

2035 Transportation Plan
Louisville Metro Government
Mayor Greg Fischer, 2016

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Louisville is on the move. Our economy is accelerating; we're innovating at a record pace, and we are strategically growing jobs for the future. But these exciting times pose challenges to our growing transportation needs. Federal and state funds are increasingly scarce. Competition for attracting and retaining talent for the 21st century economy is stiff. Cities all around the United States are experiencing renewed interest in development of dense, walkable neighborhoods for living and working. Citizens are demanding more connectivity and better transportation choices.

Our transportation infrastructure is a critical component of our city's economy. It has helped us become a leader in logistics, advanced manufacturing, and business services.

To optimize our success, Louisville must be a city where all citizens have safe, affordable, healthy and reliable options for how they move around, whether it is by driving, walking, biking, mass transit or shared mobility programs that make it easy for someone to live here without owning a car or use cars less.

Connectivity is critical to our future.

We are fortunate to be on the forefront of dramatic technological changes as we rethink our transportation system and how we move around. The waves of new technology and changing demographics will have a profound impact on our built environment. These technological innovations, combined with dramatic demographic shifts, are about to become our reality. We must be ready to adapt and capitalize on these coming changes.

Move Louisville offers a holistic and strategic approach to investing in our transportation system. Our first priority is a 'fix-it-first' policy where we maintain what we have. Louisville's local transportation infrastructure is a \$5 billion asset that must continue to serve as a safe and reliable network for our citizens and businesses.

Secondly, to attract and retain a talented workforce, we must plan for a future that offers mobility choices. Compact, transit-oriented, population and business nodes along our major corridors will provide transportation options without adding expensive miles to our roadways or particulates to our air.

If growth continues at current patterns, Louisville is projected to add around 130,000 new residents over the next 20 years, and we plan to grow faster than this to enhance our economic competitiveness in an increasingly global economy.

To accommodate this growth, we must find new and innovative ways to pay for transportation projects and services. Move Louisville identifies nearly \$1.4 billion worth of maintenance and priority projects that will need to be completed in the next 20 years, including investments in road infrastructure critical to our manufacturing and logistics sectors, as well as neighborhood-level projects that spur local economic development.

Planning, building and maintaining a transportation system over a geographically diverse community is a challenge. Balancing the needs of the system over our nearly 400 square miles means that difficult choices must be made. For example, the cost of a new light rail line is hard to justify with low-density population, but we must keep working toward premium transit options like Bus Rapid Transit and modern streetcars, while emphasizing density to create future transit enhancement opportunities.

Move Louisville provides a framework for growth and investment by prioritizing our limited resources, better leveraging available state and federal dollars, and planning for strategic investment of local capital. A 20-year plan may seem challenging at its outset, but every long journey begins with one step...and whether the journey is by car, bus, bike, or on foot, with Move Louisville we take another step forward as a connected, competitive, creative and compassionate city.

Mayor Greg Fischer



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PREFACE

Planning and building a transportation network is a complicated business, especially in an urbanized county. Louisville's investment in infrastructure has occurred over nearly a 200-year period – meaning that we are not starting from scratch and that much of our infrastructure is aging. An additional complication is that federal and state transportation funding continues to shrink.

Move Louisville seeks to prioritize our limited transportation dollars by recommending policies and projects that will: 1) reduce vehicle miles traveled, 2) preserve our existing streets and sidewalks, 3) provide better connectivity and real options for travel, 4) provide a better link between land use and transportation, 5) put Louisville in a position to enhance its transportation funding and 6) identify opportunities for redevelopment through transit oriented development. It is critical that Louisville identifies its transportation priorities especially as federal and state funding continue to shrink.

Most transportation projects are paid for with multiple sources of funds. Rarely is there a

road, bridge or even major sidewalk project that is paid for with one source of funds. Local funds make up the smallest pool of funds for transportation improvements. Federal and state funds, while making up the largest share of available funding, have been shrinking over recent decades. Additionally, there are numerous programs and sources of funds for transportation projects that each come with their own focus and set of requirements. Therefore, it is imperative that Louisville identifies its priorities.

One of the primary funding tools for local transportation projects is through federal Surface Transportation - Urban Funds (These dollars are known as SLO funds). These funds are programmed through the local Metropolitan Planning Organization's Transportation Improvement Plan (TIP). The Louisville region's SLO funds are budgeted through 2018. Move Louisville assumes that the projects and initiatives programmed in the current TIP will be built as planned and become part of the network. The projects and policy recommendations within Move Louisville do not supplant or change the projects funded and scheduled in the TIP.

Move Louisville positions Louisville for attracting federal and state funds and leveraging existing local dollars with new funds. A strategic planning document like Move should both enable Louisville to better attract competitive sources of funds, like grants, and to target those grant funds on projects that will be transformative for our community. The recent TIGER grant for the Dixie Highway BRT arose out of early Move Louisville planning. The Dixie Highway project is just one example of the real-world improvements that arise out of developing a strategic approach to transportation planning and investment.

EXECUTIVE SUMMARY

Like most American cities, Louisville must reduce vehicle miles traveled. Cars will remain the dominate mode of transport, but there is opportunity to shift short trips away from cars. Shifting these trips can have broad impacts on our health, air quality, built environment and connectivity. Move Louisville represents a vision and action plan for transportation policy and investment for Louisville Metro. The Plan provides a path to a healthy, connected and sustainable transportation network that encourages investment, growth and prosperity.



MOVE LOUISVILLE COMMUNITY GOALS

▶ Provide Connectivity Choices

Create a transportation system that provides users with multiple options.

▶ Improve Safety and Health

Ensure that all future growth contributes to healthy living and good quality of life for all.

▶ Promote Economic Growth

Projects should help to promote economic opportunity and community prosperity.

▶ Maintain Fiscal Responsibility

Build a transportation system that future generations can afford to maintain.

▶ Assure Environmental Sustainability

Transportation projects and policies will seek to improve air and water quality.

▶ Assure Equity for All System Users

The transportation system of the future must address the needs of all potential users.

▶ Enhance Neighborhoods

All future growth should contribute to the creation of vibrant communities.



From Vision to Move

Vision Louisville is a creative initiative to inspire big ideas for reimagining our city's built environment. It provides a framework for accelerating transformative investment in the community's built environment. The initiative envisions a city of engaged citizens that is connected, creative, competitive and compassionate.

Vision created a vehicle to think big and to accelerate transformative investment in Louisville's built environment. Building upon Vision, Move Louisville is a community-driven, more technically-oriented plan that was developed after 2 years of community conversations.

Move Louisville recommends specific policy and project-based actions that together will reduce vehicle miles traveled and begin to create the future articulated in Vision Louisville. The goals of the Move Louisville plan are based on the seven community goals defined in Vision Louisville.

Why Move Louisville?

Move Louisville recommends policies and projects that will create a more innovative, connected transportation network that, while continuing to facilitate normal traffic, will allow and encourage those who want to live “car-lite” or even car-free. The overall objective is to reduce vehicle miles traveled by providing options for commuting, recreation and short trips using transit and active modes like walking and biking.

FIX IT FIRST/SYSTEM PRESERVATION

Louisville’s transportation infrastructure affects all residents and businesses. The streets, sidewalks and buses are used daily by commuters going to work, children going to school, businesses moving freight and citizens shopping for their daily needs. Maintaining a high-quality infrastructure is imperative for Louisville to thrive. Citizens are voicing their concern for the condition of our roads and sidewalks. A 2011 survey indicated only 37% of citizens were satisfied with the condition of Louisville’s streets and sidewalks.

The Transportation Improvement Plan (TIP) is the guiding document for the public sector’s investment in transportation. When looking at the region’s current TIP, the majority of the Surface Transportation Program (SLO) dollars are allocated to roadway capacity, with an inadequate amount allotted for system preservation. This is the case, despite the fact that our transportation assets, such as pavement, bridges, sidewalks, and signs and signals are deteriorating. Historically, federal funds used for roadway capacity projects were considered guaranteed. However, a new stark reality is becoming clearer, where spending of the region’s limited federal dollars must be targeted to critical needs in the transportation network. We have learned that if we build it we have to take care of it.

In reviewing federal and local best practices, one element rose to the top again and again; system preservation is an issue of national concern, and one that is experienced on a daily basis in every locality. Metropolitan areas around the country are recognizing the need for system preservation and are adopting budgets that reflect those needs. For example, in

2012, pavement and bridge preservation allocations accounted for 43% of the total funds administered by Indianapolis. By comparison, 15% of the funds programmed in Louisville’s TIP are devoted to system preservation. Nationally, the U.S. Department of Transportation has promoted State of Good Repair as a national performance goal within Moving Ahead for Progress in the 21st Century Act (MAP21).

REDUCE VMT IMPROVE CONNECTIVITY

One clear and distinct message from the Vision Louisville process was that Louisville aspires to be a community of choice – both in terms of mobility and life style. Today, almost 82% of commuters in Louisville drive to work alone, and 89% of households have access to one or more cars.

In comparison to our regional peer cities and the nation, Louisville’s percentage of residents driving to work alone is high: for example, 72% of Cincinnati’s residents drive alone, while Nashville’s and the nation’s rates stand at 80% and 76%, respectively.

LOCATION	DRIVE ALONE	CAR POOL	TRANSIT	WALKING	OTHER	TOTAL WORKERS
Seattle	52%	9%	19%	9%	11%	355,454
Portland	59%	9%	12%	6%	14%	302,410
Cincinnati	72%	9%	8%	6%	5%	130,608
United States	76%	10%	5%	3%	6%	139,786,639
Charlotte (Merged)	77%	10%	4%	2%	7%	460,885
Nashville (Merged)	80%	10%	2%	2%	6%	315,310
Kansas City	81%	9%	3%	2%	5%	220,334
Columbus	81%	8%	3%	3%	5%	390,170
Indianapolis (Merged)	82%	10%	2%	2%	4%	416,825
Louisville (Merged)	82%	9%	3%	2%	4%	344,183

Data Source: US Census Bureau 2013 ACS 5-year estimates

Clearly, moving by car dominates today’s landscape and will for the near term. Nationally, however, vehicle miles traveled (VMT) – the statistical measure of total vehicular usage on our streets and highways – is decreasing. Data shows that VMT peaked in 2005 and declined by 8.75% by 2013. Local VMT also decreased during this time period, although at a slower rate. Reductions in VMT result in fewer daily and weekly trips, reduced fossil fuel consumption, reduced congestion and improved air quality. While in the short-term, VMT fluctuations are closely tied to gas prices, long-term decreases in VMT reflect a growing trend, especially in our younger and older population cohorts, to drive less and live closer to where they work. Short trips (3 miles or less) account for a full half of all trips and 28% of trips are one mile or less. Converting some of these short car trips to other low to non-polluting modes, such as bicycling and walking,



can have a positive impact on the environment. Population estimates over the last five years show Louisville Metro's population growing at a modest rate. The region's unique quality of life and competitive cost of doing business, along with the growing sector of knowledge-driven jobs, continues to attract new employers and a new workforce – primarily in the following sectors: advanced manufacturing, lifelong wellness and aging care, business services, logistics and eCommerce and food and beverage. Louisville Metro's economic development strategy is centered upon these specific business clusters and the talent that these companies attract. Surveys have shown that the workforce attracted to Louisville for these jobs expect more transportation options. The "sharing economy" that is emerging will reflect these growing options, from shared auto services such as Car Share and Uber to the city's planned bike share system.

The more compact growth scenario recommended by Move Louisville could result in a decrease of over 500,000 VMT per day on the region's road network. This scenario will help make households, especially lower income households, more mobile and provide more viable options for connecting to jobs. This recommended growth scenario will facilitate removing short trips from our local roads by shifting them to alternative modes. Ideally, the projects and policies of Move Louisville will work together with the city's land use policies to create walkable, mixed-use places that have transit supportable densities. With transit oriented development along key corridors, there will be more opportunities for environmental improvements, better land use planning and for shorter commute times – a key desire of millennials entering the workforce, according to a 2015 Urban Land Institute report on millennial/gen Y housing preferences.

To truly shorten commute times and decrease VMT, Metro needs to link the activity centers through premium transit. Premium transit is fast, frequent and reliable. This mode of travel can take a number of forms including bus rapid transit (BRT), light rail,

modern streetcars and commuter rail. These forms of transit were desired by the community during Vision Louisville and Move Louisville and serve to move people to jobs and services in a low impact manner.

Many cities, including mid-sized cities, are pursuing light rail premium transit. Louisville explored light rail transit in the early 2000s, but was unable to achieve the political and financial support to execute the system. Today, Louisville must both increase density within its centers and address sustainable funding to support fixed-guideway transit. Move Louisville's policies and priority projects aim to address these challenges over the next 20 years so that fixed-guideway service becomes feasible. Given today's constraints, Move Louisville recommends Bus Rapid Transit be the mode to achieve premium transit service.

To achieve connectivity choice, it is critical that Louisville's different travel options are linked and coordinated. Given the county's size and historic development patterns, it is important that bicycle and pedestrian networks connect to transit to make transit the easy choice.

MOVEMENT OF GOODS

Maintaining efficient movement of goods, a key component of the region's strong logistics and distribution sector, is an essential component of the plan. While the Louisville-Southern Indiana Ohio River Bridges Project (currently under construction) is the needed lynchpin of the region's freight network, increasing freight movement around major logistics hubs such as the airport and Riverport will require that the network not become congested with single occupant vehicles. A comprehensive program of travel demand management is recommended in this document to assure that, even with growth in the region, traffic flow is maintained.

VISION ZERO HEALTHY AND SAFE

Louisville's citizens expect and deserve a safe, healthy and environmentally sustainable city of neighborhoods. Louisville's rate of pedestrian fatalities exceeds the national average. Move Louisville recommends that the city follow the lead of many U.S. cities in adopting a Vision Zero concept – where we strive to have zero fatal pedestrian collisions. What this means in practice is that people make mistakes and the system should be designed to protect users by tactics such as evaluating speed limits, enhancing enforcement and redesign where appropriate. Move's pedestrian accessibility strategy creates a program of investments and projects that provide active transportation options to form a safer, healthier and more walkable community.

AIR QUALITY

In Jefferson County, on road sources – cars, trucks, buses, etc. – are responsible for up to 35% of the emissions of NOx and roughly 20% of the emissions of VOCs (the two compounds that combine to produce ground-level ozone). The projects within Move Louisville provide non-driving alternatives, while the policies incentivize infill growth that will result in shorter trips. The cumulative effect of these investments and strategies will reduce per capita vehicle miles traveled, allowing the region to make substantive progress in improving its air quality.

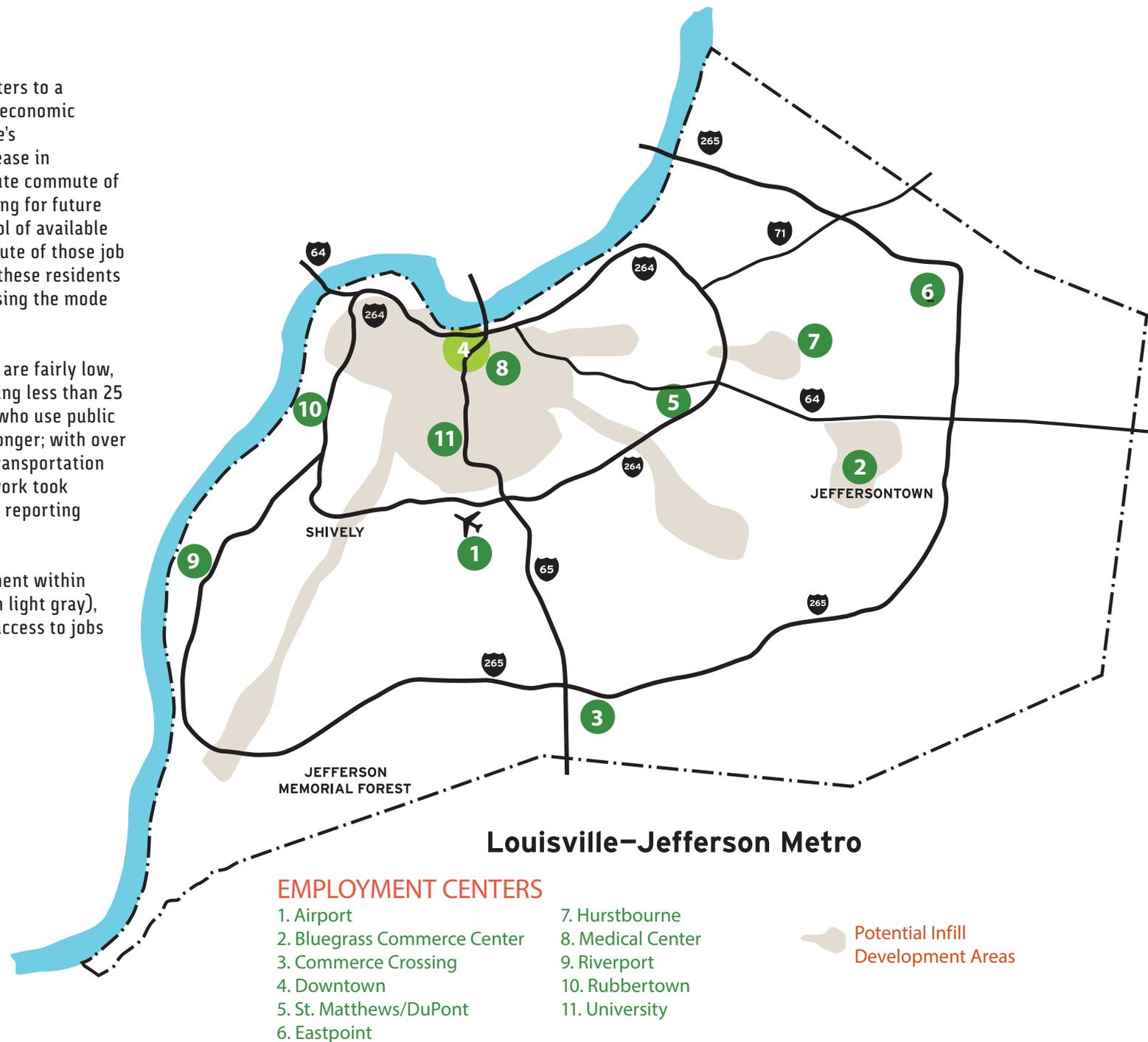
Poor air quality in our urban areas is linked to increases in asthma and other illnesses. Yet if each resident in a community of 100,000 replaced one car trip with one bike trip just once a month, it would cut carbon dioxide (CO2) emissions by 3,764 tons per year in the community. Move Louisville's projects and policies seek to make alternative travel modes for short trips the easier choice.

ACCESS TO JOBS

Connecting Louisville's many job centers to a qualified workforce is critical to the economic success of the region. Move Louisville's recommendations create a 10% increase in population that live within a 20 minute commute of the city's major job centers. Accounting for future growth, this would mean that the pool of available employees within a 20 minute commute of those job centers would increase. In addition, these residents also will have more options for choosing the mode of their commutes.

Average commute times in Louisville are fairly low, with nearly 67% of the workforce using less than 25 minutes to travel to work. For those who use public transportation, commute times are longer; with over half of the workforce taking public transportation reporting that their travel times to work took 45 minutes or longer and nearly 36% reporting commute times of over one hour.

By encouraging residential development within the infill nodes (shown on the map in light gray), commute times can be reduced and access to jobs can be increased.





Projects & Policies

Move Louisville recommends projects and policies designed to address the needs and desires of our community and align those aspirations to national best practices and local trends. Together the policies, practices and priorities embodied in the pages that follow aim to keep Louisville moving toward a more connected, competitive and compassionate city. Throughout the Move Louisville planning process, numerous transportation projects were identified and evaluated against the plan's goals.

Specific lists of future projects are identified by mode type in the appendices of this plan. The projects additionally are categorized by recommended time line -- priority, mid-term and long-term. With a limited horizon and a constrained budget, Move Louisville outlines a set of priority projects that will serve to catalyze Louisville's economy, transform the built environment and reduce VMT.

The priority projects assume that the improvements programmed in the region's Transportation Improvement Program (TIP) will be built and become part of the city's transportation network. The priority projects also assume that congestion and safety improvements on the region's interstate highway

system will be accomplished with state and federal funds. As capacity is added to the interstate system, operational and design improvements should include managed lane technologies, such as High Occupancy Vehicles and transit lanes, as well as other evolving intelligent transportation systems.

In addition to the priority projects, Move Louisville's policy priorities build a process that allows for enhancement and expansion projects to be brought on board as funding allows. These include small road capacity or major streetscape projects that support economic development such as the West Market and University Corridor projects. The project and policy priorities should be reviewed and evaluated on a periodic basis. Move Louisville recommends that these reviews occur every two years.

Move Louisville prioritizes system preservation over roadway expansion and takes a complete streets approach to build the framework for the priority projects. By taking a complete streets approach to road planning and design, Louisville can begin to rethink how streets move people and balance the demands of all users. The end result should be a well-maintained transportation network and a reduction in VMT.

PRIORITY PROJECTS

- ▶ **East/West Transit Corridors** connecting Dixie Highway to Westport Road
- ▶ **Transforming Dixie Highway** for traffic and pedestrian safety, efficiency and rapid transit
- ▶ **Rebuild Broadway and Preston Highway** as complete streets and premium transit corridors
- ▶ **Oxmoor Farms Bridges and Access**
- ▶ **Urton Lane Corridor**
- ▶ **Improve access and connectivity in East Louisville** especially around the Parklands of Floyds Fork
- ▶ **Improve the transportation system and connectivity to, from and within West Louisville**
- ▶ **Implement two-way traffic conversions** in Downtown and Edge Neighborhoods
- ▶ **Extend and reconfigure River Road as a complete street** to create a safer corridor from end to end and reconnect West Louisville to Downtown
- ▶ **Implement a complete street treatment for Lexington Road**
- ▶ **Reimagine the 9th Street corridor**
- ▶ **Complete a low-stress central bicycle network**
- ▶ **Fund the sidewalk program to ensure pedestrian connectivity**
- ▶ **Complete the Louisville Loop**



Priority Projects

In the immediate term, these projects offer transformative potential for the city. Each of these projects will be added to the Metropolitan Transportation Plan, the region's transportation investment program.

PREMIUM TRANSIT CORRIDORS/COMPLETE STREETS

East/West Transit Corridor

A clear east-west/cross-town transit connection was a top request during the Move Louisville process. A cross-town route has the potential to connect major work places around the city, allowing easier and faster access from residential neighborhoods to job centers. The Renaissance South Business Park, near the Louisville International Airport, is a prime example of a growing job center that will benefit from an east/west transit connection. Two major routes are proposed for examination, one just inside the Watterson Expressway and one just inside the Snyder Freeway.

Transforming Dixie Highway

Dixie Highway is one of Louisville's major economic corridors and one of the most densely-traveled. The Dixie/Preston transit route carries the highest number of riders in the system. The corridor also is one of Louisville's most dysfunctional and dangerous, with a large number of accidents and fatalities. This high transportation demand results in low speeds and long delays at critical locations throughout the corridor – affecting all users including transit riders. The Dixie corridor experiences

more than double the number of total and injury-collisions when compared to similar roadways statewide. These crashes also include a high rate of fatalities. Between the years 2010-2014, Dixie Highway experienced 34 traffic-related fatalities within the project limits. ***This results in a fatal crash rate that is over 3 times the rate of similar roadways.*** A redesign and rebuild is necessary to create a safe, efficient and economically successful multi-modal corridor.

Broadway Complete Street

No other street in Louisville links the city's eastern and western neighborhoods to the extent that Broadway does. Redesigning this connector in its entirety – from Baxter Avenue to Shawnee Park – as a multi-modal “complete street” including bus rapid transit (BRT) and bike facilities, would be instrumental in the revitalization of this historically significant commercial corridor. To truly create a functional BRT line, it would need to extend southeast on Bardstown Road to serve the already established walkable communities. An operational plan is necessary to determine actual costs and operating characteristics.

Preston Corridor Premium Transit

While the land uses along Preston are not yet fully supportive of premium

transit, much of the Preston corridor has the fundamentals for infill development that could allow it to transform over time into a true premium transit corridor. In the short term, improving frequency and improving running time through approaches such as limited peak hour bus lanes and consolidated stops, will help to maximize transit ridership and improve choice along the corridor.

REGIONAL ECONOMIC DEVELOPMENT PROJECTS

Oxmoor Farms Bridges and Access

Planned transportation infrastructure is the key to unlocking this ideally situated undeveloped parcel of land. Additional bridges and access points will create needed alternative routes to Shelbyville Road and Hurstbourne Parkway. With multi-modal streets and a planned, dense, mixed-use, multi-generational development, this site – one of the county's largest infill development sites – could be transformed into a district with high quality new jobs and superior urban quality, livability and accessibility.

Urton Lane Corridor

Completing the planned extension of Urton Lane from Middletown to

Taylorsville Road will provide a long-needed north/south thoroughfare expediting the movement of goods and services and facilitating shorter and more efficient commutes for residents living and doing business in the area.

East Louisville Connectivity

The rapidly-developing area around the newly opened Parklands of Floyds Fork will bring network connectivity issues. Transportation should be addressed holistically to accommodate new development and all modes of travel where appropriate. It is anticipated that many of the larger projects will be focused on interstate improvements. For example, a new interchange and connector road from KY 148 to US 60 (Shelbyville Road) on I-64, will greatly increase accessibility. Strategically improving existing rights of way and building a limited number of new connector roads will accommodate access to the Parklands of Floyds Fork and adjacent areas.

West Louisville Connectivity

Conversion of one-way streets to two-way streets and improved maintenance of the street, bicycle and pedestrian networks will support reinvestment throughout West Louisville and improve east-west connectivity.

DOWNTOWN AND EDGE NEIGHBORHOOD ACCESS

Downtown/Edge Neighborhood Two-Way Streets

Louisville's downtown street network should be converted from one-way to two-way to increase the livability of the affected neighborhoods for both residents and visitors. Studies show that regardless of the size of the city, a one-way to two-way street conversion increases the safety and efficiency of downtown networks, enhances economic activity and creates more walkable neighborhoods. The related conversion to two-way movement of Mellwood Avenue/Story Avenue in downtown and of 15th St./16th St. – each made one way decades ago during construction of I-64 – will further support revitalization in the edge neighborhoods of Butchertown, Portland and Russell.

Main/Story Intersection Redesign

The reconstruction of the intersection at Story Avenue, Main Street and Baxter Avenue will improve safety and support the two-way operation of downtown streets. The project also supports economic development in the Butchertown, Phoenix Hill and NuLu areas.

River Road Complete Street

Extending River Road westward from its current terminus at 7th Street will provide connections from the East End and downtown to the Portland and Russell neighborhoods and to the future Waterfront Park Phase IV. Reconfiguring the existing portions of River Road from end to end to improve safety for motorists and better accommodate pedestrians and bicyclists, allows the street to be safe and provides better access to waterfront amenities including the Big 4 Bridge and Waterfront Park.

Lexington Road Complete Street

Reconfiguring Lexington Road as a complete street to address safety issues will improve efficiency and enhance future redevelopment opportunities.

Reimagine 9th Street

Ninth Street and the I-64/Ninth Street Interchange create a wall between downtown and West Louisville neighborhoods. Reimagining the Ninth Street corridor as a true urban boulevard will preserve access to downtown Louisville and West Louisville while potentially creating nearly 10 blocks of development opportunities within and near the over-dimensioned footprint of the existing interchange and open redevelopment opportunities throughout the corridor.

BICYCLE/PEDESTRIAN NETWORK

Central Bicycle Network

Reducing VMT, increasing use of alternative transportation modes and achieving the corresponding health improvements requires providing more options for short trips. Added to the goal of reduced VMT, Louisville residents expressed a desire to get around the city by bike. A network of extensive yet inexpensive and relatively easy-to-implement bike facilities - connected to transit - in the downtown and the central neighborhoods is a logical first step. A strong, connected core network also will support the success of the city's bike share program.

Sidewalk Connectivity

In 2010, the Metro Council took responsibility for construction and maintenance of the city's sidewalks, a responsibility that had previously fallen to the adjacent property owners. However, at the time, recessionary constraints on the city's capital budget limited funding of the program. Louisville Metro's FY2015 and 2016 budgets have taken steps to formalize annual funding for sidewalk repair and construction, but additional funding is necessary.

Louisville Loop

While the Louisville Loop is well on its way, taking it to the finish line will provide a huge boost to the health and vitality of Louisville's citizens. Increasing connectivity to the Loop from neighborhoods throughout the city is essential to ensuring that residents can access all the Loop has to offer.



Frankfort Avenue today



Vision of Frankfort Avenue as a complete street



STRATEGIC POLICY APPROACHES

- ▶ Shift funding allocations and increase funding to build and maintain a city-wide transportation system that supports the mobility needs of the entire community
- ▶ Make complete street design principles the norm
- ▶ Focus decision making on high-capacity, people-moving corridors
- ▶ Consider transit a catalyst for infill development
- ▶ Streamline transit service on key corridors
- ▶ Set policy on preferred truck/freight routes
- ▶ Manage parking
- ▶ Embrace smart mobility



Indianapolis Cultural Trail
Image source Visit Indy

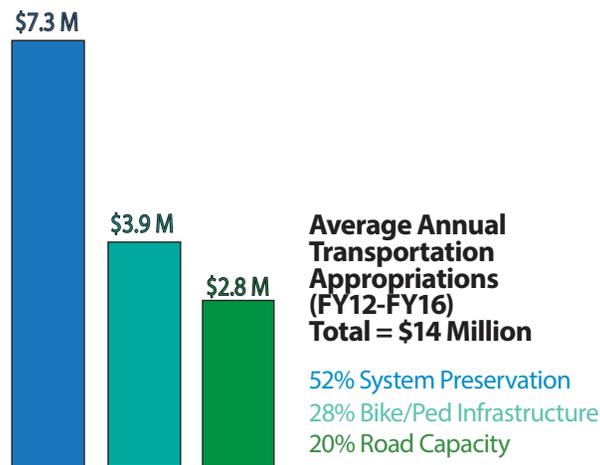
Policy Priorities

In addition to the projects, strategic policy approaches are needed for Louisville to achieve the robust transportation it desires.

SHIFT CURRENT FUNDING ALLOCATIONS AND INCREASE FUNDING

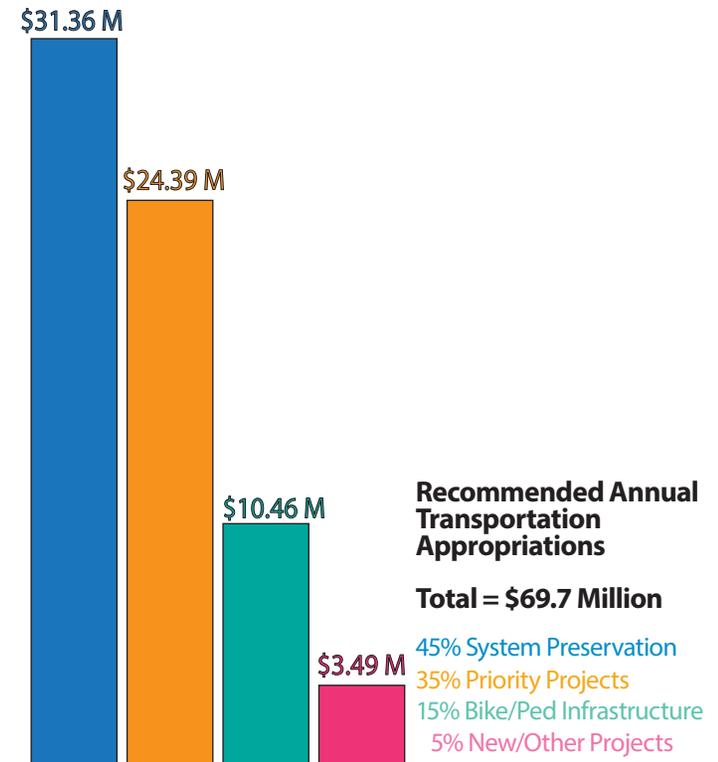
To achieve the community's goals and best practices in transportation and to address the priority/transformational projects identified in the planning process, new funding must be realized. Move Louisville recommends two strategies: identify new funding streams and shift local and regional transportation spending to prioritize system preservation. The new funding model seeks to balance transportation needs with our local quality of life-centered economic development strategy. Although the shift in allocations will be gradual over the next 5 to 10 years, the change will have a profound result when investments are made according to the plan.

The majority of the region's transportation dollars are currently allocated to roadway capacity projects. However, expanding the system increases our current and future maintenance costs. Meeting the Move Louisville goals requires a substantial investment in maintaining the operational functions and physical infrastructure of the system. Move Louisville recommends a funding allocation model that tackles the region's current maintenance deficit (estimated backlog of \$288 million and on going maintenance obligations) over the next 20 years, builds the priority/transformational projects in the same time period, and allows for enhancement and expansion projects to be brought on board as funding allows. This model, on average, would cost \$69.7 million annually over the 20-year period for capital improvements. In addition, it is



recommended that Metro provide an annual \$1.9 million operational enhancement for project management and delivery capabilities. These recommendations represent a significant shift away from road capacity projects and seek to enhance system preservation, improve road operations, implement complete streets and enhance transit and active transportation modes.

Annually, Louisville Metro appropriations including federal and state formula funds (Community Development Block Grant, Municipal Aid and County Road Aid) average \$14 million for capital transportation projects and initiatives. This appropriation excludes project-related bond issuances and does not reflect the pending large road capacity projects in the



region's Transportation Improvement Program. For planning purposes, it is assumed that \$14 million will be the annual allocation going forward for capital transportation projects if no changes are made.

Assuming the \$71.6 million annual total cost of the Move Louisville recommendations and average appropriation, there would be an average yearly gap of \$57.6 million. Four strategies are recommended to address this gap:

- Streamline internal project development and design processes to decrease project delivery time;
- Increase share of federal program funds through KIPDA and KYTC by at least \$10 million



annually;

- Use competitive grants to complete priority projects (e.g. TIGER, FTA New Starts, CMAQ);
- Find new/enhanced revenue sources.

The picture for Louisville is clear - real improvement to the city's transportation infrastructure requires significant changes in how transportation funding is allocated and executed. The funding gap indicates that additional revenue streams are necessary to provide the outcomes that the citizens desire and economic growth requires.

Assuming the gap can be addressed, Move Louisville recommends the following allocation model for infrastructure spending:

- 45% of funds should be dedicated to system preservation and maintenance;
- 35% of funds should be dedicated to priority road capacity and enhancement projects with an emphasis on complete street improvements;
- 15% of funds should be dedicated to priority bicycle and pedestrian facilities including shared use paths;
- 5% of funds should be dedicated to new and other projects to be complemented by outside funding sources such as federal grants, private investment and local philanthropy.

These allocations assume annual funding of \$69.7 million for capital transportation projects and \$1.9 million for operational enhancements (project management staffing and contracts) to streamline project completion - a total of \$71.6 million. If only a portion of this necessary funding is received, the majority should be allocated to system preservation, with the remainder addressing the priority projects.

Today, most Louisvillians get around by car, and that is expected to be the case for the foreseeable future. It therefore follows that the majority of capital spending should target maintaining Louisville's existing transportation infrastructure.

By contrast, it takes relatively few dollars to make significant progress in establishing robust bike and pedestrian infrastructure. Today, Louisville Metro's overall spending on bike infrastructure is substantial. Current spending levels on bike and pedestrian facilities are due mostly to the design and construction of the Louisville Loop and emerging shared use path system. It is recommended that substantial funding on bike and pedestrian infrastructure continue, even after the Loop is completed, to develop a connected shared use path network.

TRANSIT OPERATIONS

Transit in Louisville is underfunded for a city that desires real transit options. Additionally, transit enhancements are required to support the workforce needs of employers. It is important to note that the current level of funding for transit operations does not support the current level of service, as each year transit operations are partially supported through non-renewable sources such as federal and state grants. Move Louisville's recommendations for premium, high frequency transit corridors cannot be constructed or operated at current funding levels. If Louisville is to take the next step and remain competitive with its peer cities - such as Nashville, Indianapolis and Charlotte - that are realizing premium transit corridors, a new and sustainable source of funding for transit operations must be secured.

Better transit service was one of the most common desires expressed by Louisville residents during the Vision and Move Louisville processes. Louisville employers are making frequent requests for better transit service to job centers. Improved bus service, rapid bus corridors and even light rail investment are on the minds of Louisvillians. These improvements require new funding, since the existing funds generated by the local community for transit (primarily the Jefferson County employment occupational tax), do not even cover the service currently provided. Each year TARC resourcefully finds roughly \$10 million in grants or subsidies to continue providing current levels of service. To add the new services, additional and sustainable revenue is essential. To implement the important premium transit recommendations, at

minimum, an additional \$20 million in operating funds per year would be required.

Move Louisville proposes that the operational and capital transit improvements be implemented over a 15 to 20 year period, with funding needs ramping up over the same amount of time. Move recommends that the Dixie Highway premium transit service line and new east-west transit connections are put in service over the next 3 to 5 years. While today there is a \$10 million shortfall in needed operating funds, it is estimated these two priority changes will grow this shortfall to at least \$18 million. Move Louisville recommends that premium transit service on Broadway/Bardstown Road and Preston Highway is added in the next 5 to 10 years, and that the Frankfort/Shelbyville Road premium service is added in the next 10 to 20 years. Premium service on Preston Highway and Frankfort/Shelbyville Road will require more activity centers and additional residential density at key transit stops, changes that will require time and market shifts.

Interest in a street car in Louisville has grown. Many cities around the United States have constructed street car lines in or near their downtowns. Due to the concentration of destinations, employees, and a growing residential market, Main and Market Streets in downtown Louisville may hold the potential for a new fixed-guide way service, such as a street car. The street car could supplement and be integrated with the Zero Bus circulator service now in place. Additional analysis is needed to determine if the land uses along the corridor can support a street car, and if its benefits exceed the capital and operational cost of the service.

The community expressed interest in exploring modern street cars or other premium transit service to connect downtown to the University of Louisville and the Louisville International Airport. TARC's existing Fourth Street service is one of its frequent service lines and carries almost 4,500 passengers daily. The existing width and historic development along Fourth Street make it an unlikely candidate for premium transit

service. Other north/south streets may hold potential for a premium transit connection, but more analysis is needed.

ADDITIONAL FUNDING SOURCES

Given the gap it is clear that additional funding sources will be necessary to execute all of the transportation needs and enhancements recommended by Move Louisville. It is important to make a distinction between funding sources (a revenue stream) and financing mechanisms. A financing mechanism, such as a bond, generates money in the short term which must be paid back with interest. The tools cities use to create dedicated revenue streams fall into two basic categories: taxes (ex: sales tax) and user fees (ex: parking surcharge). The community desires articulated during the Move Louisville process will require financing mechanisms and new revenue streams.

MAKE COMPLETE STREET DESIGN PRINCIPLES THE NORM

Complete Streets are streets that work for everyone in the community, regardless of how they get around. This does not mean that every street requires bike lanes, transit lanes and elaborate streetscapes. It means that the multiple ways people get around are safe, comfortable and integrated. Streets that do not meet these criteria typically result from a complicated and uncoordinated system of processes and siloed decision-making. Since the city does not have the opportunity to redesign all of its thousands of miles of existing streets, it requires a Complete Streets Implementation Strategy to fix the design process for new streets and to retrofit existing streets.

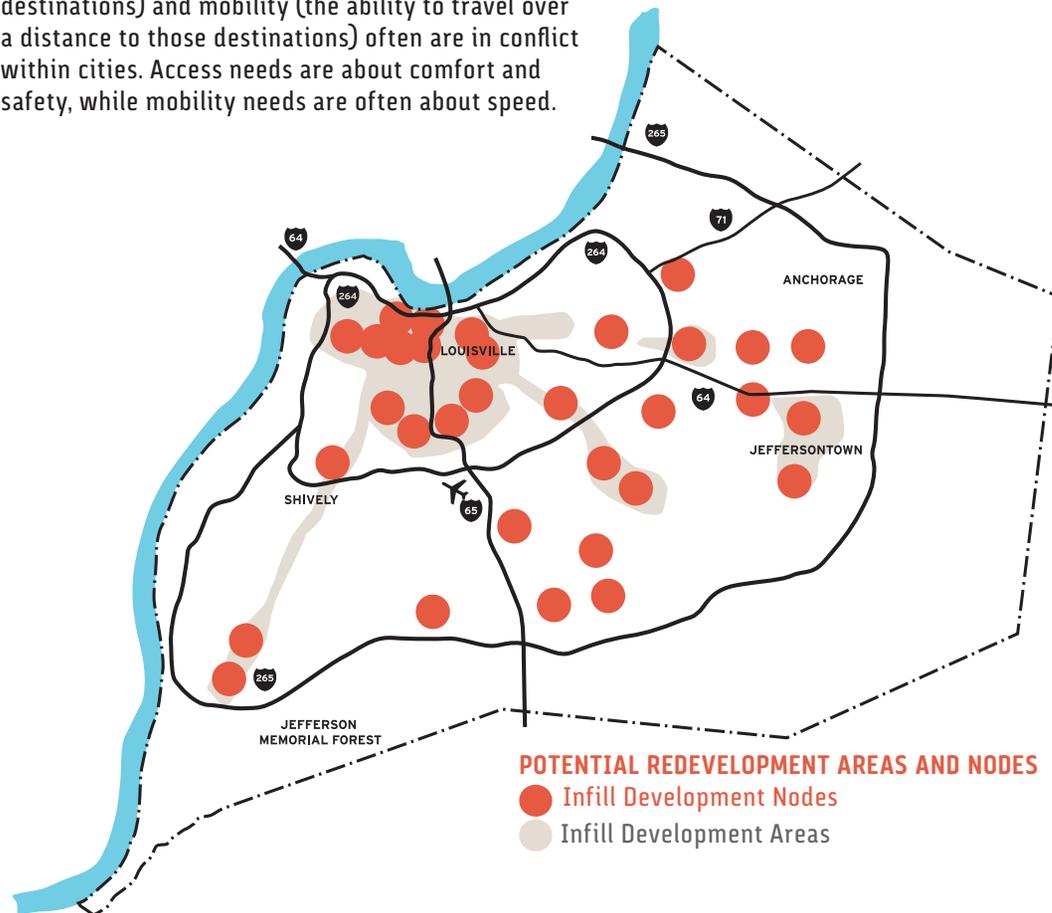
In 2008, the Louisville Metro Council passed Ordinance No. 15, Series 2008, known as the Complete Streets ordinance, which directs all transportation and development projects to design streets for drivers, pedestrians, bicyclists, transit riders and persons of

all abilities, while promoting safe operation for all users, including freight. The impact of the ordinance has not been robust both because the Louisville Land Development Code was not updated to include complete streets requirements for private development and new innovations in bicycle facility design have occurred since the ordinance's passage. The next steps are to update the street design standards and the Louisville Development Code to implement the desired complete streets outcomes. These steps should be part of a formal Complete Streets Implementation Strategy.

MOVE PEOPLE— PRIORITIZE HIGH CAPACITY CORRIDORS

Access (the ability to conveniently arrive at destinations) and mobility (the ability to travel over a distance to those destinations) often are in conflict within cities. Access needs are about comfort and safety, while mobility needs are often about speed.

In Louisville the mix of higher speeds and pedestrian activity is most prevalent along the larger arterial streets that lead from the suburban communities into downtown (Dixie Highway, Preston Highway, etc.). These arterial thoroughfares have been designed for high speeds and traffic volumes. As the context of these thoroughfares change over time, such as to walkable, compact mixed-use areas, the speed encouraged by the design becomes a matter of concern. Higher speeds result in a higher percentage of injury and fatality crashes. By reducing speeds through enforcement, design and technology, and adding enhancements for the comfort and safety of all users, a balance can be achieved between *moving cars and moving people*.



USE TRANSIT AS A CATALYST FOR INFILL DEVELOPMENT

Transportation and land use are inextricably linked. Transportation shapes urban form, and the type and nature of development can greatly influence the effectiveness of the transportation system. The best systems of streets and transit are nearly worthless if users are confronted with an environment in which they cannot walk safely and comfortably to their destination. It is imperative that Louisville Metro adopt an integrated transportation and land use framework. There are two core concepts regarding this interrelationship that are critical to policy and investment going forward:

Place-Appropriate Density – The residents and employers of Louisville Metro have expressed a strong preference for premium transit service. The viability of such service depends on nodes with medium to high density development, walkability and a mix of uses. There are many areas in Louisville where these characteristics are present, possible or appropriate, as outlined in detail in Chapter 4 and illustrated on the map on page 18. Policies in those areas must be geared to assuring that density, walkability and mixed use occur.

Infill – Shorter trips place a lower burden on the transportation system and environment than longer trips. Land use policies and subsidies should be designed to reward the development of housing and retail that is close to substantial jobs centers, which encourages alternative modes of travel. Move Louisville has proposed a series of redevelopment nodes based on current land use characteristics, propensity for redevelopment (as determined by property values), and regional access by way of transportation thoroughfares. These development areas are used for planning purposes here and may be reshaped by policy, or through the insertion of transit investment. These infill nodes offer a way to

organize redevelopment efforts and, when viewed in a Metro-wide context, lay a foundation for supporting premium transit and other multi-modal investment along major corridors. In order to take advantage of the benefits arising out of encouraging a more compact development pattern, the following next steps are recommended: map compact growth nodes, update land use and zoning regulations, change development incentive structures, and prioritize the development of affordable housing near jobs and transit.

The more compact growth scenario showed a VMT reduction of over 1/2 million miles per day on the region's road network. Such a reduction results in better air quality and less congestion. In Jefferson County alone, annual VMT totaled over 7 billion in 2014. The associated transit options would be well used - the modeling suggested around a 40% increase in transit ridership for the more compact growth scenario. Many of the infill nodes themselves also showed the potential for more than 10% of commute trips to be on bicycle.

Defining nodes and centers for compact growth and transit oriented development will be a key component of the comprehensive plan update. Developing policies to encourage development of these nodes and areas is crucial to implement Move Louisville's compact growth scenario.



STREAMLINE TRANSIT SERVICE ON KEY CORRIDORS

Move Louisville's review of the local transit system found significant opportunity for improvements to rider efficiency and convenience. Move recommends the following transit service changes be fully vetted with the community and TARC:

A more understandable, frequent and accessible system.

Streamline the high ridership, most efficient routes (i.e., cut out some time-consuming diversions into neighborhoods).

Build premium transit on key corridors to include frequent service, traffic bypasses and quality stops/stations. Identified premium transit corridors: Dixie Highway, Broadway/Bardstown Road, Frankfort Avenue/Shelbyville Road and Preston Highway. Additional operating funds must be allocated to achieve these outcomes.

These recommendations do not represent a complete overhaul. They are common-sense approaches — proven successful in Louisville's peer cities — that will both broaden transit's existing attraction and appeal to potential new riders. However, most changes require new dollars rather than reallocation of existing dollars, as TARC struggles to balance coverage demands with high frequency/high ridership corridors.

SET POLICY ON PREFERRED TRUCK/ FREIGHT ROUTES

Moving goods to market is vital to the regional economy. While the region is addressing the backbone of the over-the-road system through the construction of the Louisville-Southern Indiana Ohio River Bridges Project, improved access to that expanded network must be prioritized. Today, the State Route system serves as the base for local truck routes. The current system sometimes causes confusion and conflicts due to street and railroad infrastructure and adjacent land uses. Move Louisville, therefore, recommends key steps to identify a set of core freight routes that will provide a clear and reasonable path from major areas of industrial concentration to the freeway system. Conflicting routes in the current system would be replaced with more appropriate and clearly defined truck routes. These steps include:

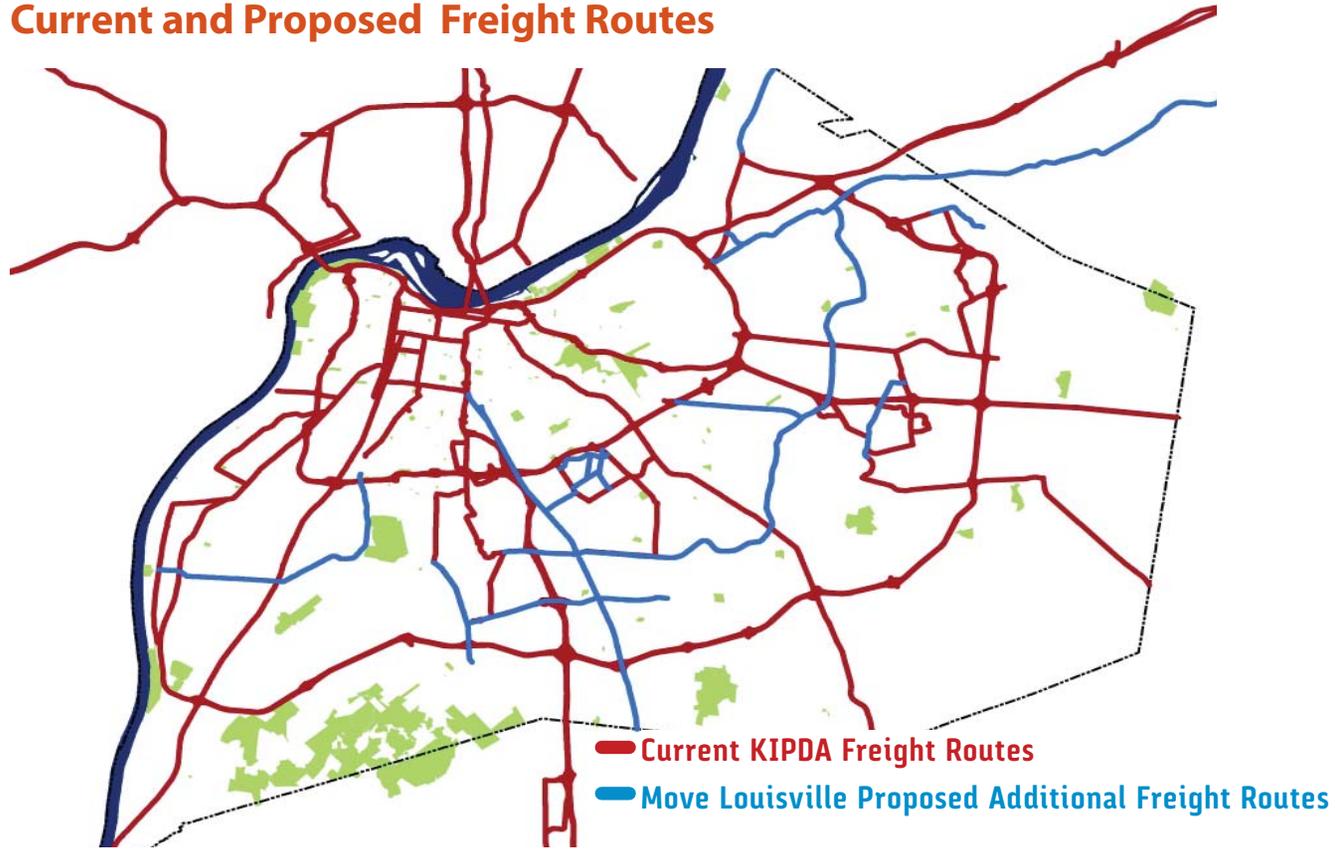
1. Review data on current truck traffic and accidents.
2. Identify limitations and barriers in the existing system.
3. Identify preferred truck/freight routes based on new data.
4. Develop special design standards for identified routes.
5. Adopt a truck/freight route map by ordinance.

These routes will be selected to avoid as many conflicts (such as residential neighborhoods) as possible.

MANAGE PARKING

For residents that can afford an automobile, the two most significant incentives affecting their travel choices are fuel and parking costs. While the city has no influence over the cost of fuel, its parking policy can be used to incentivize less vehicular use. In many cities, the over-supply and underpricing of parking creates an almost irresistible incentive to drive.

Current and Proposed Freight Routes



While inexpensive and abundant parking is popular, the true cost is actually quite high (when the associated costs of road widening, parking lot and garage construction, air pollution and other negative impacts are quantified). Downtown Louisville's parking costs are lower than its peer cities resulting in an abundance of inexpensive parking. Parking is oversupplied because it is inefficiently used. Virtually each new development project (public or private) is accompanied by a dedicated parking supply which sits partially-empty for large periods of the day.

The solution to this market inefficiency is very simple in principle, although difficult in practice:

- ▶ STEP 1 Make investments in the built environment to provide real alternatives to driving by providing better access to downtown through transit, bicycling and walking alternatives.
- ▶ STEP 2 Implement policies and incentives designed to correct parking prices to market rate.
- ▶ STEP 3 Provide incentives for commuting and for last mile strategies, such as bike share and the Zero Bus circulator.



Travel Demand Management (TDM), an example of Step 3, is a program of spending transportation dollars where the most public benefit can be gained. For example, if it costs \$90 per month to build and maintain a parking space, it may be cheaper to offer commuters monthly transit passes. If transit is a real alternative, some people will use it – providing significant peripheral benefits to the community, such as lower congestion, better air quality and better transit financial performance.

EMBRACE SMART MOBILITY

As new business models powered by the sharing economy converge with disruptive technologies in the transportation sector, alternative modes of commuting are changing how people get around in major metropolitan areas across America. Four of these modes hold considerable promise for easing gridlock at a far lower cost than traditional approaches to congestion reduction, and offer large individual and societal savings: real-time ridesharing, bike commuting, car sharing, and on-demand ride services (e.g., the ride services offered by Uber and Lyft).

As with new and alternative ways of commuting, new technologies are also changing how people are using the transportation network. Louisville should begin to consider the potential benefits and implications of automated and connected vehicles. Intelligent transportation technologies and managed lanes, such as High Occupancy Vehicle and High Occupancy Toll lanes, have the potential to improve congestion and expand highway capacity by increasing through-put without adding new lanes.

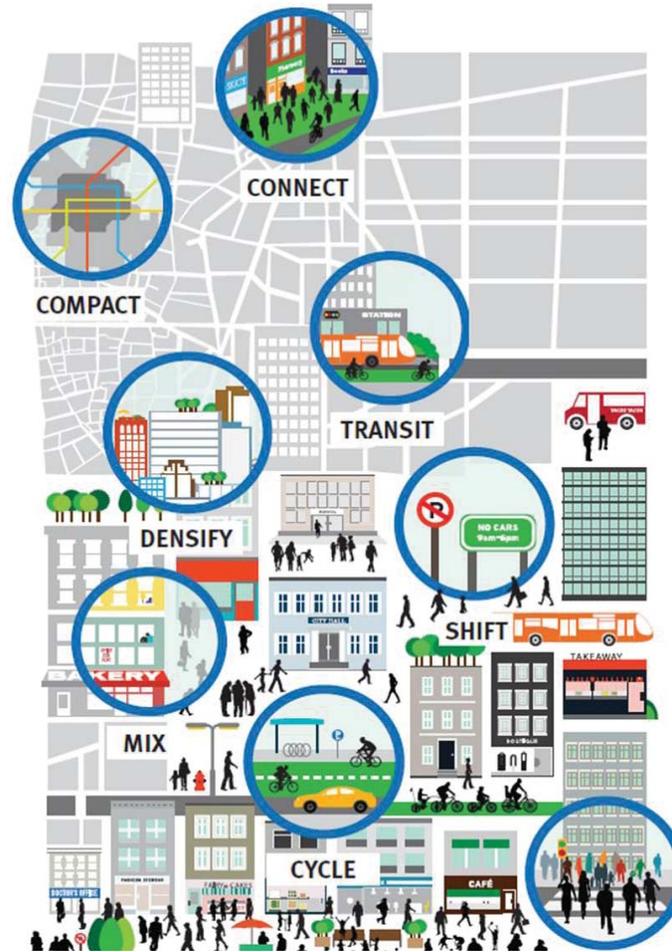


Image source: Institute for Transportation and Development Policy

CHAPTER ONE

MOVE LOUISVILLE PLANNING PROCESS

PROCESS & OUTREACH

The Move Louisville Plan is built on the continuation of a community conversation. Starting with the foundation of previous planning efforts, including the Vision Louisville process, Move Louisville represents a partnership with the citizens of Louisville. Move Louisville's new project ideas arose from discussions and analysis by the advisory committee, the technical committee, a national consultant - Nelson Nygaard - and the public. The structure intentionally placed the technical planning process of system analysis, modeling, and scenario development side-by-side with public exchange of ideas. This chapter outlines the planning process.



PRIMARY CONCLUSIONS

Move Louisville's technical process was primarily driven by a **focused program of community engagement and an advisory committee representing key stakeholders and system users.**

Move Louisville was lead by a **project team** that included Nelson Nygaard, the advisory committee, staff from Louisville Metro Public Works and Louisville Forward, and TARC.

The **in-person community meetings** and the online map comments were the source of the **most extensive and valuable data** gathered from residents and stakeholders.

More than half of the comments received during the process involved public transit. Improved transit choices clearly are on the minds of Louisville's citizens.

More than a quarter of comments involved bike and pedestrian issues. There obviously is pent-up demand in the region to enjoy safe opportunities for active transportation.

While transit, bike and walkability improvements were the priority for the large majority of participants, there were some who expressed the view that **automobile and freight mobility should receive greater consideration.**

Overall, the community dialog suggests **balancing and funding a plan** that accommodates all anticipated users, including pedestrians, bicyclists, public transportation users, motorists and freight vehicles.

STRUCTURE OF THE MOVE LOUISVILLE PROCESS

The Move Louisville process was structured to build upon Vision Louisville efforts. The public process kicked off in November 2013 with an approximate two year process involving four basic phases: **Discovery, Desire, Design and Document.**

The Discovery phase was a time of collecting data and feedback from the community as well as reviewing existing plans and policies to better understand the context of Louisville's transportation system. Most importantly, this was a period to gather ideas.

During the Desire phase, the project team built on their knowledge base and conversed with a variety of stakeholders and community members to establish the goals, assess the strengths and gaps in the transportation system and determine the criteria for evaluating the project candidates. Next, the Design phase generated project ideas, gathered and evaluated various scenarios and potential outcomes and laid the framework for final project prioritization. Finally, during the Documentation phase, all information gathered in the process was codified into this action plan. This process depicted in the diagram below is described in greater detail in this chapter.

KEY STAKEHOLDER GROUPS

Aside from the open public engagements, the project team met with numerous groups of community stakeholders representing industry and business groups, civic institutions, and neighborhood and transportation-focused interest groups. The stakeholders who shared thoughts, concerns and suggestions with the project team reflected Louisville's diverse economy, with representation from business and financial services, small business, healthcare, freight and logistics, construction and education. These stakeholders also underscored the community's rich tradition of civic engagement and advocacy.

MOVE LOUISVILLE PROCESS

TECHNICAL TRACK

DISCOVERY PHASE	DESIRE PHASE		DESIGN PHASE		DOCUMENTATION PHASE
COLLECT DATA, REVIEW EXISTING PLANS & POLICIES, AND GATHER IDEAS	DEVELOP A VISION, GOALS, OBJECTIVES, & EVALUATION CRITERIA	ASSESS EXISTING CONDITIONS	DEVELOP & MODEL PLAN SCENARIOS, & EVALUATE PROJECT CANDIDATES	DEVELOP PROJECT PRIORITIZATION AND IMPLEMENTATION STRATEGY	DRAFT TRANSPORTATION PLAN

PUBLIC ENGAGEMENT TRACK

MOVE PUBLIC KICK-OFF, 4 LOCATIONS NOV 2013	PROJECT WORKSHOP 1, TARC, JAN 2014	PROJECT WORKSHOP 2, TARC, FEB 2014	PROJECT WORKSHOP 3, TARC, MAR 2014	ONLINE INTERACTIVE PROJECT MAP, SUMMER 2014	PROJECT PRIORITIZATION WORKSHOP, 4 LOCATIONS & METRO TV, OCT 2014	ONLINE COMMENT PERIOD, DEC 2014	FINAL PLAN PRESENTATION SPRING 2016
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WEBSITE & SOCIAL MEDIA UPDATES

THROUGHOUT THE PROCESS

ADVISORY COMMITTEE MEETINGS

11/11/2013	1/16/2014	2/13/2014	3/06/2014	9/30/2014	SPRING-SUMMER 2016
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STANDING COMMITTEES AND ACTIVE STAKEHOLDERS

Stakeholders representing interest groups, business associations or other major institutions in Louisville met with the project team throughout the process at various key points in focus group discussions. This allowed conversations to focus on particular issues and allowed Metro staff to help the consultant team understand the organization's historic concerns and interests in the community.

All citizens were invited to attend multiple open-house workshops and series of update meetings throughout the planning process. These spanned from November 2013 to October 2014, with the open-house workshops occurring in January, February and March 2014. Each workshop lasted for three days, during which the public worked directly with the project team to explore project feasibility, understand transportation-related issues in greater detail, and even begin to explore conceptual project designs.

Additionally, the standing committees of an advisory committee and technical committee met throughout the process and played a key role as a primary source of feedback prior to the general public meetings. The advisory committee members were chosen for their strong connection to the community and networks of



constituents. By their nature and focus, the technical committee members were intended to provide valuable perspectives on project details through their representation of peer agencies and Metro government departments. The value of input from these individuals and groups along with the overall public feedback served as the fundamental source of public engagement for the Move Louisville process.

ADVISORY COMMITTEE

The advisory committee's broad membership included policy makers, advocacy representatives and business and industry groups. This committee gave important feedback regarding some of the policy direction and potential priority changes proposed for Louisville.

TECHNICAL COMMITTEE

The technical committee was made up primarily of practicing professionals from partner agencies, local technical firms focused in transportation planning and engineering, and public safety representatives. One of the primary roles the committee played was as a sounding board for the technical analyses and conclusions of the project team.

PARTNER AGENCY STAFF

Among the partner agencies that participated in the planning process were the Transit Authority of River City (TARC), Kentuckiana Regional Planning and Development Agency (KIPDA), Kentucky Transportation Cabinet (KYTC), Federal Highway Administration (FHWA) and the Parking Authority of River City (PARC).

NEIGHBORHOOD GROUPS

The project team met with individual citizens and representatives of numerous neighborhood associations throughout Louisville Metro. The individuals and groups shared thoughts and concerns for specific issues within their neighborhoods.

PROFESSIONAL AND CITIZEN-LED ADVOCACY ORGANIZATIONS

Among the organized groups that participated in the process were the Building Industry Association of Greater Louisville, the Louisville Downtown Partnership, Kentuckians for Better Transportation, Jefferson County League of Cities, Bicycling for Louisville (B4L), Coalition for the Advancement of Regional Transportation (CART), Greater Louisville Inc. (GLI), Louisville Sustainability Council (LSC), the African-American Initiative (AAI) and Louisville Bicycle Club.

PROJECT TEAM

The project team provided the day-to-day management and oversight of the Move Louisville planning process. The project team included representatives of Louisville Forward's Office of Advanced Planning and Louisville Metro Public Works, the Planning Director of TARC, and the consultants (led by Nelson Nygaard Consulting Associates).

DISCOVERY PHASE

The Move Louisville project kicked off in November 2013 with a series of public meetings held at four locations around the city (Nia Center in west Louisville, Hardscuffle Gallery in downtown, Valley High School in the southwest and Jeffersontown Community Center in eastern Louisville). Over a two-day period, participants discussed their transportation needs, learned about the Move Louisville scope of work, and provided feedback on preliminary project goals that were based on those established in the Vision Louisville process.

Key stakeholder meetings with a variety of groups and individuals (described above) also were convened during this phase to learn about the process and provide their insight and desires for Louisville's future transportation system.

The feedback gained in these workshops informed the plan's Community Goals. These goals are broad in recognition of the wide impact that transportation spending has in a community. As such, they provided a critical foundation to linking Move Louisville's transportation objectives to a larger set of community concerns similar to those identified in Vision Louisville. From these goals, the advisory committee developed and validated a set of project performance criteria during the Desire Phase of the project.

The goals established during this phase included:

- ▶ **Provide Connectivity Choices** so that users have multiple options and the purpose of a trip can best be matched to the travel mode used to make it.
- ▶ **Improve Safety and Health** for all Louisvillians, both through providing active travel options that promote physical activity or by making the transportation system as safe as it can be.
- ▶ **Promote Economic Growth** in order to strengthen and expand Louisville's economic base and to provide community prosperity.
- ▶ **Maintain Fiscal Responsibility** by seeking maximum community return on funds spent and by prioritizing projects that the community can afford to maintain.
- ▶ **Assure Environmental Sustainability** by reducing the transportation system's footprint on air, water and other natural resources.
- ▶ **Assure Equity for All System Users** by applying transportation resources equitably throughout the entire community.
- ▶ **Enhance Neighborhoods** to ensure that Louisville remains a desirable place to live.

In addition to reviewing existing conditions and data, part of the Discovery phase included the review of existing plans and policies to inform the process and build on these efforts. Multiple planning efforts preceding Move Louisville have introduced new ideas and established goals and objectives for Louisville's transportation system. The following provides a list and brief description of those plans and initiatives reviewed during the Discovery Phase of the Move Louisville process.

PREVIOUS PLANNING EFFORTS

METRO PLANS AND INITIATIVES

Downtown Master Plan, 2015

The Downtown Master Plan recommends conversion of one-way streets to two-way operation.

Vision Louisville, 2012-2014

Move Louisville's 'parent' planning effort that generated a 25-year vision for the city identifying multiple strategic policy goals, including connectivity, enhanced transit service and improved biking and walking options.

Cornerstone 2020, 2000

Cornerstone 2020, Louisville's comprehensive plan, is a policy-based plan that defines a series of goals and objectives for land use, transportation, and other key planning elements for Louisville's future.

Sustain Louisville, 2013

Sustain Louisville is the city's first comprehensive sustainability plan, which was released in 2013. It includes six major focus areas of energy, environment, economy, transportation, community and engagement and includes a total of 17 goals and over 70 initiatives.

Louisville Metro Complete Streets Policy, 2007

The policy defines how transportation projects on streets and highways will include a full range of users and defines conditions and exceptions of how it is to be applied.

Louisville Metro Eastern Thoroughfare Plan, 2008

The Eastern Thoroughfare Plan identifies short-term, medium-term and long-term transportation needs in eastern portion of Jefferson County in the area bounded by I-265, the County line, Bardstown Road and Shelbyville Road.

Step-Up Louisville's Walkability Plan, 2008

A policy and program-based plan focused on improving pedestrian mobility in Louisville. The plan's framework focused on three goals: creating a vision and setting planning goals; engaging the public to build a culture around pedestrian planning issues; recommending policy changes for a more walkable community.

Olmsted Parkways Multi-Use Pathway System Master Plan, 2009

Plan identifies improved pedestrian and bicycle opportunities along approximately 7.8 miles of the parkways that link the major Olmsted parks in Louisville as well as the numerous neighborhoods that these parkways traverse.

Pedestrian Master Plan, 2010

Louisville Metro Department of Public Works and Assets led plan to create a capital improvement process focused on pedestrian facility expansion and repair in addition to policy recommendations to improve pedestrian safety.

Bicycle Master Plan, 2010

Plan focused on increasing bicycle usage as a mode of transportation and making safety improvements for cyclists.

Northwest Parkway Livability Study, 2012

The study provided recommendations to remove barriers such as inadequate lighting, speeding traffic, and inadequate or poorly maintained sidewalks along Northwestern Parkway in the Shawnee and Portland neighborhoods.

Louisville Loop Master Plan, 2013

Details the plan for a shared-use path loop of more than 100 miles around Louisville, including the existing trails such as the Ohio River Levee Trail and the Riverwalk and connecting these to the Olmsted

Parks and Parkways, the Jefferson Memorial Forest and Parklands of Floyds Fork.

Southwest Greenways Master Plan, 2013

Plan includes a proposal for an interconnected shared-use and soft-surface path system in Southwest Louisville.

Walk Friendly Community Bronze-Level, 2013

A designation program determined by the U.S. DOT FHWA. Designation included an assessment that provided feedback on improving education and encouragement programs that support walking and pedestrian safety.

ADA Transition Plan, 2013

Metro Public Works led this plan that addressed universal design principles and ADA curb ramp needs.

Understanding Pedestrian Crashes In Louisville, KY (2006-2010) And Pedestrian Safety Action Plan, 2013

Plan analyzed pedestrian crashes and developed a strategic plan for reducing the rate of pedestrian crashes.

Neighborhood And Community Plans, VARIOUS

Various existing neighborhood, small area, and corridor plans developed in recent years identified potential transportation projects, policies and future studies intended to explore feasibility of capital improvements.

RELATED EXTERNAL INITIATIVES & PLANS

T-2 Light Rail Planning Process (TARC), 1996-2006

Started in 1996, the T2 project studied transit as a component of travel and congestion in the south central corridor. The project entered into the Federal New Starts Program, and it was approved as a project in Horizon 2030, the region's long-range transportation plan. The project never proceeded to final design and TARC withdrew the Transportation Tomorrow project from New Starts program in 2006.

Long Range Plan (TARC), 2008 (update)

Provides guidance on transit options and funding



sources for future development of TARC; to provide a basis for coordinating future funding and policies with other decision makers; and to provide a consistent direction for connecting short-term plans with long-term aspirations. The plan defines high frequency corridors and explores policy ideas such as dedicated bus lanes.

Transit Design Standards Manual (TARC), 2013

This Manual draws on the transit-land use connection to establish standards in areas such as the Access Board's Right-of-Way Guidelines and bus stop access standards.

Horizon 2030 Transportation Plan (KIPDA), 2014

A long-range transportation plan developed by KIPDA, Louisville's Metropolitan Planning Organization, that serves as the transportation improvement program (TIP) for the region. The plan is implemented by a five-year program that identifies available transportation funds based on projections of tax revenues, federal and state assistance, and other funding sources. It then assigns these funds to specific projects in specific years.

Louisville-Southern Indiana Ohio River Bridges 2016 Anticipated Opening

The project was designed to improve safety, alleviate traffic, connect highways, create economic development and includes the construction of two bridges. The Downtown Crossing opened in December 2015.

DESIRE PHASE

The Desire phase provided the Move Louisville process the critical period to confirm the plan's vision, goals, and measurable evaluation criteria to build the plan's recommendations. Using the feedback and ideas gathered during the Discovery phase, the project team continued the public engagement track through a series of public workshops held over the 3-month period between January and March 2014.

The project team held three multi-day public design workshops located at Union Station (TARC's headquarters) and organized around key geographic areas and issues. Each day, members of the community worked with the team's designers and technical experts

to develop transportation solutions. The "design studios" were a hive of activity that included table work, interviews, computer analysis, and on the final evening of each workshop, a closing presentation of the workshop's results.

During this period, the team also helped members of the community think through options and ideas and understand how they could fit into an overall transportation plan framework. Overall, these workshops yielded an extensive array of project and policy ideas. Nearly 100 project candidate ideas came from these workshops, either through in-person conversations at the workshops themselves, comments posted on the project map displayed at the workshop locations, or through comments posted on the Move Louisville website.

As a result of the stakeholder engagement process, the Move Louisville team developed multiple new project ideas to achieve community goals. These outcomes included the following:

- ▶ Identification of multiple potential centers of economic development activity, job growth and population increase. These formed the backbone of the Move Louisville growth policy strategy to provide housing choice and walkable community centers that could make commuting and driving less more feasible for Louisvillians.
- ▶ Introduction of potential new highway interchanges at Oxmoor Farms and the Bluegrass Commerce Park (between Hurstbourne and Blankenbaker Parkways) to enable regional access to potential new job and population growth areas.
- ▶ Intersection design projects intended to facilitate trucks and heavy vehicles to use defined alternative routings, promoting neighborhood preservation and bicycle-pedestrian safety on key corridors.
- ▶ A premium transit corridor on Broadway that could be extended eastward, potentially connecting to other major corridors such as Bardstown Road or Frankfort Avenue-Shelbyville Road.



PROJECT GOALS & EVALUATION CRITERIA

The criteria used in the evaluation process by the project team were developed during the Desire phase working closely with the technical committee. The purpose of this effort was to identify the objective and measurable data to evaluate the effectiveness of identified candidate projects with regard to the seven Community Goals. The criteria included a series of basic scores assigned to projects, which enabled the community to see the relative effectiveness of a given project in meeting the goals. These scores were not intended to be a definitive measure of a project's worth – they were merely produced as a tool to help citizens and stakeholders place so many projects in the context of the goals set out by the community.

The following lists the project goals and the identified evaluation criteria developed during this phase:

PROVIDE CONNECTIVITY CHOICES

- modal options
- street congestion
- street network & connectivity

IMPROVE SAFETY AND HEALTH

- operational safety
- walking & biking accessibility
- density of modal options
- impacts of vehicle miles traveled (air quality)

PROMOTE ECONOMIC GROWTH

- job creation and business investment
- job access
- facilitate goods movement
- investment in redevelopment areas

MAINTAIN FISCAL RESPONSIBILITY

- unique financing
- project cost
- maintenance responsibility
- system efficiency

ASSURE ENVIRONMENTAL SUSTAINABILITY

- river access
- connectivity to defined cultural district
- impervious surfaces

ASSURE EQUITY FOR ALL SYSTEM USERS

- job access
- ADA accessibility, including our visually-impaired population
- mobility for aging populations
- health & safety risk

ENHANCE NEIGHBORHOODS

- appropriateness to context
- consistency with neighborhood plans
- contribution to complete streets
- quality of public realm: street character
- quality of public realm: landscape/streetscape
- community preference

DESIGN PHASE

The main focus of the Design phase was to take the initial candidate list, evaluate them against criteria discussed earlier, develop and model scenarios testing these candidates, and begin to prioritize projects and implementation strategies. This phase combined the format of public workshops with online forums to gain feedback. The online element of this phase included an interactive map and a comment page with targeted questions to assist in prioritizing the projects and policy approach.

Following the Candidate Project Workshops held during the Desire phase, the project team undertook technical analyses to help frame how well different project approaches responded to the goals. In addition, during the Spring and Summer months of 2014, the online interactive map on the project website provided the public the opportunity to view the candidate projects developed through that point in the process. Specific questions sought to gauge the accuracy and need for the set of projects and asked whether they responded to community demand. The interactive map also provided

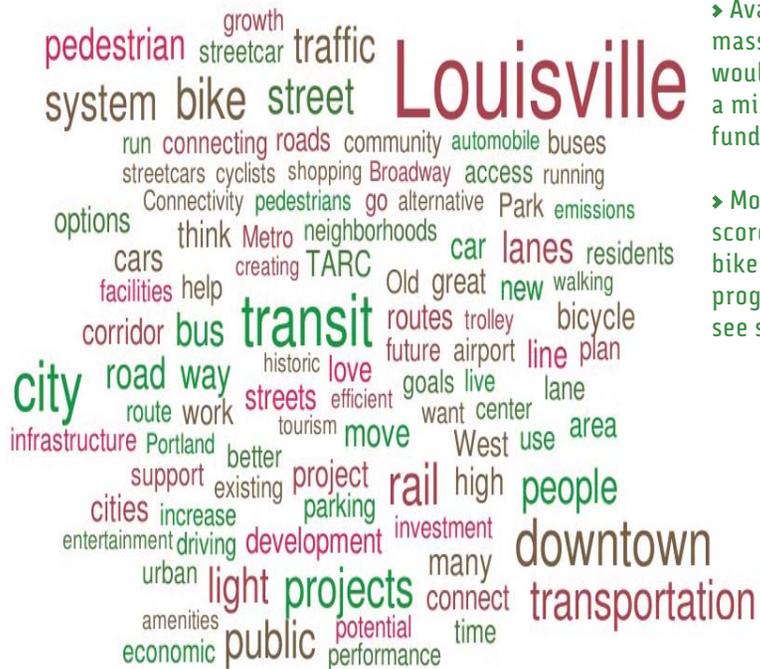
the opportunity to explore whether the projects mapped needed clarification or whether there were additional projects or areas of attention to be considered.

Initially, more than 1,000 projects were included in the initial candidate list and placed in a first phase of the evaluation process. This phase assessed whether a project met the very basic intent of the community goals: providing modal options, congestion relief, street network and connectivity improvement, operational safety, economic development potential, goods movement, and an initial evaluation of the cost of the project. The second phase of the evaluation process included quantitative results from the region's computer travel model, an extensive GIS analysis, and comparison to national metrics and research. By design, the process more objectively quantified the potential positive or negative impacts of each project based on the goals. The scores assigned to each project are an aggregation of the scores determined for each of the criteria. These aggregated scores were then reported as a gauge of potential positive impact. The top 400 projects emerging from this feasibility tier were then evaluated in a more rigorous, technical process using the full set of project criteria.

This technical work was presented in a series of public work sessions at four locations around the city over a two-day period (including downtown at Metro Hall, Shawnee Golf Course Clubhouse in west Louisville, South Central Government Center in south Louisville, and St. Matthews Community Center in east Louisville). During these sessions there were discussions on funding constraints and opportunities, the relative merits of changing modal spending patterns and discussion about the most effective ways to meet the goals. In addition, the downtown public meeting was filmed by Metro TV to be broadcasted on television and streamed online.

DESIGN PHASE FEEDBACK

A week-long series of public workshops was conducted in fall 2014 to prioritize the projects. In addition, an online map and comment form was developed to receive additional input. More than 400 comments were submitted to the project team through email and the online form. To supplement this input, a number of organizations, representing thousands of members, provided written comments on the Move Louisville project rankings. Key groups included a joint response from Greater Louisville, Inc. and the Building Industry Association, the Coalition for Advancement of Regional Transportation (CART), and the African American Initiative. Overall, these written responses were supportive of Move Louisville's goals and the recommendations for a more balanced spending model, especially considering more weight for transit, freight movement, and bike and pedestrian facilities.



DOCUMENTATION PHASE

The final priority projects were the subject of significant community dialogue during the Design Phase. The translation of these ranked projects evolved into a strategic program that is the basis for the final plan for Move Louisville. Some of the key findings evolved from several considerations:

- ▶ **Emphasizing or deemphasizing projects based on community and stakeholder feedback relative to its appropriateness for Louisville. While the technical work is important, it is vital that this plan be owned by the community, rather than simply driven by analysis.**
- ▶ **Contribution of projects to a cohesive system, rather than being siloed investments, is critical. For example, it may not make sense to build a high-ranking, but small and disconnected bike project before other links connecting it to the network are ready. Projects should be grouped so as to be meaningful.**
- ▶ **Available funding matters. Programming three massive projects in the first three years of the timeline would not be practical. Each time period should contain a mix of small and large projects and be tied to likely funding sources.**
- ▶ **Modal balance is important. While many bike projects scored highly, a five-year binge of building nothing but bike facilities would likely erode support for the overall program. The community was clear that they want to see steady progress on all modal fronts.**

WEB PRESENCE



Aside from the in-person engagements summarized above, the project maintained a robust web presence throughout the planning process. The project web page — <http://louisvilleky.gov/government/advanced-planning/move-louisville> — included posting of presentations that had been a part of the meetings. This site had over 4,600 hits during the design project phase. The site featured an interactive ideas map that allowed people to zoom in to areas of interest and tie their ideas and comments to a geographic location. During the technical evaluation of the projects, project candidate comment maps were posted for community feedback on potential approaches. Links to related material and items of interest also were included on the website. These included best practices in regional visioning, information on complete streets, other cities' transportation plans, pedestrian planning, freight planning and other similar transportation-related topics. The web page was a central resource location for the community members who were interested and active in the project. In addition, Move Louisville took advantage of social media resources such as Twitter and Facebook to keep the community aware of releases of planning materials and of key meetings and milestone events.

The project also received extensive press coverage in print, on radio and television and on the web. Members of the Move Louisville team, both from Metro staff and the consultants working with them, shared the importance of thinking more broadly about transportation goals and objectives as a way of achieving other desires for the community—such as continued economic growth, greater equity in jobs access and economic opportunity, and preserving neighborhood quality of life and community strength.

CHAPTER TWO LOUISVILLE TODAY: EXISTING CONDITIONS

Louisville is a city on the move. Its history, culture, parks and diverse economy create an appealing mix. The challenge for Louisville is how to remain competitive with other cities that offer similar attributes. The Move Louisville Plan was undertaken to plot a strategic path to creating a magnetic community for talent and new business.

HOW DOES LOUISVILLE GET AROUND TODAY?

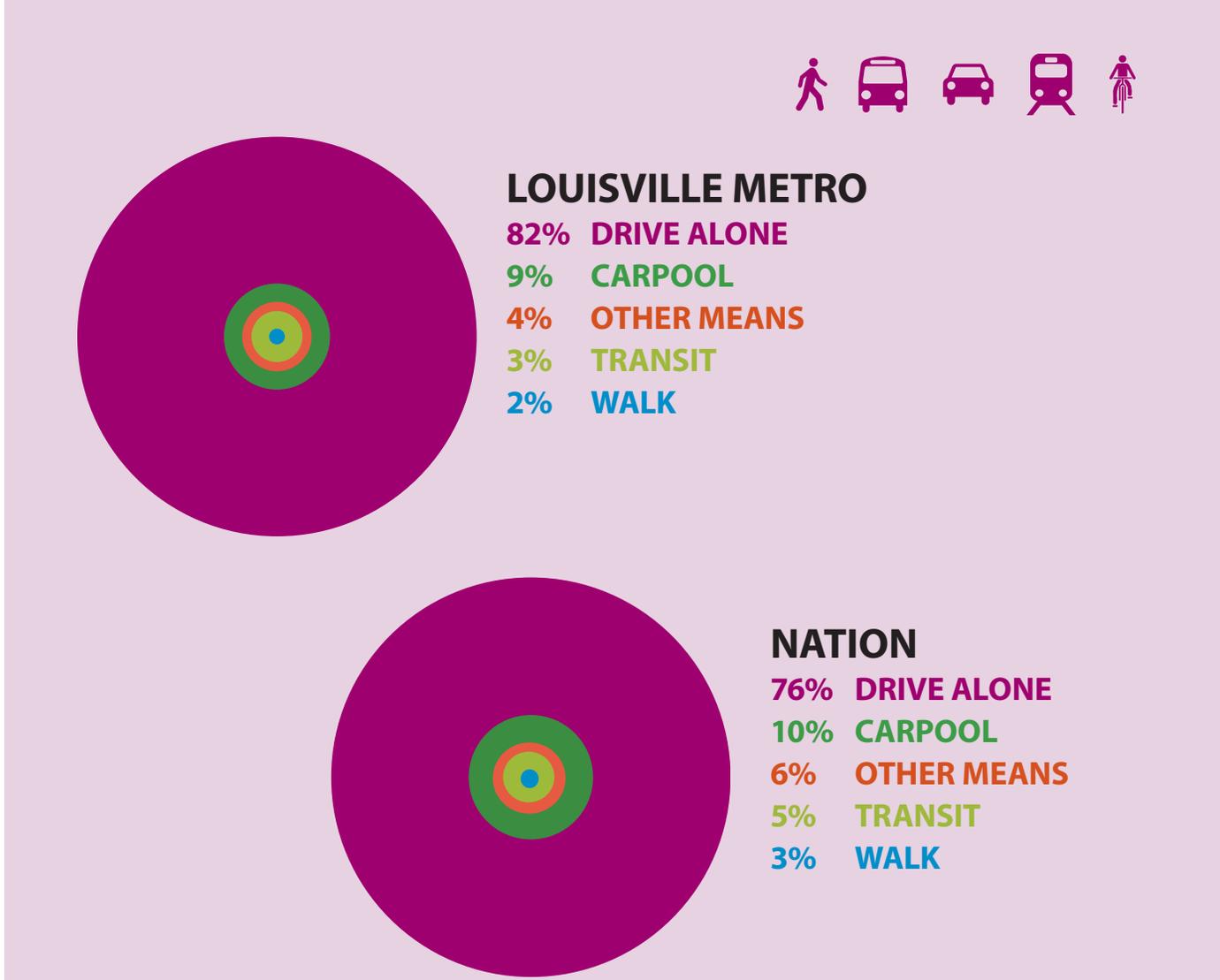
In 2013, it was estimated that 82% of Louisville's 344,000 workers drove alone to and from their places of employment, while just 3% commuted using public transportation. Consequently, Louisville's freeways and radial arterials carry a heavy daily burden of commuting vehicles, to say nothing of vehicles serving other needs and purposes.

In Louisville, a full 10% of households do not have access to a car. These households are transit-dependent for all their daily trips. Additionally, Louisville has 66% of its households spending more than 45% of their income on housing and transportation, presenting a significant cost burden on low and moderate income households.

STATE OF INFRASTRUCTURE

Louisville Metro is responsible for only local streets and the associated infrastructure that is part of those streets. The interstate system and many of the major roadways (nearly 1,900 lane miles) within Louisville are owned and operated by the Commonwealth of Kentucky. With over 4,500 lane miles of pavement (nearly 2,200 centerline miles) and associated sidewalks, curbs, bridges, signals, signs and bicycle facilities, Louisville's local transportation network is one of the city's greatest physical assets, with an estimated replacement value of \$4.8 billion.

As noted in the Executive Summary, infrastructure maintenance and preservation of our country's transportation systems are issues of national significance. In 2013, the American Society of Civil Engineers (ASCE) gave America's infrastructure a grade of D+. ASCE's evaluation found that 42% of America's major urban highways remain congested, costing the economy an estimated \$101 billion in wasted time and fuel annually. Additionally, they noted that the Federal Highway Administration estimates that \$170 billion in capital investment would be needed on an annual basis to significantly improve conditions and performance.



The national situation is mirrored on the local level. A 2012 assessment by Transmap found that 30% of Metro roadways were rated deficient, and it is estimated that the cost for rehabilitation is \$112 million. Metro also has nearly 2,200 miles of existing sidewalks. If we assume that only 10% of these sidewalks require repair, the cost would be an additional \$86 million. Rehabilitation of Metro bridges and culverts is estimated at \$27 million. In total, Metro has a maintenance backlog of \$288 million. To fill gaps in the sidewalk network in areas with highest demand it is estimated that another \$112 million is required. After

these deficiencies are addressed, the estimated cost for maintenance of the entire Metro-owned system is \$17.75 million annually in today's dollars.

Louisville Metro reduced its infrastructure maintenance budget during the Great Recession and is just beginning to work through funding issues that have been exacerbated by deferred maintenance and reduced revenue from fuel taxes (Municipal Aid Program & County Road Aid Program).

AIR QUALITY

According to the US Environmental Protection Agency, ground-level ozone and airborne particles are the two pollutants that pose the greatest threat to human health in the nation. Transportation planning is an important tool in the effort to improve air quality and reduce the negative health impacts of transportation-related pollution. Ground-level ozone, a pollutant of concern for most urban areas, is not emitted directly into the air; rather, it is formed by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOCs), collectively known as ozone precursors. On road sources – cars, trucks, buses, etc. – are responsible for up to 35% of the emissions of NOx and roughly 20% of the emissions of VOCs in Jefferson County. Reducing transportation-related emissions will be crucial as the community strives to improve air quality and meet a tighter National Ambient Air Quality Standard (NAAQS) for ozone.

The U.S. Environmental Protection Agency (EPA) sets the air quality standards for six major pollutants and is required to periodically review those standards to assess whether they are stringent enough in light of the latest scientific research. This mandated process was recently completed for the ozone standard, and a new standard of 70 parts per billion (ppb) has been finalized. While the Louisville region was designated as in “attainment” for the previous ozone standard of 75 parts per billion (ppb), the EPA is uncertain that the region will be able to demonstrate attainment under the new standard when final designations are issued in October 2017. Though the measurements for Jefferson County have approached the new standard in recent years, the EPA’s current projections show that Jefferson County would not meet a new ozone standard of 70 ppb or lower and will likely be designated “nonattainment.” This projected designation underscores the need for emission reductions to protect public health. For future attainment, reducing VMTs will be a critical component to meeting federal standards for air quality.

Louisville must reduce emissions from mobile sources to achieve the needed reductions and meet federal

standards. Reductions from the transportation sector can be accomplished through a variety of strategies, which, alone or in concert, must be broad enough to affect the emissions from millions of vehicles and achieve air quality improvements.

Across the country, federal regulations requiring lower-emitting vehicle technology and cleaner burning fuels are helping achieve reductions as older vehicles are taken out of service and replaced with newer ones. Another approach to reducing transportation-related pollution is to decrease the amount of time people spend in their vehicles burning fuel. Louisville has a very successful outreach program, Kentuckiana Air Education (KAIRE), which raises awareness of the ways drivers can lessen their negative impact on air quality. KAIRE encourages simple changes in habit such as trip-chaining, sharing rides, using mass transit, and cutting out unnecessary idling.

Shorter commute times and a variety of transportation choices, including well-integrated transit, bike, and pedestrian facilities, will combine to reduce vehicle miles traveled and improve local air quality.

RECENT DEVELOPMENT TRENDS

While the former City of Louisville saw population decline in the last four decades before its consolidation with Jefferson County, the overall metropolitan area saw a population increase. This followed patterns already well-established in Louisville and other urban regions around the United States — outward expansion further from the historic urban center, often accompanied by decline and depopulation of central neighborhoods. In response, transportation investments over the second half of the twentieth century expanded the suburban road network sometimes at the expense of the maintenance of the central city.

Vision Louisville confirmed a desire to support older neighborhoods that have long sought ways to revitalize and have pursued walking and bicycling access to

community centers, fresh food and jobs. Recent development inside Louisville’s traditional central city (such as the NuLu district, Park DuValle, Butchertown, Phoenix Hill, Smoketown and the University of Louisville) suggest that the city faces a new and complex set of transportation needs inside the central neighborhoods and districts. For these reasons, Move Louisville explores how best to balance transportation investment and decision-making to ensure a diversity of community character and broad geographic investment across all 400 square miles of our city.

AUTO USE & TRAFFIC PATTERNS

The steady increase in auto usage in the 20th century may have reached a plateau in the early 21st century. From the late 2000s, total Vehicle Miles Traveled (VMT) in the United States has declined. This trend is particularly pronounced among younger Americans: a May 2013 report by the US Public Interest Research Group found that the millennial generation (ages 20 to 37) drove 23% fewer miles on average in 2009 than they did in 2001. It is important to note that short-term VMT fluctuations are closely tied to gas prices. Additionally, a study in Traffic Injury Prevention found that driver’s licenses among young drivers are declining. Only 69.5% of 19 year olds had a license in 2010 versus 87.3% in 1983.

In Louisville a similar trend is unfolding, although not quite as dramatically; according to data from the Kentucky Transportation Cabinet (KYTC), Jefferson County has seen decreases in vehicle miles traveled in seven of the last ten years for which data is available. When compared to Kentucky as a whole, this is a notable pattern. Jefferson County has seen small decreases in VMT that have resulted in a flattening rather than the dramatic increase seen in previous

decades.

ACCESS TO WORKPLACES

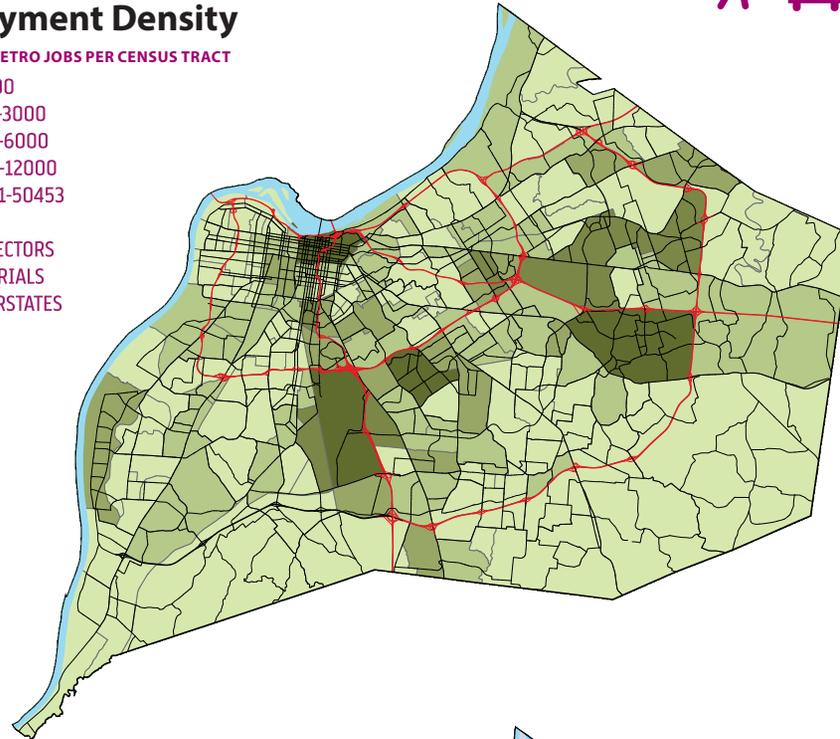
Jobs in Louisville are spread throughout Jefferson County. With nearly 70,000 jobs, downtown has the highest concentration of employees. Other job clusters occur throughout the county, with major employment centering around the airport, University of Louisville, Riverport, the Poplar Level Road/Jennings Lane area, the hospitals at I-264 and Breckenridge Lane, Bluegrass Commerce Park, North Hurstbourne Lane, and along Old Henry Road.

In 2011, 161,297 people (nearly 37% of Jefferson County's workforce) commute into Jefferson County, with the vast majority of those who do not working in collar counties in Kentucky and Indiana. Average commute times in Louisville are fairly low, with nearly 67% of the workforce taking less than 25 minutes to travel to work. For those who use public transportation, commute times are longer; with over half of the workforce taking public transportation reporting that their travel times to work took 45 minutes or longer and nearly 36% reporting commute times of over one hour.

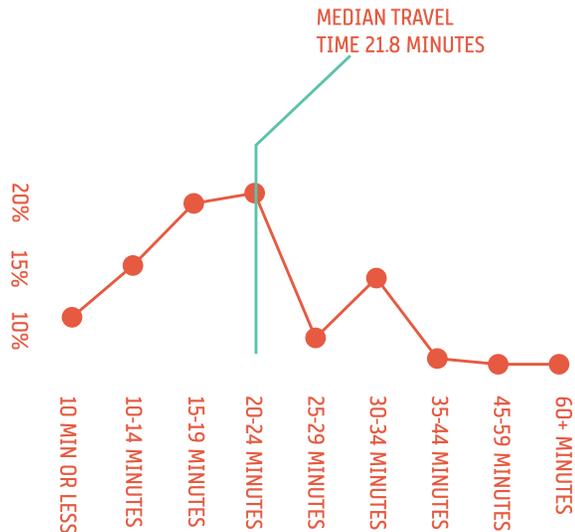


Employment Density

LOUISVILLE METRO JOBS PER CENSUS TRACT

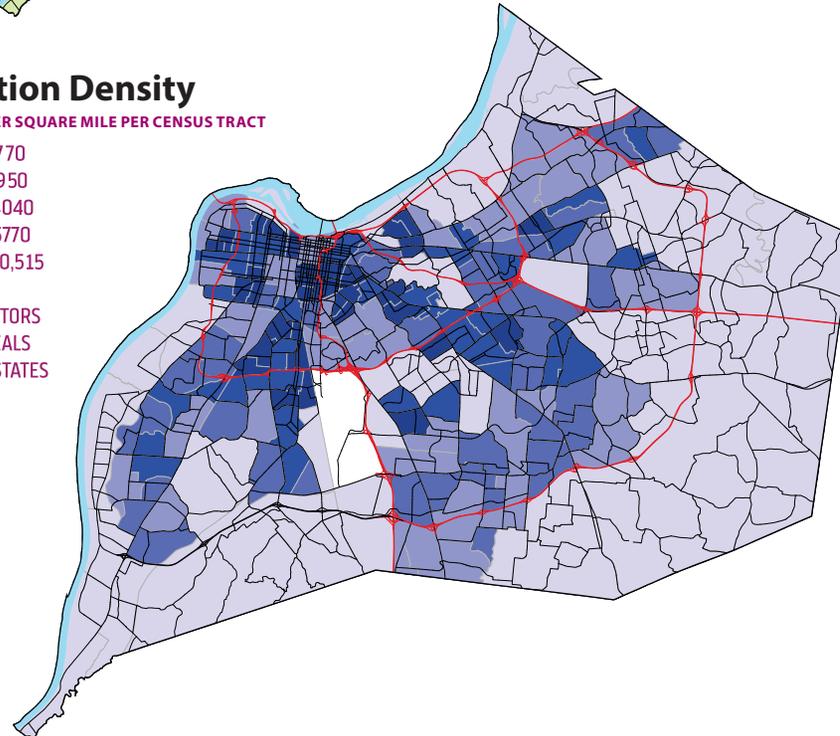
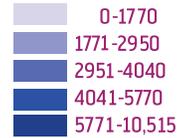


Commute Times



Population Density

POPULATION PER SQUARE MILE PER CENSUS TRACT



Data Source: US Census Bureau 2013 ACS 5-year estimates

KEY EMPLOYMENT NODES

Downtown

Like most downtowns, Louisville's is a major employment hub within the region containing over 13 million square feet of office space. There also is a growing residential population within downtown, occupying over 2,600 units of market-rate housing. Downtown is also the hub of the region's tourism industry, boasting the KFC Yum! Center, Whiskey Row, South Fourth Street Retail District, the Bourbon District and adjacent neighborhoods such as NuLu within downtown's area of influence as well. For major downtown employers, keeping and improving access to the diverse and educated labor pool within the region is a priority. By adding infill density, improving transit options, and spending roadway dollars effectively to relieve congestion hotspots, this pool of potential downtown employees can be increased.

The Airport Logistics Hub

Freight and logistics are a big part of Louisville's economy. The ability to move goods to and from the industrial cluster around the airport, UPS Worldport and the adjacent Renaissance Zone is extremely time-sensitive. This hub also needs to move people to and from the jobs located there. The pay scales, education levels and home geography of the people employed in this hub vary widely. From the cargo container loaders to the senior logistics planners to the service sector employees staffing retail and restaurants, this small city within a city must pull employees from diverse parts of Jefferson County. Ideas such as the World City, from the Vision Louisville process, can help to organize this hub, but to keep this system running, the region needs better transit options.

West Louisville to Riverport

While the airport/UPS hub may be the most visible element of the region's logistics economy, the district that includes Jefferson Riverport International (with an operating port facility) and surrounding industrial, manufacturing and distribution centers (including the area known as Rubbertown) is vital as well. The area's connection to CSX, Norfolk Southern and Paducah & Louisville rail lines as well as good freeway access are an advantage to the many businesses located there. The area also has room for re-orientation and expansion to take advantage of these assets. Just as in the Airport/UPS hub, getting employees to and from these jobs is a priority.



The Dixie Corridor

The Dixie Highway corridor may be the most important transportation artery in the region. Carrying as many as 60,000 cars and nearly 8,000 transit riders per day as well as pedestrians and bicyclists, the amount of moving people done by this corridor is astounding. In spite of this, the corridor is, by and large, poorly designed and maintained. While this corridor does not contain the same level of jobs as the other employment hubs in the region, it is a corridor with huge potential. All along the corridor are nodes that are ripe for the sort of dense, mixed-use redevelopment that can generate ridership for the high capacity transit improvements that are needed along Dixie Highway. The conversion of this corridor to its full potential as a job-generating, livable, multi-modal zone can be a new engine helping to drive the region forward.

Southeastern New Growth Zones

The band of commercial and industrial land in southeastern Jefferson County (Bluegrass Commerce Park/Blankenbaker Parkway) is one of the primary employment hubs in the region. The potential exists for this area to mature into an edge city center district for Jefferson County. As was illustrated in the conceptual redevelopment diagram for the Jeffersontown/Bluegrass Commerce Park area, other zones such as the Oxmoor Farms property and the Urton Lane Connector corridor have the potential to be a string of walkable, transit-served employment nodes that can shorten work trips for those living in the eastern suburbs of the region. The anticipated growth around the Parklands of Floyds Fork will be a target for residential development to support jobs in this zone.

Northeast Louisville Growth Zones

The northeast segment of Jefferson County has been one of the largest growth areas in the region over the last decade. The extension of I-265 across the East End Bridge as part of the Ohio River Bridges Project has attracted new development to an area that already served as an important employment hub due to the existing Ford Motor Company Kentucky Truck Plant on Chamberlain Lane. In addition, development of the 600-acre mixed-use new urbanist village at Norton Commons, the 114-acre mixed-use Old Brownsboro Crossings development, and the 700-acre Eastpoint Business Center has generated new demand for a transportation network in a previously low-density area. As these areas build-out, it will be critical to create a connected transportation network to provide safe and efficient options for this growth zone.

HOW ARE WE CURRENTLY BUILDING TRANSPORTATION?

As the spending chart on the following page illustrates, Louisville Metro derives its capital transportation funding for projects from a variety of sources and in turn uses this to meet a variety of needs.

On average, Louisville Metro appropriates \$14 million annually for capital transportation projects and initiatives. This amount excludes bond funding and can fluctuate greatly when Metro is constructing large federally and state-funded road capacity projects that are programmed in the Transportation Improvement Program. For example, appropriations will increase in FY2017 to accommodate projects such as River Road improvements and 18th and Broadway intersection re-alignment.

When reviewing Metro's appropriations, the majority of funding goes toward system preservation. In a typical year, Louisville appropriates \$7.3 million (52%) for roadway maintenance. While Louisville Metro's 2015 and 2016 budgets begin to address the maintenance deficit, the backlog continues to grow.

However, the majority of the regional transportation funding continues to be applied to new roadway construction or capacity projects with \$37.4 million (61%) programmed for these projects in the 2015-2018 TIP. These programmed funds include federal, state and local transportation appropriations. Prioritizing capacity and expansion projects over system preservation compounds the maintenance problem.

The current use of funding for more and better walking and biking options reflects the kinds of priorities that Louisville has expressed through such efforts as Vision Louisville and the downtown master plan. The substantial funding being applied to pedestrian and bicycle infrastructure represents recent major investments in the Louisville Loop, which has been able to combine funding sources for parks and recreation with conventional transportation funding sources.

BUDGET SHORTCOMINGS

Reduced Federal funding

Some State and Federal funds are awarded competitively and are not certain year-to-year

Maintenance/system preservation activities typically were underfunded during The Great Recession

Increased need to improve roadway safety to reduce injuries and fatalities

TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

The TIP is a 4-year, short-range fiscal planning document that programs funding for projects outlined in the Metropolitan Transportation Plan. Various types of federal and state funding are identified by project. The TIP is updated annually.

WHERE METRO'S MONEY COMES FROM



Average Metro Appropriations **\$14M**

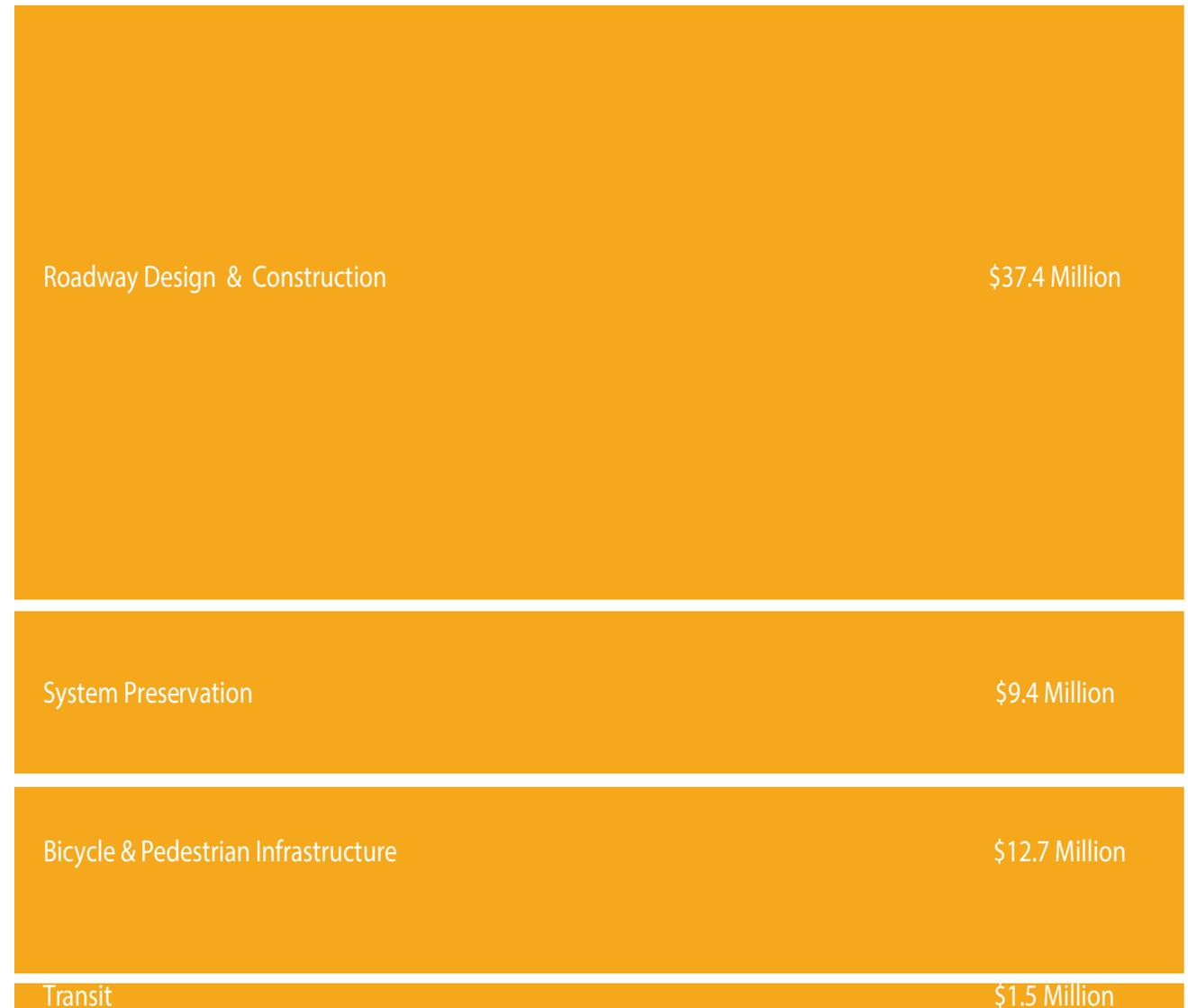


WHERE METRO'S MONEY GOES



Average Metro Appropriations **\$14M**

2015-2018 SLO PROGRAM (LOUISVILLE METRO/TARC ONLY)



Total SLO Program (Metro & TARC Only) **\$61M**

Sources: FY12 - FY16 Louisville Metro Budget (excluding bond funding and FY16 mid-year appropriations) and KIPDA 2015-2018 Louisville Transportation Improvement Program

ROADWAY NETWORK

URBAN INTERSTATES

Louisville is one of a few American cities with two freeway loops. While this has undoubtedly facilitated the growth of the freight and logistics economy, it presents some challenges for urban mobility. It also has left an unmistakable mark on certain parts of the city, as Interstate 64's alignment along the Ohio River separates the river from downtown Louisville, and the western and southern portions of Interstate 264 cross through historic, established neighborhoods.

MAJOR CORRIDORS

Over time, Louisville's development has extended along a series of historic radial roads, most of which connect to nearby cities and towns in collar counties. This has happened in cities throughout the United States, and the transportation role of each corridor has evolved from a farm-to-market function to serving a complex set of industrial, commercial and residential land uses.

The following provides a general description and overview of the major corridors, including characteristics that justify the need for action.

► **Frankfort Avenue/Shelbyville Road** is a major east-west route that runs from near downtown to Louisville's eastern suburbs. Frankfort Avenue, like Bardstown Road, is a popular destination with local restaurants, galleries and retail. Shelbyville Road directly serves two of Louisville's major regional shopping destinations, Mall St. Matthews and the Oxmoor Center Mall.

► **Taylorville Road** is an arterial corridor with traffic volumes ranging from 20,000 to 35,000 vehicles per day. It is a primary connection to the jobs located in Bluegrass Commerce Park and connects to the center of Jeffersontown and the Parklands of Floyds Fork.

► **Bardstown Road** begins in Louisville's Highlands neighborhood and is an important street for neighborhood commercial uses. Its popularity as an entertainment and local culture district creates demand

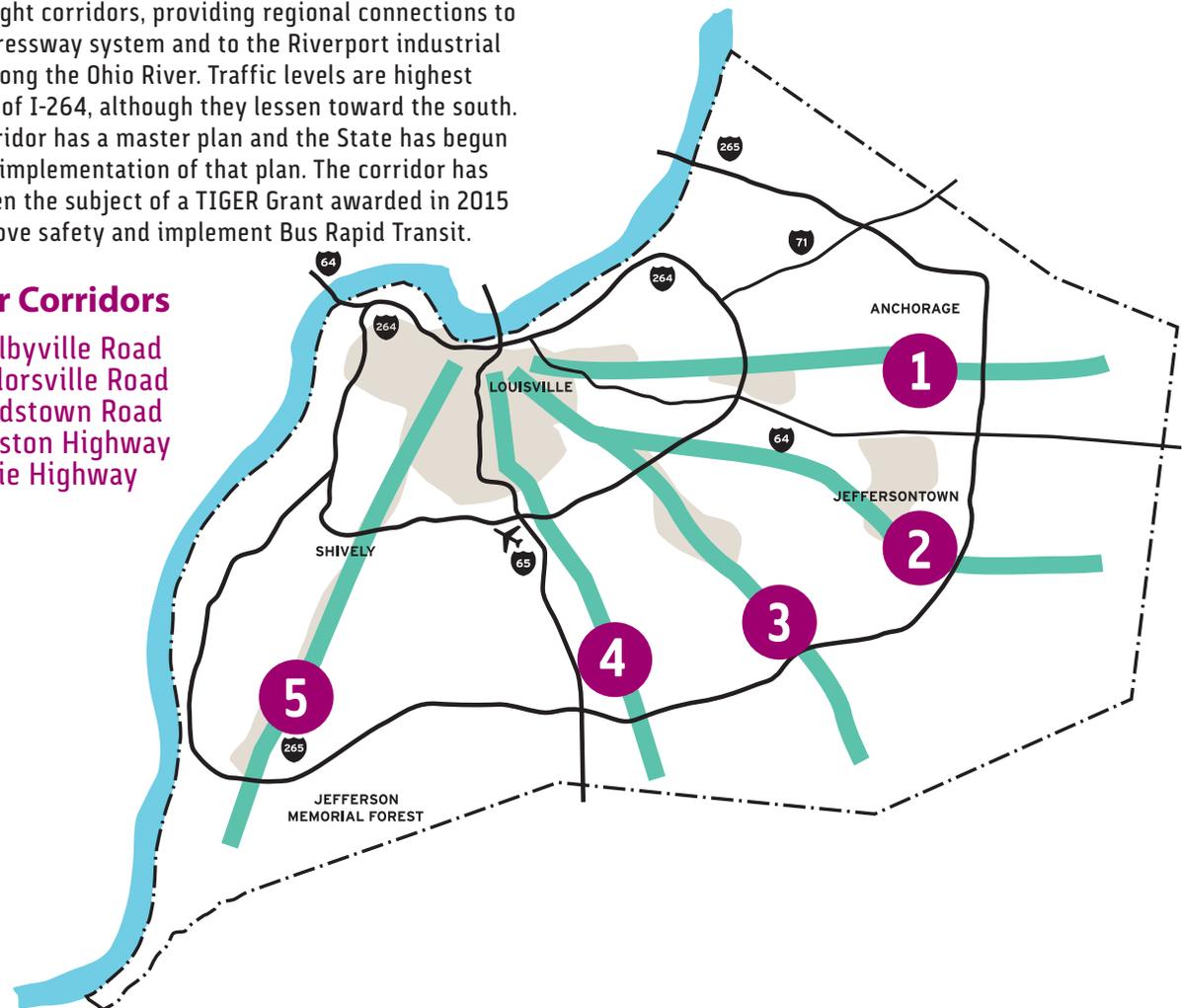
for pedestrian activity, although it is a heavily traveled street for vehicles as well. Outside of the Watterson Expressway, Bardstown takes on more the appearance of a suburban highway than an urban street.

► **Preston Highway** serves many of the commercial and industrial support uses near Louisville International Airport and the UPS Worldport. Much of the length of Preston closer to downtown in Louisville (where it is called Preston Street) is a four-lane cross section with narrow medians that do not provide areas for turning cars. This is partly responsible for a high number of accidents along this corridor.

► **Dixie Highway** is one of Louisville's primary commuter and freight corridors, providing regional connections to the expressway system and to the Riverport industrial areas along the Ohio River. Traffic levels are highest outside of I-264, although they lessen toward the south. The corridor has a master plan and the State has begun to fund implementation of that plan. The corridor has also been the subject of a TIGER Grant awarded in 2015 to improve safety and implement Bus Rapid Transit.

Major Corridors

- 1 - Shelbyville Road
- 2 - Taylorville Road
- 3 - Bardstown Road
- 4 - Preston Highway
- 5 - Dixie Highway





THOROUGHFARES

Louisville's roadway network is strongly oriented to a grid of streets in the central city and a series of radial thoroughfares leading from it. The city has a number of one-way streets, configured as such in the mid-20th century to accommodate steady growth in vehicle traffic. In addition to the main downtown pairs, Louisville has multiple one-way pairs in neighborhoods as well, such as 21st and Hodge Streets, Kentucky and Breckinridge Streets, and St. Catherine and Oak Streets. These were converted to one-way operations primarily before the construction of expressways provided an alternative for accessing downtown. Many of the one-way streets today do not carry traffic volumes to suggest that they remain major thoroughfares, and several small-area and neighborhood plans have explored and have begun converting them to two-way traffic. Funding is in place to begin a major conversion of downtown's one-way streets to two-way operation in 2016, after the Louisville-Southern Indiana Bridges Project is complete.

OLMSTED PARKWAYS

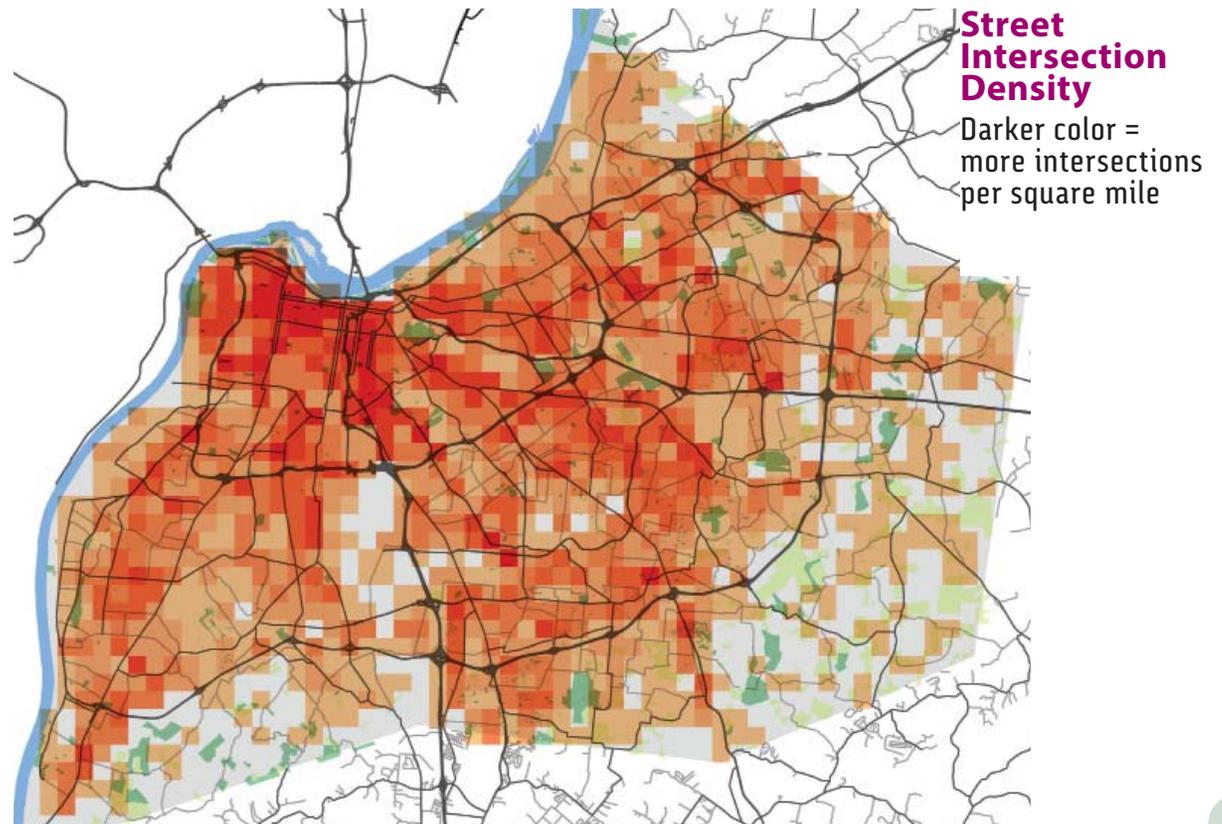
Louisville's Olmsted-designed parkway system connects many of the city's historic neighborhoods with schools, employment centers and parks. The 14.5-mile system was built from the early 1890s through the 1930s. The parkways were intended to circle what was, at the time of their initial development, the outer edges of the city and to connect three planned parks on its western, southern and eastern edges (today's Shawnee, Iroquois and Cherokee Parks). Although the parkways were envisioned as scenic streets for leisure drives and walks, their crosstown connectivity led to increasing traffic levels and to major transformations of the parkways' right-of-way to add car-carrying capacity, often at the expense of trees and planted medians and verges. In 2009, a master plan for the parkways recommended changes to the street design of many of the parkways, including four-lane to three-lane conversions to improve safety and comfort for motorists, bicycles and pedestrians and to restore selected features of the original parkway designs.

The master plan also recommends completing a 10-mile path system originally envisioned to connect pedestrians and bicyclists to the parkways. The Louisville Loop shared use path system proposes to use the parkways as key connections from central Louisville neighborhoods.

NEIGHBORHOOD STREET NETWORK PATTERNS

Like many American cities, Louisville's original development was based on a grid of streets. However, similar to many American cities, as Louisville grew, the grid pattern began to change, and changing preferences in residential living in the 20th century led to the development of single-family neighborhood subdivisions generally featuring less street connectivity.

The map illustrates the overall density of the street network throughout Louisville as measured by the number of street intersections per square mile. Generally speaking, the greater the density of intersections, the greater the number of travel options, paths between destinations, and overall system capacity to absorb traffic. The intersection density diagram provide examples of how different levels of street network density have supported different development patterns throughout Louisville Metro. When intersections are built at great distances from one another, crossing the street becomes more difficult. Intersections that are close together have a greater degree of walkability. the total societal costs of crashes in the Louisville



PARKING

Downtown Louisville features parking structures operated by both the Parking Authority of River City (PARC) and by private owners. With over 58,000 off-street parking spaces there is a significant amount of parking. Downtown Louisville's parking costs are below regional peer cities (see table). Parking is oversupplied because it is inefficiently used. Virtually each new development project (public or private) is accompanied by a dedicated parking supply which sits partially-empty for large portions of the day.

PARC also manages all on-street parking. Its governing charter requires it to maintain 4,800 metered spaces in and around downtown Louisville, which has required street design projects affecting on-street parking to identify replacement spaces in other on-street locations.

AVERAGE MONTHLY PARKING COSTS FOR LOUISVILLE PEER CITIES

USA AVERAGE	\$164.80
CINCINNATI	125.40
CHARLESTON	120.00
INDIANAPOLIS	115.00
NASHVILLE	115.00
COLUMBUS	95.00
LOUISVILLE	74.13

ROADWAY SAFETY

In 2014, collision data showed that 78 people were killed, 8,187 people were injured, and 62,076 vehicles were damaged in motor vehicle crashes within Louisville Metro.¹ To put these numbers into perspective, a report from the American Automobile

Association and Cambridge Systematics estimated Metropolitan Statistical Area (MSA) in 2009 to be \$2.18 billion. This cost included property damages, lost earnings, lost household production, medical costs, emergency services, travel delay, vocational rehabilitation, workplace costs, administrative costs, legal costs, and pain and loss of quality of life. The total cost per person for the crashes in the Louisville MSA in 2009 was \$1,732.²

TRANSIT SERVICE

TARC has 41 separate fixed routes serving Greater Louisville and Clark and Floyd counties in southern Indiana. The TARC system design follows a radial scheme, meaning that most routes radiate out of the downtown, providing travel between outlying residential neighborhoods and the central business district. Today, TARC records about 15 million boardings annually. Boardings declined between 1992-2011 due to various causes including continued suburbanization of jobs and housing, fluctuating gas prices, funding shortfalls and service cuts. After declining to just over 14 million boardings annually in 2011, ridership is trending at about 15 million annually.

In 1974, Jefferson County citizens voted to impose a 0.2% occupational license fee on all persons who are employed in the county to fund the operations of the Transit Authority of River City (TARC). The TARC occupational license fee generated \$49.7 million in FY2015. (The Transit Authority license fee was imposed by Jefferson County Fiscal Court Ordinance 6, Series 1974. Currently, the 0.2% tax is imposed by Jefferson County Ordinance 13, Series 1989 on all persons who are employed in Jefferson County, whether or not they are residents of Jefferson County.) With these taxes, combined with fare box revenues, and other renewable sources of funding, TARC's revenues fall approximately \$10 million short of their annual operating budget. TARC resourcefully uses grants and other non-renewable sources to make up this shortfall.

HIGH DEMAND/HIGH PERFORMANCE CORRIDORS

The major TARC routes along Louisville's radial corridor thoroughfares attract the highest ridership in the system. Because of their service along major corridors and the connections they provide between major attractions, these routes make up the backbone of the TARC system. However, many of these routes feature branches on at least one end, which can lead to difficulty in understanding for occasional riders.

Notable routes include:

Route 4

Route 4 is a local route that provides service along 4th Street between downtown and Iroquois Park and the Outer Loop. The route splits and all trips turn around at Iroquois Park or the Outer Loop. Major destinations served by the route include downtown, the University of Louisville and Old Louisville neighborhood.

Route 18

Route 18 is a local route that provides service between downtown Louisville and two branches — one along Dixie Highway and the other along Preston Highway. This is TARC's busiest route by ridership, with over 8,300 riders per day. Downtown, Route 18 serves 18th Street and the one-way pairs of Market/Jefferson Streets, and Preston/Jackson Streets. Major destinations along the route include downtown Louisville, Park Place and Jefferson Mall, the University of Louisville, and the UPS Worldport. Route 18 also features multiple branches and variants in scheduling, which each concern the branch ends, but the most significant two differences between alignments are that some trips serve the UPS Worldport instead of the Jefferson Mall, and a select few trips continue south on Dixie Highway to Nathan Hale Drive.

Route 23

One of a limited number of routes that provides east-west connectivity without traveling through the downtown business district, Route 23 provides service along Broadway from Shawnee Park in West Louisville to the intersection of Taylorsville and Bardstown Roads, and continuing service east along three branches. Due in part to a relatively high amount of transit-dependent households in West Louisville, this is TARC's second-busiest route in the system.

Each branch on Route 23's eastern end serves a different market and potential base of riders: one serves Baptist Hospital East and Norton Suburban Hospital, one serves McMahan Plaza and Meijer, and one serves General Electric Appliance Park and the Mercy Academy. Other major destinations along the route include downtown Louisville, Union Station, Bowman Field, Nia Center, and Sullivan University.

DAILY RIDERSHIP TARC HIGH FREQUENCY ROUTES

- Route 4 — Fourth Street, 4486
- Route 18 — Preston-Dixie, 8300
- Route 23 — Broadway, 8130

ZeroBus

In January 2015, TARC began operating 10 all-electric, zero emission "ZeroBus" vehicles on downtown circulator routes in place of replica trolleys which were the highest polluting vehicles in the fleet. The all-electric fleet, one of the largest of its kind in the country, offers free rides and frequent service around downtown's business, cultural and entertainment districts. The ZeroBus fleet is improving downtown air quality, reducing harmful emissions by more than 3,500 pounds per year compared to the diesel-fueled trolleys. In the first six months the ZeroBus vehicles were operating, TARC avoided purchasing and burning more than 13,500 gallons of diesel fuel that would have been used by the trolleys.

A recent TARC survey of ZeroBus passengers showed that ridership was split between commuters (60%) and tourists and convention goers (40%). The introduction of the ZeroBus increased downtown circulator ridership 25% from September 2014 to September 2015.



TARC OPERATIONS

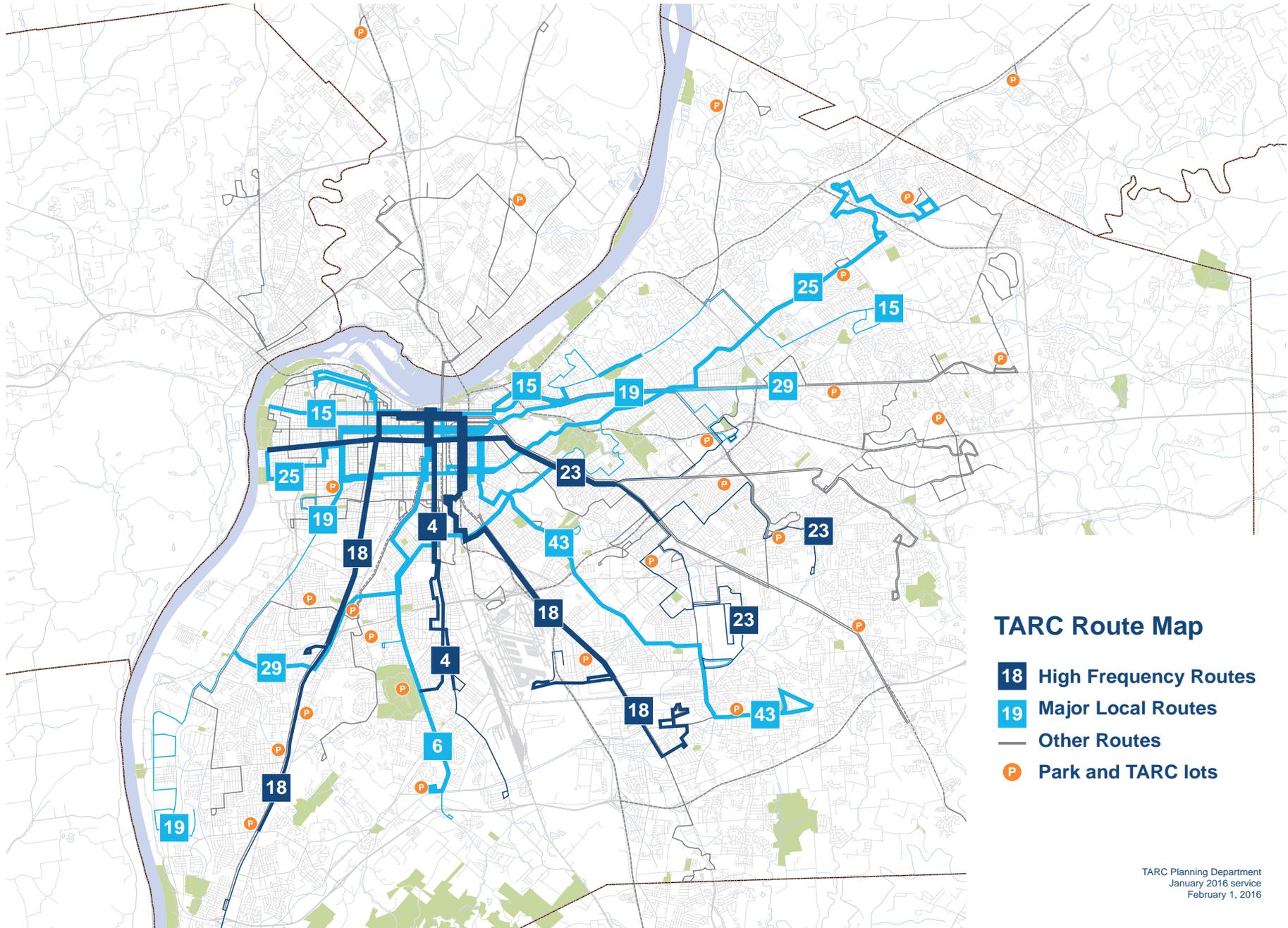
WHERE THE MONEY COMES FROM

LOCAL	Passenger Fare	\$12.5 million
	Mass Transit Trust Fund	48.2 million
	Advertising	0.6 million
	Other	0.2 million
STATE	Indiana/Other	1.3 million
	Cost Shifting	12.5 million
FEDERAL	Federal Grants	0.5 million
	Total Resources	75.8 million

WHERE THE MONEY GOES

36.8 million	Transportation Services
15.2 million	Paratransit
12.4 million	Maintenance
0.9 million	Marketing
0.8 million	Planning & Scheduling
0.8 million	Purchasing
1 million	Human Resources & Training
3.4 million	Safety
4.5 million	Other
75.8 million	Total Expenses

Transit Route Map



TARC Planning Department
January 2016 service
February 1, 2016

CURRENT WALKING NETWORK

The densest part of Louisville Metro's pedestrian network was developed in the same time period as the historic City of Louisville and, as such, was built to accommodate different transportation needs than exist today.

Much of Jefferson County – particularly the suburban neighborhoods and corridors developed since 1950 – lack adequate sidewalks and pedestrian infrastructure. Pedestrian access and safety are therefore lacking, even along some of Louisville's highest ridership transit corridors.

The current pedestrian network varies in coverage, condition, and ADA-compliance, depending on its age and code requirements at the time the land was developed. Some areas with sidewalks are missing other pedestrian network elements, such as pedestrian-scale lighting, adequate road crossings, and ways to travel through barriers such as interstate ramps.

PEDESTRIAN SAFETY

From 2006 through 2014, on average, 16 pedestrians were killed and 393 pedestrians were injured each year within Louisville Metro. The economic costs of these crashes totaled \$102.3 million each year. In late 2011, Louisville Metro was identified as an FHWA Pedestrian Focus City based on the pedestrian fatality rate exceeding the average national rate of pedestrian fatalities of 2.33 per 100,000 population.

In *Dangerous by Design 2014* by Smart Growth America, the Louisville metropolitan area was rated the 17th most dangerous metropolitan area in the U.S. for pedestrians.

The following systematic conditions exist around Louisville and make walking difficult:

▶ Metro's decision to take over responsibility for the building and maintenance of the sidewalk network was not accompanied by a dedicated funding mechanism.

▶ Active rail lines divide local streets, often without a suitable means for crossing.

▶ Arterials, highways, and interstate freeway ramp crossings are uncomfortable or impossible for walking or crossing.

▶ The lack of a continuous walking network causes people to walk along the roadway or to not walk at all due to the actual or perceived lack of a complete safe and comfortable network of facilities that connect to their desired destinations.

LOUISVILLE METRO PEDESTRIAN CRASHES

Data on pedestrian crashes should inform the design of pedestrian facilities, the redesign of existing roadways, and the development of education programs and enforcement campaigns for pedestrians and motorists.

WHERE ARE CRASHES OCCURRING?

Crashes occur in all areas of Louisville, although there is a clear concentration within the Central Business District and along principal arterials with high volumes of motor vehicles.

The majority of crashes occur on local streets while the majority of fatalities occur on state streets. There is an even split between crashes occurring in intersections versus non-intersections.

WHAT ARE WE DOING ABOUT IT NOW?

Louisville kicked off a Look Alive program in April of 2015 that is aimed at greatly reducing the number



of pedestrian/vehicle collisions and completely eliminating pedestrian fatalities. The program includes a K-12 safety education component, an adult safety education component, and training for Louisville Metro Police. Officers also are stepping up enforcement through the use of pedestrian decoys to catch drivers who fail to yield when required.

LOUISVILLE METRO PEDESTRIAN CRASHES

MOST COMMON PRE-CRASH MANEUVERS FOR A MOTORIST



MOST COMMON PRE-CRASH PEDESTRIAN CONDITIONS



MOST COMMON MOTORIST CONDITIONS CAUSING A CRASH



Source: Kentucky State Police 2006-2010

CURRENT BICYCLE NETWORK

Louisvillians are sensitive to the fact that compared to vehicular roadway users, bicyclists and pedestrians are more vulnerable. In addition to the obvious lack of protection from weather and safety equipment, people who walk and bicycle are sometimes difficult to see in the urban context where drivers have complicated decisions to make. This makes pedestrians and bicyclists susceptible to serious and fatal injury when collisions occur.

Since 2010, the system of bike lanes and shared lane markings has grown, attempting to address local concerns about safety by including bike routes on low volume streets (*neighborways*) and protected bike lanes on higher volume streets. Neighborways are low-volume streets that have been optimized for bicycle travel through pavement markings, signage, traffic calming and intersection crossing treatments. Much of the new on-street bicycle infrastructure has been added on an opportunity basis, meaning the facilities were installed as a part of a resurfacing or reconstruction project or added with simple paint- and marking-based treatments within the existing roadway dimensions.

Having installed 92 of the 550 miles of planned bicycle facilities, Louisville has made serious strides in building a connected bike network. However, it is not uncommon for physical barriers like one-way or high-volume streets, interchanges and rail lines to break up what would otherwise be suitable routes.

The Louisville Loop is an estimated 100-mile trail system designed to encircle the city and link existing and new parks and neighborhoods as well as to provide recreational opportunities. The Loop will provide incredible recreational opportunities and also connect communities throughout the city to Louisville's park, transit and trail assets. By early 2016, approximately 50 miles of the Loop will have been constructed, including the 19-mile section of the Parklands of Floyds Fork.

In the short-term, building connectivity between the on-street and off-street system is critical to the success of both the Louisville Loop and the overall transportation network, including transit.

The construction of a system of low-stress facilities throughout the city cannot wait for recommendations to be implemented as opportunities present themselves.

OFF-STREET TRAILS AND PATHS

Louisville currently has few off-street paths that are not part of its emerging Louisville Loop. The Loop will form a network of shared-use paths, soft surface trails, on-road bike lanes, stream corridors, Olmsted Parkways, greenways and transit routes. Despite the opportunity to connect the community to the river, parks, trails and commuting routes, the Loop faces numerous challenges. The trail alignment has limited right-of-way; must cross waterways, wetlands, and other sensitive environmental resources; and in some areas requires acquisition of property. Finding safe crossings of major roads (Dixie, Preston, and Bardstown Road, among others) also is a challenge.

Aside from the Loop, the off-street bicycle network consists of projects that have come from Louisville's greenways plans and a small number of additional connector paths. Major trails play a critical role in the network as they provide connectivity options that avoid high-volume streets and natural barriers. Connectivity between the on-street and off-street system is critical to the success of the overall network. The greenways plans present a vision for a future system of low-stress facilities throughout the city. There is no timeline associated with the completion of this network as these recommendations should be implemented on an ongoing basis, as opportunities present themselves.

RAILROADS

Louisville has an extensive railroad network with major yards and extensive spur connections to industrial properties. It is the Midwestern base of operations for CSX Transportation. It also is served by Class I operator Norfolk Southern as well as Class II operator Paducah & Louisville (which still operates trains on its line parallel to Dixie Highway in southwest Louisville) and Class III operator, Louisville Indiana Railroad. Both CSX and Norfolk Southern operate multiple yards and intermodal transfer facilities in the city and Paducah & Louisville operates the Riverport terminal system.

According to a KYTC statewide rail plan, railroad safety improved greatly in Kentucky between the mid-1970s and early 2000s, rail accidents declined by 64% and fatalities declined by 42%. This is due in part to a general increase in warning devices and gated crossings. However, Louisville still has numerous at-grade rail crossings, many of which are in close proximity to residential neighborhoods.

Louisville does not currently have passenger rail service. Amtrak discontinued its Kentucky Cardinal service in 2004 and has since offered a coach bus connection to Indianapolis.

AVIATION, FREIGHT & LOGISTICS

Although railroads and the interstate system continue to play an important role in freight movement and distribution in Louisville, the centerpiece of its logistics economy is the United Parcel Service's (UPS) Worldport sorting facility located at Louisville International Airport (IATA code SDF). Although only a regional passenger airport, SDF handled over 5 billion pounds of cargo, freight and mail in 2014 making it the seventh-busiest airport in the world by cargo volume (third in the North America), and the Worldport accounts for nearly all of the cargo processed at SDF.

Based on a 2015 survey conducted by the Louisville Regional Airport Authority, Louisville's airports support nearly 70,000 total jobs and generate more than \$2.6 billion in total payroll annually. In 2014, the airports contributed more than \$8.1 billion in total economic activity and produced \$348.8 million in state and local tax revenues.

The airport offers nearly 6,000 parking spaces, many of which are enclosed in a large structure with direct connections to the passenger terminal. TARC operates service to the airport with its Route 2 providing direct service to downtown Louisville. However, this route provides only 35-minute peak period weekday headways with 70-minute off-peak headways.

Between freight, passenger and general aviation traffic, the airport handled approximately 150,000 takeoffs and landings in 2014. The airport handled approximately 3.4 million passengers in 2014, with nearly all of these beginning or ending journeys in the Louisville region. Nearby Bowman Field (IATA code LOU), east of downtown along Taylorsville Road, was Louisville's original commercial airport and today provides primarily general aviation services.

FREIGHT AND THE UPS LOGISTICS HUB

Freight and Logistics are significant components of Louisville's economy. Since the launch of its next-day parcel delivery service in the early 1980s, freight traffic at SDF has grown substantially. UPS has invested \$2.9 billion in multiple expansions to the Worldport facility, effectively doubling its original size and increasing its package-handling capacity to approximately half a million packages per hour. Worldport is the hub of UPS's global air network and operates direct connecting flights to hundreds of destinations around the world.

Although Worldport's primary role is to serve UPS's air shipping operations, highway and rail access to and from SDF and its supporting industrial and commercial land uses are critical components of Louisville's freight network. The primary passenger terminal access is by way of Interstates 264 and 65. Worldport and other cargo-related activities have access primarily on the airport's south side by way of the Fern Valley Road interchange with Interstate 65, Grade Lane and Crittenden Drive.



THE OHIO RIVER BRIDGES

After nearly fifty years of planning and deliberating, construction is wrapping up on the Louisville-Southern Indiana Ohio River Bridges Project (ORBP). The project will result in two new bridges, one in downtown and one in eastern Jefferson County. The ORBP is designed to improve safety, alleviate congestion, connect highways and spur economic development. The project added a second span to the Interstate 65 bridge crossing in downtown Louisville and constructed a bridge crossing near Prospect, Kentucky, carrying Interstate 265 into Indiana. Two of the primary advantages envisioned from these projects is the maintenance and improvement of the region's cross-river connectivity and critical goods movement capability.



Image source MacDonald Architects

CHAPTER THREE INNOVATION IN INTEGRATED TRANSPORTATION SYSTEMS: BEST PRACTICES

Local governments around the country are leading the way by implementing new and innovative ways to move people safely and comfortably around their cities. Planners, engineers and policy makers have demonstrated creative systems where people can choose from a variety of reliable, affordable and easy-to-use travel options. They are using their right-of-ways to design streets and sidewalks that enhance the city's quality of life and economic vibrancy. Most importantly, local governments are harnessing local resources to leverage external support (federal, state and private partnerships) to create reliable transportation systems that expand options and improve the environment for their residents.

LAND USE & TRANSPORTATION CONNECTION

Land use and transportation systems are the fundamental building blocks that form the most defining aspects of a community's character. In recent years, cities like Kansas City with its MAX system, Indianapolis with Indy Connect, and Charlotte with its LYNX light rail have made policy decisions and capital investments to build transportation systems that give their citizens the housing and mobility options they desire.

A vibrant city is one that bustles with the movement of people and goods. Leading cities in the United States have demonstrated that an integrated transportation system is critical to success. These cities show that well-designed streets and networks help to reduce congestion, improve safety and health, increase mobility options, provide household and business cost savings, and spur economic development. For Louisville to be a competitive and resilient city in the 21st Century, integrating these practices into policies and action is essential.

The following chapter provides an overview of best practices and background for making policy and capital investment decisions supporting resilient, competitive and innovative transportation systems, including:

- › incentivizing travel behavior through transportation demand management (TDM)
- › providing reliable transit options through investing in premium transit networks
- › providing convenient access to transit with transit-oriented development
- › enhancing mobility and public health and safety by implementing complete streets

› providing more efficient transportation systems through parking demand management

› moving freight efficiently through freight transport management

TRANSPORTATION DEMAND MANAGEMENT (TDM)

WHAT IS IT?

Transportation Demand Management (TDM) is a term for strategies that increase overall system efficiency by encouraging a shift from single-occupant vehicle (SOV) trips to other modes of travel such as transit, bicycling or walking, or by shifting SOV trips out of peak periods when roads are most congested.

TDM seeks to reduce auto trips—and hopefully total vehicle miles residents travel to accomplish their daily needs—through practices such as increasing travel options, providing incentives and information to encourage individuals to modify their travel behavior, or reducing the physical need to travel through the use of technology or neighborhood design. A sample organizational strategy that encourages citizens to drive less is telecommuting. Financial incentives such as subsidized transit passes, cash for parking spaces or flexible work schedules have proven successful to reduce the impact of SOV trips.

WHY DO IT?

Quality-of-life factors drive the need for effective management of transportation demand. Lower overall transportation costs, lower commute times, a more convenient and attractive pedestrian environment, improved access to retail and services, and more efficient transit service are factors that benefit a citizen's quality of life. A comprehensive set of TDM strategies can have a positive effect on the quality of a place.



While TDM is sometimes driven by local or state policies, many private companies are finding that it costs less to pay employees not to drive than it does to provide them with free or subsidized parking spaces.

Offering incentives to employees who choose not to drive to work alone can amount to significant reductions in parking acquisition and maintenance costs. Similarly, encouraging the use of non-auto modes has broad benefits to regional economies and stakeholder employers and institutions in the form of greater transportation system reliability, resiliency and capacity.

HOW WELL DOES IT WORK?

TDM tools are often coordinated through a public agency, private company, public or private institute, or transportation management association (TMA). The approach works best when there is a coordinated information platform available to commuters. A private company or institute may operate their own program, but if reduction of SOV trips is the goal, the best practice is to coordinate information at a city or regional level, often through a Metropolitan Planning Organization (MPO). Strategies to reduce demand take various forms including employer-based solutions, corridor-based strategies and MPO-level programs. The Federal Highway Administration presented several case studies that indicate these strategies work to reduce VMT and emissions.³

PREMIUM TRANSIT NETWORKS

WHAT IS IT?

Premium transit is transit that is fast, frequent and reliable. This mode of travel can take a number of forms including bus rapid transit (BRT), light rail, modern streetcars and commuter rail. Transit use in the United States is at its highest level in half a century. Over the last 20 years, growth in public transit ridership (39%) has outpaced population growth (21%) and vehicle miles traveled (25%).⁴ As fuel prices have risen and public preference has shifted to transportation alternatives, cities of all sizes have recognized that providing a robust transit system is a critical component of a competitive city. The cities that are leading the way in frequent and reliable transit service are also among the most successful economically. A

key element of these systems is the ability of a city and region to provide premium services where the vast majority of the population has the freedom of choice to reach many destinations as quickly as possible. The graphic on page 49 provides an overview of the three most common premium transit services cities are using to increase their service options.

WHY DO IT?

In order to compete with the private automobile, transit operators must provide convenient, reliable and frequent service. The American Public Transportation Association has determined that every \$10 million in capital investment in public transportation yields \$30 million in increased business sales. Where high-frequency service is available, residents benefit from increased property value, personal health, household cost savings and reduced carbon emissions.

For many Americans, public transit is the only transportation option and is vital for providing access to jobs. According to a 2011 Brookings Institution report, 10% of the population of the nation's 100 largest metropolitan areas do not have access to a private vehicle.⁵ For others, transit can help save money. A two-person household can save, on average, more than \$9,394 a year by downsizing to one car where reliable transit options are available.⁶

HOW WELL DOES IT WORK?

Connected transit systems are supported through integrated plans and policies considering such factors as employment and population density, parking supply and cost, degree of urban congestion, availability of roadway capacity, and cost of owning and operating a private auto. These factors are beyond the control of transit system operators.



Bus Rapid Transit: Cleveland, OH Health Line



Modern Streetcar: Tucson, AZ



Light Rail: St. Louis, MO



TRANSIT-ORIENTED DEVELOPMENT

WHAT IS IT?

Transit-oriented development (TOD) is commonly defined as compact, mixed-use development within walking distance (usually a half-mile) of a transit station. This form of land development provides the critical mass of population, employment and attractions around stations/stops to support a quality transit system. Households within TODs have the option to drive less because of their access to public transportation and walkable amenities.

Limited federal funding has caused a growing number of regions to fund transit locally. One option has been through local taxation, another example has been through effective public-private partnerships to build stations or extend transit service lines. Leading cities are leveraging public expenditures to attract private development around transit nodes.

WHY DO IT?

National experience suggest TODs play a key role in reducing automobile congestion, managing transportation spending and creating attractive places to live and work. One of the key factors guiding cities to promote TODs is the fact that changing demographics are causing fundamental shifts in the housing market. Generation Y, or millennials, are now the largest living generation in the U.S. and singles will soon be the new majority household type.⁷ By mid-century, Americans 65 and older will outnumber those 18 and under. Recent surveys through the Urban Land Institute reveal that the majority of millennials prefer more walkable neighborhoods and tend to use transit more than other demographic groups.⁸

Transportation expenses can be a significant portion of household expenditures. When transit and

DEFINITION & COMPARISON OF PREMIUM TRANSIT SYSTEMS

BUS RAPID TRANSIT (BRT) - BRT systems combine the flexibility of buses with the efficiency of rail and can serve both local and regional markets. They operate best in exclusive right-of-ways, though many systems operate in semi-exclusive right-of-ways. Clean, secure, and comfortable stations and terminals provide rapid boarding often with fast and efficient fare collection, including fareless zones, collection at stations or fare cards. The corridors travelled are often complemented with the use of Intelligent Transportation Systems (ITS), giving transit priority at signalized intersections. Successful BRT systems also integrate well with other modes of transportation and are recognizable in their communities through adequate marketing and good customer service.

EXAMPLE CITIES Albuquerque, Chicago, Cleveland, Dallas, Denver, Eugene, OR, Kansas City, Las Vegas, Los Angeles, Pittsburgh, Providence

CAPITAL COST PER MILE

Development costs vary widely:
Grade-separated: \$6-50 million/mile
At-grade on dedicated right-of-way:
\$1-15 million/mile
Median arterial: \$6-16 million/mile

MODERN STREETCAR - Streetcars are high-capacity transit that provide dedicated tracks within the road right-of-way and in some cases operate as vehicles in a lane of traffic with no grade separation. Designated stops can be integrated with bus stops and provide the

flexibility of en-route stops, similar to buses, thus creating shorter distances between stops. Streetcars can play a major role as an economic development tool and to promote tourism, but often do not serve as a source of fast public transportation. Their investment is typically less expensive than light rail.

EXAMPLE CITIES Atlanta, Charlotte, Cincinnati (under construction), Dallas, Memphis, Portland, Seattle, Tampa, Tucson

CAPITAL COST PER MILE

Typical Range: \$5-7 million/mile

LIGHT RAIL - Light rail is high-capacity transit that provides dedicated tracks separate from the road right-of-way with grade separation where necessary. Designated stops or stations are spaced at 1 mile intervals or longer with the goal of providing fast and convenient transportation. Capital costs/mile are more expensive than streetcar and bus transit and trains can travel at high speeds for longer distances. The typical light rail service serves a broad region.

EXAMPLE CITIES Charlotte, Dallas, Denver, Minneapolis, Norfolk, Phoenix, Portland, Salt Lake City, Seattle, St. Louis

CAPITAL COST PER MILE

Typical Range: \$20-80 million/mile

neighborhood services are within walkable conditions and distances, household transportation costs are lower.⁹

HOW WELL DOES IT WORK?

Transit oriented development policies that are consistent with a region's growth strategy are needed. It is clear that the greatest success has been achieved when the following components are in place:

- ▶ **Walkability** – Good transit depends on walking and the most successful TODs are made to be walkable places with sidewalks, street trees, safe intersection crossings and slow automobile traffic.
- ▶ **Urban Block Sizes** – The walkability required for TODs means that large, suburban-type superblocks must be broken down. Small blocks, less than 800 feet in length, make frequent pedestrian crossings possible and easy.
- ▶ **Area Growth Plans** – Having a unified vision of the expected growth coupled with the code and incentive changes required to achieve it can facilitate TOD.
- ▶ **Parking Management** – TODs should require less parking, but this advantage will not be maximized unless a comprehensive shared parking strategy is put in place. This must be done before development begins and leases are signed.

With these elements in place, corridors with premium transit and coordinated development have proven the TOD model can work. In 2011, the Institute for Transportation & Development Policy released a study providing evidence from 21 corridors across the country where over half of the studied corridors leveraged greater than \$1 of TOD investment per \$1 of transit spent.¹⁰ Cleveland's HealthLine BRT leveraged the

most overall TOD investment of all the corridors in the study taking a \$5 million per mile transit investment and leveraging \$5.8 billion in new development – all attributable to the concerted effort of the City of Cleveland and its multiple partners to channel new development to the corridor's transit stops.

COMPLETE STREETS

WHAT IS IT?

Complete Streets policies, plans and design processes offer the opportunity to improve the transportation options for all ages to homes, workplaces, schools, healthcare facilities, civic and cultural centers, and other important destinations. This approach guides transportation decisions with the intent to provide safe, comfortable and convenient options for travel by all modes. Whereas the 20th Century American street is designed primarily for the efficient movement of the automobile, the complete streets approach considers the design of roads and streetscapes that are safer, more accessible and easier to navigate. In the process, they demonstrate benefits that enable communities to thrive.

Complete Streets projects are not a one-size-fits-all approach. Whether it is an urban, suburban or rural context, the goal is to remove mobility barriers while balancing safety and convenience for everyone. For example, a project might require a lane reconfiguration to fit sidewalks or bike facilities within the right-of-way. In other areas, it may include a roundabout, curb extensions, median islands, tree plantings, enhanced crosswalks or other design elements. Most importantly, complete streets are about considering all users in the design of streets.

WHY DO IT?

The complete streets model has become a common approach to moving the use of our urban streets toward balancing the need for all users of the roadway. By implementing complete street networks, cities can begin to address multiple objectives including, most importantly, safer streets.

The risk of injury and fear of streets can be a major deterrent to active movement. There has been a great deal of research establishing a connection between street attributes and safety for road users. The evidence has been clear - at impact speeds of higher than 30 mph, the likelihood of severe injury or death for pedestrians is extremely high (see chart).

Complete streets have demonstrated health impacts and are shown to provide opportunities for increased physical activity by incorporating features that promote regular walking, cycling and transit use into just about every street. One study found that 43 percent of people with safe places to walk within 10 minutes of home met recommended activity levels; among those without safe places to walk just 27 percent met the recommendation.¹¹ Residents are 65 percent more likely to walk in a neighborhood with sidewalks.¹²

Short trips (3 miles or less) account for a full half of all trips and 28% of trips are one mile or less.¹³ Converting some of these short car trips to other low-to non-polluting modes, such as bicycling and walking, can have a positive impact on the environment.

Poor air quality in our urban areas is linked to increases in asthma and other illnesses. Yet if each resident of an American community of 100,000 replaced one car trip with one bike trip just once a month, it would cut carbon dioxide (CO₂) emissions by 3,764 tons per year in the community. Complete streets allow this to happen more easily.

HOW WELL DOES IT WORK?

The key tool that has driven the movement for complete street design has been the adoption of complete streets policies. This tool directs transportation planners and engineers to routinely design and operate the entire right of way. A complete streets approach changes the way every day transportation decisions are made.

These policies define strategies for making complete street design guidelines, educating and training



Impacts of Vehicle Speed on Pedestrians



FATALITY RATE BY VEHICLE SPEED

Source: AAA Foundation for Traffic Safety, 2011. "Impact of Speed and a Pedestrian's Risk of Severe Injury or Death"

everyone on the new approach, and using new measures of success. In the last decade, over 700 jurisdictions have adopted complete street policies.¹⁴

Each year, the National Coalition of Complete Streets evaluates and recognizes the best policies developed over the previous year. Their report identifies the policies that provide the most "clear, direct and accountable written policies" and lay the foundation for an inclusive decision-making process that effectively accommodates multiple modes of transportation.¹⁵ The most successful policies are able to translate their community's vision for connected, integrated transportation networks into design practices and outcomes that measure success.

Designing complete streets is a matter of considering the safety and comfort of all users. The most innovative jurisdictions have developed their own standards and guidelines linking transportation and land use, such as Boston's Complete Streets Guidelines and Charlotte's Urban Street Design Guidelines. However, even these places must rely on the guidance and standards defined by state and national resources. These manuals are tested and approved through the Federal Highway Administration and supported through the design guidelines provided by organizations such as American Association of State Highway and Transportation Officials (AASHTO), National Association of City Transportation Officials (NACTO), and the Institute of Transportation Engineers (ITE).

PARKING DEMAND MANAGEMENT

WHAT IS IT?

Parking management includes a variety of strategies that encourage more efficient use of existing parking facilities, improve the quality of service provided to parking facility users and improve parking facility design. Parking management can help address a wide range of transportation problems, and help achieve a variety of transportation, land use development, economic and environmental objectives. More specifically, parking demand management can serve a dual mission of reducing the impacts of parking on a city's livability and design as well as ensure ease of access to retail businesses and attractions. For that reason, parking demand management programs are often an integral component to any transportation demand management program.

WHY DO IT?

In a complex transportation system, the decision to drive a personal auto rather than taking a bus, bike, walk or carpool is often determined by the supply and cost of parking. Free or inexpensive parking in areas such as a downtown or hospital district can lead to overuse and unnecessary congestion and delays to the street network. This can limit access of valuable spaces to retail businesses and other short-term uses.

Rather than requiring very conservative parking minimums, cities have begun to use management and pricing of parking as a tool to reduce the burdens of too much driving. Parking functions as an access tool only when legal, convenient spaces are available. Tracking the number of empty spaces at any given time is therefore the primary measure of how well supply is meeting demand. The efficacy of the downtown parking supply should be measured based on the consistency of available spaces—a few, but not too many, in all places at all times.

HOW WELL DOES IT WORK?

Enforcing time-limits, however, is labor-intensive and often ineffective. Additionally, metering efforts are often undermined by a common reluctance to price spaces sufficiently high enough to ensure availability at peak times. Charging a flexible, market rate where the rate rises whenever availability is lacking and falls whenever demand is slack is the most effective means for managing demand.

Starting in 2015, the city of Cincinnati implemented a system of smart meters where periodically data will be analyzed to determine where demand is highest and charge a market rate based on the performance. This method is becoming more common in downtowns and vibrant business districts across the country.

Successful application of this approach to curb parking can ensure that spaces are available when they are most needed, without chasing demand away during off-peak hours. Many cities are providing parking managers with the authority to raise and lower rates by time and location, based on periodic utilization surveys, with the express intent of achieving a 15% availability rate on each block, at all times.

This and other practices have shown that parking management can help reduce total parking demand, shift travel to other modes, reduce vehicle miles traveled (VMT) and ensure a minimum number of parking spots are always available, thus avoiding the “circling” problem adding to congestion.

FREIGHT TRANSPORT MANAGEMENT

WHAT IS IT?

The management of freight transport is critical in ensuring efficient goods movement of all freight modes by cities and regions to be competitive in the global economy. This focus supports the creation of jobs and business diversity as well as sustains the

quality of life for residents. The efficient movement of goods, also referred to as logistics, must be integrated into the overall management of a city and region’s transportation network.

North American cities have historically given less attention to how trucks operate within the city than their European peers, though the matter is receiving increasing attention domestically. Many freight management plans and programs tend to be delivered at the regional level through the MPO, but cities such as Seattle have demonstrated the need to coordinate freight movement within its transportation network to assure efficiency. As a logistics hub, cities like Louisville need a solid freight system and plan. Cities can play a role in shipping practices through efforts such as determining facility siting, promoting co-location of logistics firms (e.g. freight villages), managing delivery consolidation in congested areas like downtowns and defining truck routes and intermodal connections and related activities.

WHY DO IT?

Since freight trucks must compete with other vehicles on city streets and highways, congestion can restrict the movement of goods at the local level. To avoid this conflict, cities and regions must focus on freight transport management systems that help increase the efficiency of freight and commercial transport, particularly as global demand increases. It is important for local and regional transportation planners and engineers to understand the impacts and benefits.

HOW WELL DOES IT WORK?

Louisville’s freight system must support the movement of goods to critical logistics areas such as the airport, rail facilities, warehouses, ports, business districts and other areas of commerce. Leading cities role is to manage freight for optimizing street operations and safety. For example, designating a truck street classification network would serve to accommodate trucks and to preserve and improve commercial

transportation mobility and access.

Establishing a freight village is another concept for facilitating freight movement. Freight villages are defined areas within which all activities relating to transport, logistics and the distribution of goods, both for national and international shipping, are carried out by various operators. This concept is well-established in European cities and is beginning to emerge in the United States. Freight villages exist in New Jersey, Illinois and around the Columbus, Ohio airport. The concept could be implemented around Louisville International Airport to enhance freight movement. By bringing all needed uses for logistics functions into one area, the need to travel over road from node-to-node throughout the city is reduced. Additional studies would be necessary in Louisville to investigate feasibility and avoid negative impacts to surrounding residential areas.

Other practices include efforts such as restricting or coordinating deliveries to downtown cores during peak traffic times, reserving some on-street parking for commercial vehicles, requiring permits for all over-dimensioned (over size and overweight) trucks, and providing local businesses information about construction closures and detours with enough lead time so that businesses can change operations or delivery schedules if needed. Cities play a role in protecting the community’s livability by considering the potential impacts freight traffic can impose on neighborhoods near logistics operations.



CHAPTER FOUR

GROWTH IN JEFFERSON COUNTY

Since the end of the Great Recession, Louisville has been steadily growing jobs and population. Economic activity has heightened in the last few years as the nation and the region emerged from the downturn. Louisville, at the same time, strengthened its quality of life-centered economic development strategy to take advantage of local and national market trends. The University of Louisville's Urban Studies Institute and the Kentucky State Data Center project that Jefferson County will add 130,000 people by the year 2040. The growth rate is projected to slow from 2020 to 2040. This slower rate for Louisville does not reflect the aspirations articulated by the public during Vision Louisville and Move Louisville. To achieve the vibrancy envisioned by the community, Louisville must grow faster, increase its ability to retain and attract workers and ensure new growth is beneficial, connected and sustainable. Redevelopment that is focused along corridors with access to transit and walkable and bike-able connections to neighborhoods can provide this future.



WHY DOES GROWTH MATTER?

At a fundamental level, growth matters because it changes places for better or worse. For many years, cities have set policy intended to alleviate some of the negative impacts of growth while embracing its positives. Zoning codes are in place to ensure that noxious or high impact uses are not placed next to schools or single-family neighborhoods. Traffic analyses for new development are conducted to understand the impacts on existing land uses and adjacent roadways.

Growth also is important because it is the engine for new revenue and jobs in the region. Private investment in the form of growth can create a sustainable tax base, allowing public services to be provided without overburdening existing taxpayers. Job growth is vital to create a path out of poverty and for supporting families in the community.

From a transportation perspective, growth is important because it dictates how people move around. The number of miles people travel in a given day is largely a function of the distance between homes, jobs and other daily needs. Any steps that can help to reduce the miles driven can help keep congestion at bay and ensure air quality is not further impaired.

Finally, growth is important in Louisville because it will be the key to unlocking some of the community's stated desires. Rapid transit options – a recurrent request during both the Vision and Move Louisville processes – require population and job density coupled with a mix of uses to function well.

WHAT ARE THE TRENDS?

Nationally, as is the case in Louisville, housing growth at the urban edges has been the predominant form of new growth for close to fifty years. In some places (Atlanta and Washington, DC, for example), this edge growth has extended to employment centers creating edge cities. However, there is evidence that development trends are changing to favor infill development along major

corridors; the Urban Land Institute's (ULI) recent report *Gen Y and Housing* indicates a significant attraction for that mobile generation to “denser, mixed-use, walkable neighborhoods from which their commute will be short to moderate in length.”

The report goes on to say the trend extends to many different location types, from downtown to in-town to suburban cities. “In 2000, the highest housing price per square foot in the Washington, D.C., metropolitan area was in suburban neighborhoods — 25 to 50% higher than the price in walkable urban neighborhoods. But by the end of the decade, the situation was reversed, with home prices 50 to 70% higher per square foot in walkable urban neighborhoods than in high-end suburban neighborhoods.”

While Louisville is not Washington, D.C., some of the same fundamental demographics are present. It is clear from national demographic trends that baby boomers and millennials are driving real estate and labor markets. It is unclear what kind of housing choices these two large cohorts are going to make as they age. However, current trends indicate a strong preference for amenity-rich areas. It's important to note that today, around 70% of households in Louisville do not have children. To capture and retain these highly mobile households, it will be critical for Louisville to improve its built environment to ensure mobility choice and quality of place.

And the trend of infill housing is clearly present here as well. Since 2011, Louisville has seen a steady increase in construction of infill housing. Construction of new housing units in infill areas represented 19% of all residential permits by unit. According to the Downtown Master Plan, demand is increasing for downtown and edge neighborhood housing.

Part of the growth in the next 20 years will be driven by those just entering the housing market. For now, many of Generation Y and the millennials appear content to rent, but this contentment may merely indicate a delay in buying. According to the 2014 Collingwood Group Mortgage Industry Outlook Report, 61% of developer

respondents reported not to have seen any evidence of new volume from the millennial generation. However, when surveyed by Trulia, 93% of young renters indicated they intend to buy some day. The 2015 ULI Emerging Trends in Real Estate report notes that today millennials are renters by choice, but over the next 6 to 7 years they will make decisions on where to buy. A large percentage of the millennial residential market is looking for an amenity-rich experience of a type that can be found in walkable neighborhoods. Cities such as Charlotte, Dallas and Salt Lake City have recognized this demand and refocused their transportation investment strategy to create mobility options for their areas of infill potential.

In addition to residential development, job growth in Louisville is expected to steadily increase. The track record over the past 10 years has been that while jobs have increased substantially, wages have not kept pace. According to the US Census Bureau, over 30,000 jobs have been created in Jefferson County since 2009. However, over that same time period, annual wages increased less than \$6,000. Although the wage picture looks bleak, Louisville has recently seen an uptick in high wage jobs (see tables on the following pages). Metro has initiatives and strategies in place to ensure continued job creation and innovation while increasing wages. Improving quality of place is a key strategy to attract both higher wage jobs and knowledge workers to fill them.

Commuting trends in America reflect the growing desire to drive less and therefore live closer to jobs. The 2013 Travel Trends report by the American Association of State Highway and Transportation Officials found that younger workers have a propensity to drive less than older generations. This national trend is reinforced by a 2015 ULI survey found that 3 out of 4 millennials prefer to live within a 20-minute commute to their workplace. It is important to note that the most recent Census data has reflected this national trend in Jefferson County.

LOCAL PICTURE: RESIDENTIAL DEVELOPMENT
Growing demand for infill sites

YEAR	TOTAL NUMBER OF NEW RESIDENTIAL UNITS IN THE JURISDICTION	NUMBER & PERCENTAGE OF NEW RESIDENTIAL UNITS ON INFILL SITES, PREVIOUSLY DEVELOPED SITES, BROWNFIELDS, AND/OR GRAYFIELDS	
2014	3,240	1,112	34.32%
2013	2,409	282	11.71%
2012	2,312	448	19.38%
2011	2,818	222	7.88%

source: Louisville Metro Government Building Permit Data, 2011-2014

NATIONAL PICTURE: MILLENNIAL HOUSING TRENDS
A majority are renters by choice



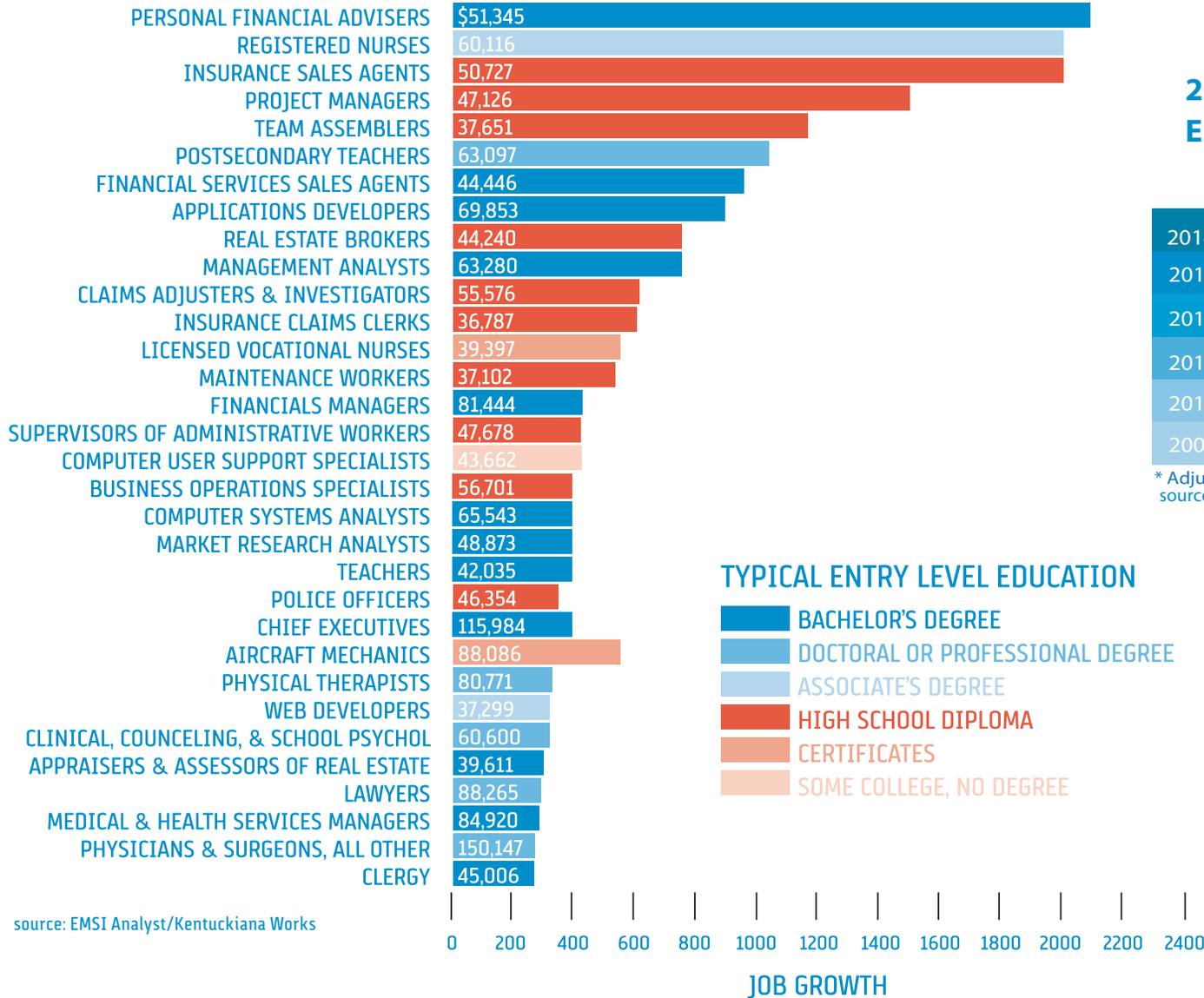
NATIONAL PICTURE: WHERE MILLENNIALS LIVE
A majority are choosing walkable places



source: Lachman, M. Leanne, and Deborah L. Brett. *Gen Y and Housing: What They Want and Where They Want It*. Washington, D.C.: Urban Land Institute, 2015.



2005-2015 LOUISVILLE MSA TOP 30 GROWING JOBS MAKING A LIVING WAGE



source: EMSI Analyst/Kentuckiana Works

2009-2014 JEFFERSON COUNTY EMPLOYMENT AND WAGES

	TOTAL EMPLOYMENT	MEDIAN ANNUAL WAGE*
2014	440,249	\$36,933
2013	431,225	\$36,564
2012	423,682	\$36,209
2011	412,661	\$35,857
2010	407,128	\$34,749
2009	408,057	\$34,465

* Adjusted for cost of living
source: US Census Bureau

TYPICAL ENTRY LEVEL EDUCATION



WHERE IS THE OPPORTUNITY?

To accommodate the desired residential and job growth, Louisville must understand and plan where that growth could occur. Planning for the location, type and character of this growth will allow Louisville to achieve the transportation options it desires.

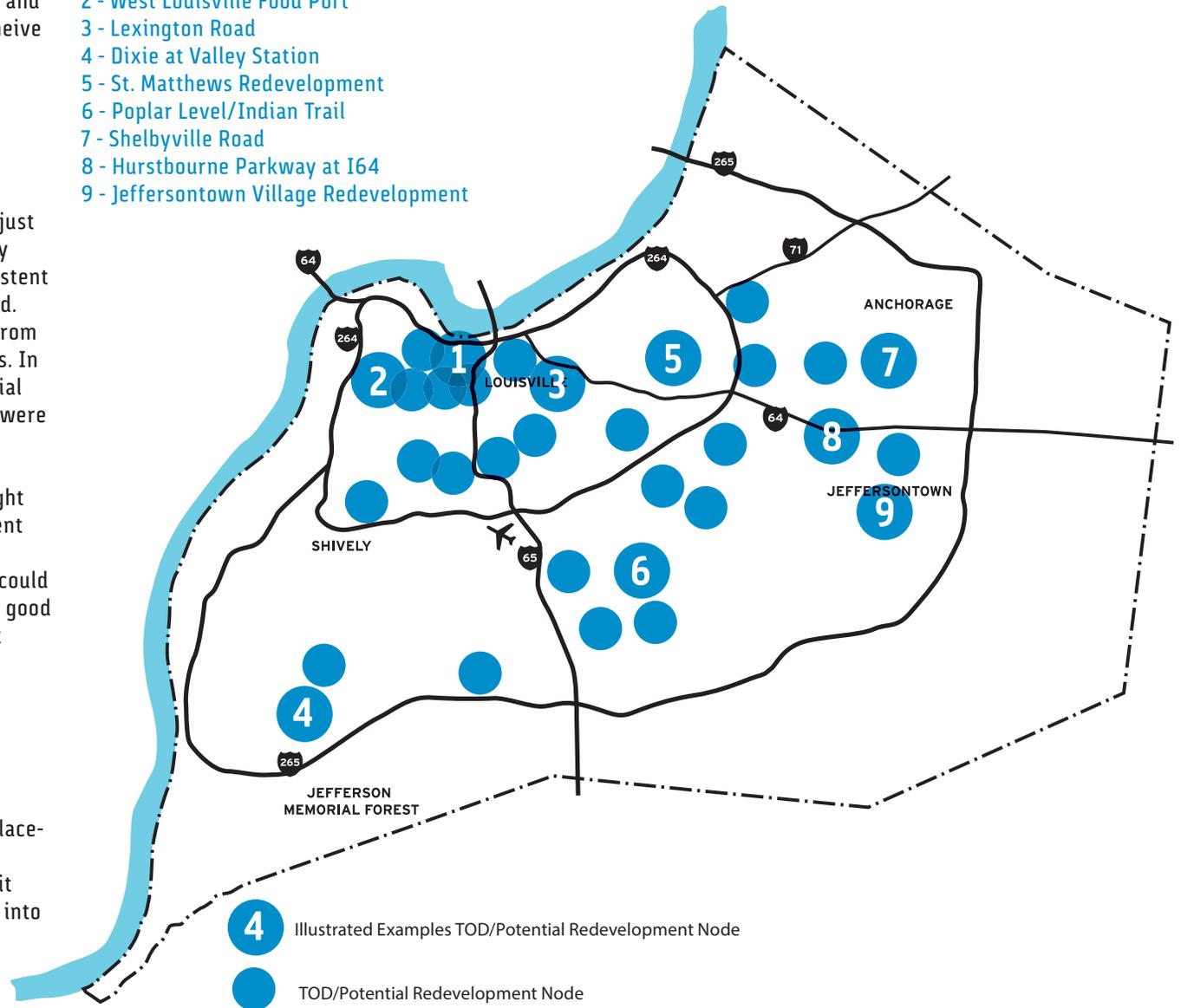
Of course dense, mixed-use infill is not appropriate everywhere. Single-family neighborhoods, parks, churches and educational institutions, for example, are places to be preserved and protected – not redeveloped. The issue of infill development is not just replacement, but also proximity. Some single-family neighborhoods clearly would be damaged if inconsistent developments in their communities were introduced. Parts of Louisville, however, would clearly benefit from the introduction of new development and amenities. In order to understand the difference, areas of potential change and areas of preservation within Louisville were mapped.

The nodes of potential change on the map to the right illustrate where some of the potential redevelopment opportunities may lie. These are properties with existing retail, industrial or multi-family uses that could redevelop over time. These nodes are located along good transit routes or within areas of great development interest. Each of these nodes has the potential for expanding the pedestrian and bicycle networks to connect to transit.

As part of the Move Louisville planning process, a number of potential redevelopment nodes were examined to determine what transit supportable, place-appropriate infill development could look like. The following illustrations offer examples of how Transit Oriented Development (TOD) could be incorporated into existing activity centers.

TOD Possibilities

- 1 - Downtown/Central Business District
- 2 - West Louisville Food Port
- 3 - Lexington Road
- 4 - Dixie at Valley Station
- 5 - St. Matthews Redevelopment
- 6 - Poplar Level/Indian Trail
- 7 - Shelbyville Road
- 8 - Hurstbourne Parkway at I64
- 9 - Jeffersontown Village Redevelopment



1 DOWNTOWN/CENTRAL BUSINESS DISTRICT

Perhaps one of the most substantial focus areas of infill development will be downtown and its surrounding edge communities. According to the 2015 Downtown Master Plan, over the next 10 years, downtown will have a demand for 1.2-2 million square feet of office space, 2,000-2,800 units of market-rate residential and \$450 million potential combined retail and restaurant sales. Whether via development of surface parking lots – the map at right illustrates the amount of land now devoted to surface parking in downtown – or redevelopment of underutilized properties, space clearly exists downtown to meet this demand.

Even more space for development could be gained by rethinking the design of some of the city's aging, over-dimensioned infrastructure. The 9th Street interchange, for example, dominates three city blocks and creates a barrier between the Central Business District and edge neighborhoods to the west. Relocation and/or reconfiguration of the 9th Street Interchange would be less intrusive to the downtown street network and would remove the current barrier effect it represents for West Louisville. Plans to extend Waterfront Park west of downtown (Phase IV) also would greatly benefit from improvements to the current infrastructure design. While much study would be needed to determine the feasibility and real cost of this effort, the major positive outcome would be the improved connectivity for the 7 blocks (shown in yellow) as well as the opportunity to develop the land currently occupied by the interchange.

The Park East Freeway removal/redevelopment project in Milwaukee is an example of how tearing down an elevated highway to free up land for development can boost economic activity and reconnect neighborhoods.



DOWNTOWN SURFACE PARKING AREA
SHOWN IN RED — AMOUNT OF LAND DEVOTED TO SURFACE PARKING
SHOWN IN BLACK — BUILDING FOOTPRINT



9TH STREET REDEVELOPMENT AREA



Image courtesy of OMA

WEST LOUISVILLE FOOD PORT

The West Louisville Food Port is a planned major investment in one of Louisville's historic industrial corridors. The project is proposed for the vacant 24-acre parcel at the northwest corner of Muhammad Ali Boulevard and 30th Street. The Food Port will bring activity to the long-vacant site and provide an opportunity to bring reinvestment to the commercial areas on Market Street, the industrial areas to the west and east and surrounding residential neighborhoods. In total, the Food Port is expected to create over 200 jobs and bring a mix of shipping, local food processing, education and retail activities. Due to the availability of transit, highway and rail access near the site, this project could bring significant investment to surrounding properties and provide a model for West Louisville revitalization.

ILLUSTRATIONS SHOW HOW AREAS
COULD DEVELOP INTO WALKABLE,
TRANSIT-SUPPORTABLE, ACTIVITY
CENTERS

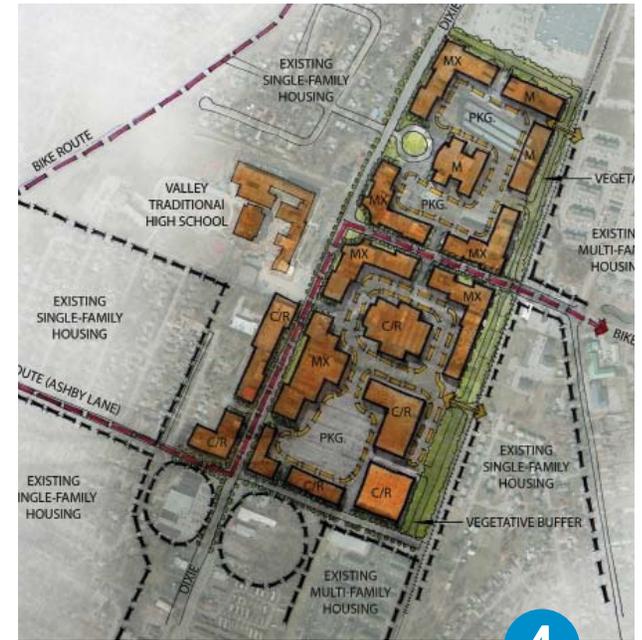


LEXINGTON ROAD

Just east of downtown, redevelopment of this vacant, industrial property on Lexington Road is beginning to happen. Former industrial tracts are under consideration for housing, offices and retail throughout this corridor. This node lends itself to a mixed-use development that functions as transit-oriented development with walkable/bikable connections. Additionally, a new public connection over Beargrass Creek linking the site from Lexington Road to Mellwood Avenue, would help to break down the super-sized block and let pedestrians, bikes and perhaps cars access the site more conveniently. Opportunities exist for connections to the Beargrass Trail and the Butchertown Greenway.

ST. MATTHEWS REDEVELOPMENT

The commercial land uses around the intersection of Westport Road and Frankfort Avenue/Shelbyville Road are already successful, but suburban-style strip buildings of this type have a limited lifespan. As the area redevelops, there will be opportunity to create a much more walkable district. Pulling buildings to the street, improving sidewalks and creating more connectivity will help the pedestrian environment. In addition, a new street network has the potential to untangle the current traffic congestion.



DIXIE AT VALLEY STATION

Dixie Highway is lined with strip shopping centers that have seen better days. These declining economic assets represent a prime opportunity to create value for property owners and the community. The redevelopment shown above moves buildings to the street, eliminates dangerous driveways, improves sidewalks and crosswalks and creates the fundamental components for transit-oriented development (medium density, mixed-uses and walkability).





POPLAR LEVEL/ INDIAN TRAIL

The neighborhoods surrounding the intersection of Poplar Level Road and Indian Trail have long needed a convenient central gathering place for shopping and interacting. The mixed-use redevelopment shown adds economic and community value and the new street connections help alleviate traffic at the Poplar Level/ Indian Trail intersection, which is one of the highest vehicle crash locations in the city. While this site is slated for a new stormwater detention basin, there are opportunities for sensitive redevelopment and this illustration can serve as an example of intersection redevelopment along Poplar Level Road and Preston Highway



SHELBYVILLE ROAD CONNECTIVITY

Knowing what the community wants when redevelopment occurs can pay large dividends. The diagram above shows a potential new network of streets in Middletown that could be created if the commercial properties are redeveloped in the future. This example provides a model for reimagining commercial corridors in suburban Louisville. These streets would be very effective in providing driving options to relieve congestion at the intersection of Shelbyville Road and Old Shelbyville Road. The redevelopment also could result in the kind of walkable, transit-ready node illustrated in many of the preceding diagrams.



HURSTBOURNE PARKWAY AT I64

Redevelopment of the area around Hurstbourne Parkway and I-64 could create the type of walkable transit node shown elsewhere. With or without redevelopment, however, a transit connection point and park and ride facility could be added to improve convenience and access to the nearby concentration of commercial and residential developments.



JEFFERSONTOWN VILLAGE REDEVELOPMENT

Bluegrass Commerce Park is a tremendous economic engine for Louisville. Yet, even here, there are opportunities for infill development. One opportunity might involve mixed-use development on the southern end of the Park, adjacent to downtown Jeffersontown. This could add multi-family homes and expand the footprint of downtown Jeffersontown and adding some key transportation connections (a bridge over the railroad tracks, bike trail along the creek, etc) could help to frame such a redevelopment.



PREMIUM TRANSIT CORRIDORS

The Move Louisville plan recommends premium transit infrastructure and service along several corridors. These transit investments would align with many of the potential infill nodes and together create opportunities for transit oriented development (TOD). The approach to developing and amenitizing some of these nodes is outlined in the previous examples.

The Market and Main Street corridors in downtown have a concentration of cultural destinations and employment clusters and a growing residential population. Move Louisville recommends that additional study be undertaken to determine the feasibility and the cost and benefit of a downtown Market/Main street car line.

Potential Street Car:
Market/Main Street

Bus Rapid Transit:
Broadway
Bardstown Road
Frankfort Ave/Shelbyville Road
Preston Hwy
Dixie Hwy



TRANSIT ORIENTED DEVELOPMENT

POTENTIAL BENEFITS

To get a sense of what outcomes might occur from a TOD/node-based development pattern, Move Louisville used the region's travel demand model to test two scenarios. The first scenario assumed that residential growth continued to happen almost exclusively at the outer edges of the region, as it has for most of the last 40 years. This scenario is the base land use assumption in place for the current KIPDA traffic model. The second scenario, recommended by Move Louisville, assumed a modest shift in the forecasted growth to focus more on infill locations supported by transit.

The more compact growth scenario showed a VMT reduction of over ½ million miles per day on the region's road network. This reduction is likely understated due to technical weighting in the region's current transportation demand model. Any reduction results in better air quality and less congestion. In Jefferson County alone, annual VMT totaled over 7 billion in 2014. The associated transit options would be well used – the modeling suggested around a 40% increase in transit ridership for the more compact growth scenario. Many of the infill nodes themselves also showed the potential for more than 10% of commute trips to be on bicycle.

More compact development creates community health benefits as well. Louisville was ranked the fifth unhealthiest city in America by the American College of Sports Medicine. Approximately 21% of Kentucky children are obese, making it the third most obese state for children in the country. TOD redevelopment promotes walking and biking, and leads to increased physical activity, lower emission rates and fewer traffic-related injuries and fatalities. Compact areas are likely to have lower rates of obesity and hypertension, regardless of gender, age, education levels, smoking and eating habits. Children in neighborhoods with access to sidewalks, parks, playgrounds or recreation/community centers had 20 to 45% lower odds of becoming obese or overweight compared to children who had no access to these amenities.

HOW WILL IT HAPPEN?

A change to a TOD pattern will not happen by accident. Proactive policies and incentives are needed. Below are three such actions:

1. A Focus On Amenities —

People who choose to move into compact locations often deal with higher housing costs, smaller spaces and less convenient parking to name a few. TODs must include amenities such as reliable transit, walkable streets and bike lanes.

Action: Prioritize investment in sidewalks, crosswalks, bike lanes and transit service in the designated station areas.

2. Development Incentives —

Louisville is fortunate to have affordable housing costs. In this market, that has meant that the cost of land and parking has put some areas out of reach for competitive redevelopment. The benefits to development of key nodes – particularly those along premium transit corridors – are such that public subsidies would be a sound investment to make these pro formas work for the private sector.

Action: Louisville Forward – the city's development agency – should use tools such as land acquisition and assembly and targeted parking development to attract investment to transit station areas.

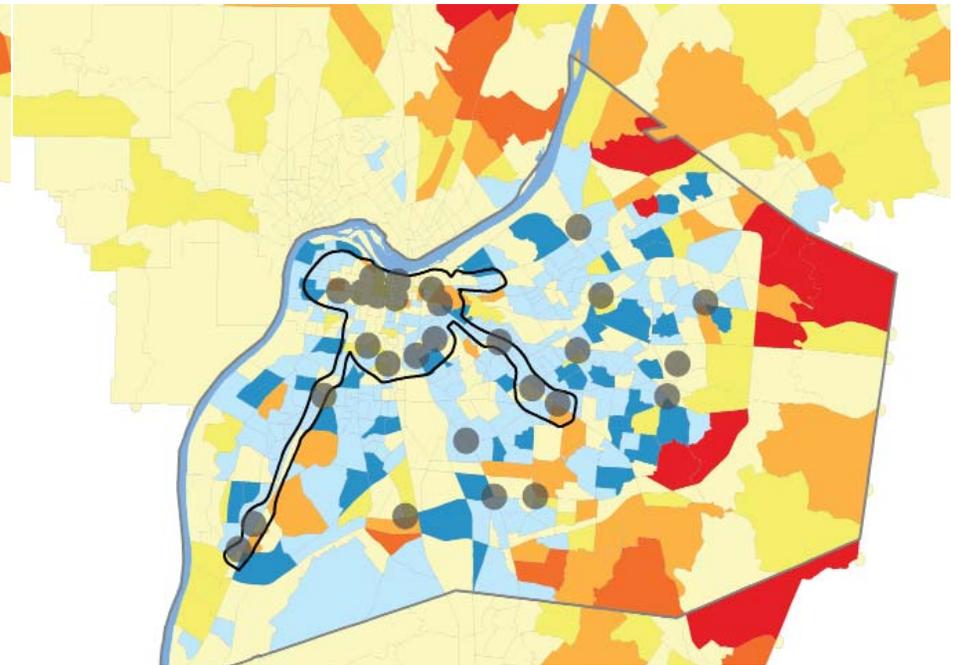
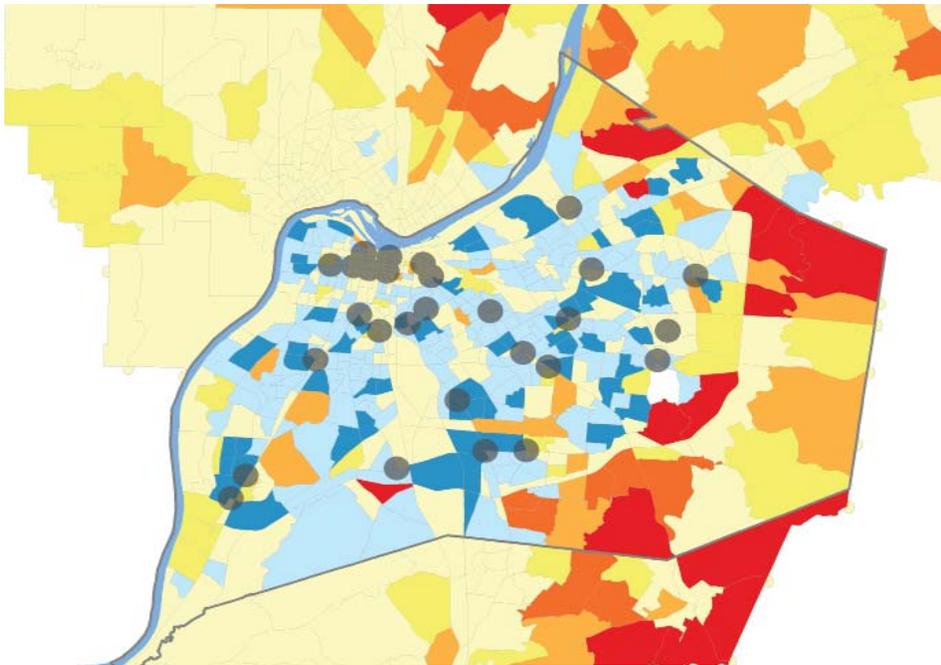
3. Entitlement Reform —

Systematic development of these infill sites is likely to stagnate if the private developers are forced to try overcoming community concerns one property at a time. Metro should take the lead on a comprehensive land use and zoning update that would work with neighborhoods to put entitlements in place – setting the table for the private investment that is needed.

Action: Update Louisville's Comprehensive Plan.

KIPDA Population Projection 2030

Move Louisville Population Projections Based Upon a Compact Growth Scenario



Legend

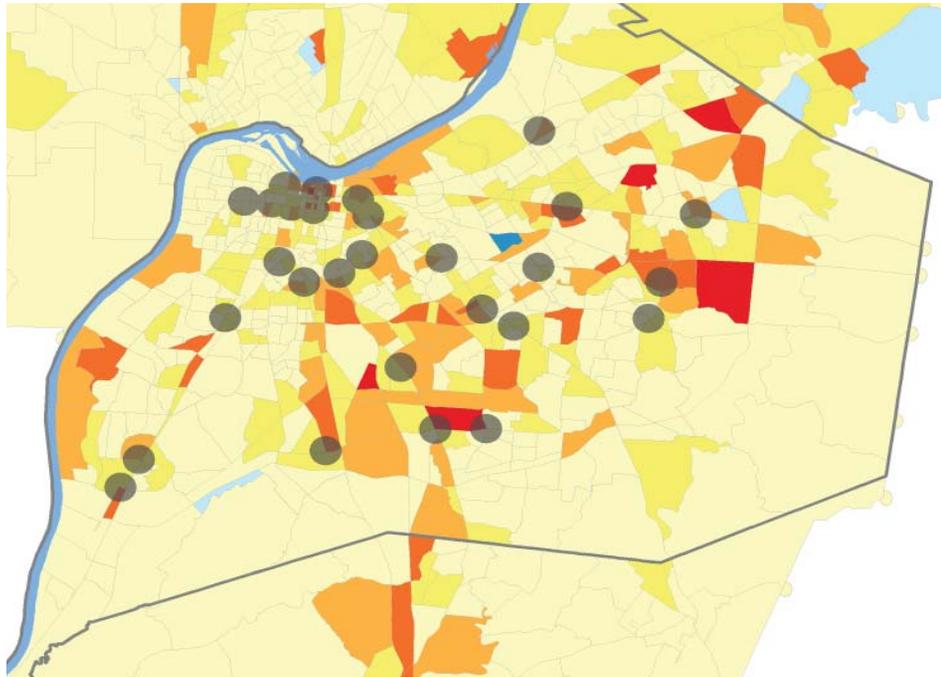


Population Change 2007-2030

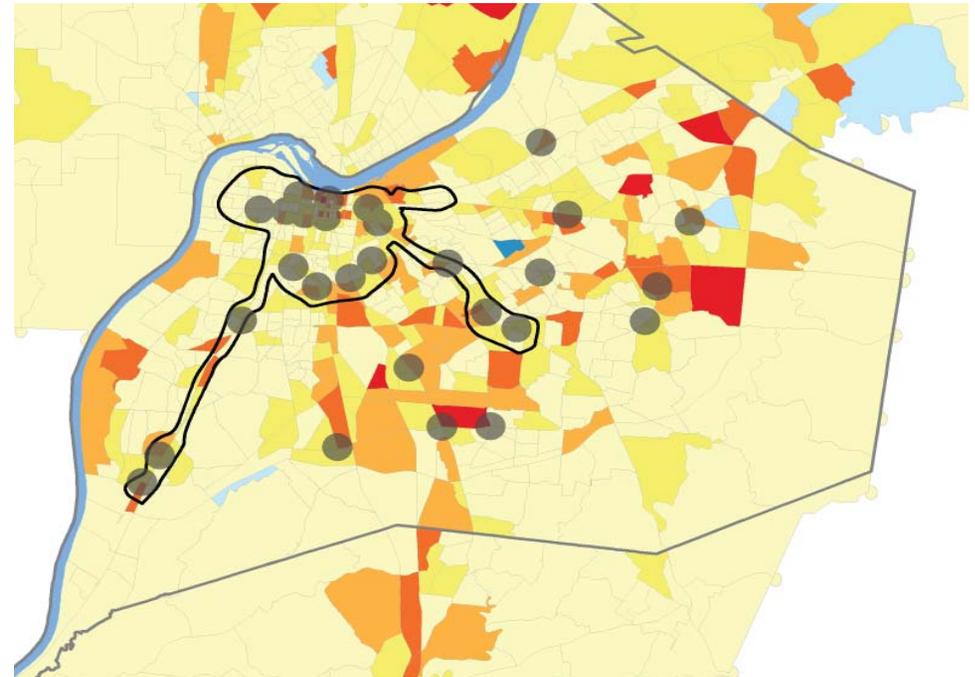
	KIPDA Projection	Compact Growth Scenario
Inside I-264	-7,076	12,296
I-264 to I-265	21,847	36,788
Outside I-265	137,195	102,896



KIPDA Employment Projection 2030



Move Louisville Employment Projections Based Upon a Compact Growth Scenario



The maps on these pages show two different ways population and employment might change between now and 2030. The KIPDA maps essentially reflect a continuation of the region's past growth patterns continuing out to the year 2030*.

The second possibility envisions what a more compact growth scenario (growth in nodes -- shown as dots on the maps -- along major corridors with access to transit and employment centers that are amenable to more density) might look like. These nodes would be walkable, transit-served centers leveraging potential investment in transit and maximizing use of existing roads and utilities infrastructure.

* - These projections are now under revision as a part of KIPDA's Horizon 2030 effort, but new projections are not yet available. The compact growth scenario assumes that Jefferson County keeps a portion of its growth within the county, adding just over 12,000 residents to the area inside the Watterson Expressway, adding almost 37,000 residents in the area between the Watterson and the Snyder Freeway, and finally adding almost 103,000 residents to the region's population outside the Snyder

Employment Forecast

- Decline of 500 or more jobs
- Decline of up to 500 jobs
- Growth of up to 201 jobs
- Growth of 200 - 500 jobs
- Growth of 501 - 1000 jobs
- Growth of 1001 - 2500 jobs
- Growth of more than 2500 jobs

CHAPTER FIVE PROJECT RECOMMENDATIONS

Why prioritize? Funding is sparse. It is imperative we prioritize the projects that maximize the effectiveness of our capital investments while also meeting the Move Louisville goals set forth by the community. Maintaining existing infrastructure and transforming the built environment while increasing connectivity, removing mobility barriers and improving safety and health are the essential elements of this strategy.

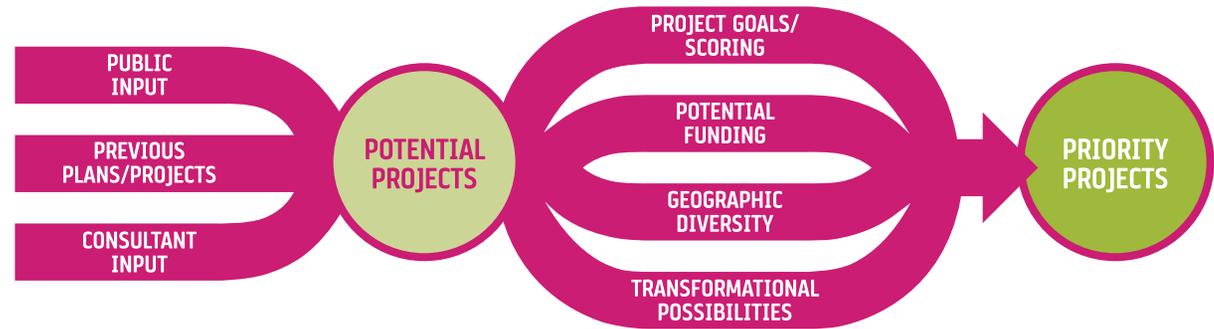
MOVE LOUISVILLE PROJECTS



Move Louisville's priority projects assume that the projects currently programmed within the region's Transportation Improvement Program (TIP) will be built and become part of the city's transportation network. It is important to note that the priority and other projects within Move do not supplant the projects programmed with SLO funds as many of these projects are already underway. Additionally, congestion and safety improvements on the region's Interstate Highways should be accomplished with state and federal funds and therefore are, in most cases, not noted as priority projects by Move Louisville.

Throughout the planning process, a large number of project ideas were considered and evaluated. Fortunately, many ideas and projects already identified in existing transportation plans can be implemented through routine maintenance. Other projects identified and programmed in the region's TIP can be modified with design details to accommodate other modes where feasible. By taking a complete streets approach to road planning and design, Louisville can begin to rethink how streets balance the movement of people and the demands of all users. The complete streets approach also serves as the framework for the priority projects identified and detailed in this chapter.

With a limited horizon and a fiscally constrained budget, the Move Louisville plan outlines a set of priority projects that will serve to catalyze Louisville's economy, transform the built environment and provide real transportation options. The following projects were identified in the Move Louisville planning process – some arose from community dialogue, some from area and project plans and others from the development community and the Move Louisville project team. The projects were evaluated based on the overall goals of the plan. Many of the identified projects address multiple objectives and provide cost-effective solutions that enhance the existing transportation assets.



PROJECT RECOMMENDATIONS

As noted earlier, throughout the Move Louisville planning process, numerous transportation projects were identified and evaluated against the plan's goals. Projects and strategies were developed, categorized and prioritized based on both the project's strength in meeting the goals and the potential availability of new funding.

Specific lists of future projects are identified by mode in the appendices of this plan. The projects are categorized by type of project – complete streets, roadway improvements, bicycle/pedestrian projects and transit projects. The projects are further categorized on a mid- and long-term basis. Their placement in an appendix will allow for regular updates to the plan's project listings, as well as provide flexibility of investments based on available funding and economic and community demands.

In addition to the priority projects, Move Louisville's policy priorities build a process that allows for enhancement and expansion projects to be brought on board as funding allows. These include small road capacity or major streetscape projects that support economic development such as the West Market and University Corridor projects.

PRIORITY PROJECT RECOMMENDATIONS

The following pages provide details for individual priority projects. The detail demonstrates how well the individual project performs against the Move Louisville goals and evaluation criteria. Projects are categorized into four broad groups based on modes and context. Those groups include:

- Premium transit corridors/ complete streets
- Regional economic development projects
- Downtown/edge neighborhood access
- Bicycle/pedestrian network

The projects are the recommended priority capital investments and are in addition to the ongoing programmatic spending, maintenance and operations discussed in other sections of this document. In the near term, these projects offer transformative potential for the city.

Project Scoring Guide

Connectivity Choices

Achieves system-wide transportation mobility for all users with appropriately spaced and sized elements for pedestrian, bicycle, transit and vehicular elements.

Improve Safety and Health

Supports health through active transportation (walking and biking) and improves user safety.

Promote Economic Growth

Improves adjoining property values and facilitates movement of goods.

Maintain Fiscal Responsibility

Considers appropriate sizing of facilities with respect to pavement width and associated potential for cost savings in right-of-way acquisition, construction and maintenance.

Assure Environmental Responsibility

Assures projects are compatible with their setting and preserve scenic, aesthetic, historic and environmental resources.

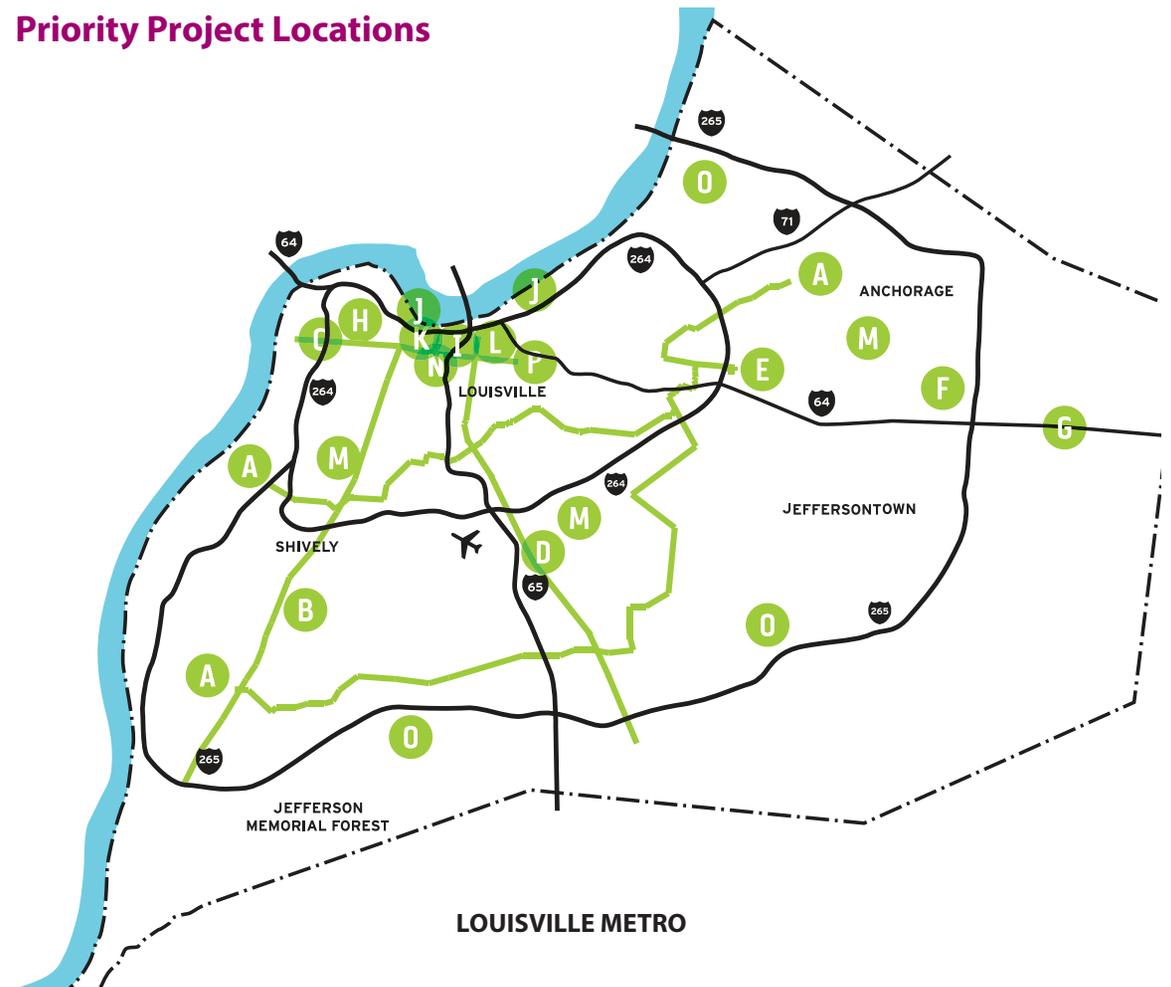
Promote Social Equity

Provides safe, comfortable and convenient access to employment, community destinations and public places regardless of age, ability, income, race or ethnicity.

Enhance Neighborhoods

Integrates community objectives and values relating to compatibility, livability and sense of place.

Priority Project Locations



- | | | |
|-------------------------------------|---------------------------------|-----------------------------------|
| A. East/West Transit Corridors | G. East Louisville Connectivity | L. Main St/Story Ave Redesign |
| B. Transforming Dixie Highway | H. West Louisville Connectivity | M. Sidewalk Connectivity |
| C. Broadway Complete Street | I. Downtown/Edge | N. Central Bicycle Network |
| D. Preston Corridor Premium Transit | J. River Road Complete Street | O. Louisville Loop |
| E. Oxmoor Farm Bridges & Access | K. Reimagine 9th Street | P. Lexington Road Complete Street |
| F. Urton Lane Corridor | | |

The planning, design, and construction schedule for each project will be driven by many factors including funding availability, coordination with other construction projects, and urgent safety and maintenance needs. Costs may vary depending on project complexity, cost of materials, extent of improvements and other factors. It is important to note that stated costs are planning level estimates and will likely change as project scopes are refined.

A

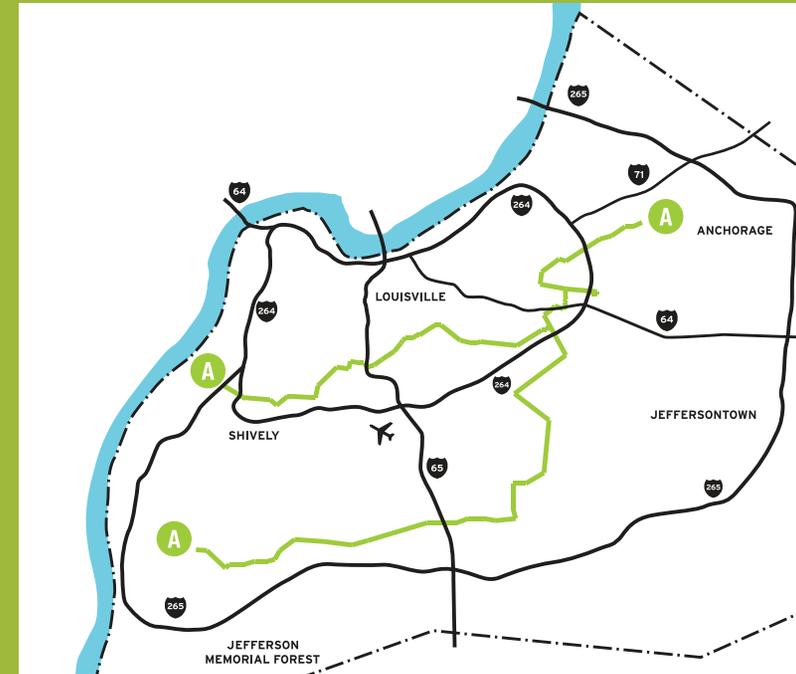
East/West Transit Corridors

A clear east-west/cross-town transit connection was a top request during the Move Louisville process and a top need for citizens and employers. A cross-town route connecting Dixie Highway to Westport Road has the potential to connect major work places around the city – from Riverport to UPS and from the Renaissance South Business Park to the Bluegrass Commerce Center – allowing easier and faster access from residential neighborhoods to job centers. Two major routes are proposed, one just inside the Watterson Expressway and one just inside the Snyder Freeway. Improved roadway connections, stop improvements and perhaps even new rights-of-way will be needed to implement clear and functional transit routes. Additional funds will be needed to cover the operational costs of these new and improved routes.



Project Scores 28.0/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 4.5/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 3.0/5.0
Assure Environmental Responsibility 4.0/5.0
Promote Social Equity 5.0/5.0
Enhance Neighborhoods 4.0/5.0



Preliminary Cost Estimate

\$500,000 (capital)
\$5.17 Million (annual operating)

Potential Funding Sources

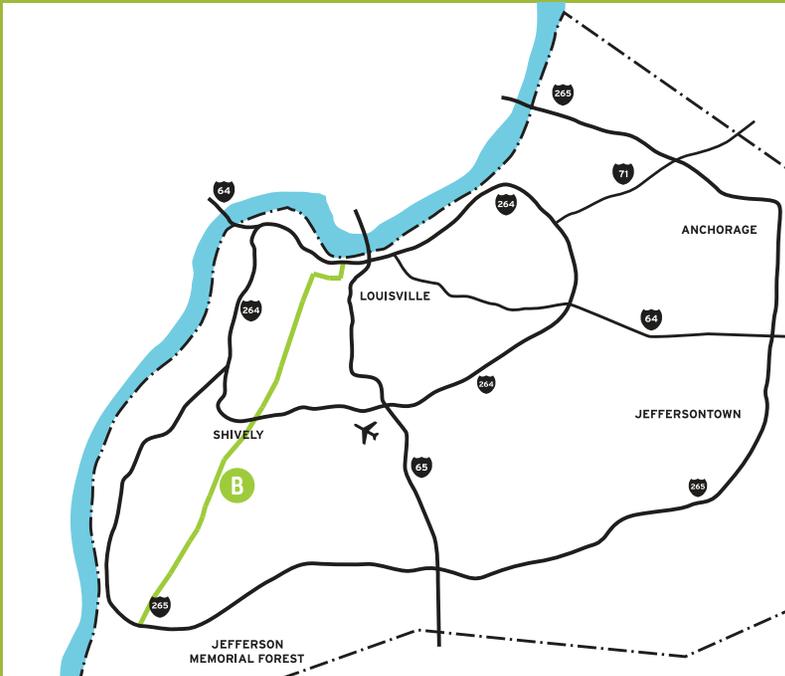
This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

Project Scores 28.5/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 4.0/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 4.0/5.0
Assure Environmental Responsibility 4.0/5.0
Promote Social Equity 5.0/5.0
Enhance Neighborhoods 4.0/5.0



Transforming Dixie Highway Bus Rapid Transit (BRT)

Dixie Highway is one of Louisville's major economic corridors and one of the most densely traveled, carrying the highest number of transit users in the system (when the Dixie-Preston route is considered as a whole). The corridor also is one of Louisville's most dysfunctional and dangerous, with a fatal crash rate that is over 3 times the rate of similar roadways nation-wide. A redesign and rebuild is necessary to create a safe, efficient and economically successful multi-modal corridor. The state has funded the first 2 phases of improvements to the corridors, and Metro received a US Department of Transportation TIGER grant for assistance in the installation of a BRT line. Additional funds will be needed to cover the operational costs of these new and improved routes.



Preliminary Cost Estimate

\$40 Million (capital)
\$2.8 Million (annual operating)

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity

C

Broadway Complete Street Bus Rapid Transit (BRT)

Move Louisville recommends a complete street retrofit of Broadway from Shawnee Park to Baxter Avenue to include fixed guide-way BRT, two-way cycle track and pedestrian safety improvements. The project scope should include the following:

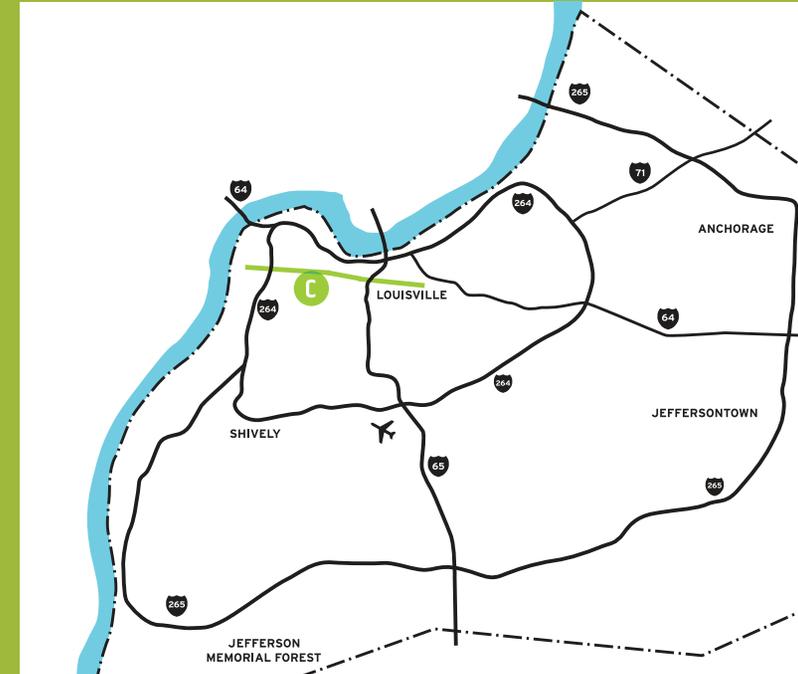
- +Changed roadway design to increase transit speed, reliability and efficiency
- +Enhanced stations and rider amenities to improve the transit user experience
- +Enhanced bicycle and pedestrian access to frequent high-capacity transit services
- +Operational plan including extension of BRT line southeast on Bardstown Road

Given that Broadway is the location of the Kentucky Derby Parade, future plans should coordinate with the Kentucky Derby Festival.



Project Scores 30.0/35.0

- Connectivity Choices 3.5/5.0
- Improve Safety and Health 4.5/5.0
- Promote Economic Growth 4.5/5.0
- Maintain Fiscal Responsibility 3.0/5.0
- Assure Environmental Responsibility 5.0/5.0
- Promote Social Equity 5.0/5.0
- Enhance Neighborhoods 4.5/5.0



Preliminary Cost Estimate

\$140 Million (capital)
\$7.6 Million (annual operating)

Potential Funding Sources

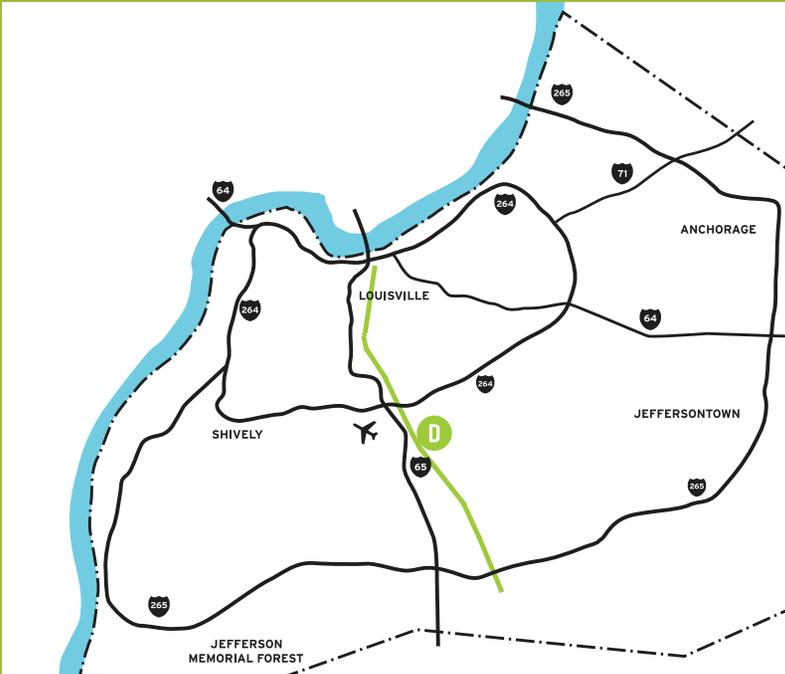
This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Community Support
- Geographic Equity

Project Scores 30.0/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 4.0/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 4.0/5.0
Assure Environmental Responsibility 5.0/5.0
Promote Social Equity 5.0/5.0
Enhance Neighborhoods 4.5/5.0



Preliminary Cost Estimate

\$9.6 Million (capital)
\$5.13 Million (annual operating)

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

D

Preston Corridor Premium Transit

While the land uses along Preston are not yet fully supportive of premium transit, much of the Preston corridor has the fundamentals for infill development that could allow it to transform over time into a true premium transit corridor. In the short term, improving frequency and running times through approaches such as limited peak hour bus lanes and consolidated stops will help to maximize transit ridership and improve choice along the corridor.



E

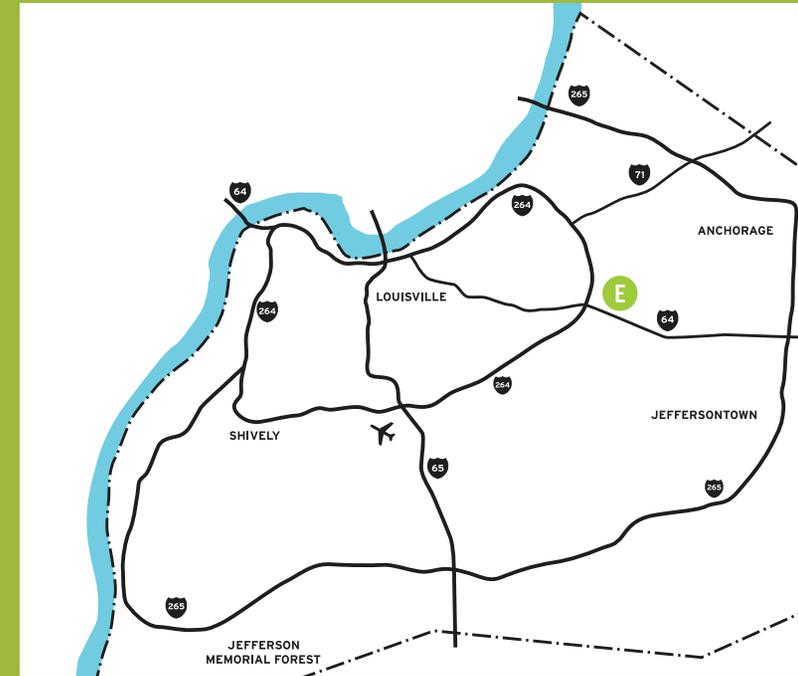
Oxmoor Farm Bridges and Access

Transportation infrastructure is the key to unlocking this ideally situated undeveloped parcel of land. With multi-modal streets and a planned mixed-use, multi-generational dense development, this site – the largest of its kind in the city – could be transformed into a district of superior urban quality, livability and accessibility. New bridges and roads also have the potential to ease congestion in the area and provide new connectivity points. A mixed-use development plan has been approved for the site. Public investment in the infrastructure for this opportunity should be linked to significant density and a mix of uses.



Project Scores 24.5/35.0

- Connectivity Choices 4.5/5.0
- Improve Safety and Health 4.0/5.0
- Promote Economic Growth 4.0/5.0
- Maintain Fiscal Responsibility 3.5/5.0
- Assure Environmental Responsibility 2.5/5.0
- Promote Social Equity 3.5/5.0
- Enhance Neighborhoods 2.5/5.0



Preliminary Cost Estimate
\$54 Million

Potential Funding Sources

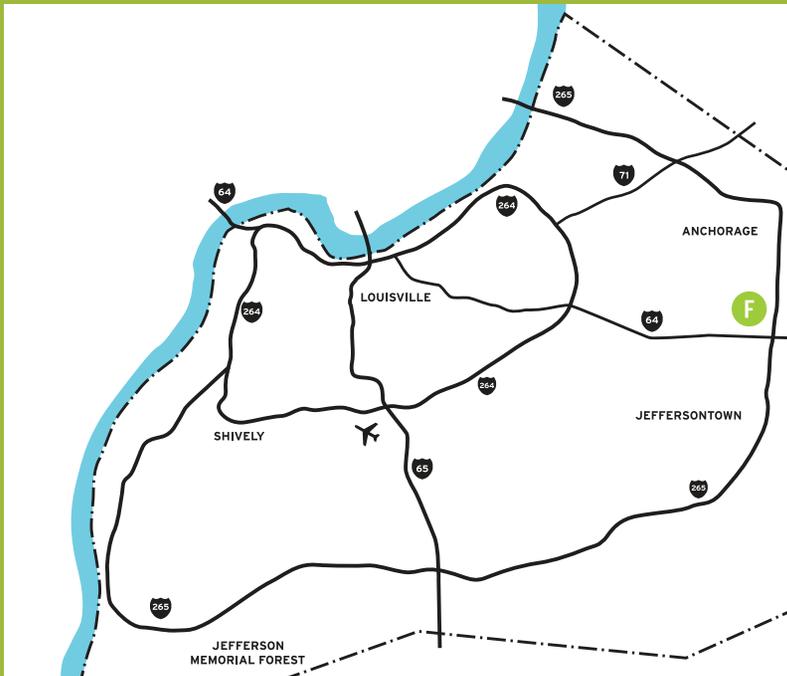
This project is intended to be funded through grants, private development and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Community Support
- Geographic Equity

Project Scores 23.0/35.0

Connectivity Choices 4.5/5.0
Improve Safety and Health 3.5/5.0
Promote Economic Growth 3.0/5.0
Maintain Fiscal Responsibility 3.0/5.0
Assure Environmental Responsibility 2.5/5.0
Promote Social Equity 3.5/5.0
Enhance Neighborhoods 3.0/5.0



Urton Lane Corridor Improvements

Completing the planned extension of Urton Lane from Middletown to Taylorsville Road, will provide a long-needed local thoroughfare expediting the movement of goods and services and facilitating shorter and more efficient commutes for residents working and doing business in the area.



Preliminary Cost Estimate

\$40 Million

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support

G

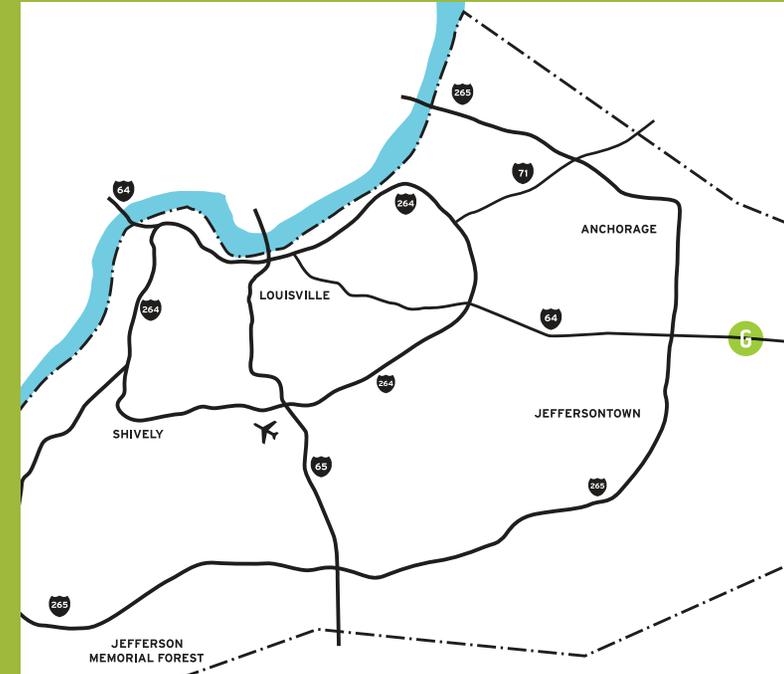
East Louisville Connectivity

The rapidly-developing area around the newly opened Parklands of Floyds Fork will bring network connectivity issues. Transportation should be addressed holistically to accommodate new development and all modes of travel where appropriate. It is anticipated that many of the larger projects will be focused on Interstate improvements. For example, a new interchange and connector road from KY 148 to US 60 (Shelbyville Road) on I-64, will greatly increase accessibility. Strategically improving existing rights of way and building a limited number of new connector roads will accommodate access to the Parklands of Floyds Fork and adjacent areas.



Project Scores 22.5/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 3.5/5.0
Promote Economic Growth 3.5/5.0
Maintain Fiscal Responsibility 3.0/5.0
Assure Environmental Responsibility 2.5/5.0
Promote Social Equity 3.0/5.0
Enhance Neighborhoods 3.5/5.0



Preliminary Cost Estimate

\$160 Million

Potential Funding Sources

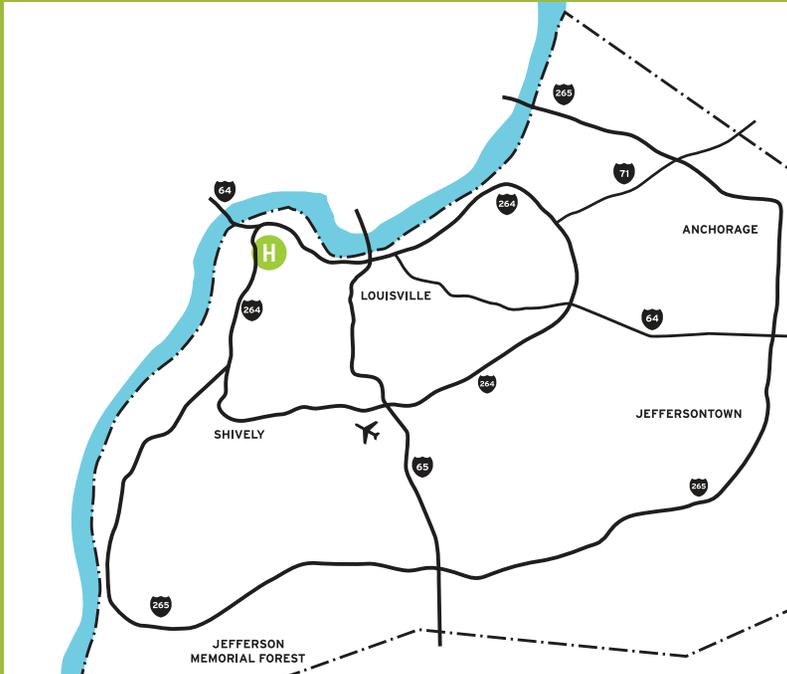
This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Community Support

Project Scores 29.0/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 4.5/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 4.0/5.0
Assure Environmental Responsibility 4.5/5.0
Promote Social Equity 4.5/5.0
Enhance Neighborhoods 4.0/5.0



West Louisville Connectivity

Conversion of one-way streets to two-way streets and improved maintenance of the street, bicycle and pedestrian networks will support reinvestment throughout West Louisville. Investments along Muhammad Ali Boulevard and Market Street near the West Louisville Food Port provide an example of how transportation infrastructure can support private development.



Image courtesy of OMA



Preliminary Cost Estimate

\$32 Million

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

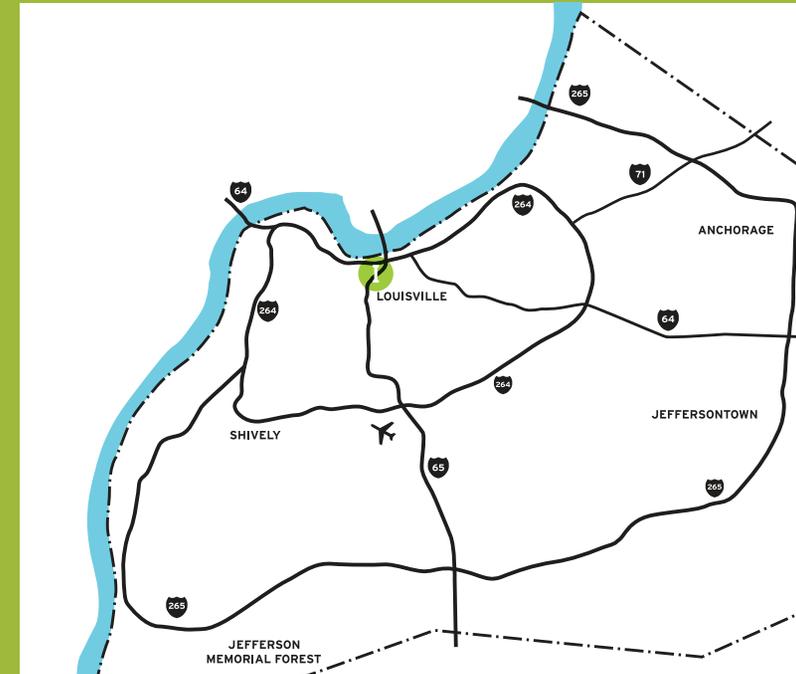
Downtown/Edge Neighborhood Two-Way Streets

Louisville's downtown street network should be converted from one-way to two-way to increase the livability of the affected neighborhoods for both residents and visitors. Studies show that regardless of the size of the city, a one-way to two-way street conversion increases the efficiency of downtown networks, enhances economic activity and creates more walkable neighborhoods. The related conversion to two-way movement of Mellwood Avenue/Story Avenue and of 15th Street/16th Street - each made one way decades ago during construction of I-64 - will further support revitalization in the edge neighborhoods of Butchertown, Smoketown, Portland and Russell.



Project Scores 26.5/35.0

Connectivity Choices 3.0/5.0
 Improve Safety and Health 3.0/5.0
 Promote Economic Growth 3.5/5.0
 Maintain Fiscal Responsibility 5.0/5.0
 Assure Environmental Responsibility 4.5/5.0
 Promote Social Equity 3.5/5.0
 Enhance Neighborhoods 4.0/5.0



Preliminary Cost Estimate
 \$6.5 Million

Potential Funding Sources

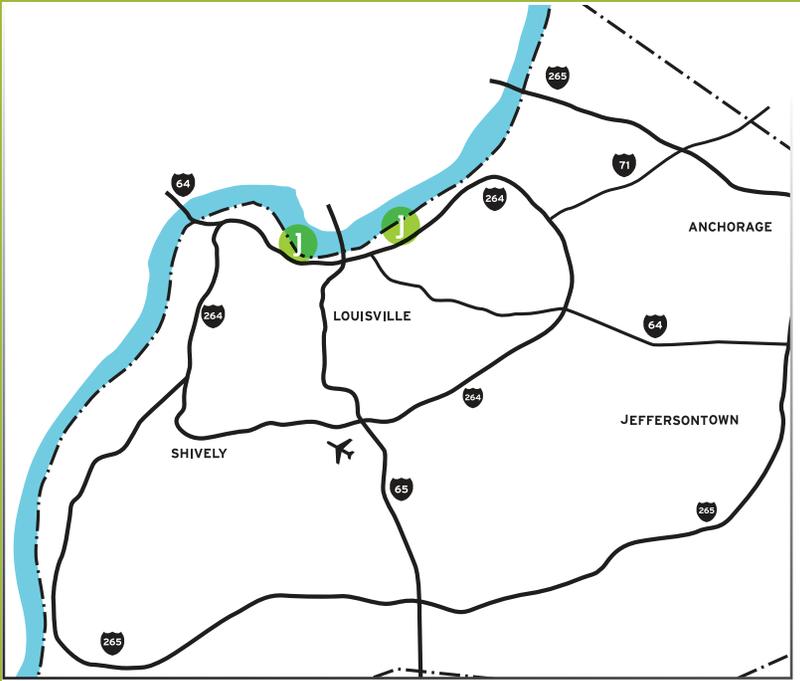
This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

Project Scores 25.5/35.0

Connectivity Choices 4.0/5.0
Improve Safety and Health 4.0/5.0
Promote Economic Growth 3.0/5.0
Maintain Fiscal Responsibility 3.5/5.0
Assure Environmental Responsibility 4.0/5.0
Promote Social Equity 4.0/5.0
Enhance Neighborhoods 3.0/5.0



Preliminary Cost Estimate

\$36 Million

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance



River Road Complete Street/Extension

Extending River Road westward from its current terminus at 7th Street will provide connections between east Louisville/downtown and the Portland and Russell neighborhoods, and the future Waterfront Park Phase IV. Improvements to the existing portion of River Road need to make the road safer for all modes of travel.



K

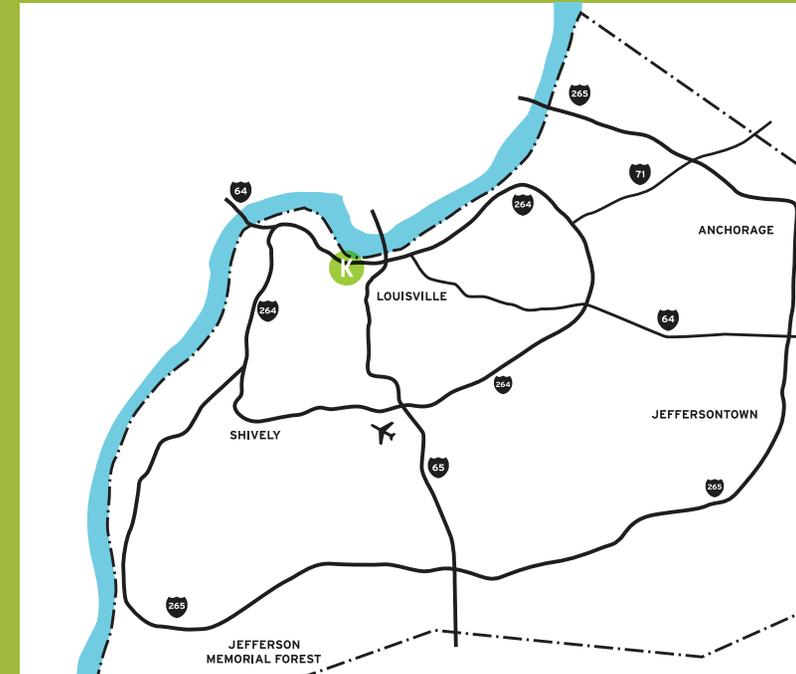
Reimagine Ninth Street

The Ninth Street and the I-64/Ninth Street Interchange create a wall between downtown and the Russell and Portland neighborhoods. Reimagining the Ninth Street corridor as a true urban boulevard will preserve access to downtown Louisville and West Louisville while potentially creating nearly 10 blocks of development opportunities within and near the over-dimensioned footprint of the existing interchange and redevelop opportunities throughout the corridor.



Project Scores 23.5/35.0

Connectivity Choices 3.0/5.0
Improve Safety and Health 3.0/5.0
Promote Economic Growth 3.0/5.0
Maintain Fiscal Responsibility 2.5/5.0
Assure Environmental Responsibility 5.0/5.0
Promote Social Equity 3.5/5.0
Enhance Neighborhoods 3.5/5.0



Preliminary Cost Estimate
\$30 Million

Potential Funding Sources

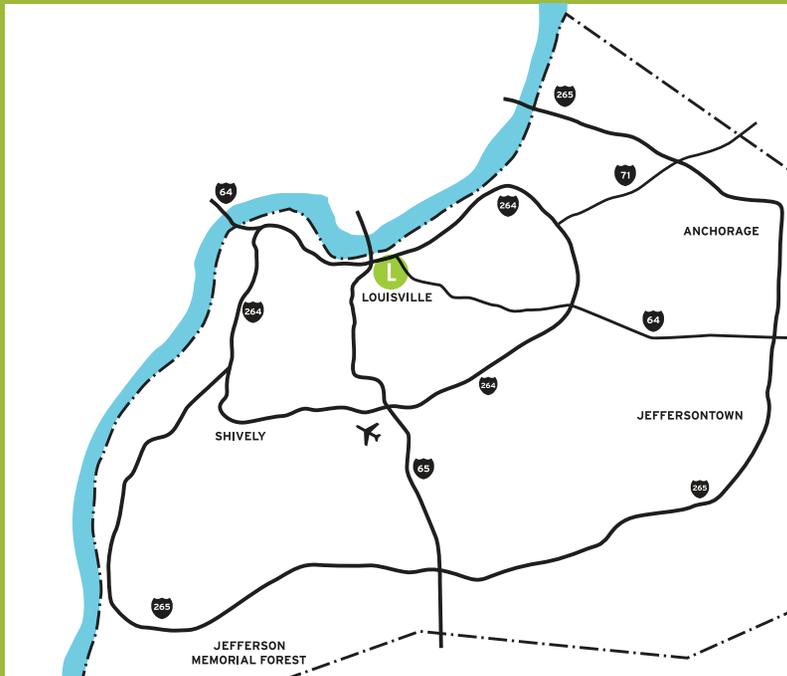
This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

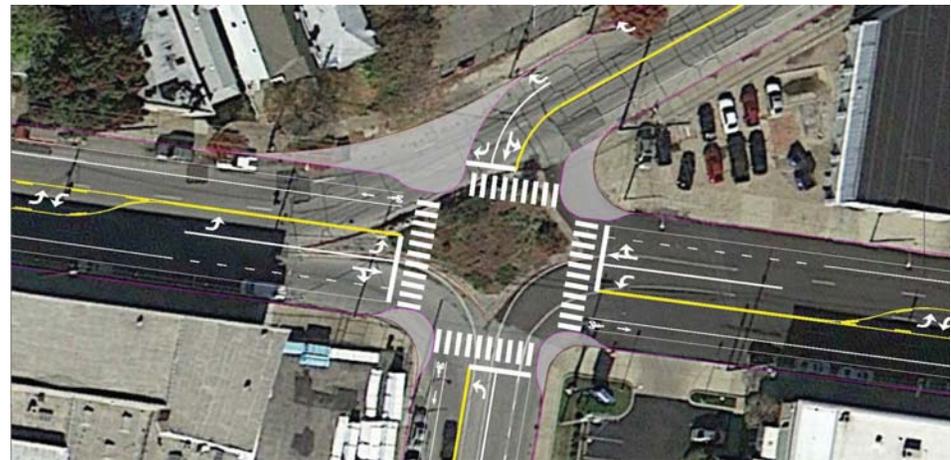
Project Scores 27.0/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 3.5/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 3.5/5.0
Assure Environmental Responsibility 4.5/5.0
Promote Social Equity 4.0/5.0
Enhance Neighborhoods 4.0/5.0



Main Street/Story Avenue Intersection Redesign

The eastern terminus of Main Street is oddly designed, difficult to understand and unsafe for pedestrians. The reconstruction of the intersection at Story Avenue, Main Street and Baxter Avenue will improve safety and support the two-way operation of downtown streets. The project also supports economic development in the Butchertown, Phoenix Hill and NuLu areas.



Preliminary Cost Estimate

\$3.5 Million

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

M

Improved Sidewalk Connectivity

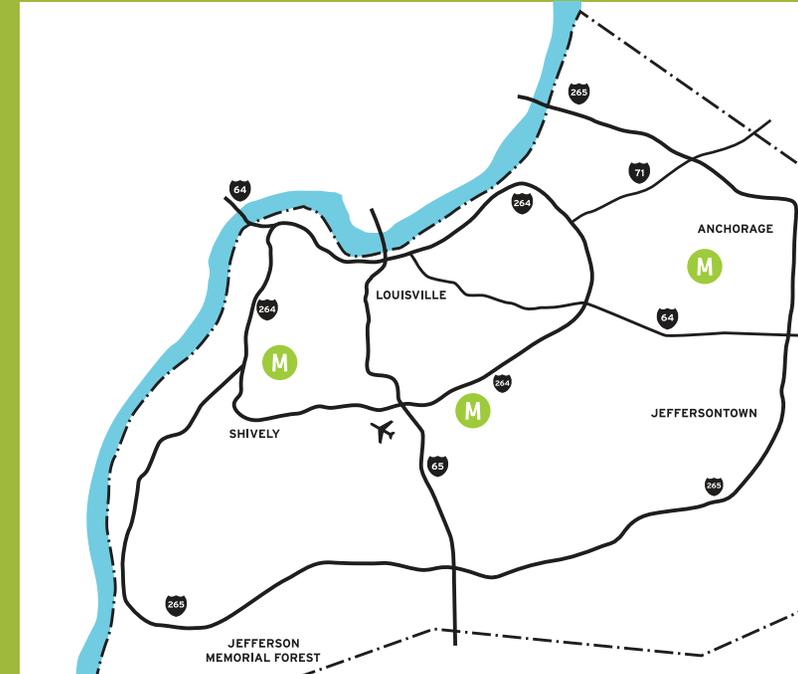
Sidewalks are the building blocks of an effective pedestrian network. There are currently more than 2,000 miles of sidewalks in Louisville Metro, yet many areas in the city do not have sidewalks at all. Metro is committed to increasing the connectivity of sidewalks by adding 150 miles of new sidewalks along corridors with high pedestrian demand. Examples of corridors include Dixie Highway, Preston Highway and Newburg Road



Current Conditions on Dixie Highway

Project Scores 28.0/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 4.0/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 4.5/5.0
Assure Environmental Responsibility 3.0/5.0
Promote Social Equity 5.0/5.0
Enhance Neighborhoods 4.0/5.0



Preliminary Cost Estimate

\$75 Million

Potential Funding Sources

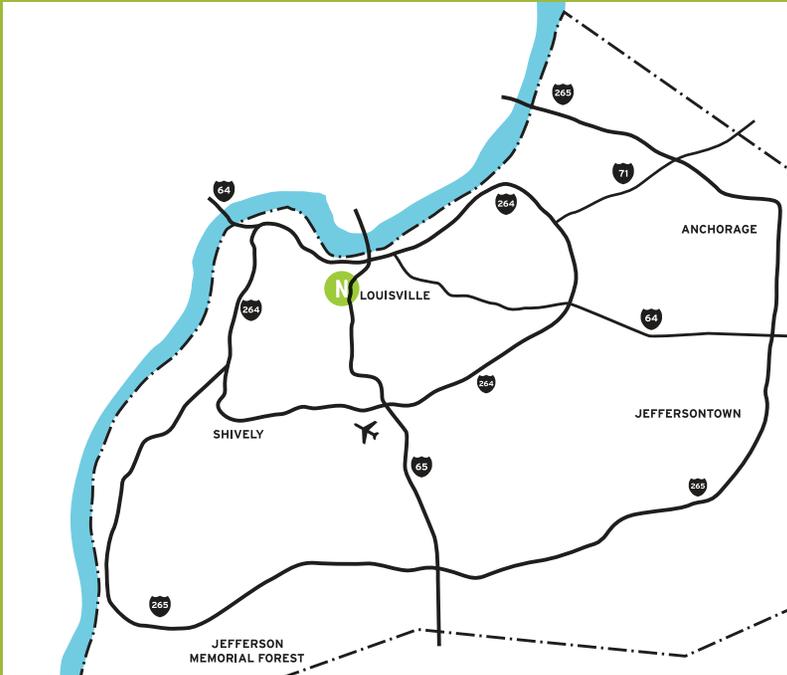
This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

Project Scores 29.0/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 4.5/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 4.0/5.0
Assure Environmental Responsibility 4.5/5.0
Promote Social Equity 4.5/5.0
Enhance Neighborhoods 4.0/5.0



Central Bicycle Network

Reducing VMT, increasing the use of alternative transportation modes and achieving the corresponding health improvements requires providing more options for short trips. Added to the goal of reduced VMT, Louisville residents expressed a desire to get around the city by bike. A network of extensive, yet inexpensive and relatively easy-to-implement bike facilities - connected to transit - in the downtown and the central neighborhoods is a logical first step. A strong, connected core network will also support the success of the city's bike share program.



Downtown Louisville

Preliminary Cost Estimate

\$2.5 Million

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

O

Louisville Loop

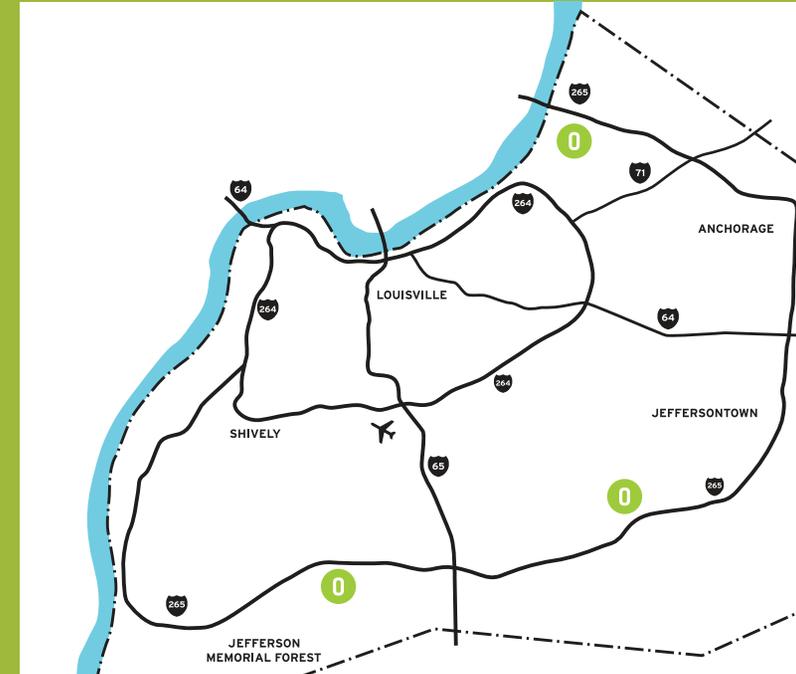
The Louisville Loop is a shared-use path system of more than 100 miles around Louisville Metro that will connect residents and visitors to parks, jobs, transit, schools and other destinations. The Loop network will also include connections via the Olmsted Parkways and other connecting trails. By early 2016, approximately 50 miles of the Loop has been completed. However, additional funding is needed to design and build approximately 65 more miles.



Louisville Loop at the Parklands at Floyds Fork

Project Scores 27.0/35.0

Connectivity Choices 4.0/5.0
Improve Safety and Health 4.5/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 3.5/5.0
Assure Environmental Responsibility 3.5/5.0
Promote Social Equity 4.0/5.0
Enhance Neighborhoods 3.5/5.0



Preliminary Cost Estimate
\$130 Million

Potential Funding Sources

This project is intended to be funded through grants and local sources, including private funding in some circumstances.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance

Project Scores 27.0/35.0

Connectivity Choices 3.5/5.0
Improve Safety and Health 4.5/5.0
Promote Economic Growth 4.0/5.0
Maintain Fiscal Responsibility 3.5/5.0
Assure Environmental Responsibility 4.0/5.0
Promote Social Equity 3.5/5.0
Enhance Neighborhoods 4.0/5.0



Lexington Road Complete Street

Reconfiguring Lexington Road as a complete street to address safety issues will improve efficiency and enhances future redevelopment opportunities.



Preliminary Cost Estimate

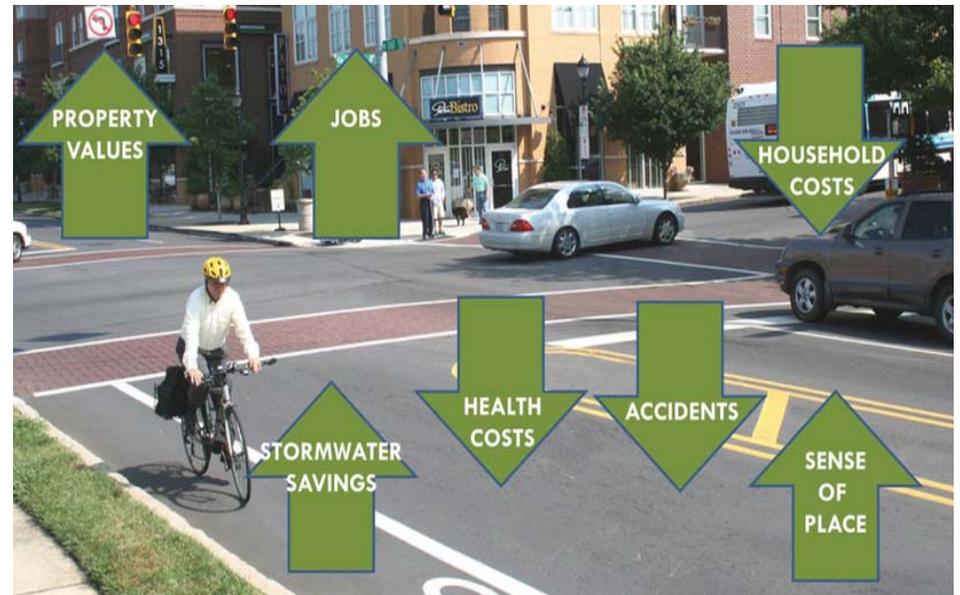
\$2.1 Million

Potential Funding Sources

This project is intended to be funded through grants and local sources.

Qualitative Measures

- Existing Commitment
- Leveraging Opportunities
- Funding Availability
- Community Support
- Geographic Equity
- Major Maintenance Cost Avoidance





HOW WILL OTHER PROJECTS BE CONSIDERED?

There were a considerable number of projects that were reviewed for Move Louisville and not every one can be a priority for the community. However, cities' needs shift over time and this plan must accommodate changing desires. Cost reductions in programmed projects and shifts in economic conditions could make funding available for the other projects considered during the Move Louisville process. As funding becomes available, these projects will be re-evaluated based on the goals established by Move Louisville. The projects that best meet these goals will be funded first.

HOW WILL NEW PROJECTS BE ADDED?

Move Louisville assumes that project priorities will change in the coming years as market demand shifts, funding streams ebb and flow and community needs change. It is recommended that a simplified process to update the work program be developed with the following basic steps:

- › Set a schedule for a periodic update every 2 years using community engagement.
- › Identify new, modified project ideas that have emerged since the last update.
- › Use the Move Louisville evaluation metrics to measure the relative performance of the new candidates.
- › Evaluate the upcoming project action plan to identify the right places for new, high-performing projects to be added to the regional TIP.

CHAPTER SIX

POLICIES AND IMPLEMENTATION

Transportation shapes our cities. Louisville's investment in the car as the primary mode of transport over the last century has resulted in a car-centric design that while efficient and functional, limits citizens' mobility choices. The number of vehicular miles traveled contributes directly to poor air quality, which limit lifestyle choices and lead to poor health outcomes. Strategic policies must shape and guide Louisville's transportation investments to meet existing needs, anticipate the future demands of its users and ensure long-term sustainability and high quality of life.



STRATEGIC POLICY INITIATIVES

To accomplish the 7 adopted goals for Move Louisville and achieve the overall goal of reducing VMT, 8 policy initiatives were identified as the most important and impactful:

- ▶ Shift funding allocations and increase funding to build and maintain a city-wide transportation system that supports the mobility needs of the entire community
- ▶ Streamline transit service on key corridors
- ▶ Set policy on preferred truck/freight routes
- ▶ Make complete street design principles the norm
- ▶ Manage parking efficiency by matching supply to usage, reducing the downtown demand
- ▶ Focus decision-making on high-capacity, people-moving corridors
- ▶ Embrace smart mobility to ease congestion
- ▶ Consider transit a catalyst for infill development

1

Shift Funding Allocations and Increase Funding

Move Louisville recommends a shift and increase in local and regional transportation spending. The new funding model seeks to balance maintenance and transportation needs with our local quality of life-centered economic development strategy. Although the shift in allocations will be gradual over the next 5 to 10 years, the change can have a profound result when invested purposefully.

Most Louisvillians get around by car, and that is expected to be the case for the foreseeable future. It therefore follows that the majority of spending should be dedicated to the maintenance and preservation of our roads, bridges and sidewalks. However, through the Vision and Move Louisville processes citizens expressed an desire for mobility choice. To provide these choices, Louisville must prioritize and fund alternative modes of travel.

Transit is underfunded for a city that desires real options. The plan's recommendations for several "premium" transit corridors cannot be constructed or operated at current transit funding levels. If Louisville is to take the next step and remain competitive with peer cities that are making strategic and extensive investments in their transportation networks, a new and sustainable source of funding for transit must be identified.

However, it takes relatively few dollars to make significant progress in establishing robust bike and pedestrian infrastructure. Today, Louisville Metro's overall spending on bike infrastructure is adequate. Current spending levels on bike and pedestrian facilities are due mostly to the design and construction of the Louisville Loop and an

emerging shared-use path system. It is recommended that substantial funding on bike and pedestrian infrastructure continue, even after the Loop is completed, to develop a connected shared-use path network throughout the city.

CURRENT INFRASTRUCTURE SPENDING

Currently, the majority of the region's transportation dollars are allocated to roadway capacity projects. However, expanding the system increases our current and future maintenance costs. Our transportation assets, such as signs and signals, pavements, bridges, sidewalks and trails are deteriorating.

Annually, Louisville, with funds from its state and federal partners, appropriates an average of \$14 million for capital transportation projects and initiatives. This appropriation excludes project-related bond issuances and does not reflect the pending large road capacity projects in the region's TIP. For planning purposes, it assumed that \$14 million will be the annual amount going forward for capital transportation projects if no changes are made.

Addressing existing maintenance needs will be crucial to supporting a multimodal transportation network. The following are the most critical needs:

▶ **STREETS** - Deferred street maintenance costs compound, eventually requiring expensive replacement rather than repair. Addressing existing maintenance needs will be crucial to supporting a multimodal transportation network.

▶ **SIDEWALK FUNDING GAP** - Since 2009, Metro has taken on the responsibility of sidewalk maintenance. This obligation must be funded if we are serious about providing transportation options. Funding for sidewalks has increased greatly in the last 2 years.

▶ **BRIDGES** - Throughout the US, bridge infrastructure has been deteriorating. A failing bridge can cut off the effectiveness of large parts of the network.

▶ **BUSES** - Old buses pollute more and are more expensive to fuel and maintain. Funding appropriate replacement of the fleet is a sound long-term investment.

Recommended Infrastructure Spending

Meeting the Move Louisville goals requires a substantial investment in maintaining the operational functions and physical infrastructure of the transportation system. Move Louisville recommends a funding allocation model that tackles the region's current maintenance deficit over the next 20 years, builds the priority/transformational projects in the same time period, and allows for enhancement and expansion projects to be brought on board as funding allows. These recommendations represent a significant shift away from road capacity projects and seek to improve system operations and enhance transit and active transportation modes.

Move Louisville identifies \$2.7 billion in maintenance needs and transportation projects. These costs have two primary assumptions: project costs were developed with planning level estimates and are expressed in current dollars without escalators.

IDENTIFIED TRANSPORTATION COSTS

➤ Maintenance	
Backlog	\$288 million
On-going	\$280 million
➤ Move Louisville Projects	
Priority Projects	\$762 million
Other Projects	\$1.4 billion
➤ Total Identified Costs	\$2.7 billion

Move Louisville's recommended top priorities are system preservation (maintenance) and completing the 16 priority projects that will be most transformational. It is also recommended that funds be reserved each year for "other" projects identified by Move Louisville and any new projects that may arise as the city continues to grow. It would not be feasible to construct every project identified in the appendix over the next 20 years. To deliver the necessary maintenance and priority projects, it is recommended that project management capacity be enhanced. In total, the plan recommends prioritizing \$1.39 billion (\$69.7 million

annually over 20 years) in capital expenditures of the \$2.7 billion to upgrade Metro's transportation network and built environment.

Maintenance of infrastructure is critical to achieving a long service life of transportation assets. Investment to maintain these assets is more cost effective than allowing them to deteriorate to the point where full replacement is necessary. The benefits of properly maintained infrastructure include improved traffic flow, a safer travel environment, less user frustration and lower vehicle-repair costs for the traveling public.

To accomplish these tasks, Move Louisville recommends the following allocation model for capital infrastructure spending (note that this model does not include TARC operations):

- 45% of funds should be dedicated to system preservation and maintenance;
- 35% of funds should be dedicated to priority road capacity and enhancement projects with an emphasis on complete street improvements;
- 15% of funds should be dedicated to priority bicycle and pedestrian facilities including shared use paths;
- 5% of funds should be dedicated to new and other projects to be supplemented by outside funding sources.

These allocations assume total funding of \$69.7 million for capital transportation projects and a \$1.9 million annual operational enhancements to streamline project delivery - a total of \$71.6 million.

Assuming the \$71.6 million annual cost of the Move Louisville recommendations and average current Metro appropriation of \$14 million, an average yearly gap of \$57.6 million would result. Four strategies are recommended to address this gap:

- Streamline internal project development and design processes to decrease delivery time;
- Increase share of the federal program funds through KIPDA and KYTC by at least \$10 million



annually;

- Use competitive grants to complete priority projects (e.g. TIGER, FTA New Starts, CMAQ); and
- Find new/enhanced revenue sources.

The picture for Louisville is clear - real improvement to the city's transportation infrastructure requires significant changes in how transportation funding is allocated and executed. The \$57.6 million gap indicates that additional revenue streams are necessary to provide the outcomes that the citizens desire. If only a portion of this necessary funding is received, the majority should be allocated to system preservation, with the remainder addressing the priority projects.

OPERATIONAL FUNDING FOR TRANSIT

Transit in Louisville is underfunded for a city that desires real transit options. The current level of funding does not support the current level of service. Additionally, Move Louisville's recommendations for premium, high-frequency transit corridors cannot be constructed or operated at current funding levels. Cities like Indianapolis, Charlotte and Kansas City are taking steps to construct and operate premium transit lines. If Louisville wants premium transit options a new and sustainable source of funding for transit must be secured.

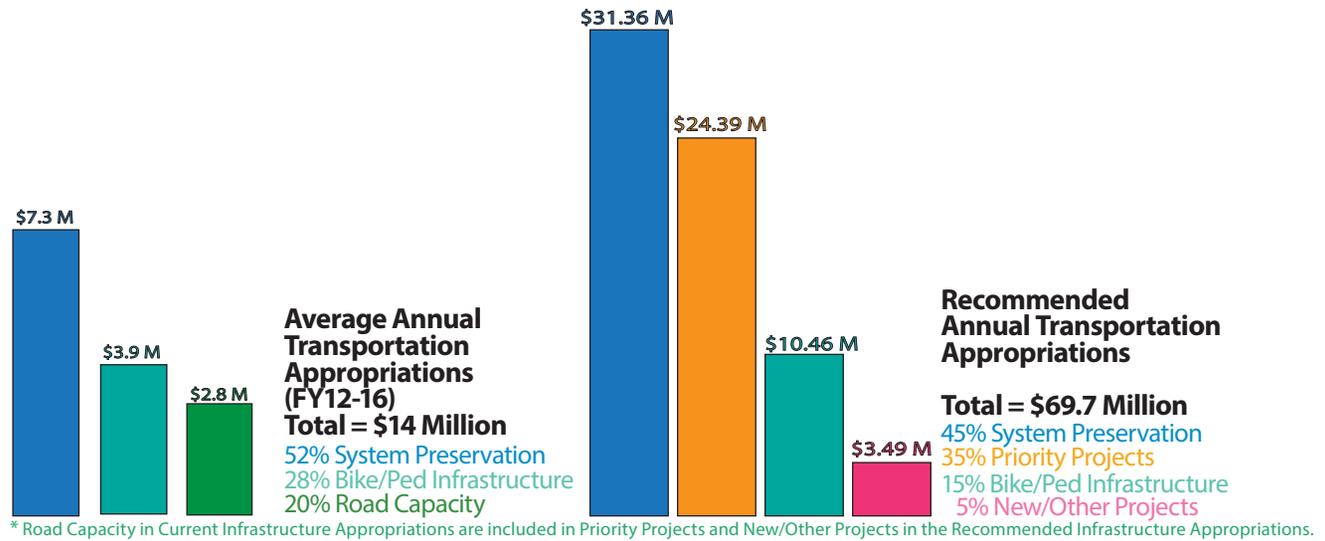
Better transit service was one of the most common desires expressed by Louisville residents and businesses during the Vision and Move Louisville processes. Improved bus service, rapid bus corridors and even light rail investment are on the minds of citizens. These improvements require new funding, since the existing funds generated by the local community for transit (primarily the Jefferson County employment occupational tax), do not even cover the service currently provided. Each year TARC resourcefully finds roughly \$10 million in grants or subsidies to continue providing the current level of service. To add

the new services, additional and sustainable revenue is essential. To implement the important premium transit recommendations, it is estimated that at minimum an additional \$20 million per year would be required.

Move Louisville proposes that the operational and capital improvements to transit be implemented over a 15- to 20-year period, with funding needs ramping up over the same amount of time. Move recommends that the Dixie Highway premium transit service line and a new east west transit connection are put in service over the next 3 to 5 years. While today, there is a \$10 million shortfall in sustainable operating funds, with these two priority lines changes, it estimated this shortfall will grow to at least \$18 million. Move Louisville recommends that premium transit service on Broadway/Bardstown Road and Preston Highway is added in the next 5 to 10 years, and that the Frankfort/Shelbyville Road premium service is added in the next 10 to 20 years. As noted earlier, premium service on Preston Highway and Frankfort/Shelbyville Road will require more activity centers and additional residential density at key transit stops, changes that will require time, regulatory and market changes.

Interest in a street car in Louisville has grown. Many cities around the United States have constructed street car lines in or near their downtowns. Due to the concentration of destinations, employees, and a growing residential market, Main and Market Streets in downtown Louisville may hold the potential for a new fixed-guide way service, such as a street car. The street car could supplement and be integrated with the Zero Bus circulator service now in place. Additional analysis is needed to determine if the land uses along the corridor can support a street car, and if its benefits exceed the capital and operational cost of the service.

The community expressed interest in exploring street car or another premium transit service to connect downtown to the University of Louisville and the Louisville International Airport. TARC's existing Fourth Street service is one of its frequent service lines and carries almost 4,500 passengers daily. The existing



width and historic development along Fourth Street make it an unlikely candidate for premium transit service. Other north/south streets may hold potential for a premium transit connection, but more analysis is needed.

Additionally, improving transit operations throughout the system requires key investments, including upgraded transit service frequency, expanded hours of operation, route changes, enhanced transit stops, passenger amenities and improved transit operational strategies such as Transit Signal Priority (TSP). TSP is an operational strategy that gives priority to transit vehicles (buses in our case) through traffic signal-controlled intersections.

ADDITIONAL FUNDING SOURCES

Given the gap it is clear that additional funding sources will be necessary to execute all of the transportation needs and enhancements recommended by Move Louisville. It is important to make a distinction between funding sources (a revenue stream) and financing mechanisms. A financing mechanism, such as a bond, generates money in the short term which must be paid back with interest. On the other hand, a revenue stream produces a steady and predictable source of funding. The tools cities use to create dedicated

revenue streams fall into two basic categories, taxes and user fees:

TAXES

For purposes of this description, a tax is collected based on the value of a private good or property unit, irrespective of use of any services that taxes may be used to fund. For example, everyone is taxed for schools whether they have school-aged children or not. Some examples of common taxes applied to transportation include the following:

➤ Sales Tax

Sales taxes are popular because they are simple and effective. The Local Investments for Transformation (LIFT) local sales tax initiative has been a policy pursuit of Metro for the past four years. It is important to note that while LIFT would be a potential revenue stream for transportation capital expenses, it could not fund on-going operational expenses.

➤ Fuel Tax

Fuel is typically taxed at the State and Federal level.

➤ Tax Increment Financing

Tax increment financing is the ability to use incremental tax revenues in a specific area to support redevelopment. This mechanism provides financial



incentives to projects using new tax revenues that otherwise would not be received by local or state governments if the project did not happen.

➤ Parking Taxes

Many local municipalities charge what amounts to a sales tax on parking.

USER FEES

Some municipalities collect user fees, which are fees collected for actual public goods or services that are consumed. Some examples include:

➤ Impact Fees

Impact fees are charges to land developers to cover the fair cost of public services that will be consumed by the end users of the development. The assumption is that the costs will be passed along to those users. Currently, impact fees are not allowed under Kentucky statutes, though system development charges serve a similar purpose.

➤ Concessions and Tolls

Many transportation services such as parking, transit (fares) and freeways (tolls) can be charged to users directly.

➤ Congestion Pricing

Congestion Pricing is in place in some large European cities; every vehicle passing a boundary around the central city is charged a toll for entering. This toll is increased at times of peak usage, with the proceeds going to create alternatives to driving. Congestion pricing has not been successfully implemented in the United States.

➤ Mileage and Carbon Surcharge

A Mileage and Carbon Surcharge is a mechanism that charges drivers for wear and tear (miles) and environmental impacts (carbon emissions) their vehicle puts on the local infrastructure. It can be calculated by simple mileage (VMT) readings.

LEVERAGING PRIVATE RESOURCES

In addition to the publicly-managed funding sources described above, transportation in the United States is increasingly looking to private and non-governmental funding sources for project delivery, maintenance and program management. Common examples include the following:

Self-Taxing Districts - Typically used in business districts, the tax district tool allows areas to tax themselves and use the proceeds for improvements they believe will make a positive economic impact in their district. The Louisville Downtown Management District is a local example of a self-taxing district.

Public-Private Partnerships - Public-private partnerships involve leveraging private capital with repayments from project revenue streams. The most common transportation examples are roads that generate toll revenue and transit projects that generate development revenue.

Non-Governmental Organizations - Many cities have private organizations (such as 21st Century Parks in Louisville) that raise funds privately to make public accessibility improvements.

Grants - Both the federal government and private foundations have pools of funding dedicated to transportation improvements. Competition for this funding is intense and typically communities must be very organized and commit local resources as matches to succeed in getting grant awards.

2

Make Complete Street Design Principles the Norm

Complete streets are safe, accessible streets that people of all ages and abilities can use and enjoy. Such streets support local businesses, encourage economic development and promote healthy communities.

Cities and communities have found that creating complete streets that foster a connected network for walking, bicycling and transit usage can provide a wide range of benefits to their residents and can make their communities more desirable places to live.

Cities and business districts that include good sidewalks and have bikeable and transit friendly streets see strong returns on their investments. Case studies show that neighborhoods which invest in bicycle and pedestrian infrastructure, have higher property values and increased sales tax revenues.

Design and operational elements, such as traffic calming and speed reduction should be part of Louisville's complete street standards. Health care savings from increased rates of bicycling and walking due to complete streets can save residents, health care providers and businesses billions of dollars annually by increasing rates of physical activity.¹⁶

DEVELOP AN IMPLEMENTATION PLAN FOR THE ADOPTED COMPLETE STREETS POLICY

Louisville Metro's adopted Complete Streets Policy requires a concerted effort for successful implementation. Such an effort includes an evaluation of the current development review processes, establishment of cross-agency committees and partnerships and ongoing education of members of the community. The 2015 update to the Land Development Code did not address complete streets pending the policy recommendations of Move Louisville.

Providing the best possible streets to accommodate growth, provide transportation choices and help make Louisville livable requires a different approach to and philosophy of planning and designing streets.

Cities across the country are seeing the need to plan for and design complete streets – streets that better serve all users, rather than focusing only on one set of users.

Through the years, cities have become very good at designing auto-oriented streets. Cities are now shifting gears and focusing on providing design elements such as sidewalks, planting strips and bike lanes

on thoroughfares, yet are often lacking a consistent, clear method to decide which types of facilities are appropriate for which streets. To accomplish this task, Metro requires a Complete Streets Implementation Strategy that follows the steps outlined here:

1. Form a committee involving Metro engineers, planners, developers, maintenance staff and citizens to dissect the current processes to identify when and how decisions about streets are made.
2. Update the street design standards and the Land Development Code to reflect the desired complete streets outcomes.
3. Assign responsibilities and timelines for adoption and application of the changes to the street design standards and the Land Development Code.
4. Designate a person or committee to shepherd the implementation process. This group should be consulted at the identified key decision points.
5. Develop a reporting process to track success.



3

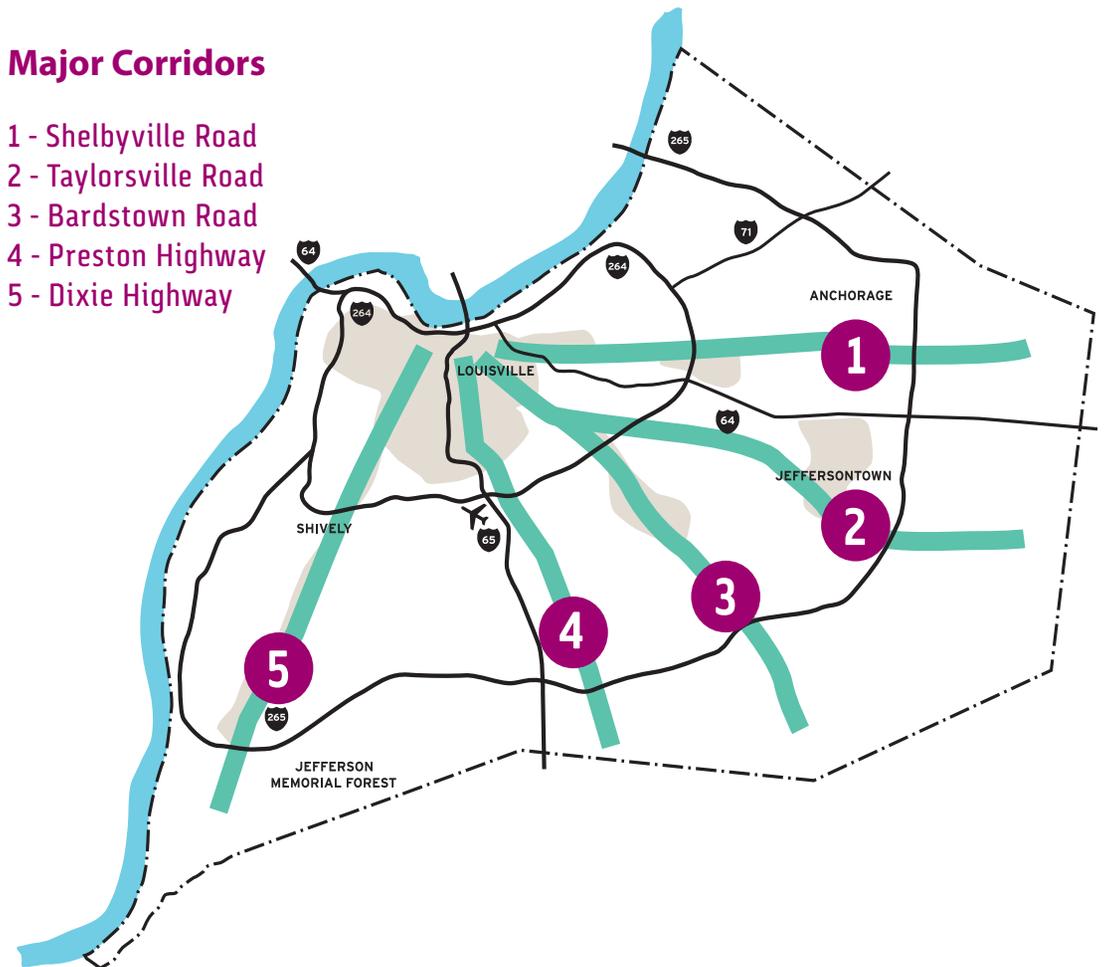
Focus Decision Making on High-Capacity, People-Moving Corridors

Access - the ability to conveniently arrive at destinations - and mobility - the ability to travel over a distance to those destinations - are often in conflict within cities. Access needs are about comfort and safety, while mobility needs are often about speed. In Louisville the mix of higher speeds and pedestrian activity is most prevalent along the larger arterial streets that lead from the suburban communities into downtown (Dixie Highway, Preston Highway, etc.). Over time, these arterial thoroughfares have been designed for high speeds and large traffic volumes. As the context of these thoroughfares change to walkable, compact mixed-use areas, the speed encouraged by the design becomes a matter of concern.

Higher speeds result in a higher percentage of injury and fatality crashes. By reducing speeds through enforcement, design and technology, and adding enhancements for the comfort and safety of all users (including transit users, walkers and cyclists), we can strike a balance between access and mobility.

Major Corridors

- 1 - Shelbyville Road
- 2 - Taylorsville Road
- 3 - Bardstown Road
- 4 - Preston Highway
- 5 - Dixie Highway



4

Consider Transit as a Catalyst for Infill Development

Transportation and land use are inextricably linked. Transportation shapes the urban form, and the type and nature of development can greatly influence the effectiveness of the transportation system. The best systems of streets and transit are nearly worthless if users are confronted with an environment in which they cannot walk safely and comfortably to their destination. It is imperative that Louisville Metro adopt an integrated transportation and land use framework. There are a few core concepts regarding this interrelationship that are critical to policy and investment going forward:

➤ **Place Appropriate Density** – The citizens of Louisville Metro have expressed a strong preference for more and better premium transit service. The viability of such service depends on nodes with medium-to-high density development, walkability and a mix of uses that occurs in a manner that is respectful to the character of the neighborhood. There are many areas in Louisville where these characteristics are present, possible or appropriate, as outlined in detail in Chapter 4.

Policies in those areas must be geared to assuring that density, walkability and mixed use occurs.

➤ **Infill** – Shorter trips place a lower burden on the transportation system (and the taxpayers) than longer trips. Land use policies and subsidies should be designed to reward the development of housing and retail that is close to substantial job centers.

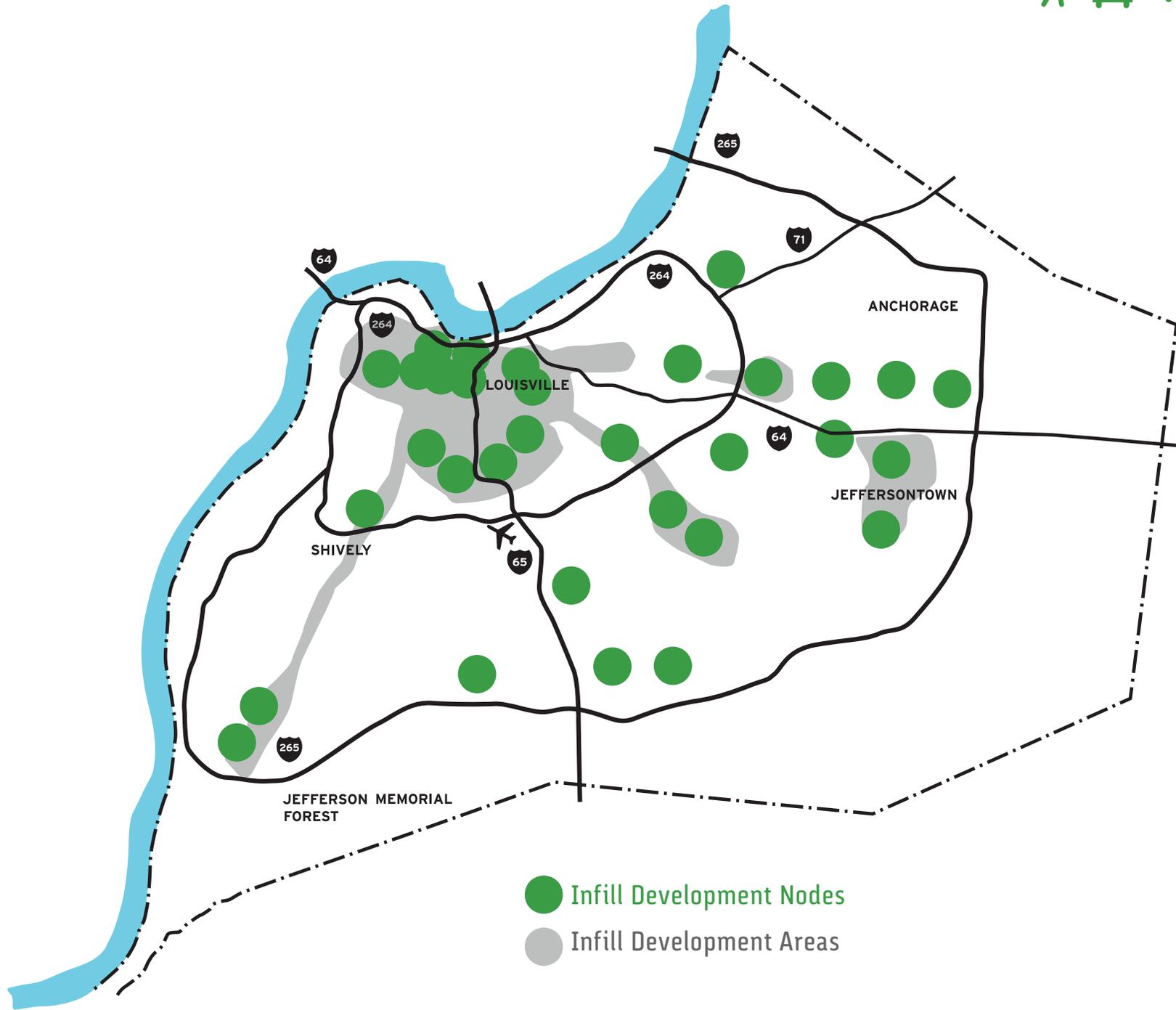
Development that occurs near high frequency transit in walkable, bikeable neighborhoods is a more efficient use of infrastructure. More people will choose to forgo driving in such developments, as land uses that serve day-to-day needs are in close proximity to homes. If developed as mixed-use communities, even those who do drive will tend to put fewer miles on the roads. As a matter of policy, it benefits the region to create incentives to develop appropriately dense transit station areas.

Historically, many policies and actions conducted within the region have been inconsistent and out of alignment with the principles above. There has been no incentive to build in infill locations that require less infrastructure and fewer resources, and often lower land costs in greenfield areas are actually a huge incentive to do the opposite. There has been little focus on encouraging transit-supportive densities along corridors that have potential for rail or bus rapid transit.

Transit Oriented Development (TOD) is an intentional development strategy which mixes land use and transit through the creation of compact, walkable, mixed-use communities within walking distance of a transit stop or station. The goal of TOD is to bring together people, jobs and services designed in such a way to make it efficient, safe and convenient to travel on foot, bicycle, transit or car.

INFILL DEVELOPMENT NODES

Move Louisville has proposed a series of redevelopment nodes based on current land use characteristics, propensity for redevelopment (properties where land values exceed improvement values), and regional access by way of transportation thoroughfares. These development areas are used for planning purposes here and may be reshaped by policy and further analysis, but they offer a way to organize redevelopment efforts and, when viewed in a Metro-wide context, lay a foundation for supporting premium transit and other multi-modal investment along major corridors.



TOD NEXT STEPS

In order to take advantage of the benefits that arise out of encouraging a more compact development pattern (as outlined in Chapter 4), the following land use and zoning changes are recommended:

MAP COMPACT GROWTH NODES

The STAR Community Rating System developed by the national non-profit organization STAR Communities, of which Louisville is a member, identifies a number of practices that serve to guide and encourage communities to invest in more transit oriented development. The rating system recommends such outcomes as assuring 75% or more of households are located within a ½ mile of transit stops where transit service includes at least 60 trips per day. According to the STAR system, one way to achieve this outcome is to begin mapping areas appropriate for density and mixed-use development. Based on population size identified in the rating system, Louisville should have a minimal of 9 compact and complete centers (within a ½ mile

walking distance from identified point) where compact, human-scaled, walkable centers and neighborhoods are connected to transit, offer diverse uses and services, and provide housing options for families of all income levels. The assessment and identification of these centers should be considered as part of Metro's process to update its comprehensive plan. Move Louisville has suggested a system of corridors and nodes, but this may be subject to change based on community desires and development market dynamics. All of the debates and coordination necessary to change policy should be a part of this process and not on a project-by-project basis. A primary focus should be areas along premium and key transit corridors.



UPDATE LAND USE & ZONING

Louisville Metro's Land Development Code should be amended so that developers can build mixed-use projects with place-appropriate density by right.

CHANGE DEVELOPMENT INCENTIVE STRUCTURE

More compact development places a lower burden on the taxpayer. To create a balanced development pattern going forward, ensure low-density development fully covers the cost of extending infrastructure while creating incentive structures to compensate for higher costs of compact development (such as structured parking and land cost). This will allow the development market to create better diversity of product than has been possible in the

past. Metro might consider phasing in this structure over time in order to allow private investors to adjust.

ADOPT AFFORDABLE HOUSING POLICY

Incentives to develop along transit corridors should not lead to pricing out transit-dependent households. Affordable housing policies near transit stops and stations must be a part of the update of zoning and land use plans in these areas and should be part of the comprehensive plan update.

5

Streamline Transit Service on Key Corridors

The Move Louisville plan process developed a Service Guidelines document (included in the appendix) that is intended to craft a policy framework for transit service development in Louisville. The recommended Service Guidelines are meant to help match the services with markets.

THE PRINCIPLES BELOW ARE RECOMMENDED IN THE GUIDELINES:

- ▶ Major routes should operate along arterials
- ▶ Routes should be simplified
- ▶ Routes should serve well-defined markets
- ▶ Services should be well-coordinated
- ▶ Service should be consistent
- ▶ Stops should be spaced appropriately
- ▶ Routes should operate along a direct path
- ▶ Route deviations should be minimized

The guidelines recommend several “families” of service that have varying objectives – from key corridors that adhere relatively rigidly to productivity (high ridership) concepts to feeder routes that address TARC’s coverage mission. Another aim of the document is to help TARC communicate to its stakeholders and constituents its approach to planning and providing transit services.

PRODUCTIVITY VS. COVERAGE

TARC has 41 separate fixed routes serving Greater Louisville and southern Indiana. Not surprisingly, not all were designed for the same purpose. No single route adheres completely to the principle of maximum ridership, and many routes are designed to cover territory rather than optimize ridership. If TARC were a private unregulated business it would logically offer only those services that would carry the most people for the least cost. Like airlines, TARC would choose its markets based not on what is fair to each community or neighborhood, but on what would maximize the return on its investment in service. This approach defines one extreme of the “values spectrum” in service design.

The Productivity Goal:
Deploy service to carry the maximum number of people within an agency’s fixed resources, even if it means some areas get no service.

The Productivity Goal tends to align closely with other goals such as:

- Maximizing fare box return and minimizing subsidy per passenger;
- Maximizing region-wide Vehicle Trip Reduction benefits;
- Supporting denser development at major hubs, and more transit oriented development patterns; and

—Providing reliable, frequent, competitive service.

Because the Productivity Goal judges every service by its attractiveness to a wide range of passengers, an exclusive focus on this goal would likely result in no service at all in areas where population and/or employment densities are low.

The Coverage Goal:
TARC is a publicly funded agency with a mandate that requires it to appropriately serve residents throughout the community. Coverage-oriented routes often serve isolated pockets of population within the city that lack access to a more productive transit corridor.

The Coverage Goal says: Provide access to transit throughout all developed parts of the city, regardless of current or potential ridership.

The Coverage Goal tends to align with community desires to:

- Meet the needs of agencies and transit-dependent residents located in hard-to-serve areas, especially the needs of the senior population and those who are less able to walk to the major, productivity-oriented transit corridors; and
- Distribute services throughout areas that support transit through occupational tax dollars.

PRIORITIES AND SPENDING (SERVICE VS. COVERAGE)

Every transit system, intentionally or not, strikes a balance between two competing purposes: high frequency service along primary transit corridors (the Productivity Goal) and providing service to all parts of the community (the Coverage Goal). This balance involves an inherent value trade-off faced by every local transit agency. Acknowledging this trade-off helps transit managers and policy makers to make better decisions about service design and allocation.

DEFINED AND TRANSPARENT BALANCE

Move Louisville recommends a policy approach that balances these two goals. TARC should consciously allocate a portion of its resources to address productivity, while also providing for coverage. Doing this provides a sound framework for the development and codification of a consistent approach to service allocation.

TARC should clearly articulate what percentage of its budget is to be spent on each of its two core missions. Stating this policy will make the logic for potential cuts or tradeoffs more apparent.



Broadway today



Vision of Broadway as a complete street with BRT

6

Set Policy on Preferred Truck/Freight Routes

While moving people to jobs is critical to Louisville's future, the movement of freight and goods is a key component of the region's logistics sector. With the Louisville-Southern Indiana Ohio River Bridges Project nearing the end of construction, a major bottleneck around the river will be resolved. Increasing freight moving around the airport, Riverport and other major logistics hubs will require that the system not become too congested to function effectively. In addition to the multi-modal projects discussed previously, this action plan outlines a comprehensive program of travel demand management to assure that, even with growth in the region, fewer cars show up on the roads.

Louisville Metro does not have a conventional truck route map or ordinance of permitted streets like many cities. Today, the State Route system serves as the base for local truck routes (the KIPDA Freight Route Map) except in the case where neighborhood-specific roadways have been defined in a local ordinance (in practice this is applied to only a few Old Louisville streets).

Move Louisville proposes to formalize this network with an adopted truck route map intended to provide policy guidance on street design and to inform data aggregation and mapping services, such as Inrix and Navteq, of acceptable freight

through-routes in the city. This route map is based on previous efforts by KIPDA to identify a freight network based on roads serving concentrations of freight-based employment, especially distribution centers and intermodal transfer facilities, and it also comprises select KYTC roads (with specific weight class limits established for particular roadway classes and routes).

The primary purpose of a clear, understandable network is to provide connections between the Louisville region's

interstate highway system and key freight-served land use concentrations (which may include major retail destinations), railroad infrastructure and intermodal facilities, as well as Louisville International Airport, and its related freight facilities (especially the UPS Worldport). As is typical with truck routes, these are intended to be the designated corridors for through movement of freight traffic, and non-designation does not automatically restrict trucks and heavy vehicles from using a street or roadway.

Move Louisville, therefore, recommends key steps to identify a set of core freight routes:

1. Review data on current truck traffic and accidents.
2. Identify limitations and barriers in the existing system.
3. Identify preferred truck/freight routes based on new data.
4. Develop special design standards for identified routes.
5. Adopt a truck/freight route map by ordinance.

These routes will be selected to avoid as many conflicts (such as residential neighborhoods) as possible.



— KIPDA Freight Routes

— Move Louisville Conceptual Freight Routes



7 Manage Parking

For residents who can afford an automobile, the two most significant incentives affecting their travel choices are fuel and parking costs. While the city has no influence over the cost of fuel, parking policy can incentivize transit use. In many cities, the over-supply and underpricing of parking creates an almost irresistible incentive to drive. While inexpensive and abundant parking is popular, the true cost is actually quite high (when the associated costs of road widening, parking lot and garage construction, air pollution and other negative impacts are factored in). Downtown Louisville has an abundance of inexpensive parking that is underpriced when compared to its peer cities.

Parking is oversupplied because it is inefficiently used. Virtually each new development project (public or private) is accompanied by a dedicated parking supply which sits partially-empty for large portions of the day. The solution to this market inefficiency is very simple in principle, although difficult in practice:

Step 1 - Make investments in the built environment to provide real alternatives to driving by providing better access to downtown through transit, bicycling and walking alternatives.

Step 2 - Implement policies and incentives designed to better align parking prices to the market. Metro

should move toward market-priced, on-street parking – particularly in downtown and high-demand activity centers. Many cities are providing parking managers with the authority to raise and lower rates by time and location, based on periodic utilization surveys, with the intent of achieving a 15% availability rate on each block at all times. A comprehensive shared parking program for both public and private facilities should be instituted.

Step 3 – Provide incentives for commuting and for last mile strategies, such as bike share and the Zero Bus circulator to reduce the need for parking.

SHARED PARKING

Since every driving trip requires a parking space on each end and the average single-family household takes around 10 trips per day, parking consumes a huge amount of the city's land mass. The region should actively implement policies to encourage shared parking and alternative transportation modes to create greater efficiency in the use of space. While Metro's parking authority (PARC) has strived to bring the prices of their parking structures closer to market value, there has been limited work done to facilitate shared parking outside of that system.

PARKING DIRECT BENEFITS DISTRICTS

In some instances, the revenue generated from parking can be used to directly benefit paying customers by funding conspicuous

improvements in downtown streetscapes and open spaces. If the public and downtown businesses can draw a direct connection between the price of parking and improvements that affect them, they are more likely to see the merit in the price being charged. Parking revenues also can be dedicated to improving transportation and parking options, including funding off-street parking options.

TRAVEL DEMAND MANAGEMENT

Travel Demand Management (TDM) is a program of spending transportation dollars where the most public benefit can be gained. For example, if it costs \$90 per month to build and maintain a parking space, it may be cheaper to offer commuters monthly transit passes. If transit is a realistic option, some people will exercise that option – providing significant external benefits (lower congestion, better air quality and better transit financial performance) to the community.

TDM NEXT STEP

To move Travel Demand Management forward in Louisville, Move recommends setting up a task force of government agencies and major employers to explore policies to disincentivize driving alone and incentivize real alternatives to single occupancy vehicles.

8

Embrace Smart Mobility

New technologies, economies and growth patterns are changing how people get around in major metropolitan areas. The sharing economy is creating alternative modes of commuting. The following modes hold considerable promise for easing gridlock and offer large individual and societal savings: ridesharing, bike commuting, car sharing and on-demand ride services (e.g., the ride services offered by Uber and Lyft).¹⁷ In addition, new vehicle and lane technologies how people use the transportation network.

RIDESHARING

Ridesharing (i.e., carpooling) taps into an abundant yet underutilized resource: empty car seats. This option does not add any new vehicles to the system, and thus helps reduce traffic. Unfortunately, carpooling has declined from around 20 percent of all commuters in 1970 to less than 10 percent today.¹⁸

The following are strategies to encourage ridesharing:

- ▶ Improve ride matching platforms' customer experience. Most cities have already invested in online ride matching platforms (all but 6 of 79 cities¹⁹) or participate in a rideshare platform.
- ▶ Use infrastructure investments to support ridesharing. Commuters

who carpool are motivated principally by the time or money they can save by doing so.²⁰ And, as the Federal Highway Administration has observed, "Infrastructure plays an important role in helping dynamic rideshares accumulate time and money savings" by allowing carpoolers free or reduced-cost access to restricted lanes.²¹

- ▶ Focus on building critical ridesharing mass in key corridors. Rather than trying to expand ridesharing across a wide region, planners should focus on building a critical mass of users in particular corridors. To understand which corridors offer the greatest ridesharing potential, planners should target the areas with the biggest potential supplies of carpoolers based on commuting behavior, neighborhood demographics and supporting infrastructure.
- ▶ Recruit participants through trusted channels. The greater the number of employees in a given location, the more likely it is that rideshare matches can be found. Large companies, universities and hospitals have hundreds or thousands of people working in the same setting, and they may have a strong incentive to encourage carpooling to reduce the need for parking infrastructure. Recruiting efforts are most effective when they involve trusted channels such as employers.²²
- ▶ Target younger commuters. Recent years have seen significant shifts in

attitudes toward vehicle sharing, especially among millennials. Forty-two percent of Generation Y consumers in the United States (versus 28 percent for other generations) say they are willing to carpool if it is readily available and convenient.²³

- ▶ Establish public-private partnerships (PPPs) to improve mobility. PPPs are often used to finance large-scale capital projects. Forward-looking jurisdictions could expand their use of PPPs by adopting pay-for-success models that specify particular mobility outcomes (for example, by setting a goal of a certain year-over-year increase in carpooling's modal share in a particular corridor) rather than the means by which those outcomes are to be achieved.
- ▶ Encourage leadership in car-pooling advocacy. Cities that have formal goals to increase ridesharing have higher rates of carpooling overall, suggesting that leadership plays a small but significant effect in influencing commuter transportation decisions.
- ▶ Promote Louisville's Guaranteed Ride Home Program. Louisville has a long-standing Guaranteed Ride Home Program through KIPDA's Ticket to Ride. This program reimburses a user of a carpool, vanpool, bikepool or transit rider if an emergency requires one to leave work early or stay late. An individual will be reimbursed 80% of the cost of the taxi ride including tip,

up to 100 miles.

BICYCLE COMMUTING

Bicycle commuting has been on the upswing in recent years in the United States, with cities installing significant miles of bike lanes and other cycling infrastructure. For commutes of a few miles or less, biking is often the fastest way to get to work. It is estimated that slightly more than a quarter of current commuters could switch to bike commuting as one of their main modes of travel if barriers were substantially reduced.

The following are strategies to encourage bicycle commuting:

- ▶ **Invest in bike infrastructure.** The biggest barrier to increased bike commuting in America is road safety.²⁴ Bike lanes are a cost effective means of increasing bike commuting rates.
- ▶ **Encourage bike sharing programs.** Economists and planners know that there is a tipping point for transportation safety. As more new bikers join, safety—and the perception of safety—improve for all. Growing numbers of bike share stations can jump start this virtuous cycle.
- ▶ **Build biking infrastructure where it can have the biggest impact.**
- ▶ **Link bike commuting to public health.** Cities need to promote the positive health effects of bike commuting.
- ▶ **Use data to encourage bike commuting.** In the future, personal mobility data will feed into central statistical databases that will be

used to track citywide progress in health, commuting efficiency, and trail conditions.

CAR SHARING

Car sharing, enabled by new technologies, allows companies and individuals to rent cars by the minute or hour. In its most basic form, car sharing is car rental by the hour. Providers include commercial entities such as car2go, owned by Daimler Benz; DriveNow, owned by BMW Inc; and Zipcar, owned by Avis. They also include private individuals who participate in peer-to-peer (P2P) car sharing programs. These P2P programs can serve less dense and lower-income areas than their commercial counterparts, which require a certain level of population density and a certain demographic profile to be commercially viable.

ON-DEMAND RIDE SERVICES

Mobile application-based ride services, such as Uber and Lyft, have transformed the way consumers use cars for hire. Cities should anticipate some of the benefits (remote parking) and some of the potential pitfalls (cars circling the block while the owner gets coffee) that could affect their streets and built environment.

NEW VEHICLE AND LANE TECHNOLOGIES

As with new and alternative ways of commuting, new technologies are also changing how people are using the transportation network. Louisville should begin to consider the potential benefits and implications of automated and connected vehicles. Intelligent transportation technologies and managed lanes, such as High Occupancy Vehicle and High Occupancy Toll lanes, have the potential to improve congestion and expand highway capacity by increasing through-put without adding new lanes.



END NOTE: MOVING LOUISVILLE FORWARD

Move Louisville's policies and projects are necessary steps to move our transportation network and built environment forward. To realize this vision, Louisville will need to begin implementing strategies to preserve our infrastructure, grow differently and find innovative funding sources. Impactful changes today will lead to a vibrant city tomorrow.

REFERENCES

1. Kentucky Collision Analysis for the Public. <http://crashinformationky.org/KCAP/KYOPS/SearchWizard.aspx>
2. Cambridge Systematics, Inc. 2011. Crashes vs. Congestion- What's the Cost to Society?
3. Federal Highway Administration. 2004. Mitigating Traffic Congestion The Role of Demand-Side Strategies
4. American Public Transportation Association,
5. Tomer, Adie. 2011. "Transit Access and Zero-Vehicle Households," Washington, D.C. Brookings.
6. American Public Transportation Association, Transit Savings Report.
7. Fry, Richard. 2015. "This year, Millennials will overtake Baby Boomers" Pew Research Center,
8. Urban Land Institute. 2013. "Americans' Views on their Communities, Housing, and Transportation."
9. Haas, Peter M.; Makarewicz, Carrie; Benedict, Albert; and Bernstein, Scott. 2008. "Estimating Transportation Costs by Characteristics of Neighborhood and Household." *Transportation Research Record* 2077:62-70,
10. Walter Hook , Stephanie Lotshaw , and Annie Weinstock. 2013. "More Development for Your Transit Dollar: An Analysis of 21 North American Transit Corridors", Institute for Transportation & Development Policy.
11. Powell, K.E., Martin, L., & Chowdhury, P.P. 2003. "Places to walk: convenience and regular physical activity." *American Journal of Public Health*, 93, 1519-1521,
12. Giles-Corti, B., & Donovan, R.J. 2002. "The relative influence of individual, social, and physical environment determinants of physical activity." *Social Science & Medicine*, 54 1793-1812,
13. Federal Highway Administration. (2009). National Household Travel Survey.
14. National Complete Streets Coalition,
15. ibid
16. Costs of Complete Streets; What We Are Learning from State and Local Governments. National Complete Street Coalition.
17. Smart Mobility; Reducing Congestion and Fostering Faster, Greener, and Cheaper Transportation Options. Peter Viechnicki, Abhijit Khuperkar, Tiffany Dovey Fishman, and William D. Eggers
18. Wendell Cox, "Driving alone dominates 2007-2012 commuting trend," *New Geography*, October 9, 2013, <http://www.newgeography.com/content/003980-driving-alone-dominates-2007-2012-commuting-trend>.
19. A total of 171 combined statistical areas were analyzed in this study; 79 received further analysis for ridesharing infrastructure and policy.
20. Marc Oliphant, Allen Greenberg, Ron Boenau, and Jeremy Raw, "Fill those empty seats!" *Public Roads* 77, no. 2, September/ October 2013, <http://www.fhwa.dot.gov/publications/publicroads/13sepoct/03.cfm>.
21. Ibid.; M. Burris et al., Casual carpooling scan report, Federal Highway Administration, November 2012, <http://www.fhwa.dot.gov/advancedresearch/pubs/12053/12053.pdf>.
22. Oliphant, Greenberg, Boenau, and Raw, "Fill those empty seats!"
23. Deloitte, "2014 Global automotive consumer study: Exploring consumers' mobility choices and transportation decisions," 2014, <http://www2.deloitte.com/content/dam/Deloitte/us/Documents/manufacturing/us-auto-global-automotive-consumer-study-100914.pdf>,
24. Jennifer Alexis Lantz, *Cycling in Los Angeles: Findings from a survey of Los Angeles cyclists*, University of California, Los Angeles, 2010, http://164.67.121.27/files/Lewis_Center/pub-lications/studentreports/72009%20Alexis%20Lantz%20-%20Cyclingin%20in%20LA.pdf.



TRANSPORTATION TERMS GLOSSARY

Arterial

An arterial road is a class of roads that serve major traffic movements (high-speed, high volume) for travel between major points.

Attainment Area

An attainment area is a geographic area considered to have air quality that meets or exceeds the U.S. Environmental Protection Agency (EPA) health standards used in the Clean Air Act. An area may be an attainment area for one pollutant and a non-attainment area for others. Non-attainment areas are areas considered not to have met these standards for designated pollutants.

Bus Rapid Transit (BRT)

Bus Rapid Transit (BRT) is a high-quality bus-based transit system that delivers fast, comfortable, and cost-effective services at metro-level capacities. It does this through the provision of some dedicated lanes, with busways and iconic stations, off-board fare collection, and fast and frequent operations. BRT is more reliable, convenient and faster than regular bus services.

Complete Streets

Complete Streets are roadways and related infrastructure that provide safe travel for all users. Complete streets are customized to the characteristics of the area the street serves. A complete street accommodates the needs and expectations of the travelers who want to access or pass through the surrounding neighborhood, community, or region. Typical elements that make up a complete street include sidewalks, bicycle lanes (or wide, paved shoulders), shared-use paths, designated bus lanes, safe and accessible transit stops, and frequent and safe crossings for pedestrians, including median islands, accessible pedestrian signals, and curb extensions.

Comprehensive Plan

A comprehensive plan establishes a framework to guide public and private decisions about future growth, preservation and changes within a local government. Louisville Metro adopted its current comprehensive plan, known as Cornerstone 2020, on June 15, 2000. Cornerstone 2020, which has a planning timeframe of 2000 to 2020, provides the framework for Louisville and Jefferson County's land development regulations and policies (including the Land Development Code).

Kentucky Transportation Cabinet (KYTC)

KYTC is the state agency responsible for transportation funding, planning and programs at the statewide level.

Light Rail

A form of urban rail public transportation that generally has a lower capacity and lower speed than heavy rail metro systems, but higher capacity and higher speed than streetcar systems. The term is typically used to refer to rail systems with rapid transit-style features that usually use electric rail cars operating mostly in private rights-of-way separated from other traffic but sometimes, if necessary, mixed with other traffic in city streets.

Louisville Loop

The vision of the Louisville Loop is to develop an estimated 100-mile loop path system that becomes an essential component for the growth and prosperity of the Region. It will form a network of shared-use paths, soft surface trails, and on road bike lanes, and will connect to stream corridors, Olmsted Parkways, greenways and transit routes.

Louisville Metro Public Works

Louisville Metro Public Works is the government agency that builds, operates and maintains the streets, sidewalks, bridges, signals and signs that are owned by Louisville Metro Government.

MAP-21

MAP-21, the Moving Ahead for Progress in the 21st Century Act, was signed into law on July 6, 2012. Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005. MAP-21 created a streamlined and performance-based surface transportation program and builds on many of the highway, transit, bike, and pedestrian programs and policies established in 1991.

Metropolitan Planning Organization (MPO)

The organizational entity designated by law with responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. MPOs are established by agreement of the Governor (or Governors) and units of local government which together represent 75% of the affected population of an urbanized area. KIPDA is the MPO for the Louisville area, which includes Clark and Floyd Counties in Indiana and Jefferson, Bullitt, and Oldham Counties in Kentucky.

Metropolitan Statistical Area (MSA)

An area defined by the Office of Management and Budget as a Federal statistical standard. An area qualifies for recognition as an MSA if it includes a city of at least 50,000 population or an urbanized area of at least 50,000 with a total metropolitan area population of at least 100,000.

Metropolitan Transportation Plan (MTP)

The Metropolitan Transportation Plan, Horizon 2035, is the planning document that reflects all surface transportation investments through the year 2035 in the Louisville Metropolitan Planning Area (MPA). Each transportation project that is regionally significant and/or utilizes federal transportation funds must be identified in the MTP, providing

a vision of how our transportation network will function and appear in the future.

Modern Streetcars

Streetcars are a form of urban rail public transportation operating entire routes predominantly on streets, often in mixed traffic. Modern streetcars typically operate with single-car trains powered by an overhead contact system with frequent stops.

Parking Authority of River City (PARC)

The agency of Louisville Metro Government that provides public parking to meet the existing and future needs of the community. PARC manages a combination of 11,000 off-street (in 14 garages and 6 surface parking lots) and 5,000 on street spaces in and around the central business district.

Premium Transit

Premium transit is transit that is fast, frequent and reliable. The mode of travel can take a number of forms including bus rapid transit (BRT), light rail, modern streetcars and commuter rail.

Right-of-Way (ROW)

A ROW is a priority path for the construction and operation of highways, light and heavy rail, railroads, etc.

Shared Use Path

A pathway physically separated from motor vehicle traffic and used by bicyclists and pedestrians. Generally, shared use paths serve corridors not served by streets and highways to minimize conflict with cross-street traffic.

State Transportation Improvement Program (STIP)

A short-term transportation planning document covering at least a three-year period and updated at least every two years. STIPs are created in conjunction with MPOs and the MPO's TIP is incorporated into the state's STIP. The STIP includes a priority list of projects to be carried out in each of the three years. Projects included in the STIP must

be consistent with the long-term transportation plan, must conform to regional air quality implementation plans, and must be financially constrained (achievable within existing or reasonably anticipated funding sources).

Transit Authority of River City (TARC)

TARC has been operating for over 40 years as the public transportation provider for the Greater Louisville metropolitan region. TARC manages bus routes in Jefferson, Oldham and Bullitt Counties in Kentucky, as well as Clark and Floyd Counties in Indiana. TARC's mission is to explore and implement transportation opportunities that enhance the social, economic and environmental well-being of the Greater Louisville community. TARC provides nearly 15 million trips a year on 41 routes. The vast majority of passengers – 70 percent – are on work or school trips. The TARC fleet is comprised of 230 buses, 32 hybrid-electric buses, 10 all-electric buses and 99 paratransit vehicles. TARC recently began operating 10 fast-charging, all-electric buses, branded as “ZeroBus” in 2015. TARC has 655 employees.

Transit Oriented Development (TOD)

A transit-oriented development (TOD) is a compact, walkable mixed-use residential and commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership.

Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) is a four-year, short-range fiscal programming document representing the first four years of the MTP. The TIP contains information about transportation projects including the scope of the project, the phases that will receive funding, the estimated project cost, and the type of funding that will be used. The TIP is required to be updated every four years. It is the responsibility of the Transportation Policy Committee to approve the TIP. Project changes are often necessary as projects develop and are achieved through the amendment process for major changes

or the administrative modification process for minor changes.

Travel Demand Forecasting Model

A travel demand forecasting model is a computer model that simulates real world conditions that can be used to show the impact of changes in a metropolitan area on the transportation system (such as adding a new road or transit line, or increases in population or employment). Current FHWA and FTA planning regulations require only that the MPO have an analytical process in place for evaluating projects.

Transportation Demand Management (TDM)

Transportation Demand Management (TDM) is the operation and coordination of various transportation system programs to provide the most efficient and effective use of existing transportation services and facilities. TDM is one category of traffic system management actions.

Vehicle Miles of Travel (VMT)

Vehicles Miles Travelled (VMT) is the measure of the level of travel activity in an area. The figure is generally found by multiplying the average length of a trip by the total number of trips. As vehicle miles of travel increase, congestions and auto emissions that degrade air quality may be expected to increase also.



