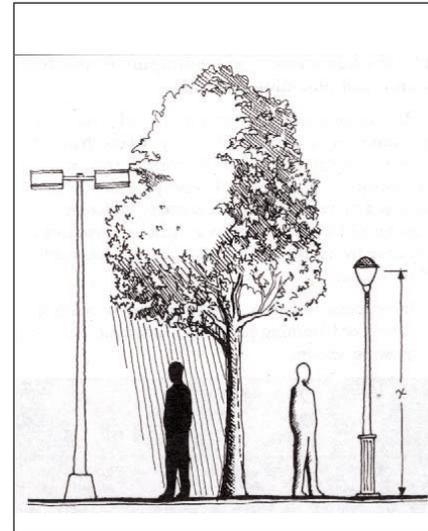
5.1 Increase Security, Lighting, and Visibility

For pedestrians and cyclists, the perception of safety is almost as important as actual safety. Crime Prevention Through Environmental Design standards underscore the need for maximum visibility, as it keeps more eyes on the street.

Goal: Create a pedestrian-friendly streetscape by improving the actual and perceived safety of the street and parking lots.

Site Design Review Recommendation: Encourage adequate lighting for pathways, entrances, and parking lots, and ensure all pedestrian/bicycle pathways are open to public view.

Typical Standard: All pathways must have illumination equal to 10 lux in commercial areas, 2 lux in residential areas. All pedestrian/bicycle tunnels must be straight and without recesses, and lit to 43 lux. Illumination must be 2 lux for neighborhood shopping, church, or recreational facility parking. Illumination must be 6 lux for community shopping centers, cultural civic or recreational events, and residential complex parking.



Adequate lighting and visibility add to both perceived and real safety and encourage walking.

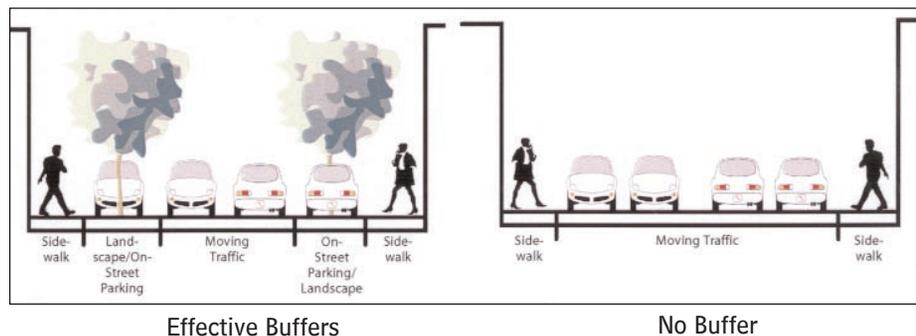
5.2 Buffer Sidewalk with Landscaping or Parked Cars

Factors that encourage people to walk are often subtle, but focus on the creation of a pleasant environment for the pedestrian. The streetscape can encourage individuals to walk. People don't feel comfortable walking in a wide-open area with busy traffic passing nearby. Instead, pedestrians are drawn to streets with a feeling of safety and comfort. This feeling can be created by locating buildings close to the sidewalks, lining trees along the street, or by buffering the sidewalk with landscaping or parked cars.

Goal: Promote walking by increasing the feeling of comfort and safety of pedestrians.

Site Design Review Recommendation: Encourage the inclusion of a planting strip between the street and the sidewalk and/or on-street parking.

Typical Standard: Require that property owners maintain planting strip between sidewalk and street adjacent to their property.



When buffers between the sidewalk and moving vehicles are missing (No Buffer and top right), walking is unpleasant and unsafe. Planting strips and parking cars create distance and a sense of security (Effective Buffers and bottom right.)



5.3 Build and Maintain Pedestrian Facilities

In order to provide a basic level of safety for pedestrians, regular maintenance of sidewalks and other pedestrian facilities is necessary. Urban streets with through traffic that do not have sidewalks fail this goal completely.

Goal: Promote walking by increasing safety.

Site Plan Recommendation: Require sidewalks on all urban roads with through traffic. Sidewalks of sufficient width should be provided on both sides of the street in higher traffic areas. Require regular maintenance of the sidewalk network. Require that all pedestrian facilities be ADA-compliant.

Typical Standard: Sidewalks shall be located along both sides of each road serving as a transit route. Ideally, sidewalks should also be built along at least one side of each local street that provides direct access to transit.



The photos above represent a before and after. On the top, the pedestrian and cyclist have been left totally out of the equation: no sidewalks, large parking lots, distant buildings, and signage designed to be seen through a windshield. On the bottom, the same intersection has been transformed to a more pedestrian-friendly streetscape.

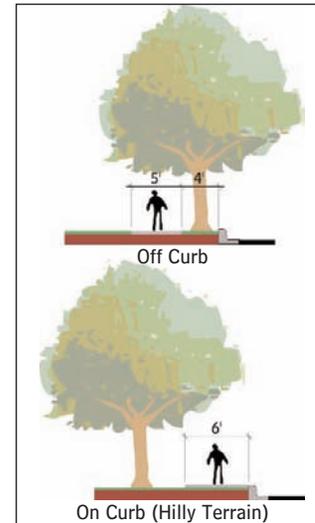
5.4 Provide Adequate Space for Pedestrians

The majority of roadway right-of-way is dedicated to the automobile. A balancing of modes requires that cyclists and pedestrians be offered relatively more right-of-way. To provide adequate amenities for all pedestrians, sidewalks and curbs should be designed for the disabled and the elderly.

Goal: Promote walking by increasing its convenience relative to the automobile.

Site Design Review Recommendation: Require that all pedestrian facilities be ADA-compliant.

Typical Standard: The Americans with Disabilities Act (ADA) provides specifications to help overcome barriers to mobility. Refer to the *ADA Handbook* for full details.



Pedestrian, like automobiles, need adequate space for efficient circulation in both residential (bottom) and commercial (top) areas.



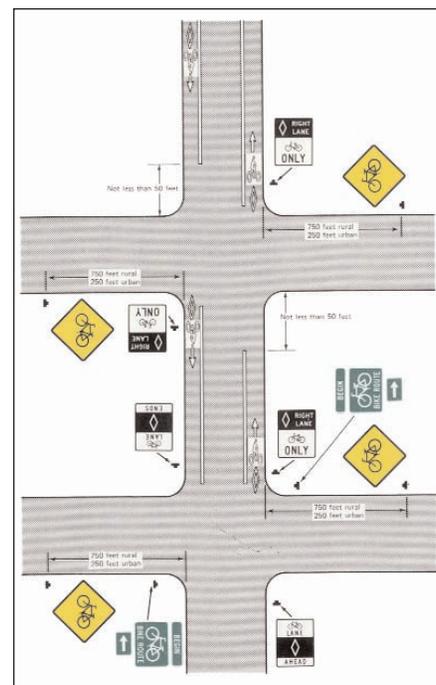
5.5 Provide Clear Bicycle Facility Signage

The provision of signage for bicycle facilities underscores a municipality's commitment toward a balanced and safe transportation system. Signage that announces bicycle facilities puts drivers on alert and increases the safety for cyclists.

Goal: Promote cycling by increasing its safety and convenience relative to the automobile.

Site Design Review Recommendation: Signage should properly indicate the beginning and end of bike routes as well as the location of bicycle parking areas.

Typical Standard: Precise specifications for bicycle signage can be found in the Federal Highway Administration's *Manual on Uniform Traffic Control Devices*.



Signage for bicycle facilities increases safety for both cyclist and driver. *The Manual on Uniform Traffic Control Devices* provides an entire chapter on effective bicycle signage.

5.6 Limit Curb Cuts

On commercial strips, the number of curb cuts can be minimized by connecting parking lots and limiting the number of driveways. Fewer driveways result in fewer pedestrian/bicyclist conflict points with automobiles. In addition, limiting curb cuts allows for more on-street parking.

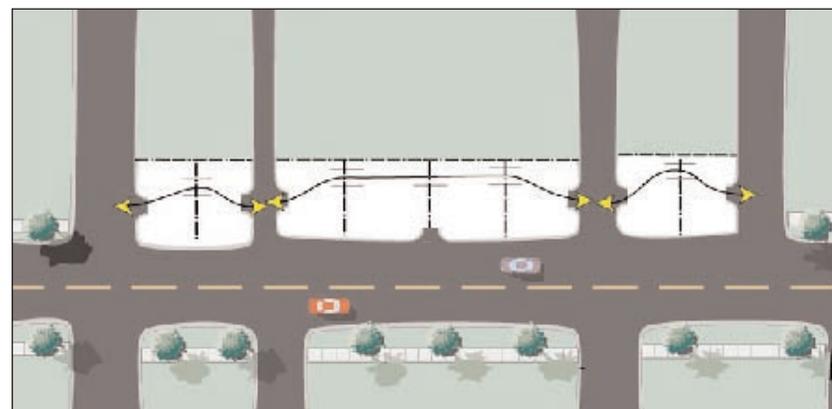
Goal: Promote walking by increasing safety from vehicle conflicts.

Site Plan Recommendation: Limit curb cuts to those that are required for safe vehicular flow. Encourage parking lot access to all adjacent streets.

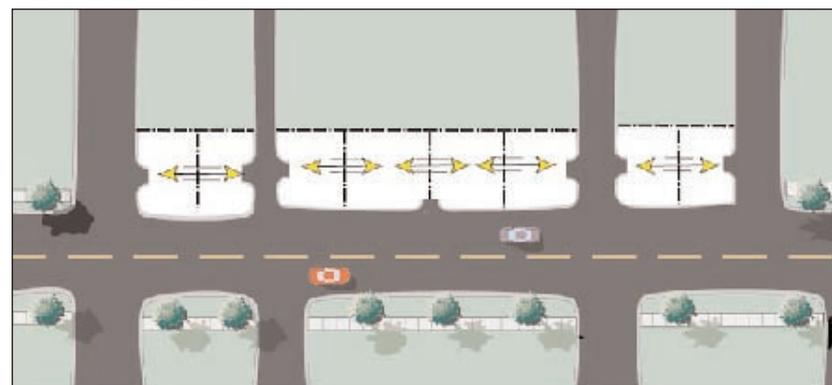
Typical Standard: No more than one curb cut per lot for lots with less than 100 feet of frontage shall be allowed. A maximum of one curb cut for every 100 feet of street frontage or portion thereof shall be allowed for lots having frontages in excess of 100 feet.



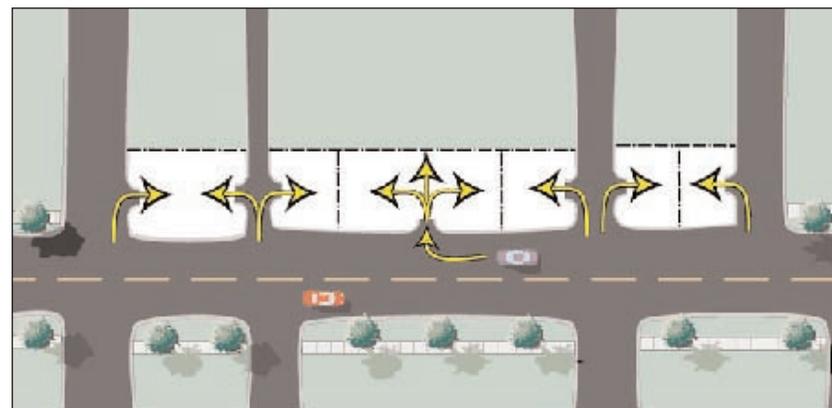
A lack of control over driveways on arterial roads decreases roadway vehicle capacity and makes walking and biking more dangerous. By connecting adjacent properties and parking lots (depicted right), not every vehicle is forced onto the arterial for every trip, no matter how short.



Rear Access Roads



Cross Access



Shared Driveways

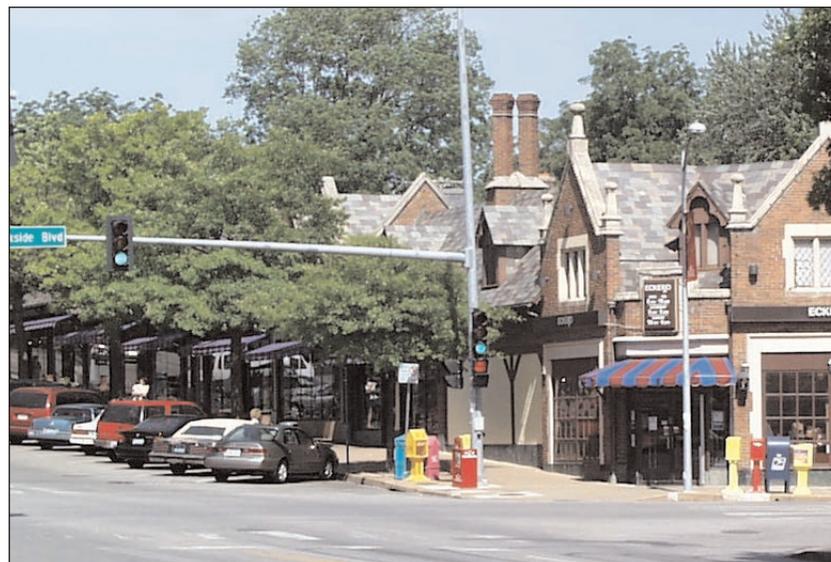
5.7 Provide and Encourage Usage of On-Street Parking

On-street parking is a powerful tool for livable transportation: parked cars act as a psychological and real buffer between moving traffic and the sidewalk, and the visible parking spaces counterbalance the need to locate parking lots between buildings and the primary street.

Goal: Promote walking by providing a buffer between the pedestrian and the moving traffic with parked vehicles.

Site Design Review Recommendation: Encourage the reservation of private property for on-street parking.

Typical Standard: Provide credit for on-street parking spaces directed toward off-street parking requirements, as long as the on-street parking spaces are provided along the street frontage adjacent to their use.



These streets are designed with on-street parking, street trees, and wide sidewalks, all of which buffer pedestrians from moving traffic.