HEALTH PROMOTING COMMUNITY DESIGN

Outline of Expected Returns

TENNESSEE DEPARTMENT OF HEALTH

The mission of the Tennessee Department of Health is to protect, promote and improve the health and prosperity of people in Tennessee.

www.tn.gov/health

NASHVILLE CIVIC DESIGN CENTER

The mission of the Nashville Civic Design Center is to elevate the quality of Nashville's built environment and to promote public participation in the creation of a more beautiful and functional city for all.

www.civicdesigncenter.org

AMERICAN PLANNING ASSOCIATION

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www.planning.org/nationalcenters/health/planners4health/

http://www.tnapa.org/


Rita's
TASTE OF OLD CITY
Welcome to
Patio Seating

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INTRODUCTION

INTRODUCTION: FINDING THE IMPACT OF HEALTHY DESIGN

Our cities and communities are the stages in which daily life play out. These stages, known collectively as the *built environment*, influence how we view and understand the world, ourselves, and each other. More then just shaping our worldview however, the built environment has a direct impact on our public health, offering both promotion and deterrence of healthy behaviors. Public parks and connective trail systems offer spaces in which to exercise and play. A lack of accessible food stores and nonexistent sidewalks however present clear barriers to healthy activities.

There are a host of reasons as to why our cities aren't better designed to promote health. The advent of the automobile and resulting car-centric planning is often blamed as a main contributor. Other factors like project costs, municipal land use regulations, and even cultural norms can dissuade an emphasis on healthier cities.

For rural and non-urban communities, additional and unique barriers often exist. A study of rural mothers in New Hampshire for example noted that barriers to their engagement in physical activity included physical distance between healthy amenities, location, and personal finances.[1] These realities, true for many across rural America, demonstrate the necessity of a health-promoting built environment that offers convenient and affordable options, intentionally designed so as to reasonably become one's default choice. It should therefore be the intent of all city development projects to, whenever possible, integrate health-promoting options into the existing daily patterns of community life.

Significant research has been devoted to addressing and advocating for this *culture of health*. The resulting abundance of resources on building a heathy city is crucial towards understanding the connection between the *shape* of our communities, and the *state* of our health. Less research has been done however on the financial impacts of healthy infrastructure, particularly within non-urban communities. This Toolkit therefore is a timely resource; bringing together the fiscal impacts of smart city planning, with the re-engaging of that planning as a method of preventative care.

Utilizing extensive research and reviews of existing studies, reports, and publications, the *Health Promoting Design: Return on Investment Toolkit* demonstrates that a healthier built environment doesn't just provide a healthy choice, but greater financial impacts. The Toolkit provides categorical overviews of health promoting community design features, with general expectations of long-term fiscal impacts. Included throughout are coinciding health benefits, highlighted success stories, additional information, and alternative implementation methods. Finally, a concluding appendix provides suggested resources for conducting project specific impact studies.

The intent of this Toolkit isn't to provide in-depth analyses towards calculating a specific project's expected returns. Rather, it provides general findings from across the country to assist in guiding the exploration of new health-promoting projects. It is the hope that through a more well informed understanding of project outcomes, there will be expanded efforts towards the shaping of healthier and more livable communities for all people.

METHODOLOGY

Predicting expected returns of a particular project is a difficult, and technical process. Several factors influence the actual realized outcomes including physical context, accessibility to construction resources and materials, existing legal and political systems, expected usage, and even climate. Recognizing this, the Toolkit aims to provide general guidelines and expectations by referencing existing research, case studies, and professional reports. These resources were solicited and compiled by the Tennessee Department of Health and Nashville Civic Design Center, with additional support of government and non-profit agencies across Tennessee who engage in planning, public health, and the built environment.

Over 20 unique resources were utilized in creating this Toolkit. Included resources had to show a clear and measured financial return from a specific health-promoting infrastructure project. These could be either new projects, a renovation, or the repurposing of an existing space. Locations included within qualifying research included all levels of scale, from dense urban centers to sparse rural communities. Special attention however was given to identifying and including research of both urban and rural locations so as to maximize applicability.

During this data gathering phase, it quickly became evident the lack of existing research regarding fiscal returns around these types of projects. Most existing research assesses a project's impact upon a target population's health. While this is an important focus, the absence of significant financial outcomes analysis points towards both an opportunity for future research, while simultaneously evidencing the difficulty of predictive built environment research. It appears safe to say that more attention is desperately needed in the field of health-promoting built environment research, particularly as it pertains to financial expectations.

Any attempt at calculating actual expected returns of a given project should be undertaken using professional support and resources. More information about some of those predictive modeling resources can be found within the appendix of this Toolkit.

WHAT MAKES A HEALTHY COMMUNITY?

What makes a community healthy? Is it in a health measurement such as the obesity rate, or number of people without a chronic disease? Is it simply the number of hospitals and clinics in one's town? Or is it something more? Is a healthy community defined by both traditional measures *and* its physical design?

The 2016 publication *Shaping the Healthy Community: The Nashville Plan*, identified six components of the built environment that have a direct impact on community health. While each of these components are interrelated—feeding into and influencing one another–they are composed of elements that uniquely impact the health of those who live, work, and play in a given place.

Neighborhood Design and Development:

While all neighborhoods have common components, they vary in building density, connectivity, and proximity to healthy amenities and services. Neighborhoods consisting of a multitude of interconnected offerings generally have higher health rates.

Transportation

Our historic car centric planning and city development have left most communities reliant upon the personal automobile for all transportation needs. Alternative forms for transportation aide in pollution reduction, increased physical activity, reduced stress, and increased mobility for those with barriers to traditional transportation.

Walkability

Walking is generally the easiest form of physical activity. Walkable communities include diverse sets of land uses within manageable walking distance of residential areas, and are connected through a direct and efficient network of streets and paths.

Food Resources

Access to quality food resources greatly increases opportunities for healthy diets. Food stores should be located within walking or short trip distances from residential areas, and may include farmers markets, community gardens, traditional grocery stores, or even mobile food stores.

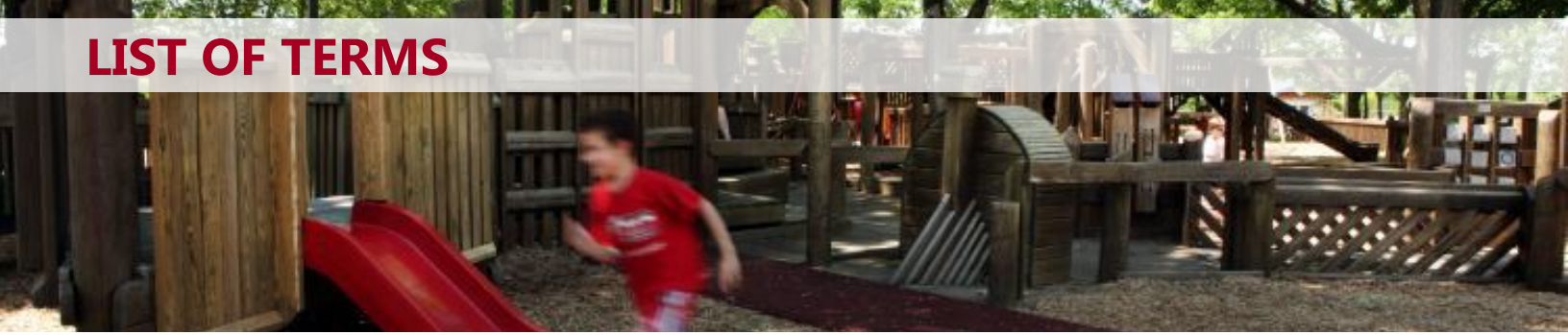
Housing

A diverse set of housing options in a neighborhood allows for social connectivity, 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.

Open Space and Parks

Open spaces and parks offer 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.

LIST OF TERMS



The following terms are used throughout the ROI Toolkit, and are common concepts within health and built environment work. More information on each, including potential funding opportunities and success stories, can be found on the Tennessee Department of Health's Healthy Places website.

Active Transportation: Any self-propelled, human-powered mode of transportation, such as walking, bicycling, or paddling.

Aerobic Physical Activity. Activity in which the body's large muscles move in a rhythmic manner for a sustained period of time. Aerobic activity, also called endurance activity, improves cardiorespiratory fitness. Examples include walking, running, swimming, and bicycling.

Bike Share: A service which provides bicycles for short term rent and shared use by individuals. Bikes can usually be rented and returned among any station within the service area, and may offer discounted subscriptions.

Bike Tourism: Any destination travel related to bike centered activities, such as pleasure rides or organized races.

Blueways: Water-based trail systems created for non-motorized water vehicles, with designated public access points. Blueways are primarily used for recreation and exercise, and may contain canoe-in campsites.

Complete Streets: Streets intentionally designed for a diverse set of users, including automobile, public transportation, pedestrian, and bicycle. Elements for complete streets can include, but are not limited to: curbs, bike lanes, sidewalks, and cross walks.

Design Charrette: An intentional method of public engagement to elicit comments and feedback. Design charrettes can be used before or after a conceptual rendering has been proposed, and are used to inform the design process of a particular project or master plan.

Food Desert: Locations that lack viable, or accessible healthy food options such as grocery stores and farmers markets.

Greenway: A strip of undeveloped land often within an urban area, set aside for recreational use or environmental protection. Greenways can be paved, unpaved, or a combination of both.

Inactive Transportation: Any form of transportation that doesn't require sustained physical activity to move, the most common being a personal automobile.

Mixed Use Developments: Style of city planning that combines multiple uses, such as residential, commercial, and retail, within closely integrated spaces. These spaces are often within the same single building, and intentionally promote walkability and social interactions.

Place Making: The intentional creation and shaping of a place into a desired destination of culture, community building, and health.

Rail to Trail/Rail Banking: The process in which rail lines are preserved through conversion into a non-vehicular trail. These trails are often mixed use, and may include greenway space. Rail to Trail lines provide the benefit of clear level trails, and often pre-exiting connections to local amenities.

Road Diet: The process of reducing the number and/or width of street vehicle lanes in order to improve vehicle efficiency, incorporate public or active transportation, and/or improve pedestrian safety. Road Diets may include reworking the street network to improve network connections and traffic safety.

Safe Routes to School (SRTS): Organized programs aimed at improving child health through the encouragement of active transportation to and from school. SRTS programs evaluate and advocate for accessible transportation routes and safety, and are usually managed by community leaders, parents, schools, and/or elected officials.

Social Determinants of Health: Factors such as access to health care, the built environment, education, socioeconomic status, and support networks which collectively influence the conditions on which a person is born, grows, lives, works, and plays.

Tactical Urbanism: A method of using strategic, cheap, and temporary interventions to test changes to the built environment. Examples include spray paint to create bike lanes, or using recycled wood to create a bus shelter.

Traffic Calming: Any number of physical adjustments to a street, such as traffic circles, reduced lane widths, curb extensions, and speed bumps, with the ultimate goal of reducing traffic speeds. Traffic calming is most often done to improve safety for pedestrians and bicyclists.

Transit Oriented Development: A style of land use that emphasizes development within walkable blocks, located within a half mile from public transportation options.

Walkability: The level and measurement of how accommodating an area is to walking and pedestrian traffic. There are several ways to measure walkability, with the online metrics of Walkscore being the most widely used.

EXPECTED RETURNS

EXPECTED RETURNS

The following categories outline expected and example returns of health promoting infrastructure. Because there are often overlapping categories embedded within each ROI example, priority was given to the most general or directly applicable category for each. Included alongside the ROI data are spotlight stories, case studies, and additional information which may be helpful when pursuing healthy infrastructure.

PHYSICAL ACTIVITY AND HEALTH QUICK FACTS

The Centers for Disease Control and Prevention (CDC) and Surgeon General recommend the average adult should be engaging in 150 minutes of moderate to vigorous physical activity each week. The average youth should engage in 60 minutes of moderate to vigorous physical activity each day. Obtaining these recommended amounts, especially through simple activities like walking, running, and swimming have a drastic and direct impact on reducing the prevalence of dozens of chronic, and expensive, diseases.

Activity Equals Savings...

On average, an adult who attains the recommended amount of physical activity per week spends between **$920-$2500 less a year on health care** than their comparable physically inactive adult.

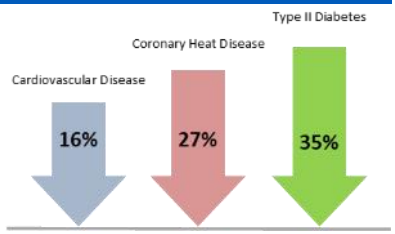
...Even For Those Already At Risk For Chronic Disease

Adults with an average risk of Cardio Vascular Disease (CVD) who attain the recommended amount of physical activity **spend $700 less than those not attaining** the recommended levels. They also **save $400 a year on prescription medication**.

Adults experiencing a high risk of CVD who attain the recommended levels of physical activity **save nearly 17% on health care** costs compared to physically inactive adults with a high risk for CVD.

Live Active Live Longer

Attaining these recommended amounts of physical activity decreases the mortality rates for several major diseases.



Drops in Mortality Rate From Attaining Recommended Physical Activity

Work To Be Done

The 2016 CDC report on Nutrition, Physical Activity, and Obesity noted that most Tennessee residents fall far below these recommended amounts.

Adequate Physical Activity Among TN Adults

Adequate Physical Activity Among TN Youth

Physical Activity and Health Quick Facts

Higher Academic Performance

There is positive association between school-based physical activity and education, particularly with intentional programming like physical education classes. Studies have found that physical activity during the school day leads to increases in student academic performance and behavior, and skills such as concentration, memory, and verbal communication. Further, increasing structured physical activity time during the school day hasn't been shown to negatively impact overall academic performance.

Shared Use Policies

Achieving recommended levels of physical activity, particularly for youth, has a direct effect on the risk and rates of diseases like cardiovascular disease, diabetes, and obesity. Adequate play spaces may not be accessible in all communities, presenting barriers to safe recreation opportunities. Creating access through shared use agreements, also known as community use agreements, offers exciting opportunities in promoting physical activity while avoiding the costs of building new facilities. Public shared use could go above just a facility's gym or playground, but include outdoor tracks, sports fields, pool facilities, and even designated rooms for community meetings.

Developing clear and agreed upon policies are essential to a successful shared use partnership. These agreements should address who can use the spaces and when, while outlining oversight and management responsibility of the spaces when it is being used by the public. Clearly addressing issues of liability, acceptable use, and any cost sharing responsibilities will be crucial to a successful agreement.

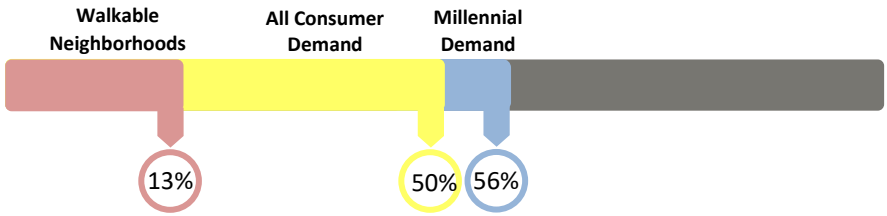
For more information, case studies, strategies, and potential shared use allies, check out *Unlock The Doors And Keep Kids Healthy*, and the Active Students, Active Learners resource page.

WALKABILITY

Walking is one of the easiest ways to engage in physical activity, while also providing opportunities for social connection and engagment with nature. As attention is shifting towards these benefits, a location's walkability is increasingly becoming a commodity in both residential and commercial spaces. The online resource Walkscore is one of the most widely used and accessible walking metric providers. While measuring a location's walkability, Walkscore also lists nearby amenities and transportation options. To learn more, visit Walkscore.com.

Homebuyers Want Walkability.

50% of people say walkability is a high priority in deciding where they live (56% of young people). Despite this demand, **only 13% of the US neighborhood stock is designated as walkable**. This presents a huge opportunity when planning neighborhood design and built environment projects.



Walkability Raises Property Values

+1 Walkscore = $700-$3000

Property value increase
(depending on density and nearby amenities)

Walkability Raises Home Sale Prices

+20 Walkscore = $100,000

Average home sale price increase

Walkability Raises Home Values

+15% Walkscore = 12% Value

Of home value versus comparable home

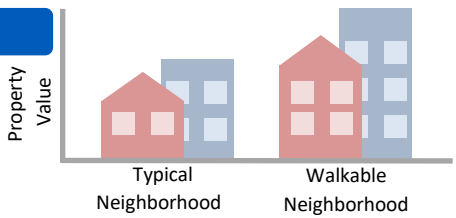
Walkability Raises Business Values

+10 Walkscore = 9% Value

Of business value versus comparable business

Walkability Improves All Values

Keeping all things equal, neighborhoods that are more walkable on average have **15% higher property values** than their less walkable counterpart.



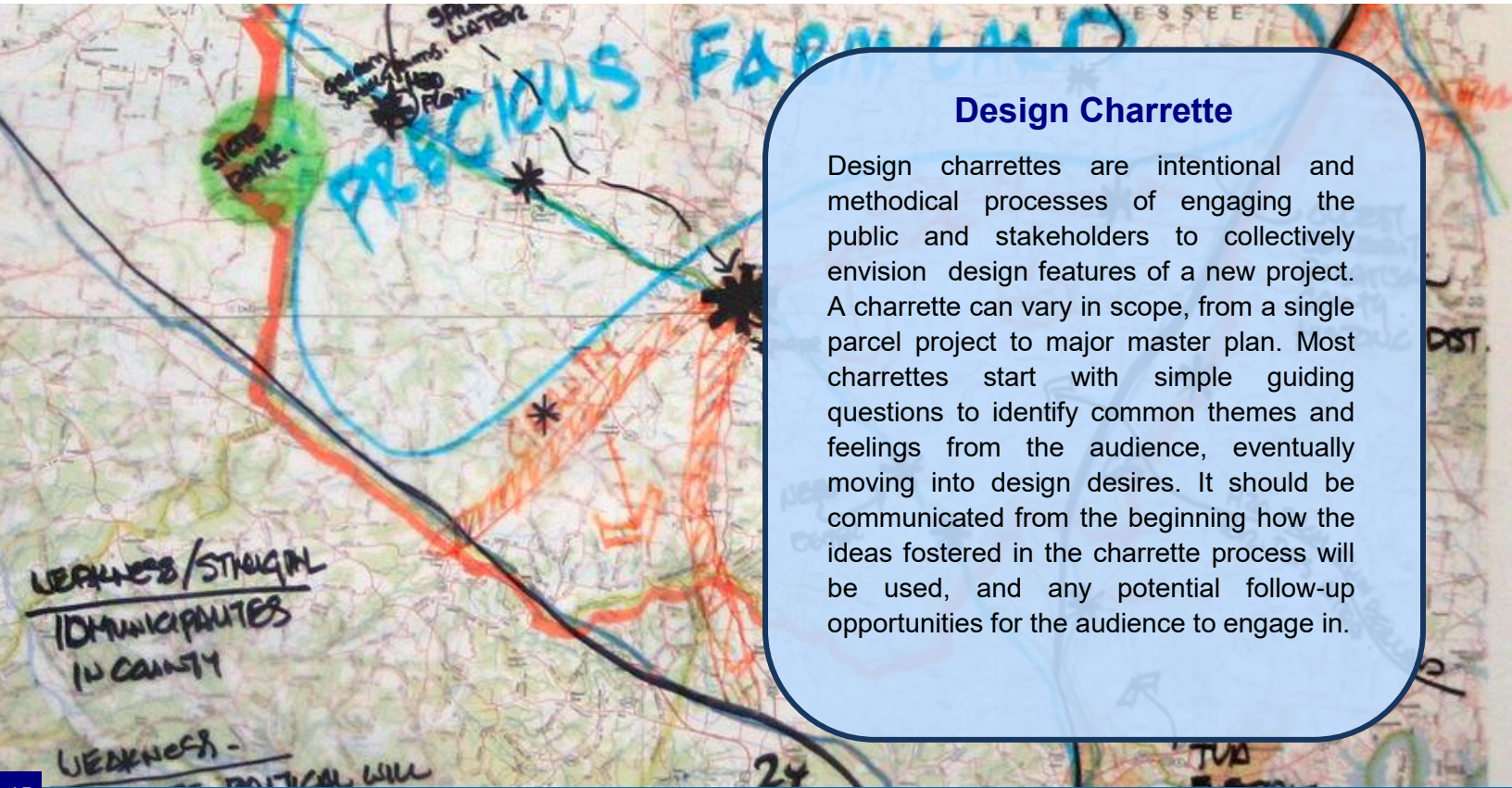
WALKABILITY

Diversity and Walkability Creates Value

Multiunit developments that are mixed-use, walkable, and near transit stations can see up to an **11% increase** in property value over a comparable development that does not have those amenities.

Exponential Property Value Increases

If a neighborhood is located within the 75th percentile of the total city's walkability, **it experiences property value increases from raising its Walkscore at a greater rate** then less walkable neighborhoods, raising by the same amount.



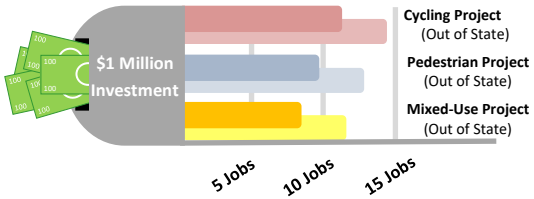
Design Charrette

Design charrettes are intentional and methodical processes of engaging the public and stakeholders to collectively envision design features of a new project. A charrette can vary in scope, from a single parcel project to major master plan. Most charrettes start with simple guiding questions to identify common themes and feelings from the audience, eventually moving into design desires. It should be communicated from the beginning how the ideas fostered in the charrette process will be used, and any potential follow-up opportunities for the audience to engage in.

ACTIVE TRANSPORTATION

Active transportation can be an easy way to incorporate physical activity into your daily routine. Cities and towns are beginning to encourage active transportation in ways such as complete streets creation, blueways, greenways, bike share facilities, accessible transit stations, and even transit promoting programming. People are most likely to engage in active transportation when offered routes that are convenient, safe, connected, and provide access to widely used amenities and services.

Job Creation



There are between nine and eleven in-state jobs created for every $1 million invested in a new transportation project. When including out-of-state job creation, those numbers increase three jobs per $1 million.

Raising Property Values

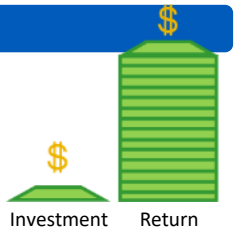
▲$510 Property Value

For every 1300 feet closer to an off-street bike facility.

Individual Cost Saving

77:1

An individual's return on investment for engaging in recommended levels of walking and biking activities.



Types of Active Transportation Investments

Egalitarian: Active Transportation receives a proportional share of transportation resources to motorist spending.

Cost Allocation Equity: Public expenditures on active transportation should be comparable to what users pay in taxes.

Impact Compensation: Motorists should bear the cost associated with active transportation, as they impose delays, risks, and 'discomfort' to active transportation users.

Vertical Equity: Attention, efforts, and funds should be made available to active transportation to the degree that they benefit disadvantaged peoples. This may look like increasing pedestrian infrastructure within historically marginalized communities.

ACTIVE TRANSPORTATION

More Frequent Trips

People engaging in active and public transportation purchase goods at supermarkets, restaurants, bars, and convenience stores located near transportation centers more frequently then those using a personal automobile.

Value Retention

During the Great Recession (2008-2010), houses that were near public transportation retained their value **42% better** than comparable units without public transportation access.

Transportation Savings

$351

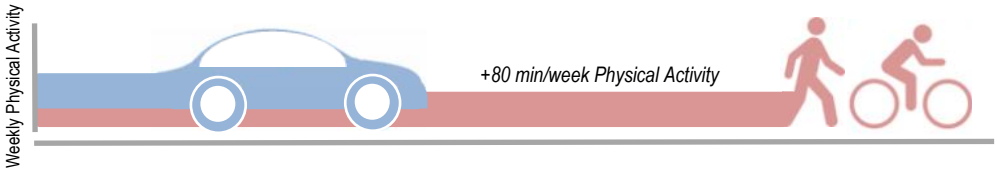
Average household transportation savings when living near and using public transportation.

Safer Trips to School

49% Less Bike/Auto Collisions

When active transportation infrastructure is supported with programming like Safe Routes to School.

Rethinking Getting To School



Kids who bike or walk to school, gain an average of **80 more minutes per week** of physical activity, while their family saves on gas and vehicle expenses.

Investment Spurs Investment

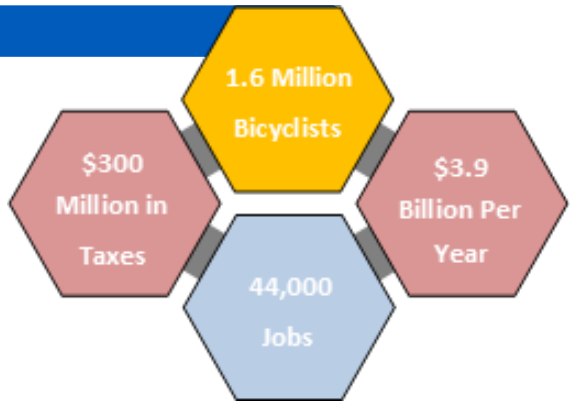
After Davidson, NC invested $2.3 million in main street and corridor projects that promoted walkability, an additional $300 million in private investments followed; a ratio of 130:1. Private developers also provided $5 million into public infrastructure funding such as pedestrian access and sidewalk construction. All this investment spurred 600 new permanent jobs (with capacity for 3,000) and $1.5 million in new annual property tax income.

BICYCLING AND BIKE TOURISM

Alongside walking, bicycling is one of the most accessible ways in which to engage with physical activity. Bicycling is also one of the fastest growing modes of transportation in the US, ushering in a wave of bike accessible road ways, policies, and even bike share facilities. A result of this growth has been a boom in bike related tourism. Bicycle tourism has become a growing economic force for many states and communities across the country.

Regional Economic Force

Bicyclists in the US South Central Region (AL, KY, MS & TN) are a sizable economic presence, responsible for generating billions in annual revenue for the region.



Statewide Impacts

States like Wisconsin are going all-in on bicycle tourism. Each year, WI receives an economic boost from bicyclists of **nearly $1.5 billion**, with 1/3 originating from out of state guests. Most of this money is spent within small rural communities surrounding the state's extensive trail systems.

In one year, **Wisconsin makes back nearly 6 times its total bicycle related investments** since 1967.

Sizable Spending

$150/night

Average amount spent by each cycling tourist on a multi-day trip.

Higher Spending By Cyclists

$75.66/Mo

$61.03/Mo

Bikers frequent retailers near active transportation routes more often than people in cars, spending more per month at these retailers.

BICYCLING AND BIKE TOURISM

Types of Bicycle Tourism

Bicycle tourism can generally be broken down into three different categories:

Day Ride: Rides that last for a few hours to a full day, often revolve around a particular location.

Touring: Organized bike ride between specific destination, that involves overnight stays.

Events: Organized bike related ride, race, or festival requiring fees and logistics for participants.

When calculating expected usage and ROI, it's important to account for each type, considering how and where they may use a given trail, and for how long.

PARKS AND GREENSPACE

Parks and greenspaces have long been the cornerstone of public spaces. These intentionally undeveloped areas provide exposure to nature, while offering space to both play and relax. Integral to the creation of a healthy community, parks and greenspaces operate as places to socialization and engage in physical activity, while also attracting new development.

Proximity Creates Value

▲$2,262 Sale Price

For homes within 1500ft of a park or greenspace, compared with similar units outside that distance.

▲5% Value

For a home within 500ft of a park.

More Parks More Fitness

▲20% More Physical Activity

When having access to parks or public recreation areas. Multiple parks can as much as double that increase in physical activity achieved.

Value of Trees

A single tree lowers PM_{10} (a toxic pollutant) by about 15% within a 30meter area around the tree.

▼PM_{10} by 50%-70%

For adjacent homes and businesses depending on tree density,

▼3° within 30 meter area

This average temperature change is equivalent to saving about $10/mo per degree for buildings shaded by trees.

The greater the density of trees, the higher the ROI in cost savings and pollutant reduction.

Consider This

Rather than building a traditional park, which often requires large amounts of land acquisition, consider *linear parks*. Linear parks are unique for extending a sizable length compared to their width, and may incorporate multi-use trails. Alongside health benefits and storm water management, linear parks have been shown to spur significant adjacent private development.

TRAILS

Trails provide connections between amenities and safe spaces to both exercise and get around. The separation from motorized vehicles and traffic often motivates trail construction, along with increased transportation options and potential for shorter, more direct trips. Trails also offer several supplementary benefits such as: additional and creative recreation and park space; safe and convenient places for resident and tourists to exercise; opportunities for flood water management; environmental and wildlife protection; and significant boosts to local economies.

Activity On The Cheap

9:1 ROI

Annual return for a typical trail user to attain recommended amounts of physical activity, compared with the annual cost of trail maintenance.

Individual Savings

2.49:1 ROI

Average medical savings per typical user of a rail trail, compared to an individual's cost of usage (bike purchase, usage fee etc)

Healthier Users

▼6lbs

Average weight lose for a typical light rail users, after their first year of ridership.

Proximity Creates Value

▲25-32% Housing Value

When located along a trail, compared to a similar home even just 3,000 feet away. Properties as far away as 1/2 mile away from a particular trail may still experience increases.

In Ohio, single family homes experience a **4% increase in value for every 1000ft closer** they are to the Little Miami Scenic Trail.

In Minneapolis, MN, **home values increase as much as $500 for every 400m closer** to off street bike facilities connected to the central greenway system. Several mixed use properties along the greenway even saw their **value increase as much as 90%**.

CASE STUDY

Knoxville Urban Wilderness Trail
Knoxville, Tennessee

Home to 42 beautiful miles of urban and natural trails, Knoxville's Wilderness Trail is an exceptional benchmark trail system. Meandering through paved greenways and roads, the Trail eventually gives way to natural landscapes within municipal parks and wildlife reserves. Land and access was provided by city, county, state, non-profit and for-profit organizations. Trail management is overseen by the Appalachian Mountain Biking Club, with funding from Legacy Parks Foundation and the City of Knoxville. Park maintenance and construction is guided by an agreement between the Tennessee Wildlife Resource Agency, Appalachian Mountain Biking Club, and Legacy Parks.

When categorizing trails, there are generally three types of trail systems;

- **Local Amenity:** usually urban, many local users, few non-local users.
- **Regional Destination:** usually rural, few local users, many non-local users.
- **National Destination:** usually rural, many local users, many non-local users.

The Wilderness Trail would be classified as a local amenity trail, thereby having a high number of local users and few non-local users. An in-depth study by The University of Tennessee's Howard H. Baker Jr Center of Public Policy reviewed the expected economic impact that can be directly attributed to the Trail, based on the expected local and non-local users (non-local users typically spend more per use due to lodging, food, etc.).

From their analysis, the Trail is estimated to bring in around **$8 million per year in user expenditures**. If the Trail were developed into a regional destination, the estimated impact grows to $14 million in annual user expenditures. If one day the Wilderness Trail eventually expands into a national destination trail, it is estimated that annual expenditures would generate approximately **$29 million**.

KNOXVILLE'S URBAN WILDERNESS

These estimates looked only at expected expenditures from trail users however, and didn't factor expected increases in property value, property taxes, or future private investments. When a national destination trail in Utah measured these variables, the annual fiscal impact from the trail *doubled* from just the initial user expenditures estimates. These expected returns would also increase from organized events such as races, tours, or festivals that utilize the trail system.

More information on the economic analysis process and outcomes can be found in the *Knoxville Wilderness Trail Economic Impact White Paper*.

STREETS AND ROADS

Despite the economic and health values of alternative transportation modes, motorized vehicles are often a viable and efficient method of transportation. For many communities, they're the only option for transportation. Finding ways that creatively account for motor vehicle traffic while designing for safer travel can yield significant returns, particularly for pedestrian and driver safety.

Slower Traffic, Fewer Injuries

▼25% Residential Roads

▼10% Corridors

Average crash reduction percentages after traffic calming initiatives.

Calming To Slower Traffic

▼75% Speeding Vehicles

After a traffic calming initiative in medium density residential neighborhoods in Nashville.

Rumbling to Safety

New rumble strips in North Carolina saw a **35% reduction** in off road crashes, and a **50% reduction** in cross-over crashes.

Installing center line rumble strips can **reduce crashes by 45%** on rural two lane roads, and **as much as 64%** on urban two-lane roads.

Installing shoulder rumble strips can reduce crashes on rural two-lane roads by **36%**, and by **17%** on rural freeways.

Rumble strips with intermittent breaks can also provide a buffered bike lane and maintain safe shoulder access for vehicles.

Safer and Catalyzing Corridors

Edgewater drive, a main thoroughfare north of Downtown Orlando, was reworked to assume a complete streets approach. The street's vehicle lanes were reduced from four to three, a new bike lane was integrated, and on-street parking spaces were widened. The results were **a 12% reduction in motor vehicle traffic, a 4% reduction in adjacent road traffic, 30% increase in bicycle use, and a 23% increase in pedestrians**. Additionally, collisions along Edgewater **decreased by 40%, with subsequent injuries dropping 71%**.

The increasing safety and non-vehicular traffic has resulted in a boom to local businesses. Since the project proposal in 2008, **77 new businesses have opened along the corridor**, **creating over 500 new jobs**. Adjacent property values **have increased by an average of 9%**.

For more information, read the SmartGrowth America report on Edgewater Dr.

Consider This

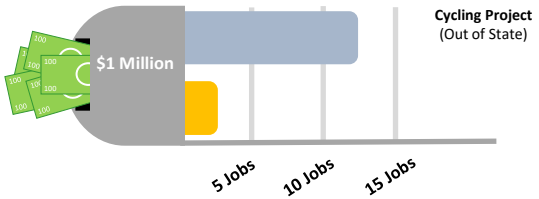
Tactical urbanism is a method of building temporary, inexpensive projects to test long-term built environment changes. These installations may include bus benches, 'parklets', public art, or even reconfiguration of traffic patterns. Tactical urbanism can be a great way to pilot financially beneficial and health-promoting projects such as walkability improvements or pop-up stores. This approach is unique in that by utilizing inexpensive materials, returns can be gained is a relatively short time, while simultaneously soliciting public engagement.

To learn more about tactical urbanism, check out this list of suggested resources.

FARMERS MARKETS

Farmers markets allow for locally produced food and goods to be sold directly from the farmer or producer to the consumer, allowing money to stay within the local economy. When planning for a farmers market, keep in mind factors like accessibility—both to the market and within the market. Well designed markets can double as community and event space, or simply be "popped up" on a road or field. Likewise, nearby retail often see positive economic growth resulting fromm a market's presence.

Growing Jobs



Growers selling locally create 13 full time jobs per $1 million in revenue earned. By comparison, those that do not sell locally create 3.

Residual Benefits

3x's The Local Return

The return to the local economy for farmers markets, and other locally owned businesses, compared to chain competitors.

Keeping It Local

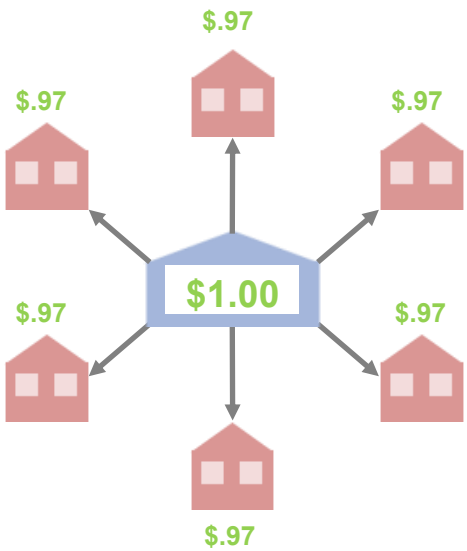
A 2010 study of US producers selling popular fruits and vegetables in local markets, found that in every case, nearly all wages and incomes are retained in the local economy compared with chain sellers of those same types of goods.

In Williamsburg, Virginia's local farmers market, sales related to the 52 market producers generated nearly **$49,000 in sales tax for 2011**.

In Boise, Idaho, the Capital City Public Market **generated approximately $4.5 million in economic benefits for the local economy** in 2011.

Surrounding Benefits

On average, an additional $.97 is spent at each nearby business for every $1 spent at a local farmers market.



FARMERS MARKETS

Wyoming's Farmers Market Impacts

Wyoming, a sparse and largely rural state, experiences strong economic windfalls from its 53 farmers markets. Each year, Wyoming sees over $2 million in directs sales from its markets. These sales also result in nearly $700,000 in secondary sales. Staying true to the job creation estimates, this $2 million is connected to 25 annual jobs, and $650,000 in labor income. These economic impacts were modeled through the University of Wyoming College of Agriculture and Natural Resources.

APPENDIX


Cucumbers
50¢ each

APPENDIX

Conducting a thorough impact study involves intense research, and utilization of predictive software. There are a host of resources available to conduct these studies. The following resources may help when conducting an impact analysis of a healthy infrastructure project. This appendix also contains examples of successful health promoting projects from across Tennessee, and the sources used in creating this ROI toolkit.

ANALYSIS RESOURCES

The following is a partial list of commonly used and proven analysis tools. Each tool varies in its scope and intensity, and may require some level of training to use. Several companies offer consultation and completion assistance which may help with conducting an economic impact analysis. Each resource is a clickable link that will navigate you to the product webpage.

Regional Input-Output Modeling (RIMS II)

Bureau of Economic Analysis

- A regional economic impact modeling tool, RIMS II provides extensive economic estimations on single construction projects, events such as natural disasters, and other major economic changes.

Regional Economic Models, Inc. (REMI)

- Hosting a wide array of predictive modeling tools, each REMI product offers in-depth analysis of a multitude of projects, and geographies.

Measuring the Economic Impact of Park and Recreation Services

National Recreation and Park Association

- A hands on, step by step guide to conduct economic impact studies of parks and recreation services, and the return that residents of a given locale receive.

Impact Analysis for Planning (IMPLAN)

MIG Inc.

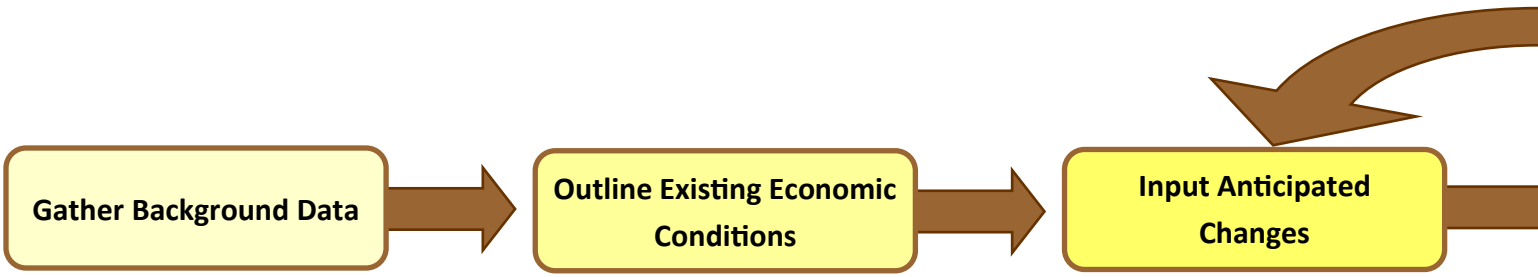
- IMPLAN provides both online and offline analysis products, while carrying a tremendous amount of datasets to allow for analysis down to the zip code level.

Economic Impact Analysis Tool (EIA)

Rural Health Information Hub

- The EIA is a free tool originally designed for grantees of the Federal Office of Rural Health, and provides an initial and general prediction of a project's economic impact.

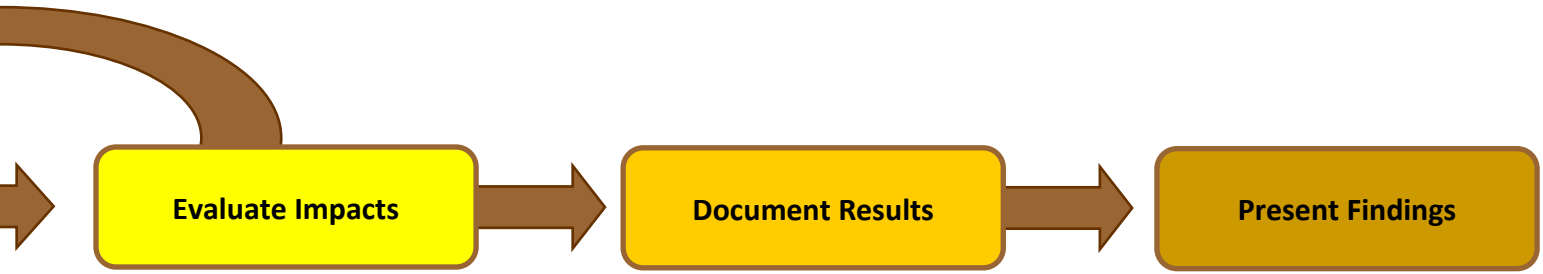
EVALUATION STEPS



- Identify a geographic area to study
- Compile relevant demographic and socioeconomic data
- Compile existing infrastructure and amenities data
- Compile relevant land use data
- Compile relevant economic policy data

- Record as much of the existing economic conditions as possible, including:
  - Existing businesses and business districts
  - Employment and wages
  - Economic relations to surrounding economies
  - Transportation networks
  - Property values
  - Household incomes
  - All other available economic factors required by the analysis tool

- Input all available economic factors required by analysis tool
- Input the expected infrastructure changes as required by the analysis tool



- Based on predicted economic results, evaluate outcomes against project timeline, required resources, community support etc.
- If needed, make project adjustments and input additional scenarios to compare alternative project options

- Once a project scope has been decided, gather together results into a report
- Be mindful of the audience, and the potential need to use language that can be understood by the audience
- Project conclusions should be clear, and easy to understand
- Make sure to document all sources and methodologies used to conduct the economic impact

- Once a final report or proposal has been compiled, present to stakeholders
- Depending on feedback, revaluation of the project may be needed, including more analysis

Example Economic Impact Reports

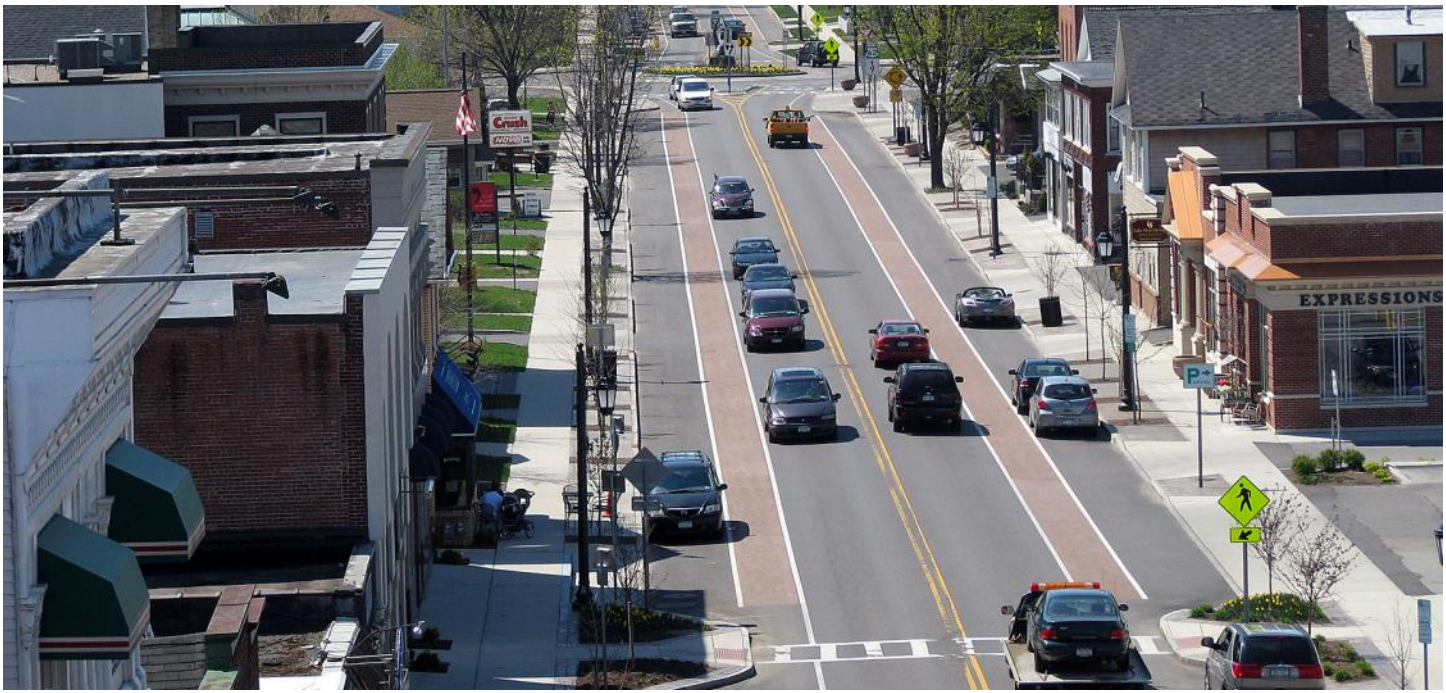
Memphis Wolf River Greenway

Detroit Riverfront Impact Study

Johnson City Bike & Pedestrian Plan

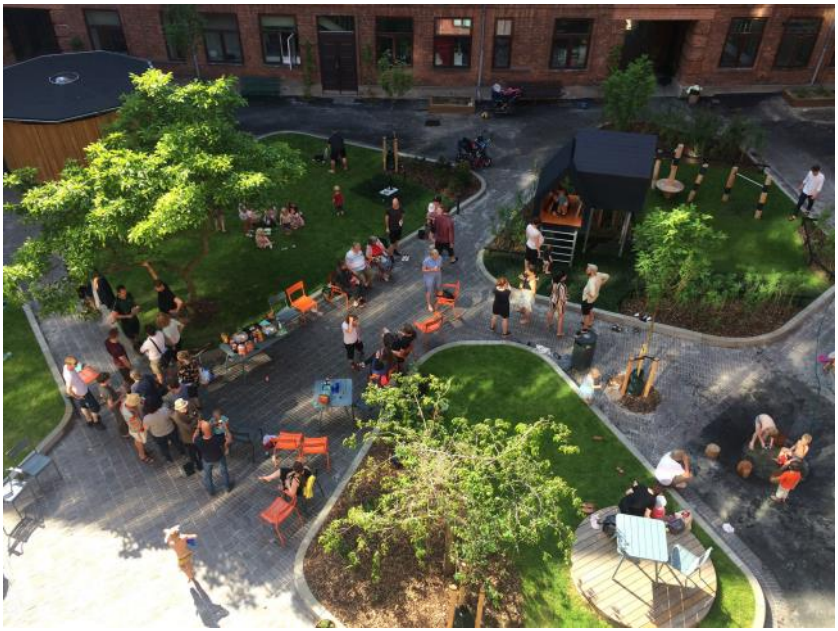
Lewisburg Signal Light Optimization

HEALTHY INFRASTRUCTURE



Clockwise from upper left: Linear Trail in Erwin, TN; Watkins Park "Sprayspace" in Nashville, TN; Complete Streets with Walkable Scale Neighborhood in Hamburg, NY.

Clockwise from upper right: Crosswalk Connecting to a Regional Park; Panther Creek State Park Bike Trail; Farmers Market; Public Green Plaza..



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IMAGES

Knoxville Market Square (2012, Nashville Civic Design Center)

Long Hunter State Park (TN State Parks)

Wall Mural (Nashville Civic Design Center)

Bikers Along the Cumberland (Nashville Civic Design Center)

North Murfreesboro Greenway Project (2016 Lee Roberts)

Sunset at Miller Plaza Downtown Chattanooga (Flickr)

Earth Mound Park Feature (Nashville Civic Design Center)

Playground (Josh Tillinghast)

Community Design Charrette in Robertson County, TN (Nashville Civic Design Center)

Main Street Davidson, (City of Davidson, NC)

Bike Tour in Nashville,TN (Nashville Civic Design Center)

Liffey Linear Park, Ireland (William Murphy)

Knoxville Trail (2017 Trailology)

Knoxville Urban Wilderness Trailhead (2016 Clay Duda)

Edgewater Drive (2015 City of Orlando)

Western PA Conservancy Park(ing) Day, (Kordite)

Natrona County Master Gardens (Facebook)

Agricenter Farmers Market (Choose 901.com)

Walk to School Event (Nashville Civic Design Center)

Kids Planting Trees (Nashville Civic Design Center)

Erwin TN Linear Trail (Town of Erwin TN Parks and Recreation)

Watkins Park “Sprayspace” (2005 Gary Lyda)

Hamburg New York Complete Street, (2009 Dan Burden)

Larry Scott Trail Crosswalk (2016 Neil Hodges)

Panther Creek State Park Bike Trail (Outdoor Knoxville)

Farmers Market Square Knoxville, TN (Nashville Civic Design Center)

Norrebrohus, Denmark (Nashville Civic Design Center)

TN Department of Health

NASHVILLE CIVIC DESIGN CENTER