TECHNICAL MEMORANDUM

DATE: **March 23, 2023**
TO: **CMP Committee and Boston Region MPO Board**
FROM: **Seth Asante and Ryan Hicks, MPO Staff**
RE: **Identifying Roadway-Pricing Programs for Interviews**

1 PURPOSE

Roadway pricing has been implemented through several methods in the United States for the primary goals of reducing congestion and greenhouse gas emissions, generating funds to maintain highway and public transportation infrastructure, and managing travel demand by encouraging motor-vehicle drivers to shift their trips to alternative travel modes or travel routes, or to travel on off-peak periods.

The Boston Region MPO elected to fund a study called Learning from Roadway Pricing Experiences with its federally allocated metropolitan planning funds during federal fiscal year (FFY) 2023. The purpose of this study is to identify the political, institutional, and technological challenges, including barriers and opportunities that arise from implementing roadway-pricing strategies.

Task 1 of this study is to identify and select roadway-pricing projects for further evaluation. MPO staff identified 13 roadway-pricing programs in the United States that could be further reviewed as part of this study. Figure 1 is a map that shows the locations of the 13 programs. Table 1 presents information on each program including the program description, purpose or goals, roadway-pricing policy, challenges, and considerations for incorporating congestion pricing in the planning process.

MPO staff will select five of the 13 programs for further evaluation and interviews. MPO staff are requesting input from the members of the Congestion Management Process (CMP) Committee of the Boston Region Metropolitan Planning Organization and other MPO board members to help select the five programs.

2 ROADWAY-PRICING METHODS

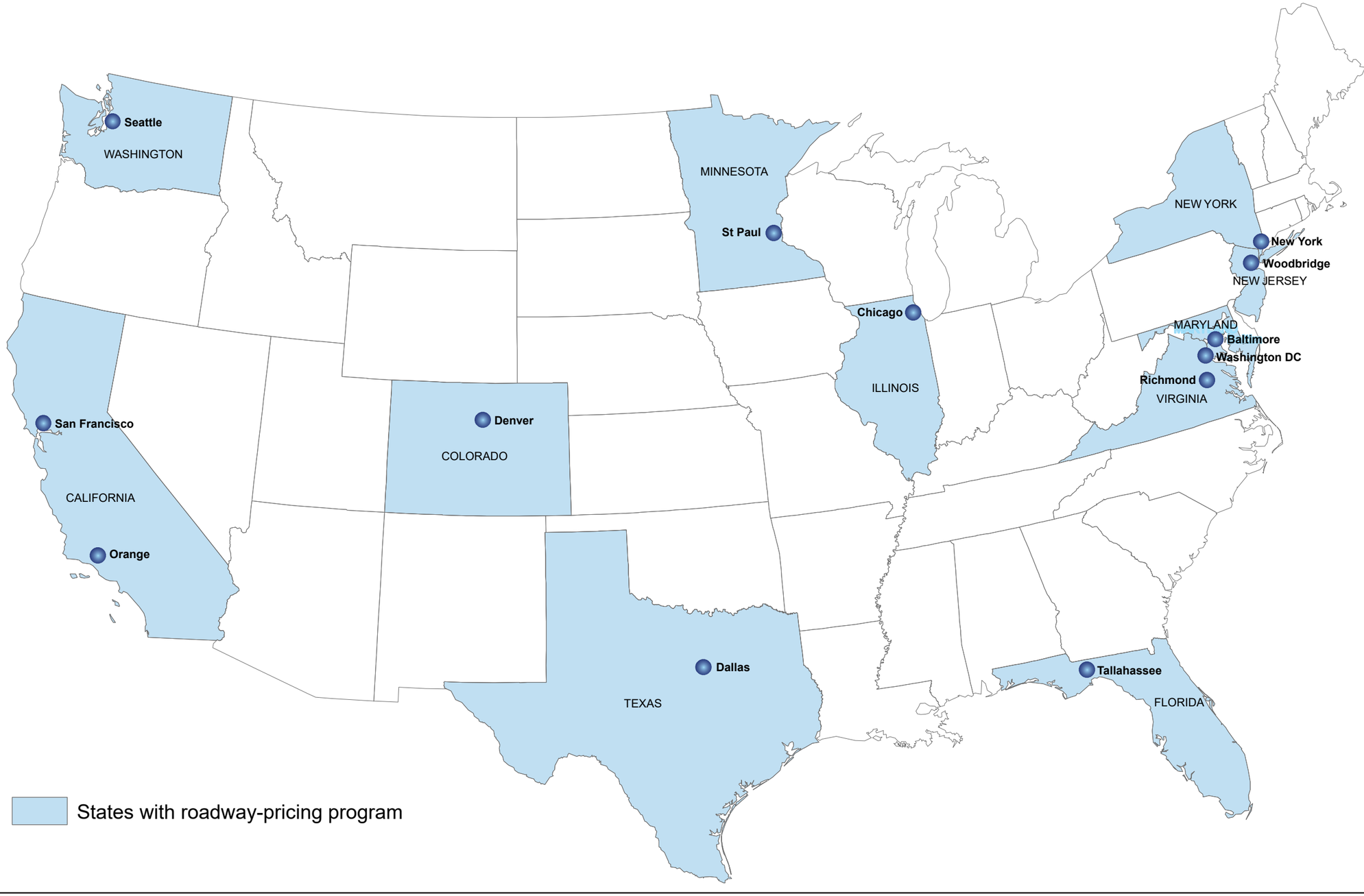
Roadway-pricing methods fall into two broad categories: road tolls and congestion pricing. Road tolls are a common way to typically maximize revenue to pay for highway and bridge improvement costs. Road tolls do not vary by time-

of-day and are not intended to reduce congestion. It is possible to update an existing toll facility so that it meets the criteria of congestion pricing.

Congestion-pricing policies set variable road tolls so that higher prices are charged under congested conditions. The intent is to reduce congestion, shift demand to other modes of transportation, diverge trips to off-peak times, and reduce air pollution. The following are the various forms of congestion pricing:

- *Cordon (Area) Tolls.* Cordon tolls are variable and paid by users to drive in a designated area, usually a city center.
- *High-Occupancy Toll (HOT) Lanes.* HOT lanes are high-occupancy vehicle (HOV) lanes that also allow use by a limited number of low-occupancy vehicles that pay a toll.
- *Express Lanes.* Express Lanes are adjacent to existing general-purpose lanes to provide users the choice of a more reliable trip by paying a variable toll.
- *Variable-Pricing Tolling.* Variable-pricing tolling is a technique to use a monetary cost to shift travel demand to off-peak times, less congested facilities, or other travel modes. Variable pricing can apply to any existing or new facility, including toll roads, managed lanes, cordon areas, parking pricing or curb pricing.
- *Targeted Road User Tolls (TRUT).* TRUT charges specific vehicles, such as large trucks or transportation network providers (TNPs), to enter a cordon or roadway segment. Other vehicles are exempt from tolling.
- *Parking-Pricing Policies.* Parking-pricing policies incorporate strategies and incentives, other than tolls, for people to consider alternatives to driving.
- *Curb-Management Pricing.* Curb-management pricing is a policy that charges vehicles for accessing curb space where passengers board or alight.

Roadway-pricing strategies typically provide discounts to address equity issues and promote clean air. Free usage on congestion-pricing facilities is permitted for certain vehicles, depending on their role in society and their impact on the environment. In addition, discounts are considered for low-income populations that may be adversely burdened by the costs on certain congestion-pricing facilities.



BOSTON REGION MPO

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Figure 1
Locations of Roadway-Pricing Programs

Learning from Roadway Pricing Experiences

Table 1
Identifying Roadway-Pricing Programs for Interviews

Implementing Agency	Program Description	Purpose/Goals						Roadway-Pricing Policy	Challenges	Considerations for Incorporating Congestion Pricing in the Planning Process
		Reduce Congestion/ Increase Person Flow	Improve Air Quality/Reduce GHG/Improve Quality of Life	Improve Safety	Improve Reliability/ Predictability of Travel	Generate Revenue[1]	Support Economic Growth			
	Cordon Pricing									

Tri-borough Bridge and Tunnel Authority, Metropolitan Transportation Authority, New York City, New York	**The Central Business District (CBD) Tolling Program** would toll vehicles that enter Manhattan CBD and would include a zone that would cover 60th Street in Manhattan and all the roadways south of 60th Street.
	
	https://new.mta.info/project/CBDTP
	
	Status: Environmental Assessments completed in August 2022, and it is anticipated to go into operation in 2024.
		X	X			X		• Cordon tolls
								• Charge users once per day
								• Variable tolling
								• New York State tax credits for residents of the CBD making less than $60,000
								• Free for emergency vehicles and vehicles transporting people with disabilities
									• Opposition from elected officials, trade and civic associations, and the public.
									• Concerns about:
									  ○ disproportionate harm to working and low-income people
									  ○ negative environmental and financial impacts
									  ○ increased traffic in outer borough communities
									  ○ increased cost of business
										Analysis of:
										• potential shift to other travel times and modes of transportation
										• how roadway pricing will impact equity populations
										• how it will help support climate goals and target
										• potential congestion reduction from roadway pricing
										
										Lessons to be learned from this program include:
										• environmental impact assessments
										• engagement with business chambers and residents
										• concerns related to equity populations
										• establishment of tolling policies

	Cordon Pricing/Targeted Road User Tolls (TRUT)									
City of Chicago, Chicago, Illinois	**The City of Chicago** operates the Transportation Network Providers (TNP) Congestion Pricing. TNPs such as Uber or Lyft, which operate within the designated downtown cordon during peak-period pay surcharges. The designated downtown cordon includes the Chicago Loop, West Loop, South Loop and the neighborhoods of River North, Streeterville, Near North, Gold Coast, Old Town, and Goose Island. https://www.chicago.gov/city/en/depts/mayor/press_room/press_releases/2019/october/NewRegulationsEaseTraffic.html Status: In operation since 2020.	X	X			X		• Cordon pricing style with tax • Designated peak period is weekdays between 6 AM and 10 PM. • $1.75 downtown zone surcharge for any single TNP trip that has an origin-destination in the downtown zone during peak period. • $0.60 surcharge for any shared TNP trip that has an origin-destination in downtown zone during peak period. • $5.00 surcharge for any trip that begins or ends in a special zone citywide (includes Airports, Navy Pier and McCormick Place Convention Center).	• Opposition from TNP companies persist. There is also some opposition from the public.	• Chicago Department of Transportation continues to work with all stakeholders from ride-hailing companies to transportation advocates on long-term congestion policies that will further support goals ensuring affordable, accessible and reliable transportation options serving all areas of the city. • The TNP congestion pricing presents an opportunity for Chicago to both reverse the inequities embedded in its existing transportation system and to improve access to opportunities. • There have been discussions about expanding this program to additional neighborhoods. Lessons to be learned include: • targeted pricing strategies focusing on specific problems and areas • engagement with stakeholders on policy changes

[1] Uses of the revenue generated varied and included funding transportation improvements and providing travel choices; maintaining and preserving infrastructure; promoting transportation equity; promoting sustainable modes of transportation; supporting public transit; and making shared rides affordable in transportation equity neighborhoods.

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	Express Lanes									
Colorado Transportation Investment Office, Colorado Department of Transportation, Denver, Colorado	Colorado Department of Transportation (CDOT) operates and maintains a network of **CDOT's Express Lanes** within the Denver-Boulder metropolitan area. https://www.codot.gov/programs/expresslanes https://www.codot.gov/programs/ctio Status: In operation since 2006, some express lanes are currently in development or construction.	X		X	X	X		• Variable priced express lanes • Variable tolling (tolls will vary at set times and days) • Free for HOV 3+, motorcycles, buses, and transit vehicles • General-purpose lanes are free	• Achieving interagency collaboration • Ensuring that transportation equity communities receive an equitable distribution of the benefits of transportation activities without suffering disproportionately high and adverse effects	Stakeholder engagement was a key facet in developing recommendations for a future network of express lanes. The main communication goals were to educate and engage stakeholders and the public on: • the purpose and benefits from the use of express lanes • how the results from the express lanes may benefit their local communities • how to build a network of informed decision-makers to support the development and implementation of the projects Lessons to be learned include: • innovative financing schemes • program benefits and accomplishments • federal and state oversight • public engagement and acceptance of the program
Bay Area Infrastructure Finance Authority (BAIFA), a unit of the Metropolitan Transportation Commission, San Francisco, California	**The Bay Area Infrastructure Finance Authority (BAIFA), a unit of the Metropolitan Transportation Commission (MTC),** operates and maintains the MTC Bay Area express lanes. The growing Bay Area express lanes network is made up of more than 155 lane-miles, including: I-580, I-680 southbound, I-880, State Route 237, US 101, State Route 237, and State Route 85. https://mtc.ca.gov/planning/transportation/driving-congestion-environment/mtc-express-lanes Status: In operation since 2010, developing vision and scope for future express lanes network.	X	X	X	X	X		• Variable priced express lanes • Free for carpools, vanpools, commute buses, motorcycles, and clean air vehicles • General-purpose lanes are free	• Required consensus among many stakeholders. • Environmental groups raised concerns about the HOT network as contributing to more travel and emissions. • Income equity issues were brought up early in the planning process and were addressed by devoting significant revenues to transit patronized by low-income groups.	The MTC Transportation 2035 plan evaluated the HOT lane network with express bus enhancements, regional freeway operational improvements, and regional rail expansion. The evaluation included: • congestion and vehicle-miles traveled (VMT) reductions • greenhouse gas emissions • crash reduction MTC also developed a legislative framework for the express lane network that addresses issues such as: • the roles and responsibilities of the key players • use of revenue • project development processes MTC carefully framed its public engagement materials (web site, press releases, etc.) on the topic of HOT lanes for the public Lessons to be learned include: • MTC experiences from existing express lanes • Renewed scope and vision for future express lane network

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Texas Department of Transportation, Dallas, Texas	**The Texas Department of Transportation (TxDOT)** operates and maintains express lanes in the Dallas-Fort Worth area called TEXPRESS lanes. The TEXPRESS network is made up of more than 100 miles on eight roadways including, I-35E, I-30, SH 114, I-635E, SH 183, and LOOP 12. TxDOT has several public-private partnerships (P3) with the LBJ Infrastructure Group, NTE Mobility Partners, and NTE Mobility Partners Segments 3. https://www.txdot.gov/discover/express-toll-hov-lanes/managed-lanes/texpress-lanes.html Status: In operation since 2015, some projects are currently in construction or development.	X	X	X	X	X		• Variable priced express lanes • Discounts for HOV 2+ and motorcycles • General-purpose lanes are free	• Environmental Justice has been a significant regional issue for decision-makers and the North Central Texas Council of Governments (NCTCOG) worked extensively with FHWA, TxDOT, and others to address this. • More work was needed on communication and consensus building as the public and policymakers had difficulty understanding all nuances of the concept. • Complaints about "double taxation" as many feel that federal, state, and local taxes already pay for building and maintaining the transportation system.	• NCTCOG staff's strong analytical foundation through improving modeling tools facilitated analyzing a wide range of managed lanes options for consideration. • NCTCOG considered innovative financial strategies including setting toll rates, use of comprehensive development agreements, use of revenue, and disposition of excess revenue. • NCTCOG's consistent messaging with respect to the benefits of pricing and policy coordination with elected officials facilitated the planning process. Lessons to be learned include the benefit of building: • a strong analytical foundation through modeling tools • consistent message with respect to benefits • a sustainable transportation system
Virginia Department of Transportation, Richmond, Virginia	The **Virginia Department of Transportation (VDOT)** partnered with Transurban to create faster travel options including the express lanes on I-495, I-95 and I-395. VDOT operates the express lanes on I-66 inside the Beltway. The I-66 Express Mobility Partners operates and maintains the I-66 express lanes outside of the Beltway in a public-private partnership with VDOT. https://www.virginiadot.org/info/congestion_pricing.asp Status: In operation since 2012, some projects are in development.	X	X		X	X	X	• Variable priced express lanes • Free for buses, motorcycles, carpools, vanpools, and HOV 3+ • General-purpose lanes are free	• Drivers unfamiliar with congestion pricing may initially have questions and concerns. • More work was needed to establish early communications and engagement with state and local agencies, elected officials, stakeholders (roadway or transit users) and the public.	• The Metropolitan Washington Council of Governments' (MWCOG) travel demand model and regionally adopted land use forecasts were used to project travel demand for the near-term and long-term timeframes in the corridor and on major arterials. Lessons to be learned include: • how VDOT's congestion-pricing strategies are working to achieve the objectives for the program • how to structure early engagement efforts
The Orange County Transportation Authority, Orange, California	The **Orange County Transportation Authority (OCTA) and Riverside County Transportation Commission (RCTC)** operate and maintain the California State Route 91 (SR 91) express and I-405 express lanes. https://www.octa.net/91-Express-Lanes/About-the-91-Express-Lanes/ Status: In operation since 1995, some express lanes are in construction or development.	X			X			• Variably priced express lanes • Free for HOV 3+, zero emission vehicles (ZEVs) and motorcycles, and vehicles with disabled and disabled veterans plates • General-purpose lanes are free	• Public has very little familiarity with roadway pricing to understand all nuances of the concepts • Negative initial reactions to road charges	• Utilizing roadway-pricing strategies to develop targeted capacity improvements enabled the State and regions to fund more mobility options within these targeted corridors and recognize social equity issues. • "Fairness and Equity" themes resonated with the public • Transportation choice was important to the public. • Potential impacts on urban versus rural residents • Building required consensus among many stakeholders. Lessons to be learned from OCTA Express Lanes include: • how to plan, operate, and finance express lanes • development of toll policies • public engagement process

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Washington State Department of Transportation, Seattle, Washington State	Washington State Department of Transportation (WSDOT) operates and maintains toll roads and bridges in the state. **WSDOT's toll facilities** include I-405 express lanes, SR 167 high-occupancy toll (HOT) lane, SR 520 Bridge tolling, SR 99 Tunnel tolling, and the Tacoma Narrows Bridge tolling. https://wstc.wa.gov/programs/tolling/ Status: In operation since 2011, some express lanes are in development.	X		X		X		• Variable priced express lanes • Free for motorcycle, carpools, vanpools, and HOV 3+ • Free for transit and emergency vehicles • General-purpose lanes are free	• Assessing equity impacts of distribution of benefits and revenue allocation policies • Communicating how pricing will reduce congestion because the public and policymakers did not understand it	A comprehensive tolling study that: • considered a broad range of policy motivations and applications • evaluated institutional and technical considerations • considered a variety of case studies and resulted in eight policy recommendations A traffic choices study that examined how travelers change their travel behavior (number, mode, route, and time of vehicle trips) in response to time-of-day variable charges in a congestion pricing program. Using behavioral information to feed travel demand models for better analysis of road pricing. Treating pricing as an integral part of regional transportation plan development was important to the success of the Puget Sound Regional Council (PSRC) process. Lessons to be learned include: • how WSDOT plans, selects, and builds toll facilities especially the evaluation process, public engagement • incorporating pricing in MPO plans • public engagement • environmental impact studies • building consensus • financing schemes
Florida Department of Transportation, Tallahassee, Florida	The **Florida Department of Transportation (FDOT)** operates and maintains express lanes on several high traffic areas throughout the state such as on I-295 in Jacksonville, I-595 in Broward county, I-75 and I-95 in Miami-Dade and Broward counties, I-4 Ultimate and Beachline Expressway in Orlando, and Veterans Expressway in Tampa. https://www.fdot.gov/traffic/teo-divisions.shtm/cav-ml-stamp/managedlanes.shtm Status: In operation since 2014, some express lanes are in development.	X	X	X		X	X	• Variable priced managed lanes • Free for vanpools, carpools, hybrid and electric vehicles, buses, transit buses, school buses, motorcycles, and emergency vehicles • General-purpose lanes are free	• Achieving interagency collaboration.	• Several regional planning models from MPOs and Council of Governments were used to forecasts traffic and analyze a wide range of managed lanes options for consideration. • Many of the FDOT express lanes were envisioned in long-range transportation plans. Lessons to be learned include: • community engagement and stakeholder/industry participation and workshops • planning and analyzing managed lane facilities • tolling policies and operations
Maryland Transportation Authority, Baltimore, Maryland	**Maryland Transportation Authority** operates and maintains the **I-95 Express Toll Lanes (I-95 ETL)**. There are currently two express toll lanes in addition to 3 to 4 toll-free general-purpose lanes in both directions. I-95 ETL Northbound Extension is a planned extension of the existing express toll lanes. There will be transit connections at the proposed park-and-ride facilities. https://mdta.maryland.gov/I95ETLNB/home.html https://mdta.maryland.gov/ETL/I-95_ExpressTollLanes.html Status: In operation since 2015. The full extension of this project is under construction and will be completed in 2027.	X	X	X	X	X		• Variable priced express lanes • General-purpose lanes are free	• Building agency partnerships to facilitate communications and consensus building. • Obtaining and incorporating public feedback into express lanes development and tolling policies	Roadway pricing is incorporated into Baltimore Metropolitan Council's Long-Range Transportation Plans and Transportation Improvement Program. The MPO holds public meetings to take comments on the TIP amendments for new Express Toll Lane program. Lessons to be learned include: • public engagement • environmental impact studies • how to incorporate into MPO plans

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	Variable Pricing									
The New Jersey Turnpike Authority, Woodbridge, New Jersey	**The New Jersey Turnpike** opened in 1951. The current length of the New Jersey Turnpike mainline expressway is 117 miles. Variable pricing began in the fall of 2000. This enabled a discount to travelers who use the facility during off peak hours and use an EZ-Pass. https://www.njta.com/toll-calculator https://www.fhwa.dot.gov/policy/otps/vpqrrt/sec5.cfm Status: Variable rate pricing has been in operation since 2000.	X	X		X	X		• Variable priced tolling • Discounts are available for senior citizens, electric and hybrid vehicles with 45 miles per gallon (mpg) or better • The discount is not applicable if a user pays by cash	• Addressing safety, customer satisfaction, resilience and sustainability, and connectivity issues • Addressing potential environmental issues • Building agency coordination to facilitate project development.	• The introduction of variable tolls has improved traffic flow and provided associated air pollution and energy consumption benefits. • Preliminary data show that value pricing is working to shift traffic out of the peak period to off-peak period. Lessons to be learned include: • collaboration with other organizations (many tolled bridges and tunnels are operated by the Port Authority of New York and New Jersey) • revenue sharing for transit projects
	HOT Lanes									
Minnesota Department of Transportation, St. Paul, Minnesota	**The Minnesota Department of Transportation** operates and maintains the **E-ZPass HOT Lanes.** Minnesota's HOT lane system includes I-35E, I-35W South Metro, I-35W North Metro, and I-394. https://www.dot.state.mn.us/ezpassmn/howezpassworks.html Status: In operation since 2005.	X			X			• Variable priced HOT lanes • Free for buses, motorcycles, and HOV 2+ • General-purpose lanes are free	• Potential public acceptance hurdles associated with roadway pricing • Lack of sufficient consensus, especially among legislative and local decision-makers, combined with lack of public support, led to failure of early proposals. • Identifying key target audience for specific roadway pricing projects • Building agency partnerships to facilitate communication and consensus building	Pricing is one of the five "key components" of the Twin Cities' Long-Range Plan to cope with "limited resources" and is cast as fully consistent with stated transit and HOV strategies. Lessons to be learned include: • partnerships and agency roles • policy development • general consensus building and public engagement • how to incorporate into MPO plans
	Parking and Curb Management Pricing									
District Department of Transportation, Washington, District of Columbia	**The District Department of Transportation operates the Penn Quarter/Chinatown Parking Pricing Pilot** program. The program was implemented to better connect parking availability with demand by providing real-time parking information to motorists. https://dc.gov/release/dc-prepares-launch-new-parking-program-downtown Status: In Operation since 2016, expansion under consideration.	X	X				X	• Demand-based parking pricing • Variable priced parking (peak vs. off-peak) • Parking price adjustments occur every three months • By the end of the pilot program, the parking prices varied from $1.00 to $5.50 per hour depending on the time of day and demand. • Longer parking time limits were permitted on evenings and weekends when parking demand was lower.	None	The nature of curbside uses is changing considerably and the demand for that use is changing considerably. Demand-based parking could lead to important safety outcomes by reducing double parking and blocking bike lanes and crosswalks. Lessons to be learned include: • planning • public engagement • parking strategies to address congestion

GHG = greenhouse gas. HOT = high-occupancy toll lane. HOV = high-occupancy vehicle lane. HOV 2+/3+ = vehicles with 2/3 persons in HOV lane.

The Boston Region Metropolitan Planning Organization (MPO) operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin (including limited English proficiency), be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination under any program or activity that receives federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, Federal Transit Administration, or both, prohibit discrimination on the basis of age, sex, and disability. The Boston Region MPO considers these protected populations in its Title VI Programs, consistent with federal interpretation and administration. In addition, the Boston Region MPO provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

The Boston Region MPO also complies with the Massachusetts Public Accommodation Law, M.G.L. c 272 sections 92a, 98, 98a, which prohibits making any distinction, discrimination, or restriction in admission to, or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry. Likewise, the Boston Region MPO complies with the Governor's Executive Order 526, section 4, which requires that all programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background.

A complaint form and additional information can be obtained by contacting the MPO or at http://www.bostonmpo.org/mpo_non_discrimination.

To request this information in a different language or in an accessible format, please contact

Title VI Specialist
Boston Region MPO
10 Park Plaza, Suite 2150
Boston, MA 02116
civilrights@ctps.org

By Telephone:
857.702.3700 (voice)

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