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## **The promise of traffic reduction: Incorporating congestion pricing to help provide relief, restore mobility and improve equity in U.S. cities**

WHITE PAPER | 2019

Snarled traffic has become a defining feature of America's metropolitan areas. Congestion pricing as part of a traffic reduction program is gaining momentum as an option to provide traffic relief and improve reliability. This white paper summarizes some of the considerations for including a congestion pricing component.

*"Today, with congestion pricing, we can implement more equitable and efficient transportation systems in our cities."* - Matt Click, AICP, vice president, HNTB Corporation

In this white paper:

- Congestion pricing considerations are outlined.
- Technology best practices are shared.
- Policy factors for decision makers are provided.

Traffic congestion has become a defining element of many U.S. cities. According to the 2018 annual report of most congested U.S. cities by transportation data firm [INRIX Research](#), motorists lost 718 hours per person sitting in traffic, for a total cost of \$33.7 billion, in just the combined top five metropolitan areas alone. The costs of congestion include increased fuel and vehicle operating expenses, lost productivity at work, less time engaging in leisure activities and growing freight costs passed on through higher consumer prices.

The growing economic costs of congestion, coupled with mounting public frustration, have created new opportunities for critical discussion and solutions to the problem. At the forefront of new conversations are innovative congestion pricing strategies and increased participation across transportation modes. The time is right for discussions that holistically evaluate how innovative partnerships and multiple transportation modes can create coordinated mobility solutions that focus on more than individual corridors or passenger vehicles.

Regardless of the form it takes, congestion pricing presents the opportunity for broader regional approaches that use pricing to improve transportation equity, enhance urban mobility options and supplement other travel demand management solutions. Combined, these methodologies provide more choice and better service, with a focus on reliability and equity for all system users.

Congestion pricing improves the quality of travel without requiring states or cities to raise taxes or undertake large, expensive capital projects. By partnering with public transit agencies, a regional approach to mobility can be achieved with enhanced travel options. Congestion pricing strategies aim, in part, to reduce congestion by encouraging motorists to change their travel habits, either by driving at a different time of day or, with the availability of suitable transit or active transportation options, not to drive at all.

The Federal Highway Administration points out that, as congestion pricing reduces delays, it also minimizes stress, increases the predictability of trip times, shortens incident response times for emergency personnel, allows more efficient land use, and is a greener and healthier approach to transportation.

U.S. transportation agencies that employ congestion pricing typically dedicate the revenues they generate to operating and maintaining the priced corridors themselves. In some cases, congestion pricing generates sufficient revenue also to provide for debt service payments, transit improvements or supporting capital projects. Even when congestion pricing does not provide direct funding for transit services, it can benefit transit users by providing bus access to uncongested lanes. As a gridlock-mitigation strategy, congestion pricing enables a

broad, collaborative mobility approach that offers advantages to everyone in a city's core network.

### Technology considerations

Technology is foundational to the success of congestion pricing. A general best practice is to begin with technology that is already proven for revenue collection and with which customers already are familiar.

As models change and technology advances, however, decision makers must evaluate systems and choose options that will both achieve their goals and serve users, now and into the future. Three primary factors that should guide the technology analysis include:

- **User identification.** At present, transponder-based identification is reliable, proven and inexpensive. It has wide acceptance with a high concentration of customers who have transponders in their vehicles for express lane or conventional toll facility use, and it can be viable regardless of whether motorists are on highways or city streets.

When customers are not using transponders, use of cameras to photograph license plates represents the state of the industry today. This technology has been deployed where early congestion pricing projects have been implemented.

Future technologies include acquiring motorists' information through a user's smart phone-based GPS app, interfacing with a vehicle's satellite radio and - as "connected" cars roll off the assembly line - direct reporting from vehicles to the agency's roadside equipment when they drive into a congestion-priced area.

- **Classification to determine what users will pay.** Among a spectrum of available technologies, the choice to implement one over another depends upon whether pricing will be based on simply the numbers of vehicles using the congestion-priced area, on the numbers of axles per vehicle, on differentiation of vehicle size, on number of people in a vehicle or on some combination to offer further equity.

Transponders and license plate cameras can identify individual vehicles. Sensors can be placed in pavement to identify numbers of axles or installed above the roadway to detect vehicle sizes. Other solutions still being proven in the field include camera- and scanning-based technologies that identify vehicle size and numbers of axles. Sensor-equipped transponders continue to strive toward further accuracies to identify the number of occupants. And connected vehicles may one day replace many sensors by being able to accurately and securely report their types, sizes, numbers of axles and numbers of occupants.

- **Enforcement.** Currently, the use of devices (such as transponders, mobile apps or registered license plates) that allow agencies to identify and bill users is voluntary for the customer, and a certain percentage of those who take advantage of congestion-priced roadways will try to do so without paying for the service. This is an unfortunate fact that decision makers must consider in selecting technology for congestion pricing projects. A technology-backed enforcement program that is safe, reliable and defensible in court will build public trust in congestion pricing.

Today, the state of the practice within the industry for enforcement is the use of cameras that photograph license plates, allowing agencies to work with departments of motor vehicles to identify registered owners of vehicles who don't have - or purposely avoided using - transponders or any other voluntary product. While connected vehicles will one day report vehicle and responsible party information, reducing or eliminating the need to obtain this data from a DMV office and locate the owner, agencies must consider traditional options until the connected vehicle population is large enough.

Besides the need for technology that helps agencies pursue payment, decision makers need to offer options that make it as easy as possible for people to pay. This may include standard monthly invoicing that allows "pay as you go" using connected credit cards, digital wallets and apps for online payments. Unbanked or underserved customers may require non-traditional alternatives, such as paying cash at a local grocery store or other retail outlets.

### Policy considerations

For decision makers, congestion pricing proposals require careful planning to minimize political barriers and ensure broad support. Policy considerations include:

- **Programmatic vision and its associated goals and objectives.** What are decision makers trying to accomplish? Is the main objective a targeted reduction in congestion, improving social equity or a specific revenue goal to fund a new project or program? Are there other priorities or incentives for the implementation (mode alternatives, transit service, streetscaping, equity, etc.)?
- **Pricing structure.** Decision makers must determine how rates will be established. Will congestion prices be fixed, vary throughout the day or be based on congestion conditions? What will the price ranges be? Will locals and non-locals or trucks and cars be charged differently? If priced lanes include existing tolled bridges or roads, is there a need for a second charge?

Project goals - whether congestion reduction alone or congestion mitigation with revenue generation - should inform the conclusions that drive the pricing structure.

- **Social/environmental equity.** Careful planning ensures that, as part of a congestion pricing plan, individuals in all socio-economic groups have equal access to adequate transportation choices. When the project purpose includes incentivizing the shift from automobiles to other modes of transportation, leaders must ensure that viable alternatives exist. Transit system fixes or upgrades may be needed to provide greater access to trains or buses, and plans may include programs that would benefit disabled, veteran and lower socio-economic populations.
- **Transparency.** Decision makers should clearly and specifically state the project's revenue intentions. If the intent is to generate revenue beyond that required for system maintenance and operations, leaders should report on the collection of all funds and explain what projects are planned to be delivered with that money and when they will begin and be completed. If congestion relief is the project's primary goal, what hot spots will be targeted, and what will the performance metrics be? In any case, stakeholders should receive regular reports on progress against the established goals.
- **Engagement.** Decision makers should engage with the public, all public transportation agencies, local governments and area elected officials as well as with other stakeholders. These may include alternative transport entities (e.g., Uber, Lyft, taxi unions), bicyclists, pedestrian groups, the business community and residential neighborhoods, among others. Face-to-face meetings to listen to agencies and communities, explain the project, respond to questions and address concerns are invaluable in shaping the project and gaining support.
- **Communication Strategy.** The goal of communications is to educate and inform all affected communities and obtain public feedback regarding the project. A strong communications strategy informs and educates stakeholders about the project's purpose, benefits and technical aspects and helps them understand how the pricing system will work and how revenue will be used equitably in the region. It also addresses misperceptions, including dispelling the myth that congestion pricing's sole objective is revenue generation. Decision makers should actively work with project dissenters to build understanding and engage them in the project discussion.
- **Governance, Authorization and Approvals.** Decision makers will need to ascertain which of the many agencies involved in a congestion pricing project is best suited to manage it and

what approvals and legal authorities are required (local, state and/or federal). There's no "right" answer. Consideration could be given to local input, the capabilities of existing public entities to collect revenue and manage customer accounts and the possibility of private participation. In most cases, these initiatives also will involve development and passage of state legislation, local MPO/council consultation and possibly federal approval/consultation to permit the new pricing program.

- **Legal and Regulatory.** Decision makers will need to evaluate which types of approvals and legal authorities are required and whether the new program will conflict with or need to accommodate existing statutes or policies. Additionally, it might be prudent to proactively understand the potential of any future litigation to develop mitigation strategies in the project development phase.

### **Congestion pricing implementation**

For stakeholders, the idea of congestion pricing may pit the desire for less gridlock, faster travel times and more choices against drivers' hesitancy to pay more to drive their cars. Recognizing that projects are more quickly accepted when they have minimal adoption requirements and everyone benefits, transportation leaders should consider implementing congestion pricing strategies with proven transportation technology like toll transponders. Decision makers also must consider scalability and flexibility, especially as it relates to integration with future capabilities of evolving technologies.

Traffic is a constant headache in major U.S. cities. Congestion pricing as a strategy to address it will increasingly gain traction. Studies that evaluate its potential are the starting point for transportation leaders who want to consider the promise of congestion pricing in their regions. Studies should include:

- **Policy option assessments** tailored to the region and the project
- **Social and geographic equity and mobility assessment** to evaluate the impacts on affected communities and the ability of the existing transportation network to accommodate or benefit from the new program
- **Pricing and revenue plans** that address operational, traffic management and capital investment strategies and the resulting rates, locations and classifications
- **Metrics** that identify the key indicators of successful performance regarding congestion mitigation and financial goals
- **Cost estimates** for capital, transactional and lifecycle needs of the congestion pricing

program, as well as for the programs supported by any new revenue generated. Operations and maintenance costs also are an important component of cost estimates.

- **Gross and net revenue forecasts** and financing assessments
- **An implementation plan** that lays out an operations concept, approval processes, schedule, pre-procurement activities, performance metrics and assessments, communications strategy, and other key components required to launch and execute the project

Congestion pricing is a viable and proven solution to the traffic problems plaguing America's largest cities. It can accommodate a coordinated approach to solving transportation mobility needs across modes so the solution benefits all users.

Transportation leaders who are contemplating this strategy will benefit from partnering with HNTB to develop and implement congestion pricing strategies that improve quality of life and the economic efficiency of their region's transportation networks.

### **About the Authors**

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