

PUBLIC INFRASTRUCTURE

SECURING THE FUTURE OF NASHVILLE'S INFRASTRUCTURE



Synopsis

Nashville's infrastructure has kept up with the pace of development over the last twenty years, but the systems are strained and future growth will rely on an aging and limited infrastructure platform. Unless public awareness is raised and policies developed that will support future expenditure, the city's capacity to meet the needs of its citizens could be limited.

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Role and Purpose of Background Reports



This background report was developed to provide input to the NashvilleNext planning process. It was researched and authored by community members interested, involved, and knowledgeable on the topic. The authors present best practices, an evaluation of the state of the topic in the Nashville community today, and recommendations for consideration during the planning process.

This report provides a *starting point* for broader community discussion and reflection based on the research and recommendations of the authors. Throughout the planning process, NashvilleNext will use this and other background reports, ongoing research, departmental involvement, community input and engagement to discuss, refine and formulate the policies and recommendations for the general plan.

The information and recommendations provided in this background report are solely those of the authors and contributors and are being provided at the beginning of the NashvilleNext process to start community discussion.

The NashvilleNext Steering Committee thanks and extends its sincere appreciation to the authors of and contributors to this background report for the time and effort to provide this report for community consideration and discussion. The Steering Committee looks forward to the ongoing dialogue on the issues and recommendations that the authors provide.

Any final policies and recommendations endorsed by the NashvilleNext Steering Committee for the consideration of the Metropolitan Planning Commission will be the result of the entire planning process and upcoming community engagement and discussion.

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About this report

The contents of this report reflect the Music City Infrastructure Report. Development of the MCIR began in January 2011, when representatives from Urban Land Institute’s Nashville District Council (ULI Nashville) and the American Society of Civil Engineers, Tennessee Section, Nashville Branch (ASCE) decided to team up to explore infrastructure issues in Metropolitan Nashville. The impetus for such a collaborative project stemmed from ULI’s focus on infrastructure issues facing the nation coupled with ASCE’s National and State Infrastructure Report Cards. Both of these efforts paint a picture of grave concern over the state of infrastructure at national and a state levels. An examination at the local level would add a valuable perspective to smart growth, the real cost of development, effective public expenditure, and best practices in the use of land across the region. The MCIR will be released in summer 2013.



Executive Summary



Figure 1: 2010 Flood

Infrastructure is the municipality budget's "silent killer." By its very nature, much of it is hidden from public view – out of sight and out of mind. But then the catastrophic events occur – a water pipe bursts in downtown in the dead of winter, a bridge collapses, a pothole suddenly becomes an SUV swallowing sink-hole. More recent in Nashville's memory, an unusual weather pattern turned the Cumberland River into a giant, brown swallower of homes and futures. Infrastructure — from roads and bridges to sewer pipes — is expensive. A recent Tennessee Advisory Commission on Intergovernmental Relations identified the funding need for Metro Davidson County over the next five years at \$4.3 billion or \$6,876 per person.

This year, a joint committee of Urban Land Institute Nashville District Council and the American Society of Civil Engineers, Tennessee Section, Nashville

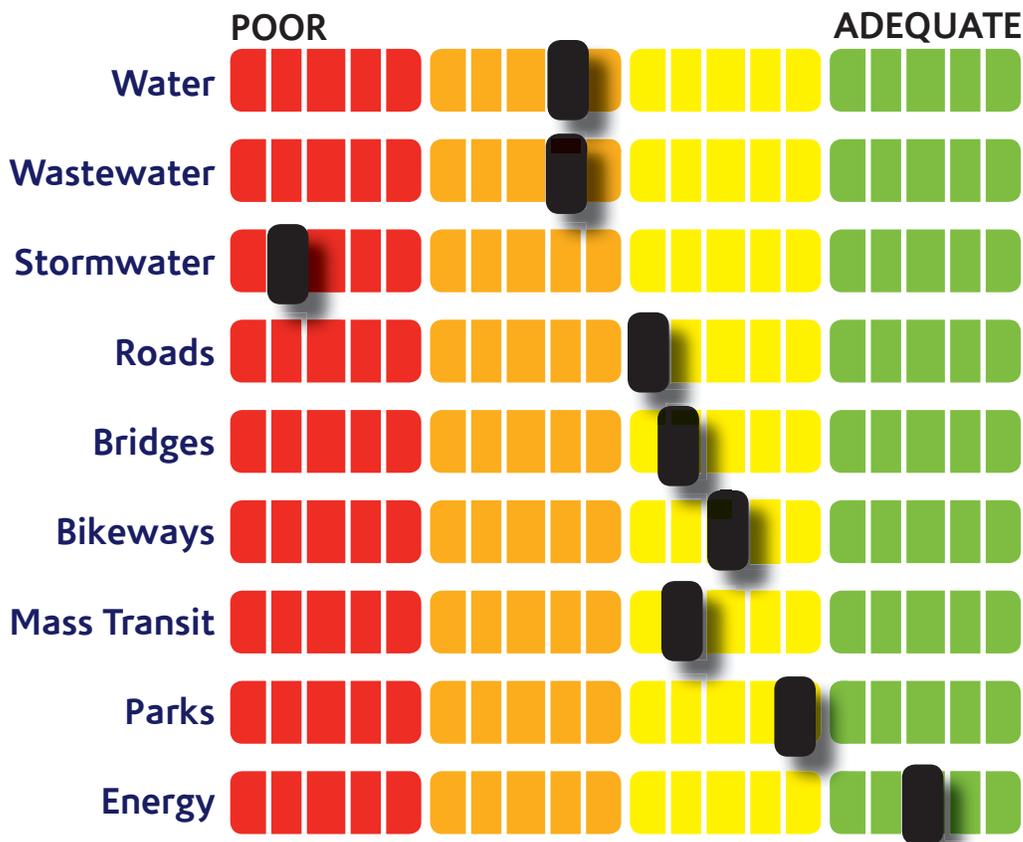
Branch, produced the "Music City Infrastructure Report," (MCIR) that included a comprehensive analysis of potable, waste and storm water, along with roads, bridges and bikeways. In addition, the group studied Nashville's power needs and mass transit as well as parks, greenways and open spaces.

The overall conclusion of the study was that Nashville's current infrastructure systems are adequate, but that funding is strained and there are significant capacity issues that could impede future growth. It is important to stress that the evaluation is not a reflection on the incredible hard work, creativity and skill of the managers and employees in the represented parts of the infrastructure system. It is, however, a call to engagement and to the development of policies that will keep Nashville on the leading edge of cities in the region and the country.

Public Infrastructure

The Music City Infrastructure Report utilized a “stoplight” evaluation methodology, which is summarized here. Systems rated red are most in need of investment, while those rated orange, yellow, and green are increasingly well-positioned for the future.

Nashville’s Infrastructure Report Card



In addition, the Report developed a set of policy prescriptions titled “The Road Ahead.” They are worthy of consideration and are set forth below. This background report supports and endorses these recommendations.

The Road Ahead

Recommendations for Securing Nashville's Infrastructure

At present, Nashville's infrastructure is functioning without significant issues, it is not exceptional nor are all areas well poised to accommodate the anticipated future growth of the Metropolitan Nashville region. The joint committee recommends that government officials and policymakers take action, and consider the following ten-point plan:

1. **BE CLEAR WITH THE CITIZENS OF NASHVILLE** about the status of the infrastructure and what the risks are of under-investing in it. Educate the public on the true costs of making required upgrades or building new systems. Utilize knowledgeable professional organizations such as ULI and ASCE to help make the case.
2. **INCLUDE LIFECYCLE COSTS** that take long-term maintenance and repair into account for future infrastructure repairs and replacement decisions.
3. **DEVELOP AN URBAN AND REGIONAL VISION** to provide the framework for implementing future infrastructure construction and maintenance. This vision should help guide the policy and funding initiatives that will be required in the future. The creation of a consolidated "Infrastructure Plan" to account for future growth should be considered.
4. **FOCUS ON MAINTAINING PAST INVESTMENTS** and fund maintenance and repairs of the existing system to bring it up to the high quality the citizens deserve. Repairing and modernizing outmoded systems – reducing leaks in water systems, for example – will make more efficient use of what exists.
5. **EXPLORE METHODS OF FOCUSING DEVELOPMENT** to align highway, transit, water and housing in integrated land use solutions that capitalize on existing infrastructure to maximize existing capacity. Extending infrastructure such as roads, sewer lines, and water mains to outlying areas may not be justifiable at the expense of shoring up existing systems.
6. **INTEGRATE INFRASTRUCTURE SYSTEMS IN FUTURE GROWTH PLANS** to maximize efficiency and reduce cost. Integrated transit systems that incorporate vehicle, mass transit, bicycling and pedestrian traffic, for example, should be considered.
7. **INCORPORATE "GREEN INFRASTRUCTURE" INTO THE SOLUTIONS MIX.** The use of "green infrastructure" can improve Nashville's aesthetic appeal while helping to remove pollution. Large paved areas that become "heat sinks" need to be rethought to include permeable surfaces that allow rainwater to seep into the table below. This achieves better storm drainage while also improving water cleanliness and potentially improving habitat for wildlife and recreational space.
8. **EMBRACE DENSITY** to accommodate more intense development along existing corridors of infrastructure. The citizen shareholders need to understand that to preserve our open spaces and high quality of life, a more intense urban fabric will have to emerge over the next 25 years.
9. **ENCOURAGE COST-EFFECTIVE MASS TRANSIT ALTERNATIVES** to ease traffic congestion along major corridors and reduce parking needs in the urban core.
10. **PROMOTE "TOTAL COST" CONSIDERATION** to assist citizens in evaluating their residential decisions with commuting costs in mind. Increased awareness of these costs will lead to increased support for smart-growth initiatives like mass transit and higher densities.

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In short, the political will and funding must be mustered to make the investments necessary to sustain the high quality of life with which Nashville has been blessed. Through public outreach and education, the managers of the city's infrastructure components must reach out to the real owners of the infrastructure in Metropolitan Nashville: the citizens. With an aware and committed tax-paying public, and the continued excellence of our public servants, Metropolitan Nashville will be poised to meet the infrastructure challenges that lay ahead.

The citizens of Nashville get their drinking water from Metro Nashville Water Services (MWS), Madison Suburban Utility District (MSUD) and Harpeth Valley Utility District (HVUD). All of these utilities take water from the Cumberland River, treat it, filter it and ultimately return it to its source. The single biggest problem facing each of these utilities is the age of their systems. As an example, the Omohundro Plant was built in 1889 and still has valves in service from that era. As water systems age, and the EPA has opined that the useful age of water systems is between 20 and 50 years, they leak. That loss increases operating expenses due to costly repairs and increased treatment needs. The MCIR found that "MWS has 1827 miles (64%) of water distribution lines that are greater than 40 years old. An additional 746 miles (26%) of these lines are at least 20 years old and only about 10% (~298 miles) of water lines owned and operated by MWS are less than 20 years old." Although younger, both MSUD and HVUD have similar stories.



Potable Water



Nashville's proximity to the Cumberland River ensures our adequate base supply of water well into the future. However, population growth will strain existing filtration and treatment facilities at all of the providers. Excluding manufacturing needs, Davidson County's 630,000 residents require approximately 57 million gallons of water per day. The two treatment facilities for MWS have a combined capacity for 90 million gallons per day. But with population projections exceeding 750,000 by 2035, the need will increase to 68 million gallons per day. Repairing an aging system can staunch the flow of leaks, offsetting some part of the need for future increases in production.

The MCIR found that the user rates of our local water utilities support the majority of the operations and capital improvements. While residential water bills have nearly doubled in the past 12 years in a number of municipalities in the United States, Nashville's rates have experienced only moderate increases. These rates are funding a wide array of capital improvement projects within the system as utility managers seek to stay ahead of the continuing pressure for improvement in capacity and quality.

Looking Ahead

Consistent with the findings of the Music City Infrastructure Report, our potable water utilities should consider the following:

1. **EDUCATE AND ENGAGE** the citizens of Nashville on the condition of the existing system and the future needs. Utilize professional organizations to help deliver the message.
2. **PRIORITIZE INVESTMENT TO MAINTAIN EXISTING SYSTEMS** with targeted improvements to support growth.



3. **MAP OUT FOR PUBLIC CONSUMPTION** the current system showing where capacities are highest. Encourage planning and land use policies that match growth to capacity in lieu of the cost of new construction in green fields.
4. **MAXIMIZE THE POTENTIAL** of the current system with green technologies. Encourage (and reward) developments that utilize green technologies from low-flush toilets to rain harvesting systems that reduce pressure on the existing system.

Wastewater



The Music City Infrastructure Report's findings on waste water mirror the story of Nashville's potable water systems: adequate, but aging. Metro Water Services treats approximately 47.3 billion gallons of wastewater every year – the three wastewater treatment plants in the system currently operate at approximately 79% of design load and only 39% of maximum capacity. Following the “Great Flood” of May, 2010, much work has been done to repair and upgrade existing facilities. In the core of Nashville, much of the existing piping was built in the late 1880's and carries a combination of sewer and storm water. While many of these systems have undergone modernization to reduce the overflow of sewage in the Cumberland and comply with Federal Regulations – the system is old and requires constant maintenance and repair. It is a credit to the management team of Metro Water Systems that the treatment facilities received a Water Environment Association Operational Excellence Award in 2006.

Like potable water, wastewater utilities in Metro Nashville are primarily supported by user rates. Periodic rate increases will be necessary to ensure upkeep of the existing system and the capital funding for future improvements to operations and capacity.

Looking Ahead

Consistent with the findings of the MCIR, we should consider the following to ensure the strength of our wastewater utilities:

1. **EDUCATE AND ENGAGE** the citizens of Nashville on the condition of the existing system and the future needs. Utilize professional organizations to help deliver the message.
2. **PRIORITIZE INVESTMENT TO MAINTAIN EXISTING SYSTEMS** with targeted improvements to support growth.
3. **MAP OUT FOR PUBLIC CONSUMPTION** the current system showing where capacities are highest. Encourage planning and land use policies that match growth to capacity in lieu of the cost of new construction in green fields.
4. **ENCOURAGE BEST PRACTICES IN SUSTAINABLE DEVELOPMENT** that reduce the impact of storm water on the combined system – semi-pervious pavements, rain gardens and environmentally sound retention systems should be considered.

Stormwater



On May 1 and 2, 2010, a rain weather system stalled over middle-Tennessee. By some estimates up to 20 inches of rain fell in parts of the Metro Nashville area. The resulting floods resulted in an estimated \$1.5 billion worth of damage. It is only when catastrophic events like this occur that citizens become focused on the adequacy of the infrastructure systems running under their feet every day. There are more than 4,000 miles of storm water drainage structures in the Metro area and like potable water and wastewater, the systems are aging. Barring another catastrophe, the system is barely adequate and was plagued by a history of not having a dedicated funding mechanism. In 2009, a storm water user fee was installed to address the shortfall. While this is a step in the right direction, a 2008 study estimated that there is approximately an \$85 million shortfall that needs to be made up to address the backlog of projects and services identified.

Looking Ahead

Given the parallels with the waste water systems, a similar program is encouraged going forward:

1. **EDUCATE AND ENGAGE** the citizens of Nashville on the condition of the existing system and the future needs. Utilize professional organizations to help deliver the message.
2. **PRIORITIZE INVESTMENT TO MAINTAIN EXISTING SYSTEMS** with targeted improvements to support growth.
3. **MAP OUT FOR PUBLIC CONSUMPTION** the current system showing where capacities are highest. Encourage planning and land use policies that match growth to capacity in lieu of the cost of new construction in green fields.
4. **ENCOURAGE BEST PRACTICES IN SUSTAINABLE DEVELOPMENT** that reduce the impact of storm water on the combined system (which carries a combination of storm water and sewage) – semi-pervious pavements, rain gardens and environmentally sound retention systems should be considered.

Roads



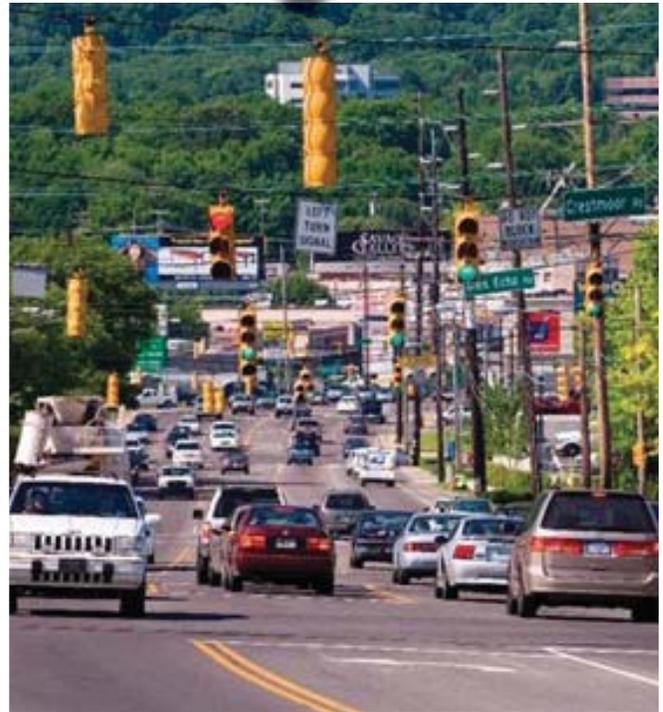
According to the Metropolitan Planning Organization, the vehicle miles travelled in the region will increase by 45% by 2035. The implications for further congestion on the 2,600 lane miles of roadway within Davidson County are obvious. Nashville has historically been known as a “20-minute town” – a resident could get just about anywhere in the city inside a 20-minute window. That is no longer true and with an estimated additional 200,000 people in the Metro over the next thirty years, that will not be achievable with the conventional tools of carving additional lanes. In fact, in a National Traffic Scorecard released by INRIX in March 2011, Nashville ranked 32nd in the nation, and congestion had increased 11% over just a one year period.

The good news is that the current network of roads is in relatively good shape. Though stressed with several recent harsh winters and the flood of May, 2010, the MCIR found that 52.7% of lane miles in Davidson County were in “good or better condition.” The Report did cite a steady degradation and a need for funds. The June, 2011 Tennessee Advisory Commission on Intergovernmental Relations report “Building Tennessee’s Tomorrow,” determined that approximately \$82.4 million will be needed annually to fund roadway expansion, maintenance and operations. Over the past six years Metro’s roadway capital budgets have averaged \$57.2 million per year. Innovative solutions will have to be developed to address this need.

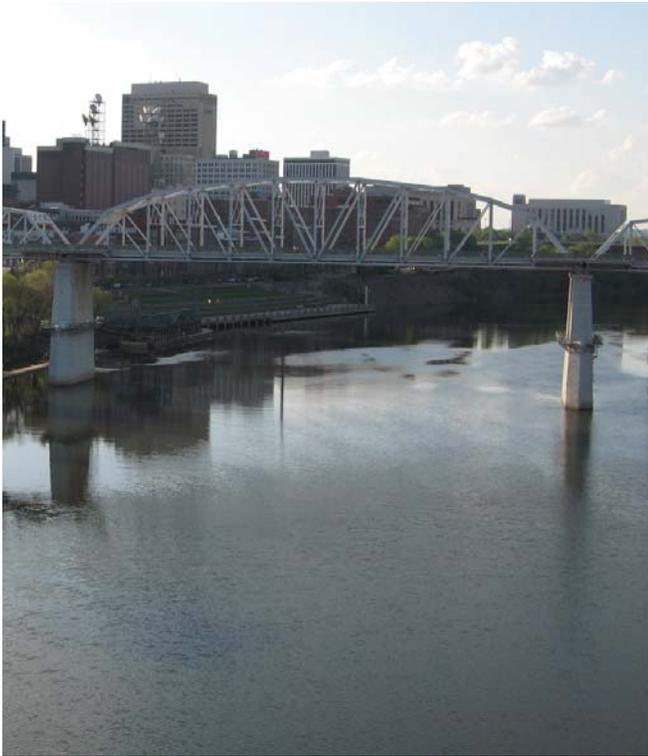
Looking Ahead

A smooth flowing road system is crucial to the economic health of a city – to address the needs of this crucial part of Nashville’s infrastructure it is recommended:

1. **DEVELOP ROBUST MASS TRANSIT ALTERNATIVES** to accommodate future growth and ease existing congestion and strain on the roadway system.
2. **PRIORITIZE INVESTMENT TO MAINTAIN EXISTING SYSTEMS** with targeted improvements to support growth.
3. **ENCOURAGE DENSITY IN PLANNING AND DEVELOPMENT.** A denser urban fabric will result in more walkable and bikeable residential options that will reduce wear and tear on roads and ultimately improve air quality and individual health.
4. **DEVELOP OUTREACH PROGRAMS TO ENCOURAGE CAR POOLING, RIDE SHARING AND “SOFT” FIXES** to reduce vehicle miles travelled.
5. **PROMOTE TOTAL COST CONSIDERATION** for residential purchases and rentals. Homes and apartments may cost less further away from the urban core, but the cost of commuting, gasoline, time lost and the like do not necessarily make it an optimal choice.



Bridges



As the Music City Infrastructure Report noted, there are a total of 1,119 bridges on the public road system of Nashville. While the state, through the Tennessee Department of Transportation, owns the bulk of these bridges, Metro owns and maintains 326 of them including the “special structure,” the Shelby Street Pedestrian Bridge. Compared to a national average of 75.2%, Metro’s bridges score 81.3% for bridges in a “state of good repair.” MCIR reports that “Metro’s bridge network has steadily improved through the Bridge Maintenance and Management Program,” an effort coordinated with TDOT to ensure safe passage on the region’s bridges. While maintenance costs have run roughly \$6-8 million per year, the available funding for the bridge network has been coming in at roughly half that figure. While the system is adequate and being maintained, that accumulated funding deficit could create trouble in the future – especially as bridge traffic volume increases with population growth.

Metro Nashville has recently completed two notable bridge projects. The Korean War Veterans Memorial

Bridge, finished in 2005, provided a major new connection across the Cumberland River and features an iconic, award-winning design. The 28th/31st Street Connector, completed in 2012, spans a railroad and features car lanes, bikeways, and sidewalks, as well as public art, rain gardens, and bioswales.

Looking Ahead

In a city whose geographic layout is dictated by a significant river, the bridge network is critical to safety and transit. To that end, the following action is recommended:

1. **DEVELOP ROBUST MASS TRANSIT ALTERNATIVES** to accommodate future growth and ease existing congestion and strain on the roads and bridges in the Metro area.
2. **PRIORITIZE INVESTMENT TO MAINTAIN EXISTING SYSTEMS** with targeted improvements to support growth.
3. **ENSURE LIFE CYCLE COSTS ARE FACTORED IN TO ALL FUTURE CONSTRUCTION CONSIDERATIONS.** The true cost of infrastructure projects like bridges must include a discounted cash flow consideration of future maintenance and repair needs.
4. **DEVELOP OUTREACH PROGRAMS TO ENCOURAGE CAR POOLING, RIDE SHARING AND “SOFT” FIXES** to reduce vehicle miles travelled.
5. **EXPLORE PRIVATE PUBLIC PARTNERSHIPS** for funding future bridge construction projects. While these would necessarily involve a funding mechanism, such as a toll, the “3P” model could ease budgetary constraints and allow for more effective deployment of existing funds.

Bikeways



An increased emphasis on healthy living has helped push the expansion of an extensive bikeway system in Nashville over the last ten years. The Nashville MPO estimates there are some 55 miles of greenways and multi-use paths, 33 miles of bike lanes, and 59 miles of signed bike routes in Davidson County. Bikeways are an integrated system incorporating parking, greenways and existing road systems. Nevertheless, the overall condition of existing bikeways is adequate for current needs. Factoring in the anticipated population growth and future roadway congestion, bicycling will become an increasingly viable transportation option for the citizens of Nashville. The city must anticipate this need and incorporate it into the transportation mix discussion.

Based on current funding, Nashville ranks fourth in the nation for percentage of Federal Transportation funds being used for bikeways, a nod to the forward thinking of our planners and civic organizations that push bikeway transportation. As the MCIR reported, there will be a future funding shortfall over the next 25 years if steps are not taken – the current funding level of \$14.5 million per year will fall \$17.2 million short of the anticipated funding needs in 25 years.

The Music City Bikeway opened in 2012, connecting several greenways and parks from Percy Priest Dam to Percy Warner Park. In December 2012, Nashville B-Cycle launched, offering 190 bikes at 20 kiosks, giving cyclists new options for short-trips in and around downtown. Nashville’s greenways also feature free recreational bikes through the GreenBike program.

Looking Ahead

Bikeways are a viable and healthy alternative for transit in a great city like Nashville. To ensure the continued robust development of bikeway transit, the following options should be considered:

1. **ENCOURAGE CITIZEN UTILIZATION OF EXISTING BIKEWAY SYSTEMS** with effective public outreach that teaches the health benefits of bike transit and touring, such as the Nashvitality campaign. This will also reduce impact roadway and bridge usage.
2. **EXPLORE USER FEES OR OTHER REVENUE SOURCES TO FUND FUTURE NEEDS.** Although the use of bikeways is likely to grow in the future, creating a new group of supporters, there may still be public resistance to spending city funds on greenways, since they may be considered a “luxury.” Consider additional revenue sources and other partnerships to create and maintain additional greenways.”
3. **EXPLORE PRIVATE PUBLIC PARTNERSHIPS** for funding future bikeway construction projects. While these would possibly involve a user fee funding, the “3P” model could ease budgetary constraints and allow for more effective deployment of existing funds.

Energy

Affordable and dependable sources of energy are a critical piece of any municipality's infrastructure puzzle. Nashville is fortunate to be located in the heart of the Tennessee Valley Authority (TVA), one of the largest and most reliable power generation systems in the nation. TVA serves over 9 million residents in an 80,000 square mile footprint. At the city level, Nashville's electric energy grid is managed by the Nashville Electric Service (NES). With no power generation capability of its own, NES purchases their power from the TVA to service over 360,000 customers. According to the Music City Infrastructure Report:

“For a sixth straight year, TVA was named among Site Selection magazine's top 10 North American utilities for achievement in economic development. Likewise, NES's distribution system has provided adequate growth and reliability to the region, and NES' increased use of automated metering, computer-based routing has resulted in an average meter reading cost well below the national average.”

TVA and NES are engaged in a number of long term capital projects and there is no issue with capacity for the foreseeable future. Perhaps one of the biggest initiatives is in the push for “green energy.” TVA is actively engaged in exploring means to reduce the emissions from their fossil-fuel burning plants (coal-fired and combustion turbine units) that currently generate 57% of the power supply in their system. Initiatives like the “Green Power Switch” extend to the local level and have been supplemented with local efforts such as the ULI sponsored “Go Green in District 18” drive.

Nashville Energy Works is a collaborative community partnership between the Mayor's Office, the Tennessee Valley Authority (TVA), Go Green Nashville, The Housing Fund and Nashville Electric Service to provide incentives and information to Nashville residents who make energy-saving improvements to their homes.



Looking Ahead

Metro Nashville is fortunate to be under the aegis of the TVA. With their efforts and continued good stewardship by NES, the energy needs of the city should be well taken care of for the foreseeable future. Nevertheless, there is always room for improvement – a concerted effort at reducing power consumption will yield the benefits of cleaner air and improved health:

1. **EDUCATE CONSUMERS ON THE BENEFITS OF REDUCING THEIR ENERGY CONSUMPTION.** These efforts need to focus on reducing cost and improving health not on larger global warming type dialogue that could be met with skepticism.
2. **CONTINUE TO PROACTIVELY MAINTAIN THE DISTRIBUTION SYSTEM TO REDUCE OUTAGES.** Although NES has come under fire for their tree-trimming program, it has dramatically reduced power outages.
3. **INVOLVE NES AT AN EARLY STAGE OF THE PLANNING PROCESS FOR FUTURE DEVELOPMENT** to ensure development is mirroring capacity and does not require the expense of running additional transmission lines.

Mass Transit



A thriving community requires a well-conceived transit system to accommodate growth. Such a system would include a balanced mix of transportation modes. Several of Nashville's top economic competitors including Charlotte, Austin, Denver and Raleigh have recently invested billions of dollars to modernize their public transportation systems in the hope of better positioning their regions as corporate relocation targets. These systems have ranged from light-rail to trolley bus and bus rapid transit platforms. While Nashville is lagging in investment in mass transit, there have been substantial efforts by area interest groups to encourage such expenditures. In a recent survey by the MPO, 83% of respondents agreed that mass transit is important for the economy and that regional mass transit would better prepare Nashville for the anticipated growth.

Some of the initial pushes into mass transit, such as the Music City Star rail line, are cross-county efforts

and as congestion continues to increase along the I-65 artery between Franklin and Nashville, the I-24 corridor between Murfreesboro and downtown Nashville and the I-24 route from Hendersonville into town, those efforts will need to increase. All efforts to date have wisely been focused on better utilization of existing rail lines and primary corridors.

In-town mass transit has historically relied upon the Metropolitan Transit Authority (MTA). MTA has partnered with local interest groups like the Transit Alliance of Middle Tennessee, to explore and champion the development of mass transit systems in Nashville. The Music City Infrastructure Report found:

“In 2011, The Metropolitan Transit Authority (MTA) in Nashville approved an “Alternative Analysis” study recommendation to begin preliminary engineering and environmental analysis for different types of

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transit service. The results yielded support for a BRT system, operating in dedicated lanes of travel, along a corridor extending from the Five Points area of East Nashville west through downtown Nashville, out through Midtown and then on to the White Bridge Road area of West Nashville. Rapid transit would also feature level boarding, off-board fare collection, wi-fi, and bike-friendly interiors.

BRT, specifically, has merited special consideration for Nashville officials because it is less expensive from the capital outlay standpoint and more likely to be eligible for federal funding. At the same time, BRT requires less permanent infrastructure and provides the same functionality and effective ridership as a streetcar. Buses, particularly if they have a segregated right-of-way, become very efficient and flexible means of transporting people compared to the sole use of a private automobile.”

The Amp will be a landmark project to validate BRT if it is approved and funded.

Looking Ahead

While Nashville is behind similar sized cities such as Raleigh and Charlotte in the development of mass transit systems, the social desire and political will seem to be in agreement that this is an area that will

require funding going forward. To accomplish that the following steps are recommended:

1. **DEVELOP AN URBAN AND REGIONAL VISION FOR MASS TRANSIT** with input from all the stakeholders – the citizens, the transit agencies and public infrastructure entities that are impacted. Test and re-test the assumptions of the vision repeatedly over time.
2. **SEEK LOWER COST, FLEXIBLE SYSTEMS** such as bus rapid transit to accomplish mass transit objectives.
3. **INCREASE THE EFFECTIVENESS OF MASS TRANSIT BY ALLOWING FOR GREATER DENSITY** along mass transit corridors.
4. **INCLUDE TOTAL COST CONSIDERATIONS IN MASS TRANSIT DISCUSSIONS.** Citizens must be aware of the total cost of living further from the urban core, including commuting cost.
5. **BE SURE TO INCLUDE LIFE-CYCLE COSTS** in the cost of the mass transit system to be totally transparent with the future users.



Parks



Metro Nashville's park system includes 115 park locations, 114 playgrounds, approximately 170 tennis courts, six year-round golf courses, multiple athletic fields, 55 miles of paved greenway and multi-use paths and 25 miles of primitive greenway. In addition, there are swimming pools, community centers and over 100 conditioned buildings along with over 500 covered buildings including concession stands and picnic shelters. This impressive inventory helps the city stay close to the stated goal of 17.5 acres of parkland per 1,000 residents (17.09 acres in 2010). The Music City Infrastructure Report found that the Metropolitan Parks and Greenways Commission has been effectively implementing their 2002 Master Plan (revised in 2008) to ensure that all park spaces are safe and well maintained.

The creation of the Nashville-Davidson County Open Space Master Plan is a landmark idea for Southeastern cities. This plan, unveiled in 2011 in partnership with the Land Trust for Tennessee calls for the preservation of 22,000 acres of public and private land over the next 25 years. These would include 3,000 acres of parkland over the next 10 years; privately conserving 3,000 acres of land over the next ten years and another 3,000 by 2035; protecting an additional 10,000 acres of floodplain and sensitive natural areas over the next 10 years. This last point was particularly well received in the wake of the May 2010 flood.

The open space plan is being implemented with the aim of advancing four priority themes:

1. Connect wildlife and water networks.
2. Support urban and rural farming.
3. Connect people to green infrastructure.
4. Preserve historic and iconic resources.

In keeping with the goal of becoming one of the top 25 sustainable cities in the country, Nashville has committed to the maintenance and expansion of a park, greenway and open space infrastructure that will help to preserve a high quality of life. Mayor Dean has dedicated \$15 million dollars toward parkland acquisition to support this plan.

Looking Ahead

In the area of parks, greenways and open space, Nashville has a great head start and a unified community vision. In light of this, the focus should be to:

1. CONTINUE TO IMPLEMENT AND EVOLVE THE MASTER PLANS THAT HAVE BEEN DEVELOPED FOR EACH OF THESE AREAS.
2. MAINTAIN AND EXPAND EXISTING FACILITIES.
3. CONTINUE TO SEEK OUT PUBLIC-PRIVATE PARTNERSHIPS that can expand the existing infrastructure without impacting a strained city budget.

References and Acknowledgements

The author is extremely grateful to the research and hard work put in by the joint ULI – ASCE Committee that generated the Music City Infrastructure Report. That document was the primary source of the information included in this white paper. Special thanks to Monica Sartain, the Chair of ASCE’s team that helped generate that report. In addition, thanks are due for the hard work of Katy Brookby in assisting in research and drafting this report. Finally, special thanks to Rose Faeges-Easton, the tireless ULI District Coordinator for her insight and editing skills.

Additional information was gathered from various Metro Nashville websites. Policy prescriptions were generated from a review of the pertinent literature and best practices summarized in the ULI Annual Infrastructure Reports (years 2009-2012).

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