

THINK[®]

● INFRASTRUCTURE SOLUTIONS

HNTB



Issue 19-2019

An isometric illustration featuring a central vertical prism with a green-to-blue gradient. The prism is decorated with white line-art icons of a bicycle, a car, a bus, and a train. Surrounding the prism are several light blue cubes, each topped with a blue location pin icon. Dotted lines connect these cubes and the central prism. In the bottom left corner, a small group of four stylized human figures in business attire are standing and talking.

Navigating **New Approaches** to Uncover **INFRASTRUCTURE SOLUTIONS**

Topics

This edition of *THINK* explores how cities and states are meeting their mobility challenges in a time of uncertain federal funding.

4 **Driving New Approaches**
State and local leaders are driving new approaches, collaborating in new ways and developing solutions to deliver ever-greater mobility options and value to communities served.

6 **Striking the Balance**
Patrick K. McKenna, Director of the Missouri Department of Transportation, offers a glimpse into the calculus of a state that is committed to delivering reliable infrastructure to its citizens in the face of mixed funding signals from Washington.

10 **Keeping Austin Moving**
Mike Heiligenstein, Executive Director of Central Texas Regional Mobility Authority and Randy Clarke, President and CEO of Capital Metro, explain how tolling and transit innovations are helping the city meet rising mobility demands while dealing with both state and federal funding constraints.



THINK is available to view on both Apple® and Android™ devices through the HNTB app. Access HNTB publications, thought leadership and more. Download from the App Store® or Google Play.™

THINK is published by the Corporate Communications Department of the HNTB Companies.

Patricia Mosher, senior vice president, pmosher@hntb.com

HNTB is an equal opportunity employer M/F/V/D.

© 2019 HNTB Companies. All rights reserved. Reproduction in whole or in part without written permission is prohibited.

Driving New Approaches

The Imperative for a National Transportation Policy, from HNTB's America *THINKS* survey series, found that almost three in four Americans (73 percent) believe a robust, high quality transportation system is vital to America's continued economic prosperity and quality of life. Two in three respondents, 66 percent, consider a reliable and consistent source of funding dedicated to pay for infrastructure investments to be extremely or very important.

Leaders nationwide are continuing to drive innovations that improve mobility and safety while wringing ever-greater value from each transportation funding dollar. In this edition of *THINK*, we highlight leaders who are advancing such innovation at the state and municipal levels.

State of Missouri: Managing Infrastructure and Expectations

Amidst the challenging transportation funding environment, Missouri's Department of Transportation is trying to manage its infrastructure and public expectations through rigorous strategic planning and greater transparency. The state operates America's seventh largest transportation network, but its funding on a revenue-per-mile basis places it 48th in the nation. With growing skepticism that Washington will deliver a transportation bill in the near future, MoDOT is working with its regional and municipal partners to "hope for the best, but plan for the worst" through detailed explorations of how funding scenarios might play out. MoDOT's Director Patrick K. McKenna shares his view of the state's challenges and holistic planning approach on page 6.

City of Austin, Texas: Seeking Synergies to Optimize Mobility

Austin has become one of the nation's leading magnets for people seeking economic opportunity that's matched by a long list of cultural and recreational attractions. The result has been rapid development stretching ever-farther away from the urban core, which has generated greater traffic congestion and public demand for more mobility options. Tolled highways developed since 2005 by the Central Texas Regional Mobility Authority have helped to ease congestion, but continued growth is calling for creative synergies between CTRMA and the city's transit agency, Capital Metro. The two agencies are working together to deliver near-term congestion relief while preparing for a doubling of the region's population in the next 20 years. CTRMA's Executive Director Mike Heiligenstein and CapMetro's President and CEO Randy Clarke explain how they're keeping Austin moving on page 10.

These two examples of innovation shine a light on the necessity for a synergistic approach to transportation, one that plays to the strengths of federal, state and local stakeholders. With greater resolve and cooperation at all levels of government, we can ensure that our transportation system delivers – every day – improved economic opportunity and quality of life.



Striking the balance

With continued uncertainty in its federal transportation funding, Missouri is taking a pragmatic approach to meeting its mobility commitments – hoping for the best, but planning for the worst.

By Patrick K. McKenna | Director, Missouri Department of Transportation

Missouri operates the seventh largest transportation network in the country, with nearly 34,000 miles of state roadways and 10,400 bridges, yet it is funded at 48th in the nation in revenue per mile. So what is a state like Missouri to do when faced with the uncertainty of federal funding and the need to make public commitments to communities for transportation investments? This is just one of the critical questions the Missouri Highways and Transportation Commission and the state's Department of Transportation are determined to answer.

It has long been the tradition in Missouri that if a project is identified in the Statewide Transportation Improvement Plan – a rolling five-year plan updated annually and approved by the MHTC – it is a project that will be constructed. This commitment to the public is vital. Communities that so desperately need transportation improvements have to be able to plan for construction impacts and inform citizens

how their transportation user fees are invested. We know such public commitment is vital because a capital plan in the early 1990s promised projects that exceeded the available revenue and ultimately failed to deliver. This created public dissatisfaction and suspected long-term damage to public trust when we asked for additional transportation investment in Missouri.

Prior to the passage of the Fixing Access to Surface Transportation Act (FAST Act) in 2015, and fresh off a public defeat of a state transportation investment proposal, the MHTC and MoDOT created a plan that limited short-term financial risk, matching years of short-term federal funding. Imagine a five-year capital investment plan that abandoned maintenance on 26,000 of the 34,000 miles of state roadways due to funding constraints, both state and federal. This was the statewide transportation improvement plan for 2016-2020.



Federal Funding Uncertainty

Fortunately, due to congressional action to pass the FAST Act, Missouri was able to scrap the proposal and update the 2017-2021 plan with a brighter financial and planning horizon. Using existing resources in the State Road Fund to fully match FAST Act federal investments, Missouri added \$2.5 billion to its plan, enabling work on hundreds of construction projects and resuming maintenance over all state roads. This level has been sustained throughout the years of the FAST Act, but that authorization only runs through 2020.

How do states like Missouri fulfill project commitments in long-term plans without long-term funding certainty from the federal surface transportation authority? Two factors weigh down current planning:

- The FAST Act was passed with a \$7.6 billion rescission of contract authority in 2020, unless Congress acts to remove; and
- Without reauthorization of the surface transportation act, and without a funding fix for the federal Highway Trust Fund (HTF), there could be both short- and long-term federal funding instability at best, and possible drastic reductions in federal funds available to states, at worst.

By some estimates, the gap in HTF revenues from current surface transportation authorization levels could be as much as 35 percent – approaching \$20 billion per year. How can this be the case? The motor fuels tax has not been changed at the federal level since 1993 – not even to adjust for inflation.

In Missouri, we have studied the possibility of converting the state's registration fee from taxable horsepower to a fuel economy standard. Some states are even talking about a conversion to vehicle miles traveled. I'm not sure that we're quite ready for that conversion, but something like that may well happen at the federal level.

Planning for Best and Worst Scenarios

What is a state like Missouri to do when faced with a financial uncertainty and the need to plan construction investments over a long term? First, we had to estimate



will not occur during this next cycle. Our plans are to define either the promise of federal action or the impact of failure to act on every project. It may require this specific effect to the public, to communities and to all those we serve to promote the action needed to avoid any future impacts.

With an estimated \$8.5 billion of unfunded transportation investment needs in the state of Missouri, including thousands of miles of roadway improvements, corridor capacity needs, safety improvements and bridge work to complete, we understand how critical the need for stable funding is for planning purposes. Just hoping for the best will not be enough to provide support to encourage congressional action. Planning for the worst and documenting at-risk projects and community impact with specificity may be our best hope to encourage action.

In my tenure as President of the Mid America Association of State Transportation Officials (MAASTO), I urged our member states to continue to educate their respective elected officials on the need to fully fund the transportation system and retain allocation formulas. All state DOTs have a vital stake in solving our nation's transportation funding issues.

States need federal leadership and partnership to fund the nation's infrastructure needs. Our economy will only move as fast as transportation networks will enable. The time for action is now. ■

the financial impact of this uncertainty. Beginning in 2021, we could lose about \$330 million of approximately \$1 billion in total federal revenue. Unfortunately, we have already planned for approximate FAST Act levels of funding for our 2019-2023 Statewide Transportation Improvement Program (STIP). That could lead to some serious disappointment if the HTF is not fully funded and a surface transportation act is not passed.

Missouri works with metropolitan planning organizations and regional planning commissions to prioritize and plan transportation projects. In looking ahead to our 2020-2024 STIP, we are asking our planning partners to work with us to

develop a document that "hopes for the best, but plans for the worst." In order to avoid disruptions in the planning process, we will:

- Assume that Congress will authorize and fund the federal program – at least at FAST Act levels
- Develop financial and project plans to match

However, we are asking our planning partners to work with us to identify, in advance, those projects that are at risk should federal inaction occur. This planning exercise will share the difficult responsibility of knowing exactly what transportation work

About the Author

Patrick K. McKenna has been the Director of the Missouri Department of Transportation since 2015, and oversees all of the department's operations. Before joining MoDOT, he served as the deputy commissioner of the New Hampshire Department of Transportation. Patrick also spent 13 years in Washington, D.C., working in the U.S. Senate, where he most recently served as chief financial officer. He is Vice President of the American Association of State Highway and Transportation Officials (AASHTO) and is a member of its executive committee. He also has served as President of the Mid America Association of Transportation Officials (2017-2018) and is on the executive committee for the National Academy of Science's Transportation Research Board (TRB). A graduate of Bentley College, he also holds an M.S. in Management and Finance from the University of Maryland University College.

Keeping Austin Moving

Austin has earned a reputation as one of America's most vibrant and livable cities. The region's transportation leaders are striving to keep this extraordinary momentum through creative, multimodal solutions.

By Mike Heiligenstein
& Randy Clarke

Executive Director, Central Texas Regional Mobility Authority
President and CEO, Capital Metro

In recent years Austin, Texas, has become a fixture on lists of the best places to live in America – and for good reason. The population has grown to more than two million today. It has a winning combination of economic opportunity, natural beauty and rich cultural assets. The city is home to a top university, music festivals and entertainment events. Underpinning a highly attractive lifestyle are strong economic fundamentals: a robust labor market, a string of high-tech investments and unemployment rates that are among the lowest in the country.

Therefore, the region has witnessed a rapid expansion of residential and commercial development – forming roughly concentric circles – that stretches ever-farther away from the city itself. The city is adding residential capacity at a quick pace, but it is far less significant than the construction that's going on in the burgeoning suburbs.

With this expansive growth comes the challenge of mobility and the realization that roadway expansion alone will not be an effective and efficient solution to move

people and goods. This is why the region is relying heavily on a two-pronged strategy: to provide people with highway options, including tolled roads, that help them spend less time in traffic and more time living their lives; and developing a more robust transit system that is more far-reaching and responsive to the people who live within the city and out into the suburbs.

Driving Innovation

Efficiently using the transportation funds available requires us to be creative and responsive to community needs. Both the Mobility Authority and Capital Metro, the two organizations we lead, share perspectives on how best to fund the assets that can provide congestion relief and set the stage for the region's doubling of population in the coming two decades.

We work very closely with members of the Texas legislature, encouraging them to keep transportation funding high on their priorities list. Right now, we do not have nearly enough funding from the state to support a comprehensive response to the region's current mobility challenges, let alone those coming in the future.

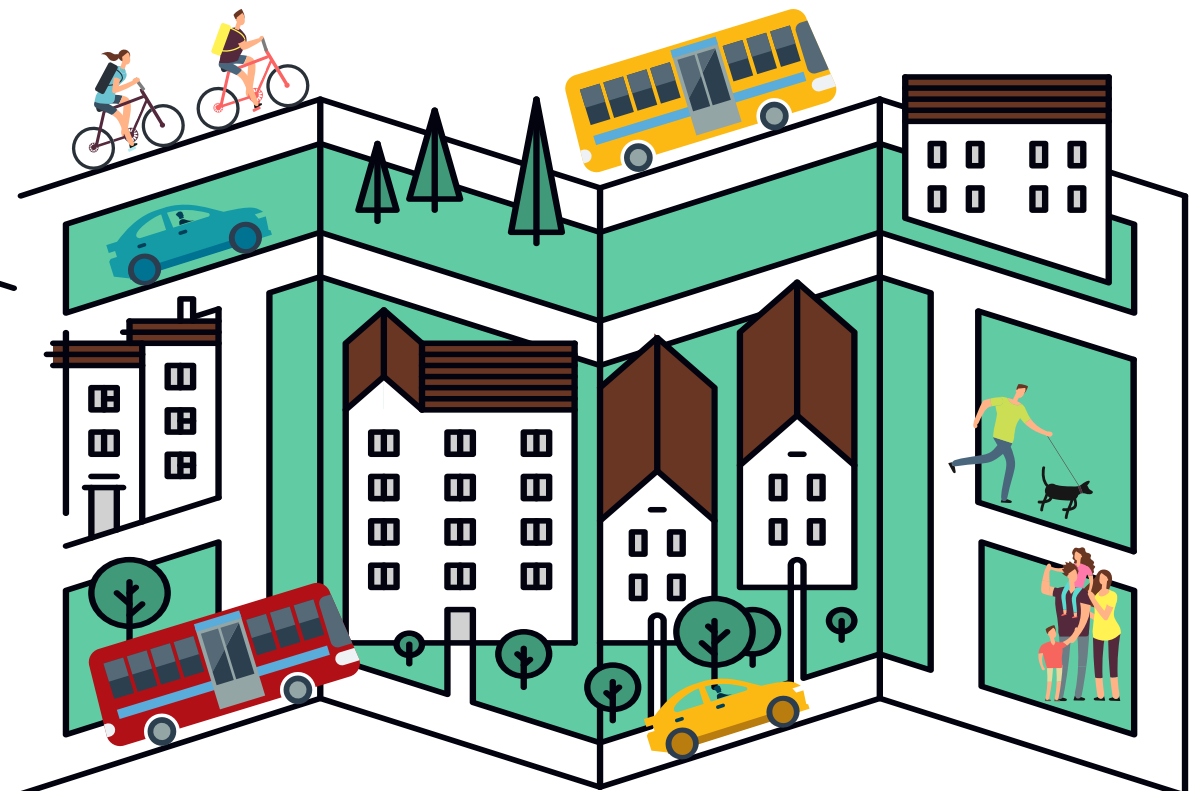
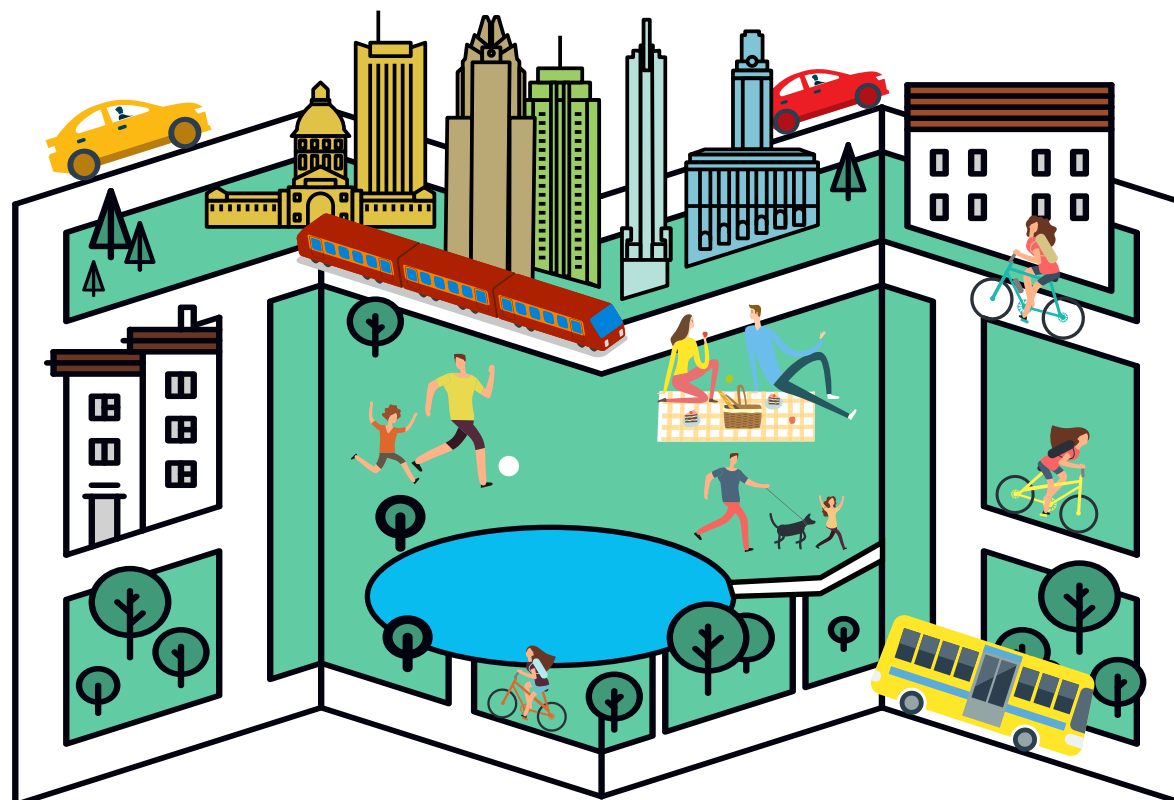
Federal funding, too, has its limits. Texas is a "donor state," sending more gas-tax dollars to Washington than it gets back every year.

Thus, we need to augment both federal and state funding through alternative financing options that can expand mobility options, whether that involves roads or transit assets.

Tolls Are Vital Tools

Since the launch of the Mobility Authority in 2005, tolls and user fees have offered an alternative to the reliance on government funding to ensure that we're able to make critical improvements to our transportation system. The agency started with no assets or revenue that year and has since built \$2 billion in assets, with \$1.5 billion in pipeline projects. All toll revenue from roads the Mobility Authority operates is reinvested in regional transportation, both to maintain these facilities and fund future expansion. Currently, the Authority has four toll roads in operation:

- 183A Toll, an 11.6-mile toll road northwest of Austin, was our first project. Phases 1 and 2 were completed in 2007 and 2012, respectively, and Phase 3 is in the proposal stage.
- 290 Toll, a 6.2-mile toll road east of Austin, saw completion of Phases 1 and 2 in 2012 and 2014, respectively; Phase 3 is scheduled to open in 2020.



- 71 Toll Lane, a 4-mile limited-access toll road southeast of Austin, near the Austin-Bergstrom International Airport, opened in 2017.
- MoPac Express Lane, an 11-mile stretch of variably priced toll lanes through the heart of Austin, opened in 2017; we also have launched an environmental study for an extension, MoPac South.

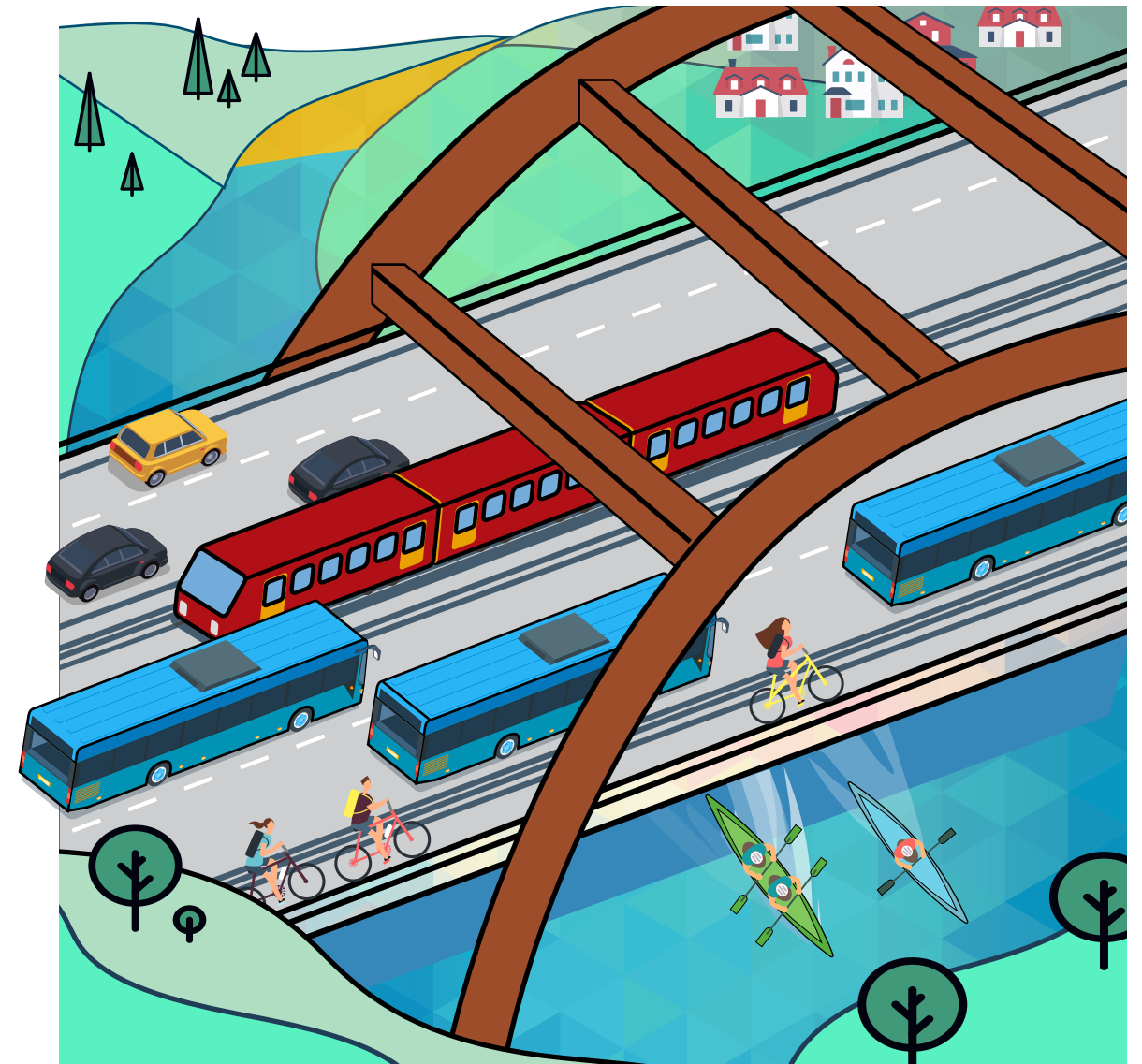
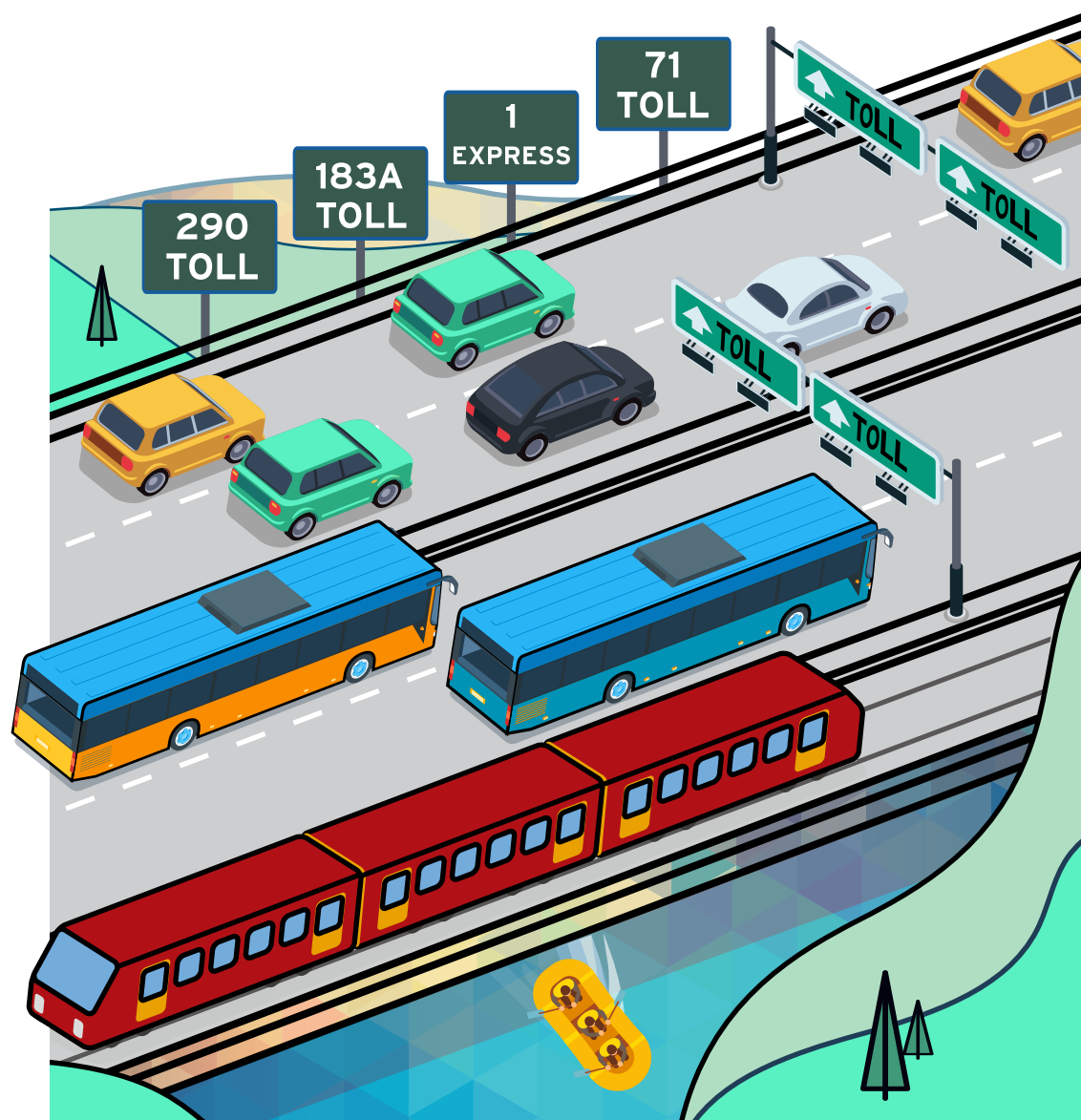
The MoPac Express Lane is the first-of-its-kind congestion management tool in Central Texas, providing an essential option for drivers traveling along one of Austin's busiest routes, either to reach downtown or points beyond. MoPac is used by many as an alternative to Interstate 35, which runs through the heart of Austin. Right now, MoPac carries more than 180,000 cars and trucks each day, a number expected to rise to more than 220,000 per day by 2035.

As a whole, the Mobility Authority's toll roads register between 9 and 10 million transactions a month, with the MoPac Express Lanes accounting for about 1 million of those. As part of every road project, we also invest in expanding or improving non-tolled lanes, and whenever feasible we construct multimodal, pedestrian and bike-friendly shared-use paths.

Of note, we place great emphasis on environmental factors, and take advantage of the experience of experts from around the nation. We're currently building a new toll road, SH 45 SW, that will include a number of redundancies that will make it the cleanest road in all of Texas.

Greater Emphasis on Transit

Capital Metro, Austin's regional public transportation provider, is working to expand its network of transit options, which includes



improvements to its existing system as well as a plan for a high-capacity transit system for the future. Each day the leaders at Cap Metro ask two questions: How can we make public transportation more responsive today? And, how will we build a system that can move more people tomorrow without adding more vehicles to our roads?

Formed in 1985, Cap Metro, has relied primarily on its robust bus system to provide transit service to people in the region. Cap Metro operates 14 high-frequency bus routes, with more than 350 buses and more than 50 MetroRapid buses (for a modified version of Bus Rapid Transit on the city's busiest arterial corridors). This strategy has been highly successful: the system has about 30 million boardings every year and serves travelers not only in the urban center but also deep into the suburbs.

However, we know that with Austin's growth trajectory we must significantly increase access to high-capacity transit options, which can move more people, more efficiently. Currently, Cap Metro operates one commuter rail line, the Red Line, which connects downtown Austin to the northwest suburbs. This 32-mile facility is very popular, and the city is pleased to be breaking ground on a new terminal in downtown Austin, which will offer an improved experience for our riders.

This single line, however, represents only the first of several dedicated transit lines we hope to put into service in the coming years. While other fast-growing U.S. cities are investing millions (or billions) in public transportation, Austin hasn't yet made that same commitment. In 2014, we brought a rail bond proposal to the ballot box but were not able to garner enough votes to pass it.

Capital Metro’s high-capacity transit plan, Project Connect, has the potential to build a transportation system for a more connected, 21st-century city. In addition to creating new transit services that serve communities from the downtown area to the outlying suburbs, Cap Metro seeks to invest in next-generation technologies, such as a 100 percent electric bus fleet, and efficiency enhancements, such as dedicated lanes, signal privileges and queue jumping.

Cap Metro currently is in the process of soliciting ideas from a range of stakeholders – hosting formal meetings as well as speaking with transit users on the street and in the neighborhoods – to build a proposal that can meet Austin’s needs. Our intent is to have this transit initiative on the ballot in November 2020. Community engagement throughout the region is a big part of this effort. In particular, we must forge partnerships with neighborhood associations and suburban community groups to demonstrate the benefits of transit.

In the meantime, Cap Metro is strategically investing to improve the experience for users every day. The agency made a \$10 million investment in high-frequency routes, and we have dramatically improved our bus stops. We also are striving to broaden our value to the community, including a program that provides free transit use to primary and secondary school students.

Recently, the Mobility Authority began a creative partnership with Cap Metro by giving the transit agency’s buses free access to its tolling facilities. It’s a win-win proposition: road congestion is alleviated by boosting transit use on heavily used commuter routes, and commuters can enjoy an improved experience (such as onboard Wi-Fi) and lower costs as they travel to and from work.

Since the partnership began, Cap Metro ridership has increased by more than 50 percent year over year on the MoPac Express Lanes alone.

Looking Forward

As we prepare for the future, we are factoring in the effects of the technological revolution taking place in our industry, such as the rise of big data analysis, the advent of autonomous vehicles and the transition

“Since the partnership with the Mobility Authority began, Cap Metro ridership has increased by more than 50 percent year over year on the MoPac Express Lanes alone.”

Going forward, our two agencies will work together to unlock additional synergies. For example, by sharing data more effectively, we can provide the public with up-to-the minute information about their commutes and other travel plans. At the same time, we can gain a deeper understanding of how people are using our transportation assets, what gaps exist and how we can fine-tune or augment our existing services to provide even greater value.

to mobility as a service in the decades ahead. Some trends, such as with the proliferation of scooters throughout Central Austin, are arising so quickly that we’re forced to adapt on the fly.

We want to ensure that our facilities are “future ready” for advanced technologies and emerging modes of transportation. However, it’s important that we aren’t investing in the latest “shiny object” to the detriment of long-term, sustainable systems. So, as we invest, we are asking ourselves these questions:

- Does this new technology have the potential to reduce congestion?
- Will it make our system more efficient?

- How quickly will the public accept the new technology?
- Will it improve public safety or introduce entirely new risks?
- Can it help us reduce environmental impact, such as by cutting carbon emissions?

Better transportation infrastructure strengthens the fabric of society. It connects people, provides access to jobs and vital services, and ideally it can make life a little less stressful while preserving more time to spend with loved ones.

At the core of our joint efforts – and of all the political and community leaders here – is to keep Austin thriving while preserving the quality of life that’s kept us on the shortlists of best places to learn, live, work, play and raise a family. ■

About the Author

Mike Heiligenstein is the Executive Director of the Central Texas Regional Mobility Authority, a multimodal transportation agency. Mike has served the Mobility Authority since 2003, overseeing its growth from a startup transportation agency to a nationally recognized leader in toll road operations. During his 30 years as a public official, first as a Round Rock City Council Member and later as a Williamson County Commissioner, Mike has focused on advancing a wide range of vital infrastructure projects. His national leadership roles include current service on the boards of the Texas Transportation Institute and the International Bridge, Tunnel and Turnpike Association. Mike is a graduate of the University of Texas with degrees in government, a master’s of government and a Master of Business Administration.

About the Author

Randy Clarke has been the President and CEO of Capital Metro, Austin’s public transportation agency, since March 2018. For the previous two years, he served as vice president of operations and member services at the American Public Transportation Association in Washington, D.C. Prior to that, he spent seven years in various positions with the Massachusetts Bay Transportation Authority in Boston, including deputy chief operating officer. Randy was a key member of the senior leadership team at the MBTA, which provides 1.2 million trips daily. He is a graduate of Acadia University in Nova Scotia and holds a master’s degree in public policy from the University of Southern Maine.

HNTB is an infrastructure solutions firm providing award-winning planning, design, program management and construction management services.

[hntb.com](https://www.hntb.com)

 [@HNTBCorp](https://twitter.com/HNTBCorp)

 facebook.com/HNTBCorp

 linkedin.com/company/hntb

 [@HNTBcorp](https://www.instagram.com/HNTBcorp)

The HNTB Companies
Infrastructure Solutions

