

PLANNING A HEALTHY TENNESSEE



HEALTH-PROMOTING COMMUNITY DESIGN
FOR THE VOLUNTEER STATE

2018 | Tennessee Department of Health, Office of Primary Prevention

This publication was created by Mike Thompson, MEd
Built Environment Project Manager for the Office of Primary Prevention,
Tennessee Department of Health

Special thanks to the Office of Primary Prevention Staff:

Leslie Meehan, MPA, AICP

Matt Coleman, MPH, CHES

Patti Scott DNP, RN, PNP, NCSN

John Vick, PhD

Nishi Dsouza , MPH

Additional thanks to the Nashville Civic Design Center for
content and images.



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FOREWORD

In Tennessee, we know that our top ten leading causes of death are largely preventable, and that physical activity can positively impact all ten of these causes. Physical activity is considered by many to be a wonder drug, impacting heart health, diabetes, hypertension, overall physical fitness, and mental health in addition to depression and Alzheimer’s disease. Physical activity is more likely to happen if we are surrounded by places and spaces that encourage us to move – staircases in buildings, sidewalks, greenways, bike lanes, parks, and playgrounds.

At the Tennessee Department of Health, we are helping communities think about and provide spaces for physical activity as well as healthy foods. By focusing on the environments in which we live, work, and play and the choices we are able to make in those environments, we can prevent disease and injury from ever occurring. The notion of prevention is a wise investment in not just individual Tennesseans, but in Tennessee communities. As companies look to move to a new state, they want thriving communities with good schools, plentiful parks, and a high quality of life. Also important is a workforce that is ready and able to work, which includes being mentally and physically healthy, as well as free of substance abuse.

In this document, you will read about the importance of prevention in our state’s food systems, businesses, housing, transportation, public spaces, paths, trails, parks, and greenspaces. Our hope is that this document will serve as a communication tool about how our economic and personal health goes hand in hand with the design of our built environment.

Thank you for all that you do to make Tennessee a healthier, more prosperous, and livable state.

-John J. Dreyzehner, MD, MPH, FACOEM
Commissioner, Tennessee Department of Health



PREFACE

Just as everyone deserves to live healthy lives, so too do we deserve to live in communities that promote health. Over the past several years, the planning and design fields have increasingly recognized that the way we build and design our communities influences our physical, mental, and social health. As planners, we have opportunities to shape Tennessee's communities into places that facilitate active transportation and mobility, provide accessible and meaningful jobs, facilitate access to healthy foods, offer affordable and safe housing, mitigate harmful pollutants, protect out natural resources, and provide robust green and public spaces in which to gather.

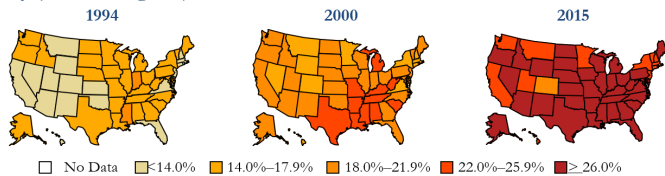
Public health refers to the effects of these physical components as the *Social Determinants of Health* –the conditions in the places where we live, learn, work, and play that affect a range of health risks and outcomes. For example, living within walking or biking distance of one's job offers opportunities for physical activity, thereby potentially reducing the incidence of chronic diseases. If one's housing is affordable, more expendable income is available for personal savings and daily use. Proximity to substantive food stores presents more opportunities for healthy eating habits. As these determinants have become better realized, we believe that community health must be addressed by the many sectors that influence social determinants in partnership with public health professionals.

physical design impacts their health. The Office houses multiple built environment and social determinants specialists, including seven regional staff known as "Healthy Development Coordinators". These positions provide innovative support and capacity building for existing health-promoting efforts in local communities across the state. Meanwhile, OPP has been creating a suite of resources, such as this publication, highlighting strategies for healthy community design conceptualization, implementation, and evaluation. The Tennessee Department of Health also offers several types of grants intended to provide access to publicly-accessible opportunities for physical activity and healthy foods.

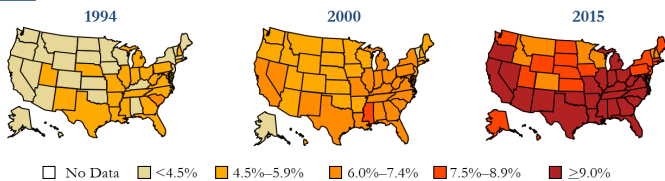
Our hope is that this publication will be useful to illustrate how strategic planning and growth in Tennessee can yield healthy, prosperous and strong communities with high quality of life.

-Leslie Meehan, MPA, AICP
 Director, Office of Primary Prevention

Obesity (BMI ≥30 kg/m²)



Diabetes



*Rising US obesity rates, attributed largely to physical inactivity and poor eating habits
 Source: Robert Wood Johnson Foundation*

More resources exist now than ever before on how to incorporate and operationalize healthy community planning. At the Tennessee Department of Health's Office of Primary Prevention (OPP), we are honored to assist all Tennessee communities in further understanding how their community's



INTRODUCTION: **PLANNING A HEALTHY TENNESSEE**

“Addressing growing health challenges and inequalities requires new partnerships and collaboration between built environment and public health professionals, and a health-focused approach to landscapes, buildings, and infrastructure.”

*Promote Healthy Communities—Joint Call To Action,
Signed by AIA, APA, APHA, ASCE, ASLA, NRPA, USGBC, and ULI*

“We hope to create even better physical spaces where the culture of health we are striving to create can become more visible and nudge everyone [...] towards their optimal health.”

*John J. Dreyzehner, MD, MPH, FACOEM
Commissioner, Tennessee Department of Health*

Tennessee yields communities as diverse as the very landscapes they rest upon. Appalachian towns nestled within the rolling Smoky Mountains of East Tennessee flow out across the Cumberland Plateau towards urbanized cities of Middle Tennessee, eventually giving way to rural townships sprinkled across the agrarian West Tennessee. Dotting the entirety of the state can be found our many metropolitan centers, anchoring each of our three grand divisions. Woven throughout each village, town, and city is a physical design, also called the *built environment*, that carries a direct and significant role in shaping the health of our state.

Planning and public health officials since the mid-1900’s have increasingly recognized the connection between the form we give our communities and our resulting public health. Regardless of context, the planned design of our communities impact our health. The design features highlighted in this publication are now known to heavily influence our ability to exercise, eat well, connect socially with family and friends, move about safely, and avoid dangerous pollutants.

As our state faces alarming rates of chronic and largely preventable diseases, we at the Tennessee Department of Health are working to address this connection head-on through a series of publications, funding opportunities, and dedicated staff to assist with the creation of health-promoting communities. This publication represents the latest tool in this endeavor. While applicable to a wide audience, particular emphasis was given towards its educational use within the design, development, and planning fields towards identifying contextually scalable community design features proven to positively impact health.

At the Tennessee Department of Health, we and our partners are striving for communities designed to promote physical activity, increase access to healthy food, facilitate positive social interactions, encourage mental health, provide safe and welcoming public and green spaces, preserve our unique natural features, protect access to affordable housing, and mitigate exposure to pollutants. Our hope is that this resource will continue to facilitate critical examination of Tennessee’s physical community design while challenging us all to create healthier environments that protect, promote, and improve the health and prosperity of all people in every community across Tennessee.



DESIGN FEATURES: **PIECES OF A HEALTHY COMMUNITY**

The creation of health-promoting communities is not an accident. It requires both intentionality and an awareness of how and what impacts our health. This publication identifies a series of evidence-based design features that have been shown to positively influence community health. These features are drawn from and inspired by the 2016 publication of *Shaping the Healthy Community: The Nashville Plan*, from the Nashville Civic Design Center. *Shaping the Healthy Community* was a five year research endeavor highlighting evidence-based design features, case studies, and implementation strategies for building communities that prioritize and promote population health.

With this as a foundation, the Tennessee Department of Health's Office of Primary Prevention has outlined seven areas of community design that when implemented well, foster healthier and more prosperous communities of all shapes and sizes. Included alongside each feature are case studies from across the state, demonstrating real world application. We believe strongly that each feature can, and should, be scaled to the appropriate context of the community in order to achieve its greatest impact. We recognize that not every design feature will be feasible or appropriate for each community, and therefore should be considered and adapted thoughtfully and in response to specific community needs and desires.

The map on the following pages showcases these health-promoting design features. Throughout the rest of the publication, each feature is explored in greater depth by highlighting design specifics, impacts on public health, and successful implementation stories from across the state. Rethinking our cities and towns through the lens of health-promotion presents exciting opportunities for Tennessee to promote livability, and foster more vibrant communities for all people.

HEALTH-PROMOTING FACTORS



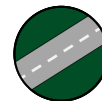
LAND USE AND ZONING



HOUSING AND NEIGHBORHOODS



TRANSPORTATION NETWORK



ROADWAY, PATH, AND TRAIL DESIGN



PARKS AND GREENSPACE



PUBLIC BUILDINGS AND SPACES



FOOD SYSTEMS

THE HEALTH-PROMOTING COMMUNITY

 RESIDENTIAL

 BUSINESS & RETAIL

 PUBLIC PLACES

 FOOD STORES

 SERVICES

 TRANSIT STOP

 LAND USE AND ZONING

 HOUSING AND NEIGHBORHOODS

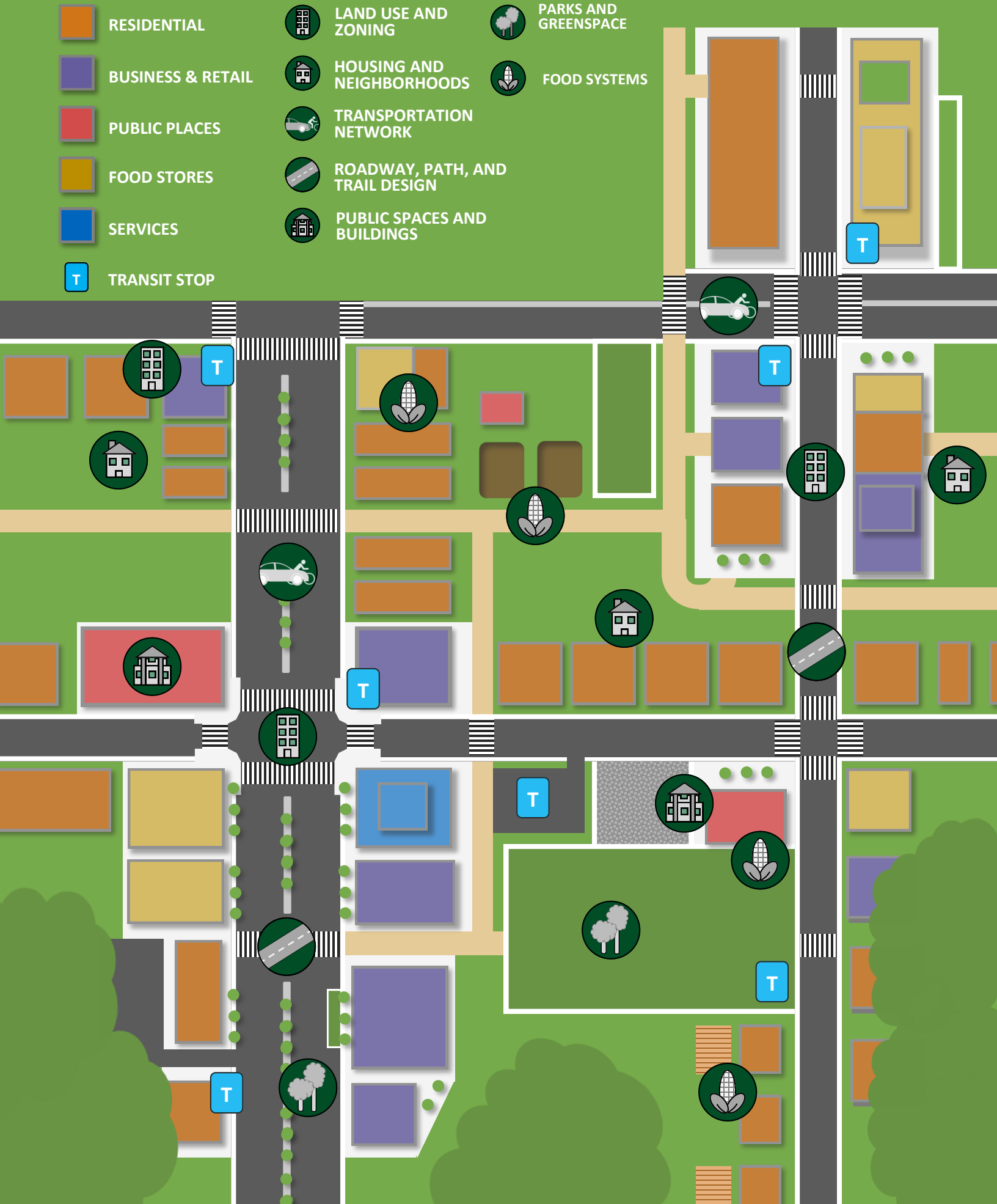
 TRANSPORTATION NETWORK

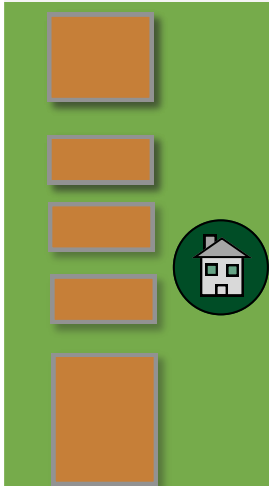
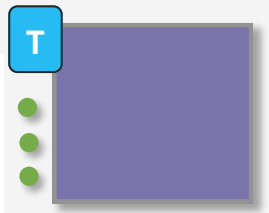
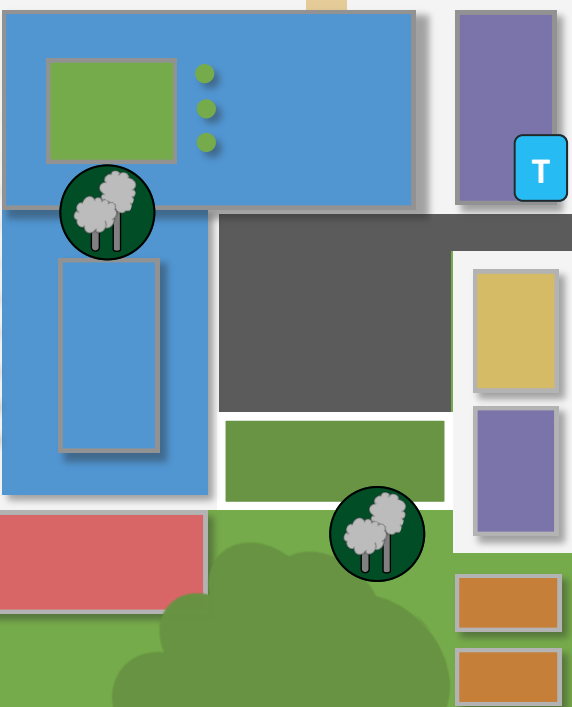
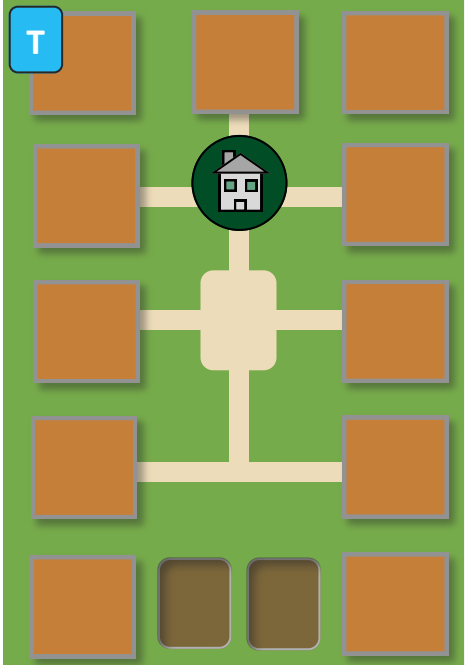
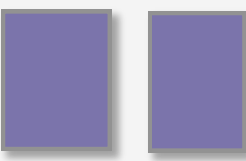
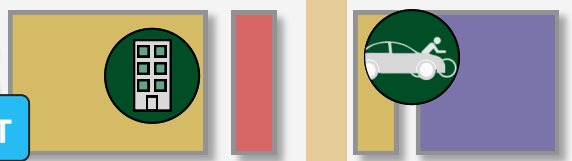
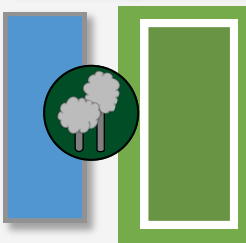
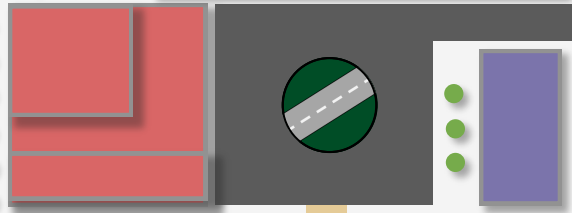
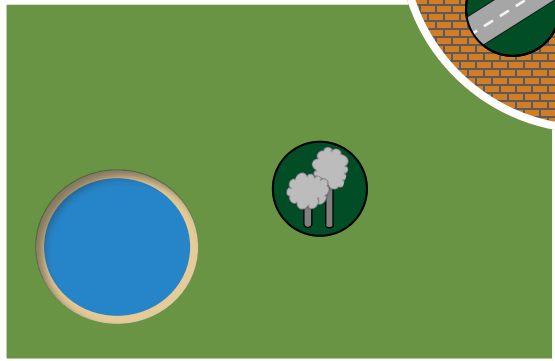
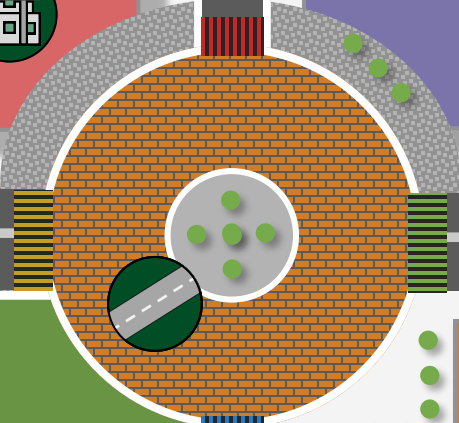
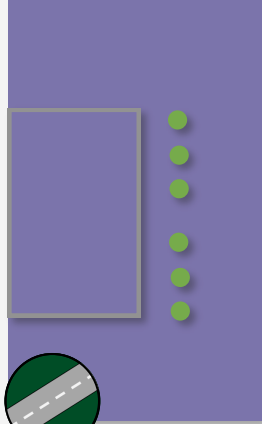
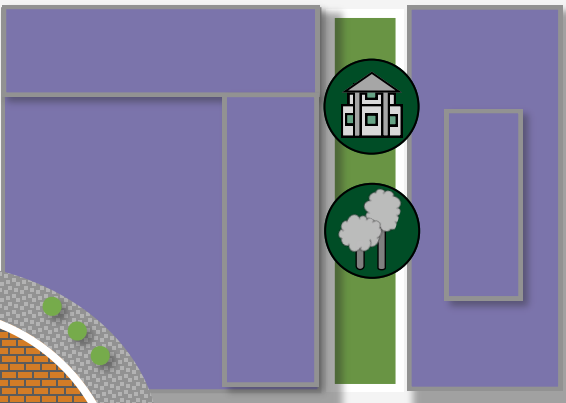
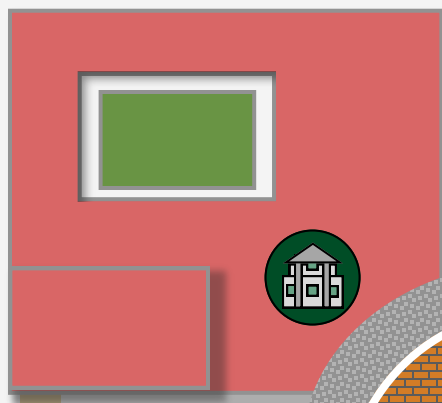
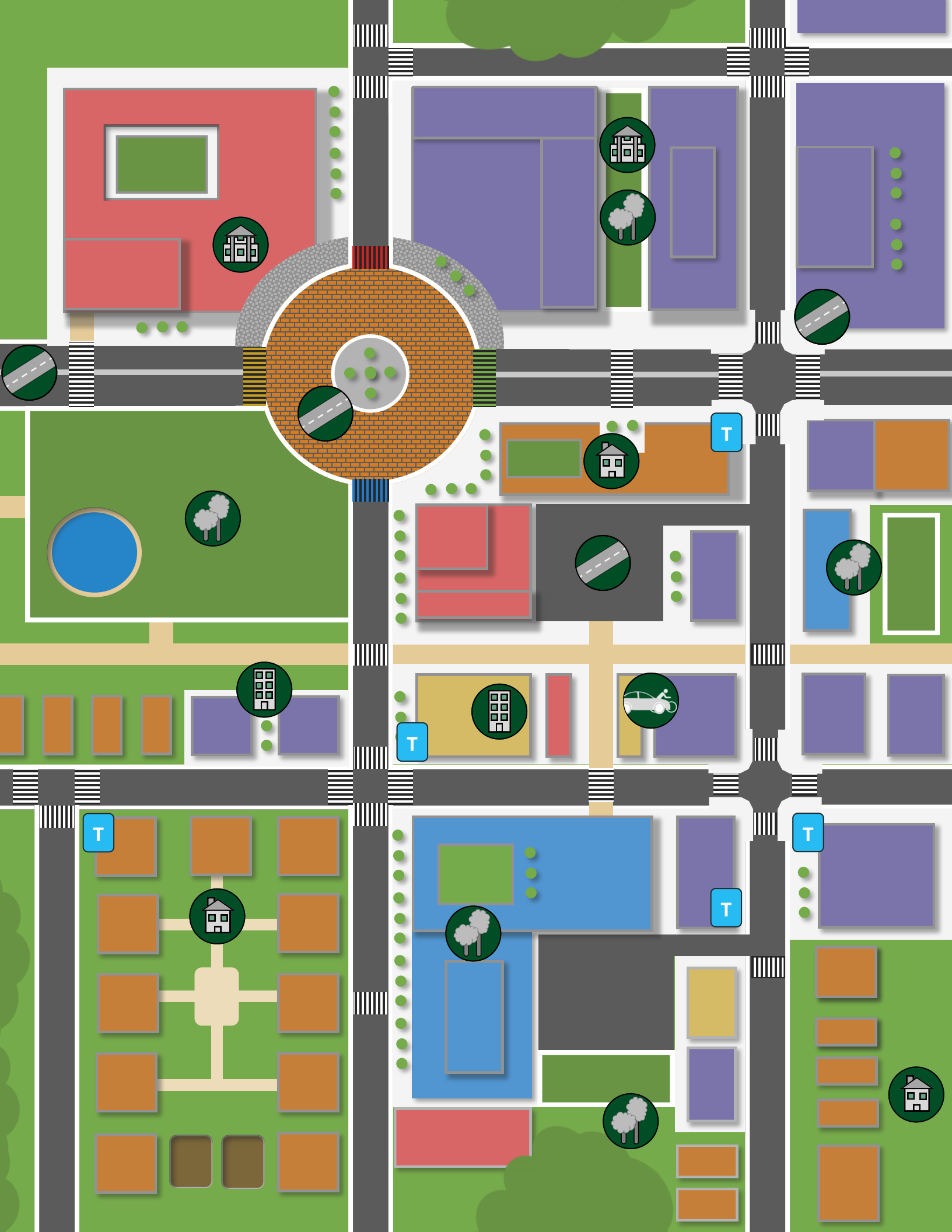
 ROADWAY, PATH, AND TRAIL DESIGN

 PUBLIC SPACES AND BUILDINGS

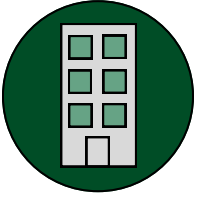
 PARKS AND GREENSPACE

 FOOD SYSTEMS





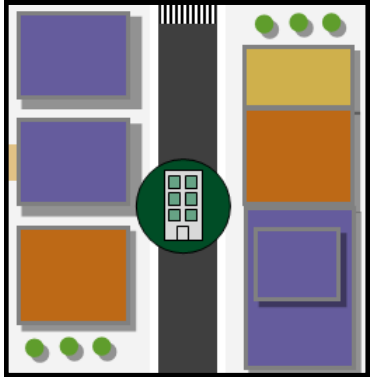
LAND USE AND ZONING



Land use and zoning is the “invisible hand” that guides what is built and where. Land use decisions provide opportunities to mold Tennessee communities into livable and prosperous places where all people may easily access places to live, work, worship, and play. Land use, especially when combined with supportive development and design standards, directly impact opportunities for physical activity, access to health-promoting services and amenities, improved mental and social health, and mitigating exposure to pollutants.

1. MIXED-USE AND INTEGRATED ZONING

Zoning and land use policies should allow for integrated land uses, particularly along interconnected transportation networks. This intentional process should result in businesses, restaurants, and retail located near and throughout residential areas, thereby reducing patron and employee travel distances, increasing community attractiveness, and producing greater economic activity and tax-revenues.



DESIGN FEATURES



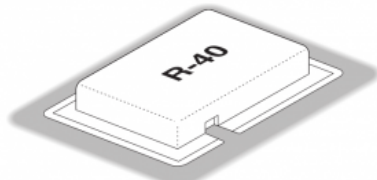
- Diversity of land uses within close proximity to each other
- Considerations for access to and between uses, particularly bike and pedestrian infrastructure
- Public spaces can be shared between uses, presenting opportunities for creative placemaking

HEALTH OUTCOMES

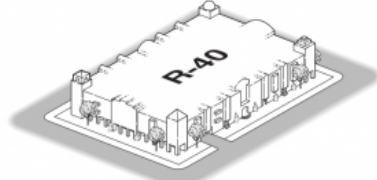
- Reduced personal vehicle trips, and less time sitting in a vehicle
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Increased access to health promoting service and amenities
- Reduction of social isolation through community social interactions

Form-Based Codes

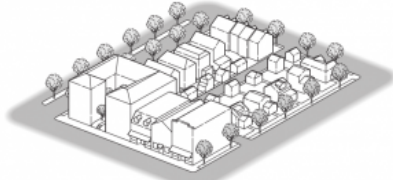
Conventional Zoning
Density use, FAR (floor area ratio), setbacks, parking requirements, maximum building heights specified



Zoning Design Guidelines
Conventional zoning requirements, plus frequency of openings and surface articulation specified



Form-Based Codes
Street and building types (or mix of types), build-to lines, number of floors, and percentage of built site frontage specified.



Source: Form-Based Codes Institute

One opportunity for developing integrated and health promoting land use practices is through adoption of form-based codes (FBC). FBC is a strategy of zoning regulation that can foster a greater relation between land uses, public spaces, walkability, and accessibility. FBC can be incorporated to establish design “standards” including buildings and architecture, public spaces, landscaping, signage, and environmental resources. Learn more by visiting the [Form Based Code Institute](http://FormBasedCodeInstitute.com) website, which included webinars and examples from across the country.

2. MIXED-USE AND INTEGRATED DEVELOPMENTS

Zoning should allow for the inclusion of multiple uses within a single parcel or development project. In many Tennessee communities this concept manifests as street level offices or retail space, with residential units on above floors. This design not only reduces sprawl and development costs, but concentrates community needs and amenities within closer, more easily accessible areas. Mixed-use development also reduces the infrastructure strain within traditionally high-density single-use corridors.

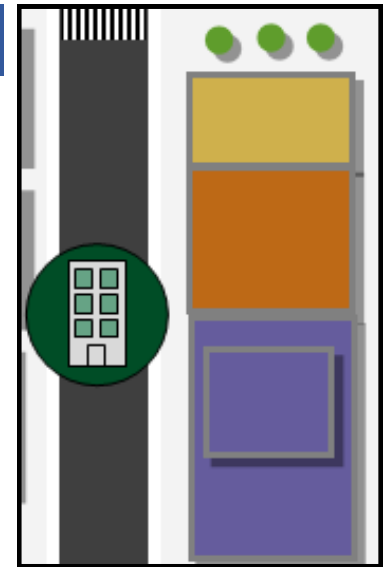
DESIGN FEATURES



- Multiple uses within appropriately scaled buildings
- Mixed use development prioritized along corridors, and cognizant of access from multiple types of users
- Consideration of public spaces, and their connections between adjacent structures

HEALTH OUTCOMES

- Reduced personal vehicle trips, and less time sitting in a vehicle
- Traffic reductions resulting from fewer needed trips
- Increased access to health promoting service and amenities
- Reducing sprawl preserves land and mitigates negative environmental impacts



Mixed-Use Main Streets

Morristown, Tennessee



Source: Wikimedia Commons

Located between Knoxville and Bristol, Morristown has prioritized developing a vibrant, livable downtown that includes multiple mixed-use buildings. With an area of about a square mile, Downtown Morristown incorporates intentional pedestrian infrastructure, including a unique overhead sidewalk. This infrastructure enhances and emphasizes the multiple uses of each building. Learn more at downtownmorristown.com.

Morristown is also an accredited Tennessee Main Street Community. A program of the Tennessee Department of Economic and Community Development, Main Street communities receive comprehensive assistance towards downtown revitalization. You can learn about the program's integration of design and livability at the Tennessee Department of Economic & Community Development's [site](#).

3. DEVELOP INTERCONNECTED COMMERCIAL CENTERS

Centers of commercial activity should be connected by strong, direct networks of transportation infrastructure. These connections should include a multitude of path options for different types of users, and ensure efficient movement of goods, workers, and patrons. Additional features may include wayfinding, clear sightlines between centers, and consistent design features to establish a unique sense of place.

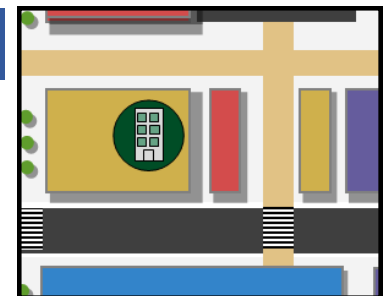
DESIGN FEATURES



- Easily navigable and direct transportation connections
- Diverse path and mode options for traveling to and between economic centers
- Centers are walkable, with interconnected public and green spaces
- Centers are distinguished by creative placemaking, wayfinding, or unique architecture

HEALTH OUTCOMES

- Reduced vehicle travel time to and between destinations
- Increased access to health promoting services and amenities
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Reduction in social isolation through community social interactions
- Green spaces aide in storm water and pollutant mitigation



LAND USE AND ZONING

4. DEVELOPMENT PRIORITIZED ALONG ARTERIALS

Our state's major arterials and corridors, which have higher transportation use and capacities, should be the initial focus for new development, particularly mixed land uses. This development should leverage public and green spaces along with pedestrian paths and trails to establish centers that are attractive, desirable, and accessible. Additional considerations should be given to traffic calming measures along the arterial to promote safety and access for all users.

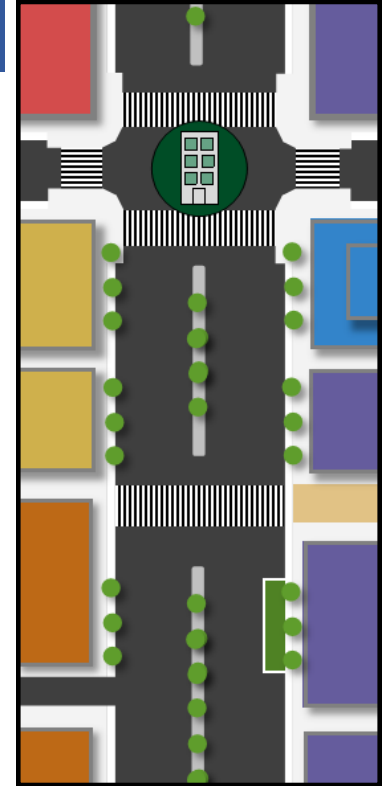
DESIGN FEATURES



- Diverse set of land uses located along major arterials and corridors
- Buildings front sidewalks and paths that promote walkability and access
- Parking lots located behind buildings, designed as parking garages to reduce parking footprint
- Multiple modes of access for all users
- Inclusion of creative placemaking and public greenspaces

HEALTH OUTCOMES

- Accessibility to more health promoting services and amenities within one single trip
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Reduced vehicle travel time to and between destinations
- Reduction of social isolation through community social interactions



Guided Development Kingsport, Tennessee



Prioritizing development along main corridors and arterials offers opportunities to promote health while spurring positive economic development and reducing expensive sprawl. This development should be denser, with buildings fronting sidewalks to increase accessibility. New developments and businesses are increasingly prioritizing mixed-used walkable communities in which to locate. Leveraging public transit options, like the above corridor in Kingsport, Tennessee, further increases accessibility, safety, and reduced trips while attracting new economic growth.

Prioritizing development in this manner also creates opportunities to establish interconnected centers throughout the community. These centers are able to create the density and transportation options required to support robust commercial uses, affordable housing, and vibrant economic development. Centers should emphasize unique gathering places and public spaces which highlight local identity, and establish a sense of place. Combining all these with adjacent grid-style street networks creates easily navigable path options, slows traffic, increases walkability, and shortens travel distances.

Source: Google Maps, and Kingsport RTA

5. PRESERVE AND ENHANCE RURAL HAMLETS

Rural hamlets consist of small-scale mixed uses located within rural community centers. These hamlets generally include commercial uses that serve basic community needs, local restaurants, and are generally accessible to nearby residential areas. Preserving these places reduces the need to travel outside the community for every day needs.

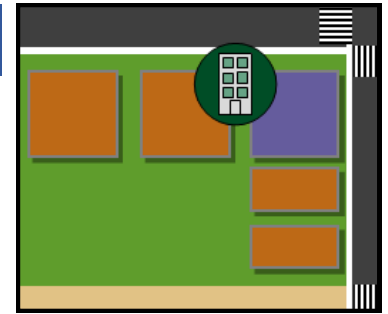
DESIGN FEATURES



- Small scale mixed land use and reuse within rural centers
- Considerations for access to and between uses, particularly bike and pedestrian infrastructure
- Public spaces and placemaking can be incorporated within and around rural hamlets to enhance the sense of place
- Incorporation of plants and greenspaces throughout the hamlet

HEALTH OUTCOMES

- Increased healthy food access to decrease risk of chronic diseases such as obesity and diabetes
- Opportunities for social connection, and reduction of social isolation
- Environmental sustainability, storm water management, and reduction of harmful pollutants
- Increased opportunities for physical activity, reducing risk for several chronic diseases



Rural Hamlet
Leiper's Fork, Tennessee

Source: Nashville Civic Design Center (2010)

An unincorporated rural community in middle Tennessee, Leiper's Fork has a small population of just under 1000 people. Leiper's Fork is also located along the Natchez Trail offering the community significant opportunities for accessibility, physical activity, and tourism.

In 2013, Williamson County adopted the Leiper's Fork Village Special Area Plan to guide the community's long term land-use, design, and accessibility. Part of the Special Area Plan was to maintain and enhance the existing rural hamlet nature of Leiper's Fork's commercial district. The Plan calls out the mixed, complimentary uses of this district as a key to the Village's attractiveness and the positive impacts.

While outlining strategies to improve upon existing hamlet features, the Special Area Plan also calls for public spaces and additional pedestrian infrastructure. The entire plan can be read on the Williamson County [website](#).

6. LEVERAGING BUSINESSES AS INFILL DEVELOPMENT

Infill development is the process of developing vacant, or under-utilized parcels, within areas that have already been largely developed. Infill development, and resulting density, strengthens communities by increasing demands for businesses and amenities, promotes transit and walkability, reduces development and new utility costs, and mitigates sprawl and associated costs particularly in suburban areas.

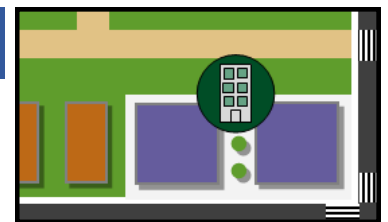
DESIGN FEATURES



- Business infill development directed towards arterials and corridors
- Infill development maintains and enhances community character
- New development is connective regarding pedestrian and bicycle infrastructure
- Business infill includes and enhances public spaces

HEALTH OUTCOMES

- Reduced vehicle travel time to and between destinations
- Increased access to health promoting services and amenities
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Reduced sprawl preserves land and reduces negative environmental pollutants



HOUSING AND NEIGHBORHOODS



A diverse set of neighborhood housing options promotes affordable housing access, support for family/occupant stability, proximity for all people to healthy amenities, and increased opportunities to “age in place”. Likewise, quality building materials reduce exposure to toxic chemicals while minimizing expensive repairs that can quickly use up expendable income. While all neighborhoods have common components, they vary in density, connectivity, and proximity to amenities and services. Neighborhoods consisting of a multitude of interconnected and accessible housing types generally have higher health outcomes.

1. DIVERSITY OF HOUSING TYPES AND PRICES

Communities should offer a range of housing sizes, types, prices, and the option to own or rent, respective of varying life stages that residents may find themselves. Ideally, these diverse housing options should be accessible throughout the entirety of the community. If done well, increasing housing options and density can promote affordable home ownership and connectivity without sacrificing natural features.

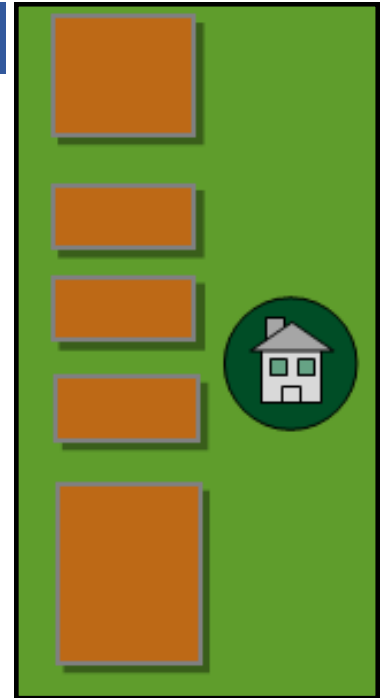
DESIGN FEATURES



- Housing that varies in price, size, and ownership type
- Housing design mindful of accessibility, particularly regarding physical ability and mobility
- Housing developed in tandem with connective pedestrian and transportation infrastructure
- Neighborhood housing fronting sidewalks and pedestrian infrastructure

HEALTH OUTCOMES

- Accessible and affordable housing reduces household economic burden, freeing up finances for health-promoting activities and related costs
- Housing diversity increases location and mobility choice, increasing access to neighborhoods with health-promoting services and amenities
- Increased opportunities for physical activity, reducing risk for several chronic diseases



Missing Middle Housing



“Missing Middle” housing is a term describing a range of clustered, or multi-unit housing meant to offer a transit in scale and price between single-family housing and larger multi-unit mid rise housing. Missing middle is best incorporated when leveraged towards creating walkable mixed-use neighborhoods. The resulting density and population provided by missing middle housing can help support both mixed-use businesses and public transit. The affordability created by diverse housing frees up money for other household expenses, and walkability promotes physical activity. Learn more about opportunities and see case studies at missingmiddlehousing.com.

Source: missingmiddlehousing.com

2. MIXED-USE RESIDENTIAL DEVELOPMENTS

Housing can often be integrated into buildings that have other, non-residential uses. It is important that these developments be appropriately scaled, located in higher-usage community centers, and with consideration for impacts on traffic, utilities, and services. These developments reduce barriers to accessing jobs, services, and amenities.

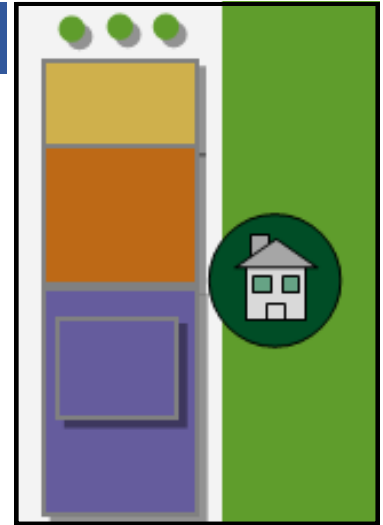
DESIGN FEATURES



- Housing units integrated into appropriately scaled developments with non-residential uses
- Mixed-use residential cognizant of access from multiple types of users
- Housing units should vary in price, size, and ownership type
- Pedestrian infrastructure included to support walkability

HEALTH OUTCOMES

- Increased access to jobs, and health-promoting service and amenities
- Reduced personal vehicle trips and vehicle traffic, decreasing pollutants and increasing pedestrian safety
- Reduction of social isolation through community social interactions
- Increased opportunities for physical activity, reducing risk for several chronic diseases



Mixed-Use Residential Winchester, Tennessee



Source: Brent Moore (2011), flickr.com

Town centers, like this square in Winchester, Tennessee, present opportunities to incorporate residential units into existing commercial centers. Intentional research and planning should be done before pursuing mixed-use residential units. Exploring four health-related questions before pursuing mixed-use residential developments can be helpful in determining its health promotion:

- Are existing structures safe and appropriate for incorporating residential units, or do new structures need to be built?
- How easy is it to travel to and from the residence using different forms of transportation?
- Are adequate businesses, food stores, and public spaces nearby?
- What residential types and prices are currently missing from the community and will new mixed-use housing help address that gap?

3. MULTI-UNIT DEVELOPMENT GUIDED TOWARDS CORRIDORS

Larger multi-unit housing developments should be prioritized along major corridors and thoroughfares that can support the increased vehicle and pedestrian traffic, while minimizing development impacts on adjacent neighborhoods. This placement also maximizes access to existing and future businesses, services, amenities, and transit that is generally located along these corridors.

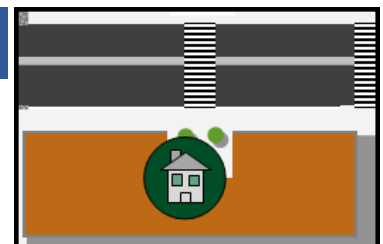
DESIGN FEATURES



- Multi-unit housing developments placed along corridors and main streets that can absorb the increased traffic
- Supportive transportation infrastructure to increase connectivity and accessibility
- Integrate public and green spaces for social gathering and events
- Integrate creative placemaking, specifically murals, into new and existing housing developments

HEALTH OUTCOMES

- Increases access to health-promoting services and amenities
- Multi-unit housing increases opportunities for social connection reducing of social isolation
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Integration of green spaces aides in connections to nature, pollutant mitigation, and bioretention



HOUSING AND NEIGHBORHOODS

4. PURSUE CONSERVATION DEVELOPMENT

New and diverse housing can be pursued in rural areas while avoiding sprawl through conservation development. This development strategy concentrates housing within relatively smaller pieces of land, lowering the cost of development and retaining our state's unique rural aesthetic.

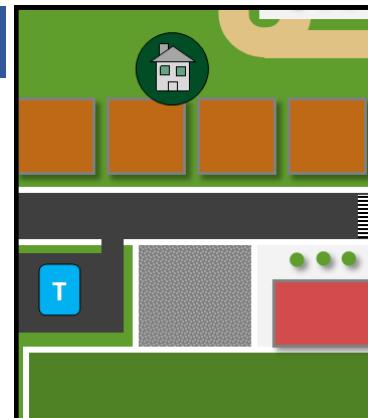
DESIGN FEATURES



- New housing developments clustered within smaller housing parcels and intersecting roadways
- Various types and prices of housing offered within the conservation communities
- Protection of surrounding natural features, and environmental sustainability

HEALTH OUTCOMES

- Accessible and affordable housing reduces household economic burden, allowing more finances for health-promoting activities and health related costs
- Increased accessibility to healthy services and amenities
- Environmental sustainability, storm water management, and reduction of harmful pollutants



Conservation Development

Davidson County, Tennessee



Unlike traditional rural development (far left), conservation development (right) clusters housing within smaller, walkable areas that promotes accessibility while preserving Tennessee's rural character. Conservation development also reduces sprawl, construction costs, and negative environmental impacts. When pursuing conservation development, consideration should be given to the potential increased needs for public utilities and services in denser areas.

Source: Metro Nashville Planning Department (2003)

5. HEALTHY HOUSING MATERIALS

In addition to how we design and place our housing, the types of materials we use can have a drastic impact on our health. New and retrofitted housing should be aware of hazardous substances such as volatile organic compounds (VOCs), and toxins found in many common building materials.

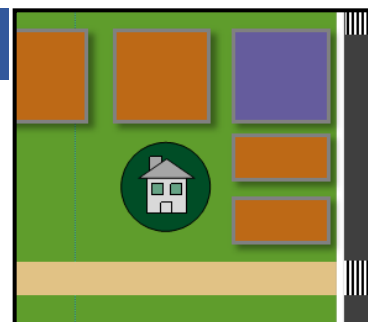
DESIGN FEATURES



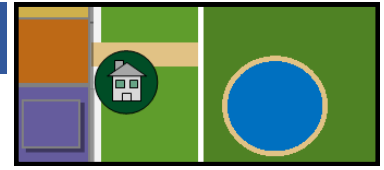
- Avoid using VOCs and materials containing synthesized or concentrated chemicals known to be harmful to humans
- Homes built before 1978 are likely to contain lead paint, and should be tested if paint begins to deteriorate
- Integrating indoor plants and greenery can help with internal pollutants and air cleansing

HEALTH OUTCOMES

- Toxic housing chemicals increase risk of asthma and certain types of cancer
- Poor housing circulation and ventilation increases risk of breathing conditions
- Health housing practices presents opportunities for environmental sustainability, storm water management, and reduction of pollutants



6. PROXIMITY TO ACCESSIBLE PARKS AND GREEN SPACES



Both single and multi-family housing should be located near public green spaces and parks, with multiple travel options to access those spaces. A general rule of thumb, used by the Trust for Public Land, is to have all residential areas be no further than ten minute walk from a public park. While connectivity preference should be given to direct and protected trails and paths, consideration for vehicle access and proximity to existing residential areas should be integrated into new housing developments.

DESIGN FEATURES



- Connect existing and planned future housing to parks through a safe and connective transportation network, including sidewalks, trails, bike lanes, and low-intensity roadways
- Preserve existing greenspace within new housing developments by requiring the preservation or replacement of trees, open space, and/or natural features
- Consider requiring public green space within new subdivisions to increase access

HEALTH OUTCOMES

- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Encourages social interactions and reduces social isolation
- Interactions with green spaces aids in connections to nature, stress reduction, and healthy child development
- Environmental sustainability, storm water management, and reduction of harmful pollutants

7. COHOUSING

Cohousing is the practice of designing private homes within a relatively compact footprint around shared facilities and common spaces. These might include open spaces, event space, community garden, or recreation facilities. While individual residents may own and sell their home as they would a typical house, the entire community “owns and regulates” the shared spaces. Ideally cohousing consists of a range of prices and multi-generational amenities.

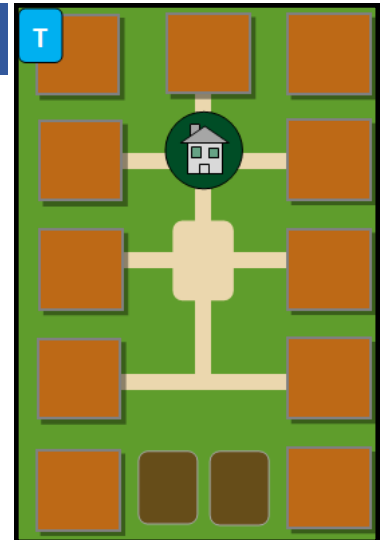
DESIGN FEATURES



- Compact homes, or at least located within close walkable proximity
- Inclusion of easily accessible features, amenities, and public spaces designed to scale
- Housing units centered around common spaces and shared amenities, specifically any green or open space

HEALTH OUTCOMES

- Reduction of social isolation through community social interactions
- Accessible and affordable housing reduces household economic burden, allowing more finances for health-promoting activities and related costs
- Opportunities for environmental sustainability, storm water management, and reduction of pollutants in public spaces



Housing and Health

While the connections between housing and health may not seem immediately clear, there are actually significant health ramifications that stem from housing. Poor quality housing may expose occupants to pollutants like mold or lead paint, rodents and insects, or dangerous structural integrity. Consolidating housing with others to save money can lead to overcrowding, which results in poor mental health, elevated stress and blood pressure, and increase spread of infectious diseases. If forced to move one or even multiple times due to inadequate or unaffordable housing, families risk higher stress and blood pressure, breaking of social networks, and potentially leaving neighborhoods with less health-promoting services and amenities. Finally, increasing housing costs place many residents, particularly those with low or fixed income at risk for being cost burdened (when more than 30% of income is dedicated to housing). Households that are cost burdening generally are choosing to cut back on health related necessities.

To learn more about connections between health and housing and strategies to address housing needs, check out ChangeLab Solutions’s [report on affordable housing](#).

TRANSPORTATION NETWORK



Most of Tennessee's communities have been left reliant upon the personal automobile for nearly all transportation needs. For the nearly 1/3 of our state's residents without a car (either due to age, ability, or access), transportation can be a major barrier to daily life. Alternative methods of transportation, such as walking, biking, and public transportation not only increase accessibility but aide in pollution reduction, increased physical activity, and reduced stress. A community's design should consider the entire transportation network and the accessibility of that network for all residents.

1. A CONNECTIVE AND SAFE TRANSPORTATION NETWORK

Designing or retrofitting a safe and connective transportation network is an opportunity to create greater mobility and access, while promoting healthier lifestyles. Integrating transportation design features for all users will facilitate the greatest impact on both access and health.

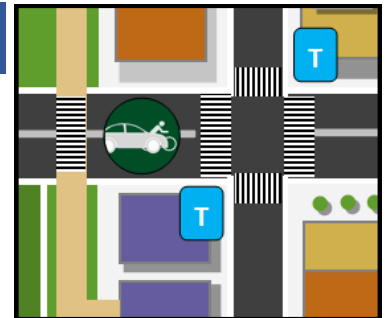
DESIGN FEATURES



- Inclusion of infrastructure that supports walking, biking, and public transportation
- A grid-style street network, particularly in denser and residential communities
- Managed vehicle access points onto main corridors
- Complete streets that consider all user types: cars, bikes, pedestrians, and public transit

HEALTH OUTCOMES

- Reduced travel/trip distance and less time sitting in a vehicle
- Decreased opportunities for pedestrian-vehicle conflicts
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Increased access to health promoting service and amenities



2. CONNECTIVE AND SAFE PEDESTRIAN INFRASTRUCTURE

As part of the larger transportation network, pedestrian infrastructure should create connectivity and safe access throughout the community for pedestrians of all physical ability. Public and private services and amenities should be anchored by this infrastructure, particularly along major thoroughfares. Sidewalks, crosswalks, linear parks, and multi-use paths each present unique opportunities for both health promotion and community connectivity.

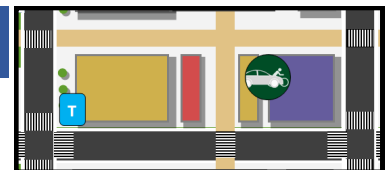
DESIGN FEATURES



- Grid-style street network
- Considerations for multiple users: car, bike, pedestrian, bus, commuter rail
- Managed vehicle access points onto main corridors
- Complete streets policies—as needed and appropriate

HEALTH OUTCOMES

- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Lower pedestrian injury and fatality rates by reducing chances of collision with vehicles
- Increased accessibility to health promoting services and amenities.
- Increased accessibility to jobs and sources of income

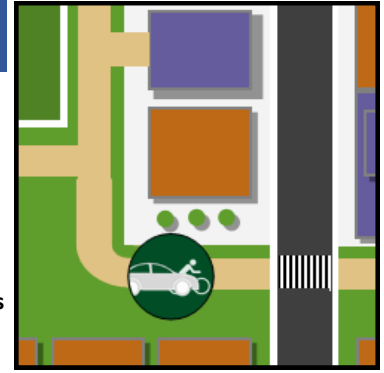


Walking and Health

In February 2018, the UK news outlet The Guardian reported on a study correlating walkable communities with reductions in blood pressure and cardiovascular disease. The study of nearly 430,000 people showed that those who lived and worked in walkable communities had lower rates of both diseases regardless of socio-economics and lifestyles. This study demonstrates the critical role of pedestrian infrastructure and accessibility towards health promotion.

3. STREETS, PATHS, AND TRAILS DIRECTLY CONNECT AMENITIES

Streets, paths, and trails in Tennessee should provide direct connections between amenities, services, and city centers. Prioritizing direct connections reduces travel time, promotes usage of services and amenities, and encourages growth along these connectors while preserving existing land.



DESIGN FEATURES



HEALTH OUTCOMES

- Grid-style street network
- Community amenities, services, and centers connected by direct and dedicated roads, paths, and trails
- Considerations for multiple users and methods of traveling to and between unique destinations
- Pedestrian paths connect residential areas to nearby destinations

- Reduced travel and trip distance, and less time sitting in a vehicle
- Increased access to health-promoting service and amenities
- Decrease opportunities for pedestrian-vehicle conflicts
- Increased opportunities for physical activity, reducing risk for several chronic diseases



In 2016, with funds from the Tennessee Department of Transportation, the city of Dandridge coordinated the creation of a bike and pedestrian master plan. The plan intended to promote community livability by increasing access to some of its major amenities. This increased access also carries opportunities for more physical activity for all residents. The plan was created with help of Gresham, Smith, and Partners and can be read on the [TDOT website](#).

When considering opportunities for connectivity and transit options, several considerations should be included in the decision-making process:

- | | |
|-------------------------|-----------------------------|
| • Existing Connectivity | • Demographics |
| • Density | • Public Input |
| • Land Use | • Roadway Characteristics |
| • Transit Access | • Pedestrian Use |
| • Health and Safety | • Multi-modal Accessibility |

To learn more about efforts and strategies towards connecting community centers, check out [Connecting The Dots](#), from the Nashville Civic Design Center. This publication examines five contextually diverse community centers across Davidson County, and outlines strategies for offering better connection to and between them.

Source: City of Dandridge Bike & Pedestrian Master Plan

TRANSPORTATION NETWORK

4. TRANSIT LOCATED TEN MINUTES FROM MOST HOMES

When considering where to include public transit, locating stops no more than a ten minute walk from residential areas promoted both usage and health outcomes. Prioritizing the creation of transit “hubs” where multiple transportation modes intersect helps to maximize transit use.

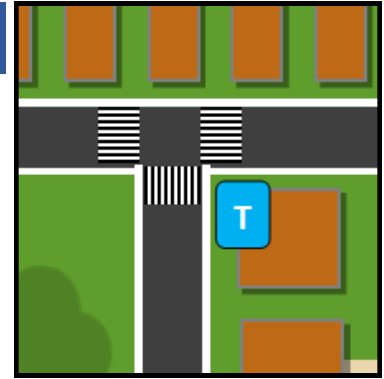
DESIGN FEATURES



- Transit stations are within ten-minutes from residential areas, and along clear accessible paths
- Stations are near or along major thoroughfares, connecting residential units to major business, commercial, and cultural centers
- Stations are attractive, safe, and desirable

HEALTH OUTCOMES

- Reduced risk of pedestrian injury when traveling to and from transit stops
- Transit riders are more likely to engage in physical activity walking to and from transit stops
- Riding public transit reduces stress and social isolation



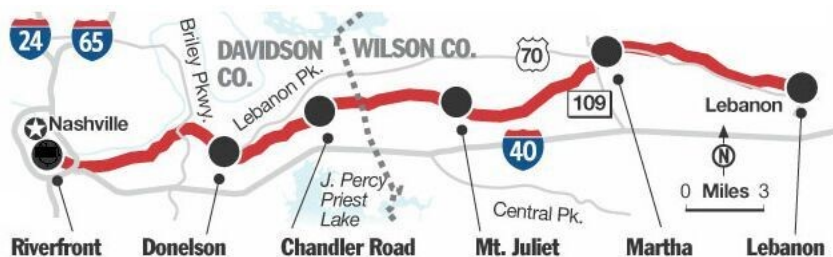
Transit Oriented Development Lebanon, Tennessee



Lebanon, Tennessee, located 30 miles directly east of Nashville, has for several years been exploring opportunities for establishing transit oriented development (TOD) around its Music City Star train station. Leveraging TOD development presents unique opportunities to develop mixed-use, walkable communities located near transit. When done well, TOD promotes health through the creation of communities that offer a variety of services, amenities, jobs, and recreation within a short proximity, and providing alternative transportation opportunities to needs outside the community.

Lebanon became an early candidate for TOD development to increase access to Nashville and because the Star station is located just a half mile from Lebanon’s town square. The square has already been incorporating increased accessibility, and will be leveraged as a central axis for future development.

A series of public engagement and design workshops led by AIA of Middle Tennessee, the Nashville Civic Design Center, and UTK’s College of Architecture and Design, found that TOD was a viable option to not only enhance the community character, but promote health through the emphasis of alternative transportation options. The full report can be read [online](#) through the Nashville Civic Design Center.

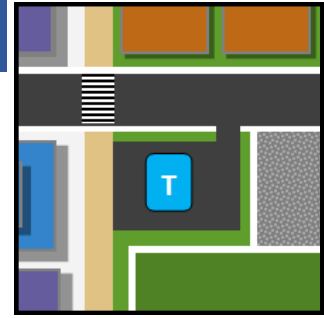


After several years of public engagement and construction, Lebanon’s Hamilton Springs opened August 27th, 2018 as Tennessee’s first TOD project. Read more about the opening through the [Wilson Post](#). An official grand opening with city and state officials was held September 6th, 2018.

Sources: Nashville Civic Design Center, UT College of Architecture and Design

5. INCORPORATE PARK AND RIDE LOTS

Park and ride lots, also called incentive lots, can be considered as a transit alternative to driving, particularly in residential suburbs surrounding larger cities and metros. Associated bus routes can drop off passengers in major employment or commercial centers such as main streets, downtowns, universities, or industrial complexes. Coordinating with local businesses can help identify appropriate locations and alternative funding sources.



DESIGN FEATURES



HEALTH OUTCOMES

- Park & ride locations are easily accessible from residential areas, with sufficient surface or garage parking
- Drop off locations are diverse enough to attract a large amount of riders, while balancing long travel distances
- Lots are attractive, safe, and desirable
- Reduction in road congestion and resulting pollutants, while reducing chances for vehicle related accidents
- Transit riders are more likely to engage in physical activity walking to and from transit stops
- Riding public transit reduces stress and social isolation

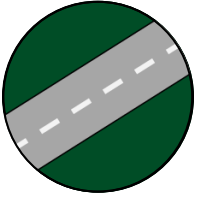


Park & Ride
Clarksville, Tennessee

In October 2016, Clarksville opened up an expanded park & ride service for residents taking a regional bus to and from Nashville. Clarksville worked with both TDOT and the Regional Transit Authority to coordinate bus service and the parking lot location. Public transportation not only reduces vehicle congestion and saves individuals money, but has been linked to healthier lifestyles. Read more at the [Clarksville Online](#).

Source: *Clarksville Online*

ROADWAY, PATH, AND TRAIL DESIGN



While having an interconnective transportation network is important, so too is the physical design of that network. Designing and incorporating streets, paths, and trails with a high quality of design and attractiveness is the best way to encourage usage and safety for all users. Well-designed systems promote confidence in health-promoting activities like walking, biking, and running. Additional considerations can be given to leveraging design to support and incorporate native wildlife and plants, while mitigating pollutants and flooding, a regular concern for much of Tennessee.

1. STREETS DESIGNED FOR MULTIPLE TYPES OF USERS

Also known as a *complete street*, streets should be mindfully and contextually-designed with dedicated space for multiple types of users. Supportive design features may include buffered bike lanes, bus stops, sidewalks, and vehicle lane widths that balance appropriate car speeds with active transportation uses.

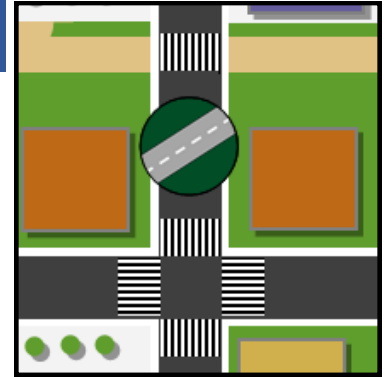
DESIGN FEATURES



- Lane width reduction to either 10' or 11' (depending on AADT)
- Incorporation of adjacent sidewalks with widths at least 5', or shared-use paths with widths at least 10'
- Streets contain bike lanes, preferably buffered or protected, with widths at least 6'
- Integration of street trees and greenery for beautification and shade

HEALTH OUTCOMES

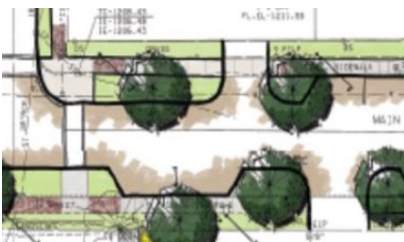
- Reduction in vehicle related crashes, especially fatal crashes
- Decreased opportunities for pedestrian or bicycle conflicts with vehicles
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Environmental sustainability, storm water management, and reduction of harmful pollutants



Source: Nashville Civic Design Center



Source: Tony Casey, Johnson City Press



Source: Lynn Tully, City of Kingsport

Contextual Complete Streets

There isn't a one-size-fits-all approach to a complete street. A complete street simply means that all people and places are considered during the planning and design process of a community's street and transportation network. The intent of this approach is to create safer and more accessible streets for all users.

A complete street is *generally* designed with dedicated space for parking, bicycles, vehicles, and pedestrians. In larger communities, there may even be space for bus and public transportation, and beautification features like trees and greenspace. While these are common features, the specific dimension and design of each can, and should, be considered contextually. For example, it may be appropriate to only have one bike lane rather than two, or a detached pedestrian path rather than an adjacent sidewalk. The online tool [Streetmix](#) is a free resource for creating simple, customizable complete street illustrations that can demonstrate different solutions.

Formal complete streets policies are implemented by a city/community resolution, and may require zoning changes. While exact requirements will depend on the community, available right-of-way, and traffic counts, there are general outlines for complete street policies.

More information on complete streets can be found from [Smart Growth America](#), and the [National Association of City Transportation Officials](#).

2. SAFE ROADWAY DESIGN FOR ALL USERS

Designing, retrofitting, or restriping existing roadway networks throughout our state presents an opportunity to create greater mobility while preserving safe access for all users. With most of our state’s pedestrian fatalities occurring on roads with four or more travel lanes, creatively designing roadways to reduce vehicle speeds by even 5-10mph can be the difference between life or death. This will require an approach that prioritizes pedestrian and bike safety over the travel speed of a car.

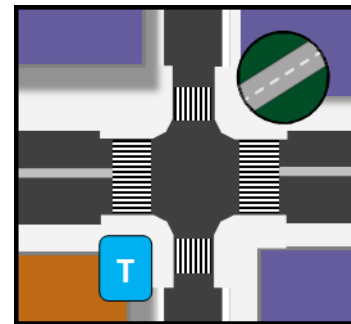
DESIGN FEATURES



- Strategic use of curb extensions, on-street parking, and pedestrian infrastructure to slow traffic and promote pedestrian safety
- Signals and materials that establish clearly visible bike and pedestrian infrastructure
- Incorporation of art, trees, and attractive features to promote usage and infrastructure visibility
- Reconsider lane widths, reducing them to 11’ or even 10’ where appropriate

HEALTH OUTCOMES

- Lower pedestrian injury and fatality rates by reducing chances of collision with vehicles
- Accessibility to more health promoting services and amenities in one single trip
- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Improved mental health from exposure to nature, other people, and stimulating design features



Car speed stats and restriping case study?

3. STREETS, PATHS, AND TRAILS AS CREATIVE PLACEMAKING

The design or restriping of streets, paths, and trails offers opportunities to engage in creative placemaking. Creative placemaking is the process and act of designing public spaces in an attractive and unique way that reflects and enhances the surrounding community. When considering the design of our streets, paths, and trails consideration should be given to how creative placemaking can be integrated into the final design.

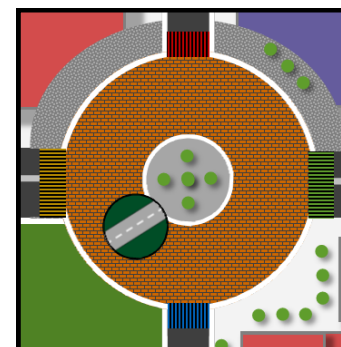
DESIGN FEATURES



- Attractive artwork that enhances and reflects the community identity
- Interactive elements that engage multiple senses
- Inclusion of plants, trees, and greenery
- Seating and shading that provides respite from the elements, and encourages gathering

HEALTH OUTCOMES

- Improved mental health from exposure to nature, other people, and stimulating design features
- Opportunities for social connection, and reduction of social isolation
- Environmental sustainability, storm water management, and reduction of harmful pollutants



Not all placemaking projects need to be expansive plazas, parks, or grand murals. Sometimes smaller pieces, like the conceptual design for a crosswalk in this rural Tennessee community, can have a large impact. Not only does this project draw attention, but intersection art pieces have been shown to slow traffic, thereby creating a safer environment for pedestrians. If done well, this artwork should also reflect the community’s identity and history while injecting a new and creative atmosphere. Placemaking efforts can also be leveraged strategically around commercial areas to draw visitors and spur economic activity. You can learn more about placemaking and find suggested funding sources on Tennessee’s [Healthy Places](#) website, or by visiting the [Project for Public Spaces](#).



Source: Nashville Civic Design Center

ROADWAY, PATH, AND TRAIL DESIGN

4. ROADWAYS, PATHS, AND TRAILS SUPPORT CONSERVATION

In addition to creating greater community connectivity, roadways, paths, and trails can be mini ecosystems and leveraged as tools of environmental sustainability. The inclusion of bioretention features, permeable pavement, green infrastructure, and plants can lead to better storm water management, habitat preservation, and pollutant reduction.

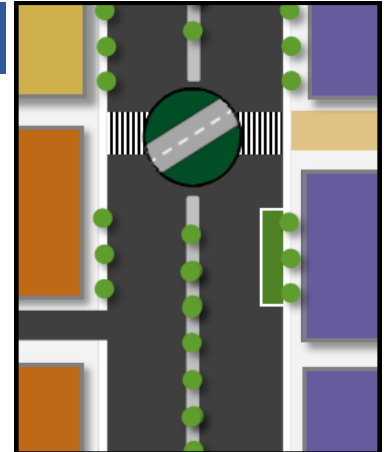
DESIGN FEATURES



- Tree trenches attached to underdrains
- Permeable surfaces to promote drainage and avoid flooding.
- Inclusion of plants, trees, and greenery
- Seating and shading that provides respite from the elements, and encourages gathering

HEALTH OUTCOMES

- Increased mental health from exposure to nature, social interactions, and stimulating design features
- Environmental sustainability, storm water management, and reduction of harmful pollutants
- Cooler temperatures underneath trees and shade reduce chance of heat stroke and exhaustion



Roadways offer opportunities to incorporate bioretention features such as this storm water garden in Knoxville. Strategic incorporation of gardens, plants, permeable surfaces, and drainage decreases storm water runoff, acts as a filter to clean pollutants, and adds to the aesthetics of a community. Adding larger shading trees may encourage pedestrian use of adjacent sidewalks while reducing temperatures.

Source: Tennessee Department of Environment and Conservation

5. PARKING LOTS LOCATED BEHIND BUILDINGS

For decades it's been common practice to place parking lots between a building's entrance and its adjacent roadway. This arrangement however creates a barrier for non-vehicle users, and communicates that the personal vehicle is the preferred way to access the building. Instead, in most cases it's more efficient to shift the arrangement so the building fronts the roadway(s), particularly along corridors with pedestrian infrastructure. This design promotes greater accessibility to and between buildings, particularly for non-driving modes of transportation, and offers greater opportunities for creative infill development. Increasing access this way not only encourages physical activity and social interactions, but is a proven economic booster.

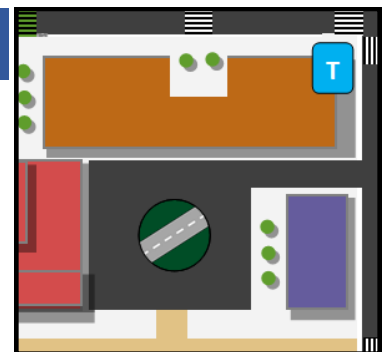
DESIGN FEATURES



- Appropriately sized parking lot or spaces located behind buildings
- Parking lots have side street and/or multiple access points
- Building entrances oriented alongside major roadways to promote access
- Opportunities for connective paths and greenspaces between adjacent buildings

HEALTH OUTCOMES

- Increased pedestrian and bike access and opportunities for physical activity
- Storm water management and reduction of harmful pollutants
- Reduced opportunities for vehicle and pedestrian conflicts



Rethinking Parking East Tennessee



*Aerial View, and Street View
Source: Google Maps*

How we design our parking sends a message about what types of users are prioritized and accommodated (vehicles, pedestrians, bicyclists etc.). The “asphalt islands” in this Tennessee community communicate that driving is the primary and preferred means of travel to these businesses. By surrounding each building with parking lots, and buffering even the smaller buildings from the main corridor with pavement, access for bicyclists and pedestrians, even drivers who become pedestrians once outside the vehicle, is deterred. Further, those without a vehicle are potentially prohibited from safely accessing jobs, food stores, or health services. An over abundance of paved surfaces also radiates higher amounts of heat compared to green spaces, and results in heavy storm water runoff. For much of Tennessee this means increased risks of flash flooding. Many times, parking codes are written to require maximum parking capacity, which may rarely, if ever, be at full capacity.



Aerial View, and Street View, Source: Google Maps

In contrast, this Tennessee community fronts nearly every building alongside their adjacent roadway, while including supportive pedestrian infrastructure and public spaces. The community maintains necessary parking lots, but has situated them behind or between their associated structures and away from major roads. This allows for people to access several destinations within one single vehicle trip, meaning more time for shopping, eating, and spending time in the area. This enhanced walkability sends a message of prioritized accessibility and health promotion.

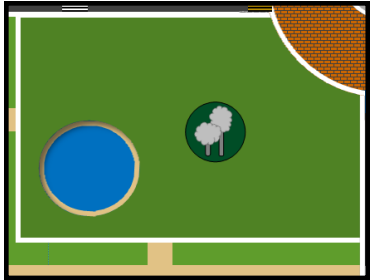
PARKS AND GREEN SPACES



Tennessee’s abundance of open spaces and parks offers limitless opportunities for recreation and physical activity for both passive and active users. Green spaces also aid in environmental health, as they contribute to the tree canopy, assist in pollution control and erosion mitigation, reduce urban heat effect, and present opportunities for flood and storm water management. Exposure to plants and natural features has also been associated with decreases in stress while promoting focus, attention, and creativity. When done strategically, green spaces can also be leveraged as pedestrian connectors and places for social gathering.

1. ACCESSIBLE AND CONNECTED GREEN SPACES

Open green spaces are crucial components of public health promotion. Being outdoors in nature decreases stress, improves focus, and offers opportunities for physical activity, creative exploration, and social interactions. These spaces should be accessible by multiple modes of transportation and to as many Tennesseans as possible.



DESIGN FEATURES



- Tennessee’s green spaces should enhance our existing natural features
- Inclusion of infrastructure for both passive and active recreation
- Inclusion of connective infrastructure accommodating multiple user types
- Protection of native plants and waterway protections.
- Streets, trails, and paths directly connect to and between greenspaces

HEALTH OUTCOMES

- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Interactions with green spaces aids in connections to nature, stress reduction, and healthy child development
- Reduction of social isolation through community social interactions
- Increased safe accessibility for multiple types of transportation
- Environmental sustainability, storm water management, and reduction of harmful pollutants

2. GREEN SPACES INTERWOVEN WITH COMMERCIAL CENTERS

Commercial and business centers shouldn’t be without their own green spaces. Creative integration of even small parks and plazas between and within commercial centers aids in employee health and attracting patrons to local businesses. These spaces can also be used to promote connectivity between nearby businesses and locations.

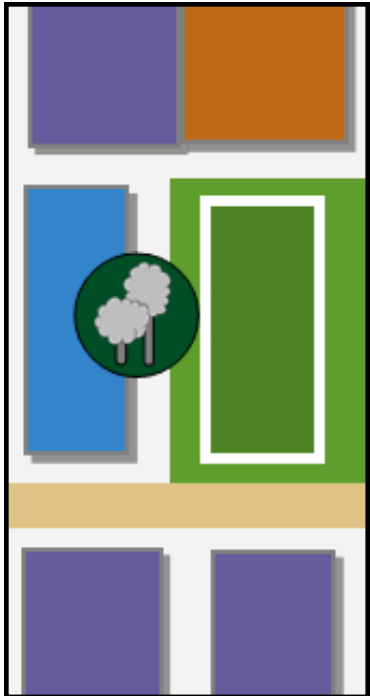
DESIGN FEATURES



- Appropriately scaled and easily accessible green spaces incorporated into commercial centers
- Inclusion of plants and preservation of natural features
- Creative and inviting seating elements to encourage use
- Shade from trees and larger plants aide in reducing the effects of hot Tennessee summers, and provide refuge for outdoor gatherings

HEALTH OUTCOMES

- Interactions with green spaces aide in connections to nature, stress reduction, and healthy child development
- Environmental sustainability, storm water management, and reduction of harmful pollutants
- Shade from trees reduces the effects and impacts of urban heat islands



Commercial Green Spaces

Jackson, Tennessee



Parks like this one in downtown Jackson, Tennessee offer employees and visitors an outdoor space to relax and recharge while being surrounded by plants and greenery. Included in the park are shaded seating elements, connective pedestrian infrastructure, and scaled open space for events or gatherings.

Spaces like this should be pursued within commercial districts to improve the health and wellness of both local employees and visitors. Further enhancements could be made by painting a locally-inspired mural onto the adjacent building walls.

Source: Google Maps

3. RETROFITTED “GREEN ALLEYS”

Alleys are often overlooked for their opportunity at being health-promoting and connective green spaces. Through creative, simple, and low-cost rehabbing, alleys in any community type can be retrofitted as conduits for “greening” a community. Rethinking alleys can also open opportunities for pedestrian connectivity, integrating public artwork, and even creating new spaces for economic activity.

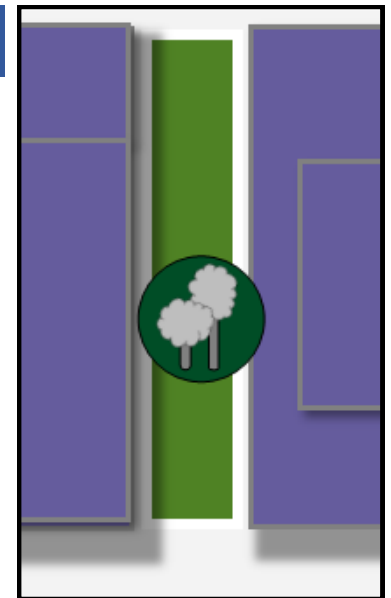
DESIGN FEATURES



- Permeable paths and pavement to improve rainwater drainage
- Planting low-maintenance native plants that assist with water purification
- Integrate creative placemaking, specifically artwork and lighting, into alleyways to promote usage and attractiveness

HEALTH OUTCOMES

- Environmental sustainability, storm water management, and reduction of harmful pollutants
- Interaction with green spaces aides in connections to nature, stress reduction, and healthy child development
- Increased safe accessibility options for pedestrians



Green Alleys
Nashville, Tennessee

Source: Cumberland River Compact

The Cumberland River Compact’s Green Alley project is transforming alleys from asphalt stormwater conveyances that transport pollution to our most vulnerable streams, into areas that percolate and clean polluted stormwater, thereby improving water quality throughout the city. Focusing on residential bioretention (rain gardens), the Compact has carried out two large Green Alley projects within Nashville. Neighborhoods within Nashville’s Combined Sewer System Overflow (CSOs) were targeted due to their connectivity to Nashville water quality impairments, especially after precipitous events. With the help of community leaders, willing landowners, local public utilities and numerous volunteers, the Compact has installed over 140 rain gardens in two neighborhoods, that’s upwards of over 5.6 million gallons of stormwater sunk annually!

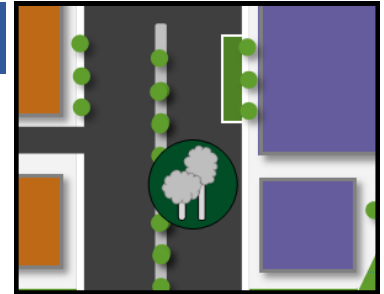
A rain garden captures storm water runoff from rooftops, driveways, and parking lots. By giving the rain time to sink in, rain gardens help to reduce excessive storm water runoff and to keep pollution from entering our neighborhood streams. Each rain garden will capture and filter 40000+ gallons of storm water each year!

-Will Caplenor, Project Manager Cumberland River Compact

PARKS AND GREEN SPACES

4. INCORPORATION OF “POCKET PARKS”

Pocket parks, also known as parklets, are publicly accessible green spaces intentionally designed to fit in small locations. Pocket parks provide green space and amenities within existing right-of-way's and respective to the surrounding context, such as public seating adjacent to a sidewalk or bike racks near a greenway. Parklets can help Tennessee communities of any size create innovative and low-cost public green spaces and places to gather, while offering new spaces for economic activity.



DESIGN FEATURES



- Public access and amenities such as seating, art, or play space
- Include a protective barrier to buffer parklet users from the adjacent street
- Inclusion of greenery and plants, which may double as a protective barrier
- The parklet size, shape, and form should be respective of the surrounding context, and support nearby land uses

HEALTH OUTCOMES

- Exposure to nature reduces stress, and improves mental health and focus
- Reduction of social isolation through community social interactions
- Environmental sustainability, storm water management, and reduction of harmful pollutants



On-street pocket parks, or parklets, are either temporary or permanent greenspaces created within existing right-of-way, and generally include seating, greenery, and plants. Parklets offer contextually designed greenspaces without having to purchase and maintain land needed for a traditional park. They also offer the benefit of traffic calming by slowing cars with a perception of a tighter travel lane. Parklets should be cognizant of size and scale while supporting the usage of surrounding businesses. For example, creating a parklet outside a coffee shop offers a new café space for patrons to gather. Parklets not only increase desirability of those businesses, but present opportunities for social interactions, exposure to health-promoting greenery and public art, all the while reducing traffic speeds and increasing safety.

In 2016 Chattanooga [passed an ordinance](#) allowing for restaurants to incorporate parklets and outdoor seating features into their restaurants. In the fall of 2018 Nashville will be unveiling its own parklet permit to allow parklets within designated areas for up to a 12 month period.

More information on parklet design and implementation can be found from the UCLA [Toolkit for Creating and Implementing Parklets](#).

Images source: Nashville Civic Design Center (2017)

5. INTEGRATE GREEN SPACES INTO BUILDING DESIGN

Buildings that integrate plants and greenspaces provide benefits to both the building and those who inhabit it. Incorporating elements like green roofs, plants, internal or adjacent parks, and natural light have proven health and productivity benefits. When done well, “greening” a building also saves money through more efficient energy usage.

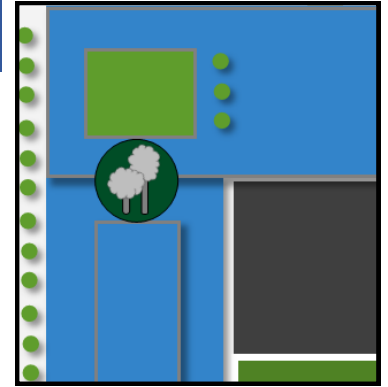
DESIGN FEATURES



- Creative integration of green spaces, including green roofs and internal or adjacent parks
- Include plants of various shapes and sizes throughout the building
- Consider the placement and number of windows to offer more nature light

HEALTH OUTCOMES

- Exposure to nature reduces stress, and improves mental health and focus
- Exposure to natural light decreases anxiety and stress while improving focus
- Environmental sustainability, storm water management, and reduction of harmful pollutants



GREEN DESIGN

Roane State Community College



Facing an overcrowded campus and increasing demand for more educational programs, Oak Ridge’s Roane State Community College opened the Goff Health Sciences and Technology Center in fall of 2014. The building, located on Roane State’s existing campus, was awarded LEED Silver Certification for New Construction by the [US Green Building Council](#).

At 60,000 square feet, Goff offers classroom, office, lab, and lecture hall space for as many as 500 students. The site was carefully constructed to utilize sustainable design, such as orienting itself on an east/west axis to maximize natural lighting. Additional features include geothermal HVAC, sustainable power and water supplies, bike storage and shower facilities, a roof design to mitigate heat loss, and low volatile organic compound (VOC) building materials.

Images source: Roanestate.edu

PUBLIC SPACES AND BUILDINGS



Public spaces and buildings are for everyone, belong to everyone, and should reflect our state’s democratic ideals. Quality public spaces should instill a sense of belonging and local identity reflective of the community in which the spaces and buildings exist. While we typically think of public places like the post office, city hall, and parks, public spaces also include our streets and sidewalks. Collectively these places can have an enormous impact on our public health, particularly regarding how we get around, recreate, and the social interactions we have while doing so.

1. ATTRACTIVE AND INVITING PUBLIC SPACES

Spaces open to the public should be inviting and attractive to encourage use. Creative and colorful designs, culturally relevant elements, and programming should all be incorporated into public spaces. Good public spaces also include multiple uses that collectively support and encourage use of the entire space.

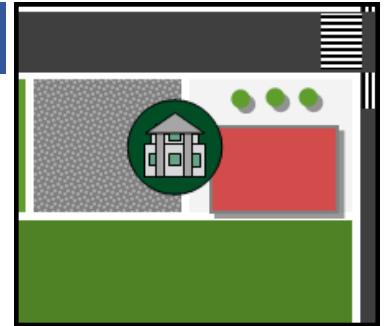
DESIGN FEATURES



- Priority given to function and use over a prescribed design
- Multiple features strategically integrated throughout the space, each enhancing each others’ use
- Integrate creative placemaking, specifically artwork, into public spaces
- Consideration of greenspaces, plants, and preservation of natural features

HEALTH OUTCOMES

- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Reduction of social isolation through community social interactions
- Environmental sustainability, storm water management, and reduction of harmful pollutants



Market Square
Knoxville, Tennessee



Located in downtown Knoxville, the one acre Historic Market Square is a mixed-use pedestrian mall providing public event space 365 days a year. Market Square is strategically placed one block away from Knoxville’s major downtown corridors and embodies a centralized public space within the heart of downtown.



Sources From Left: Nashville Civic Design Center; Joel Kramer, Flickr

The Square is particularly unique thanks to the intentional mixture of uses surrounding it, including dozens of commercial stores and restaurants. Having a width of about 120ft, the Square has plenty of open and inviting space to host events year round while adhering to a series of [design guidelines](#) to preserve and enhance its historic nature. Market Square was a 2017 American Planning Association [Planning Excellence recipient](#), which noted its exceptional combination of uses and supportive programming.

To learn more about the Square, including events and offerings, check out the Market Square [website](#).

2. PUBLIC SPACES AND BUILDINGS AS CONNECTORS

Public spaces and buildings should create connections to and between destinations throughout a community. Building plazas, parks, and gathering spaces between and surrounding commercial areas, services, and amenities increases both use and access. Similarly, public space connectors promote physical activity and social interactions.

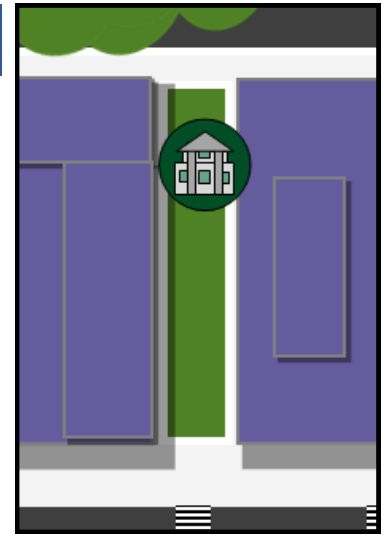
DESIGN FEATURES



- Design features that direct people to and between surrounding amenities and uses
- Open spaces that offer inviting methods of pedestrian travel between services and amenities
- Roadways and paths that accommodate multiple user types
- Wayfinding and signage that supports connective infrastructure

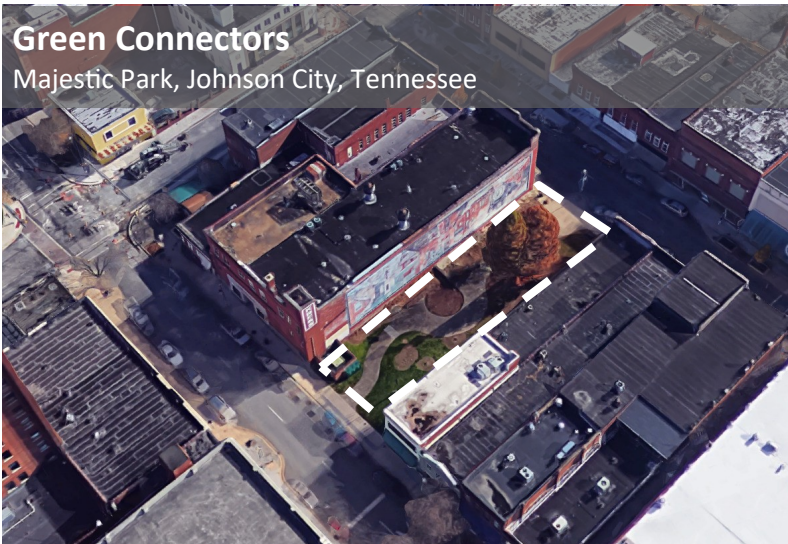
HEALTH OUTCOMES

- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Increased access to jobs, and health-promoting services and amenities
- Reduced personal vehicle trips and vehicle traffic, decreasing pollutants and increasing pedestrian safety
- Reduction of social isolation through community social interactions



Green Connectors

Majestic Park, Johnson City, Tennessee



Source: Google Maps

Located in what was once the Majestic Theatre, Majestic Park encompasses about 1/5 of an acre in Johnson City between East Main St. and East Market St. Established in the mid 1990's after the Majestic Theatre was torn down, this "pocket park" is wedged between two commercial buildings thereby creating a connective alleyway between its two perpendicular roads. The park contains a walking trail, trees, plants, and public seating. Spanning one of the adjacent walls is a large mural, further attracting users to the park. By retrofitting the vacant Theatre into a public park, Johnson City is not only promoting access and walkability, but leveraging this location to incorporate health-promoting public space.

PUBLIC SPACES AND BUILDINGS

3. PUBLIC BUILDINGS LEVERAGE HEALTHY DESIGN FEATURES

Public buildings have an opportunity to include design features that promote the health of those who work and visit them. By giving careful consideration to both low-cost and cost-saving design measures, our state's public buildings can encourage and support our public health.

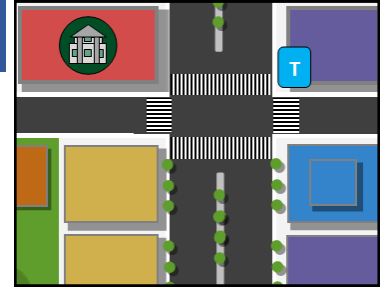
DESIGN FEATURES



HEALTH OUTCOMES

- Attention to entrances and access, and how they facilitate clear access to and from buildings
- Natural features like daylight and plants encouraged and placed throughout
- Integrate creative placemaking, specifically artwork, into public spaces

- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Reduction of social isolation through community social interactions
- Environmental sustainability, storm water management, and reduction of pollutants



Healthy Building Design

Active Building Guidelines



In 2017, the Tennessee Department of Health and the Nashville Civic Design Center released the *Active Building Guidelines* (ABG), a resource to assist with the design of buildings in a way that promotes health. The ABG contains case studies and a “menu” of nearly 70 health-promoting design features that can be integrated into public buildings across Tennessee. The ABG is a best practice resource created to be adapted within the unique context each building finds itself in.

It is the goal of the guidelines to provide attractive and desirable health-promoting building adaptations that, whenever possible, maintain or increase convenience of use for both staff and the public .

Since its release, the ABG has been used with clinical public health staff to inform the redesign of several local health departments across Tennessee. Staff go through a design charrette process to analyze their existing facility and provide recommendations of healthy design features they would like to see included in the new building.

The Tennessee Department of Health is beginning to require these meetings and use of the guidelines each time one of their 120 local health departments are renovated or rebuilt. The Department of Health recognizes this opportunity to create buildings that are an extension of the care already being provided by local staff while setting an example of innovative health promotion.

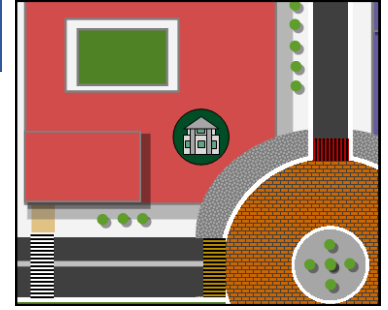
Active Building Guidelines is publicly available for download at the Department of Health's [Healthy Places Website](#).

Source: Tennessee Department of Health



4. PUBLIC SPACES ENHANCE THE SURROUNDING COMMUNITY

If done well, public spaces like libraries, community centers, parks, and general open spaces should enhance the design, usage, and unique sense of place of the surrounding area. Design features can and should encourage accessibility and direct people to surrounding amenities, while incorporating art that portrays an image or message about the community. The resulting connective design, combined with an instilled sense of place, encourages use while establishing a collective community identity.



DESIGN FEATURES



- Multiple uses strategically placed throughout the space, directing people to and around the public space
- Public spaces should enhance accessibility to surrounding amenities by responding mindfully to adjacent streets, roadways, and connectors
- Consideration of greenspaces, plants, and preserving natural features
- Opportunities to incorporate food elements, and provide new connections to food systems

HEALTH OUTCOMES

- Increased opportunities for physical activity, reducing risk for several chronic diseases
- Reduction of social isolation through community social interactions
- Increased safe accessibility for multiple types of transportation
- Increase healthy food access and education to decrease risks of chronic diseases such as obesity and diabetes

FOOD SYSTEMS



Access to quality food resources greatly increases opportunities for healthy diets while reducing the risk of obesity and diabetes. Healthy communities should offer a variety of ways residents can get healthy foods, which may include traditional supermarkets, local markets, farmers markets, local gardens, and food share programs. Food stores and markets should be located within walking or short trip distances from residential areas and have fresh, affordable offerings. Considering how ordinances and codes impact innovative food delivery, such as mobile food trucks and neighborhood gardens, may also help offer cheap access options.

1. FOOD STORES SHORT DISTANCES FROM RESIDENTIAL AREAS

Food stores should be located near residential areas, and ideally be supported by infrastructure that facilitates accessibility by more than just car. Prioritizing healthy but affordable local markets and grocery stores can help combat the lack of adequate foods many Tennesseans face.

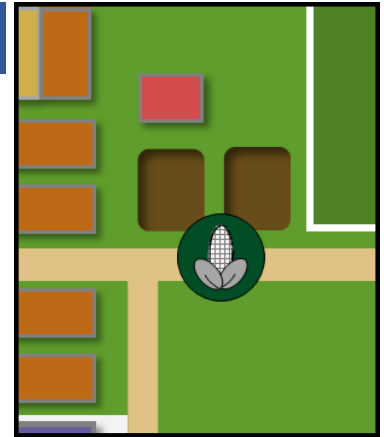
DESIGN FEATURES



- Contextually sensitive local food stores located short distances from neighborhoods and residential areas
- Supportive pedestrian and bicycle infrastructure to promote safe accessibility

HEALTH OUTCOMES

- Increased healthy food access to decrease risk of chronic diseases such as obesity and diabetes
- Increased opportunities for physical activity by walking or biking to and from nearby food stores
- Vehicle traffic reduced along neighborhood streets



2. CORNER GROCERY STORES WITHIN DENSER NEIGHBORHOODS

In denser residential neighborhoods that can support the demand, corner grocery stores and markets should be encouraged to offer greater food accessibility, particularly in areas designated as “food deserts”. These stores should be accompanied by pedestrian infrastructure, and can be opportunities for creative placemaking.

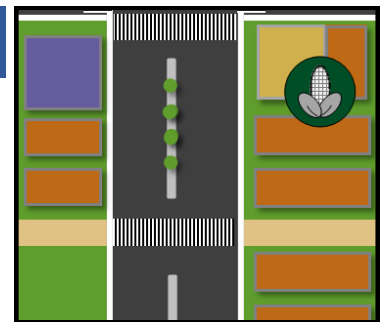
DESIGN FEATURES



- Contextually sensitive local food stores located within neighborhoods and residential areas
- Consider incorporation of public spaces, and connections between adjacent structures
- Neighborhood stores front adjacent streets to promote access and desirability

HEALTH OUTCOMES

- Increased healthy food access to decrease risk of chronic diseases such as obesity and diabetes
- Increased opportunities for physical activity by walking or biking to and from neighborhood food stores
- Vehicle traffic reduced along neighborhood streets
- Opportunities for social interactions, and reduced social isolation



3. FARMERS MARKETS AND POP-UP MARKETS

Farmers markets can be integrated into existing public spaces, like parks or public plazas, to increase local healthy food access while providing opportunities for education on the process and benefits of growing local foods. Markets may manifest as permanent buildings, pop-up tents, or a semi-permanent structure.

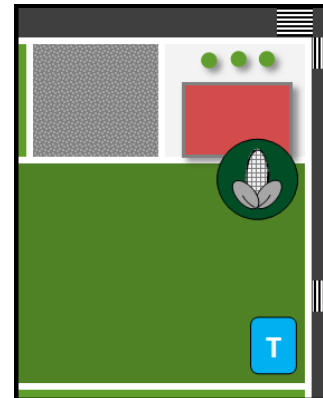
DESIGN FEATURES



- Attractive farmers markets located in central and easily accessible public spaces
- Permanent market structures include infrastructure for year-round events both inside and outside
- Inclusion of education facilities and programming, such as learning kitchen and food gardens for healthy cooking demonstrations

HEALTH OUTCOMES

- Increased healthy food access to decrease risk of chronic diseases such as obesity and diabetes
- Food education supports the development of healthy eating habits for children and adults
- Encourage social interactions and reduces social isolation



Source: Pikeville Farmer's Market Facebook

The Pikeville Farmer's Market serves residents of Bledsoe county with fresh food from local farmers, handmade and local goods, offers local music, and provides a regular social gathering. The farmers market meets one block off Main Street in an easily accessible and walkable public space. More can be learned about the Market, including schedule and activities at the [Pikeville Farmer's Market Facebook page](#).

As part of its dedication for promoting local farmers and healthy food options, the Tennessee Department of Agriculture provides resources and guidance on starting and maintaining a local farmers market. To learn more, visit the [Department of Agriculture Website](#).

4. SMALL SCALE FARMING AND COMMUNITY GARDENS

Small scale farming is the process of farming on small pockets of land, rooftops, or even window gardens. Both small scale farming and community garden locations should be mindful of proximity to high traffic roadways and areas of industrial activity, as this may spread harmful pollutants into the soil and plants. Additional consideration should be given to potentially contaminated soil. The [University of Tennessee's Extension](#) offices can help with testing soil for heavy metals and pollutants.

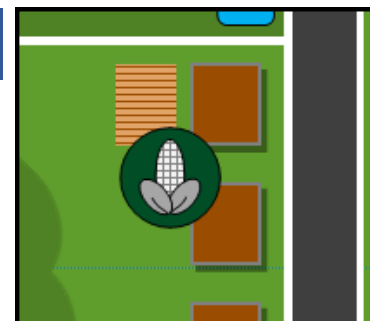
DESIGN FEATURES



- Community gardens located in publicly accessible space
- Gardens created in conjunction with efforts to enhance a community's natural environment and preserve natural and green spaces
- Community gardens may integrate creative placemaking to enhance desirability and sense of place

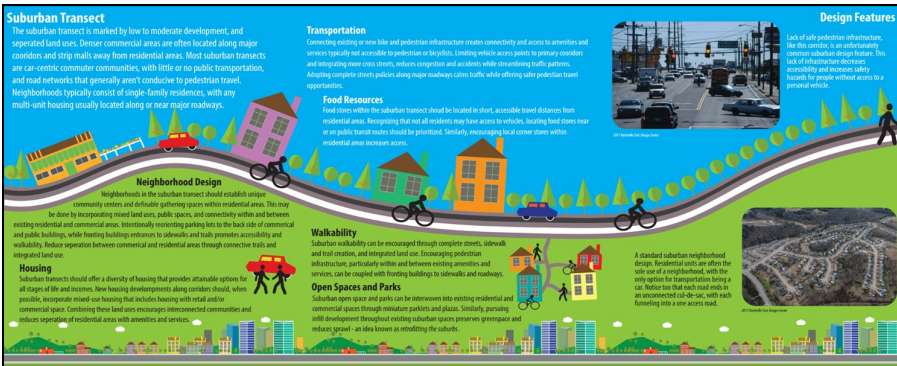
HEALTH OUTCOMES

- Increased healthy food access to decrease risk of chronic diseases such as obesity and diabetes
- Food education supports the development of healthy eating habits, particularly among children
- Preservation of green and natural spaces, resulting in pollutant mitigation and bioretention
- Encourage social interactions and reduces social isolation



APPENDIX

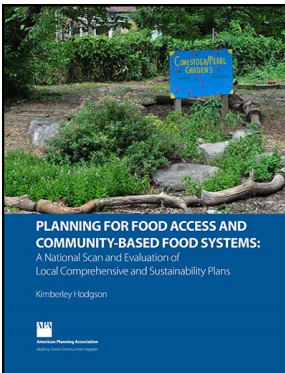
HELPFUL RESOURCES



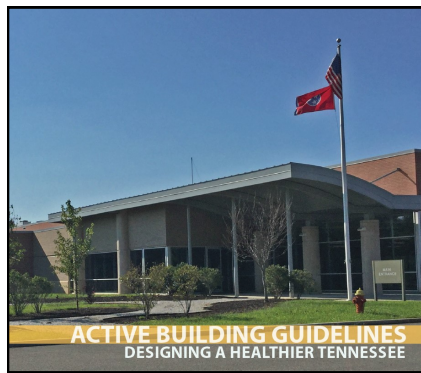
Healthy Tract Info Sheets, Available upon request in digital or paper format.



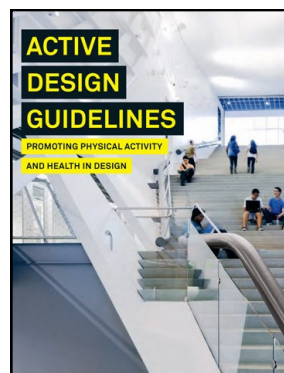
Health Promoting Design Economic ROI Toolkit



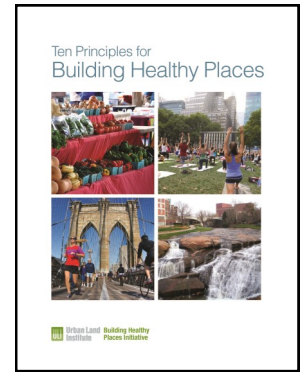
Planning for Food Access and Community-Based Food Systems



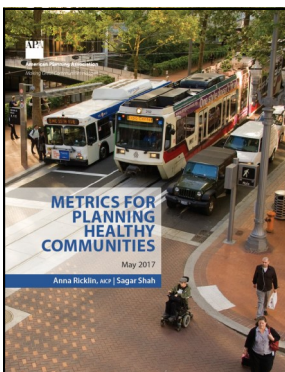
Active Building Guidelines: Designing a Healthier Tennessee



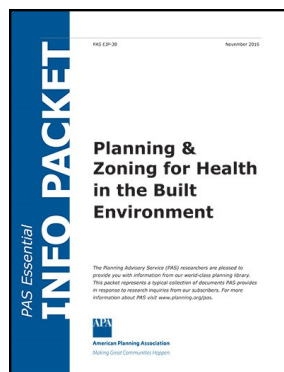
Active Design Guidelines: Promoting Physical Activity and Health in Design



Ten Principles for Building Healthy Places



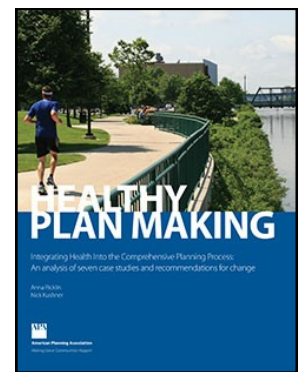
Metrics for Planning Healthy Communities



Planning and Zoning for Health in the Built Environment



Healthy Planning



Healthy Plan Making

Tennessee Department of Health, Healthy Places Website:
<https://www.tn.gov/health/cedep/environmental/healthy-places.html>

GLOSSARY

AADT (Annual Average Daily Travel): A fundamental traffic element which generally measuring the average number of vehicles that travel on a given road or highway in a given year.

Affordable Housing: A classification of housing that is priced at no more than 30% of a owner or renter's household income.

Aging In Place: The ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level.

Agritourism: Generally refers to any tourism that brings people to a farm or ranch, often to learn about or experience the operations of the farm or ranch.

Arterial Street: Medium speed (30-50mph) medium volume 10k-35k average daily trips) roadway that connects communities, brings traffic from collector streets to a highway, and vise-versa.

Chronic Disease: A long lasting health conditions that cannot be cured.

Cohousing: A collection of homes, generally clustered around a central public space, in which residents often share common spaces and operational responsibilities.

Collector Street: Low Speed (25-30mph) and low volume (5k-20k average daily trips), that provide connection within and between neighborhoods.

CSA (Community Supported Agriculture): Farming in which community members equally share responsibility for the farms operations and production.

Complete Streets: Streets designed to equally serve all types of users: pedestrians, bicyclists, transit users, drivers, people with disabilities and children.

Design Guidelines: The set of standards defining the parameters for a site or building design and development.

Greenways: A linear park that provides space for active transportation such as walking, running, and biking.

Health Defeating: Built environment factors that are generally detrimental to individual or environmental health.

Health Promoting: Built environment factors that enable positive individual and environmental health.

Infill: The development of vacant or underutilized land, generally in an area that has surrounding development.

LEED (Leadership in Energy and Environmental Design): A environmentally-oriented certification program run by the US Green Building Council. Buildings are ranked based on the LEED certification score that assesses environmental sustainability and responsibility.

MPO (Metropolitan Planning Organization): A local governmental unit that has legal jurisdiction over a geographic area for government service planning such as transportation and land-use planning.

Mixed-Use Development: The development of a site or building that contains two or more different uses.

Pedestrian Refuge: A raised or protected area placed in the center of a roadway, separating opposing lanes of traffic to make it easier for pedestrians to cross wide streets.

Road Diet: A reduction in the width or number of traffic lanes, with the intent to improve safety particularly when done in conjunction with new/wider sidewalks, bikelanes, or planter strips.

Smart Growth: A movement that seeks to attain more compact, mixed-use, and efficient communities and developments.

Streetscaping: Improving the aesthetics and amenities of a communities street network and system

Traffic Calming: A design or redesign of a roadway to slow traffic and improve safety.

VOC (Volatile Organic Component): Materials that emit a (usually harmful) gas chemical.

Walkability: A measure of how well a community's conditions support and facilitate walking.

More definitions can be found from the American Planning Association's Planning Dictionary, or the Sunbelt Alliance's Land-Use Planning Dictionary

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