Tolling and pricing strategies: Revenue options for consideration in the Financial Plan for Transportation

RTP

2026
Regional Transportation Plan

September 2025

Chicago Metropolitan Agency for Planning

Table of contents

Overview

Tolling and road pricing refers to any method of applying a fee to the direct use of a road or network of roads. Tolling and pricing systems are typically established to achieve specific policy objectives, including both revenue generation to support transportation investments and (in some cases) mitigating negative externalities from road use, such as congestion and emissions. This document provides a high-level overview of the types of tolling and pricing facilities, approaches to setting and structuring rates for such facilities, local experience in tolling and pricing, and key implementation considerations for tolling and pricing. It also includes a high-level evaluation of the advantages and disadvantages of the various types of tolling/pricing facilities, noting that any specific proposal with defined objectives, location, and scope requires more detailed evaluation.

Tolling and pricing can be applied to road facilities in multiple configurations, including:

- Tolled roads
- Tolled lanes
- Corridor pricing
- Cordon pricing
- Area charging

Design of any of these configurations must consider the following elements:

- **Geographic scope** of pricing (where pricing applies).
- **Temporal scope** of pricing (when pricing applies).
- **Pricing products** applied (ranging from single pass to metered use).
- **Discounts/exemptions** applied.
- **Basis for rate setting** (what will be charged and what factors will apply, if any, including factors to differentiate between vehicles).

The options selected for each element depend primarily on the objectives of the tolling/pricing system. These objectives typically include raising revenue and/or reducing negative externalities. Specific aims can include:

- **Raise revenue** for various uses, such as to:
    - Recover capital costs of infrastructure improvement/expansion.
    - Recover operations and maintenance costs of a specific route or network.
    - Support other infrastructure spending.

- **Reduce negative externalities,** such as to:
    - Reduce/manage congestion in a location or on a specific route or routes.
    - Reduce emissions from motor vehicles by encouraging changes in vehicle engine types and/or reducing overall traffic volumes.
    - Reduce traffic in a location to improve urban amenities (e.g., enable more space for pedestrians).
    - Reduce general traffic to enable reallocation of road space to other modes (e.g., buses, bicycles, pedestrians).

In most cases, tolling/pricing will have some effect on both categories. Unless the rates or use of a facility are insufficient to offset the cost of revenue collection, pricing will generate some amount of incremental revenue. Any cost to use the system is also likely to have at least some level of influence on user behavior, compared to no pricing.

Developing a short list of appropriate tolling and pricing options for any given context requires clarity on policy objectives as well as the locations and times (of the day and week) that should be primarily impacted. It is not possible to identify, in general terms, all the possible permutations for varying pricing options, without greater specificity as to the purpose, location, and scope of any intended application. Regardless of these limitations, however, it is clear that the potential of pricing is significant and has not been fully explored or implemented within the CMAP region.

Facility types

The various classifications of tolled/priced facilities reflect various geographic scopes and design approaches for priced facilities. All facility types can vary rates by vehicle class, location, time, and direction of operation, depending on the specific objectives and the context of the proposed facility. However, there are some key exceptions dependent on objectives and the type of operations inherent to various types of facilities. **Figure 1** below provides a diagram of the different tolling and pricing configurations, each of which is discussed in turn.

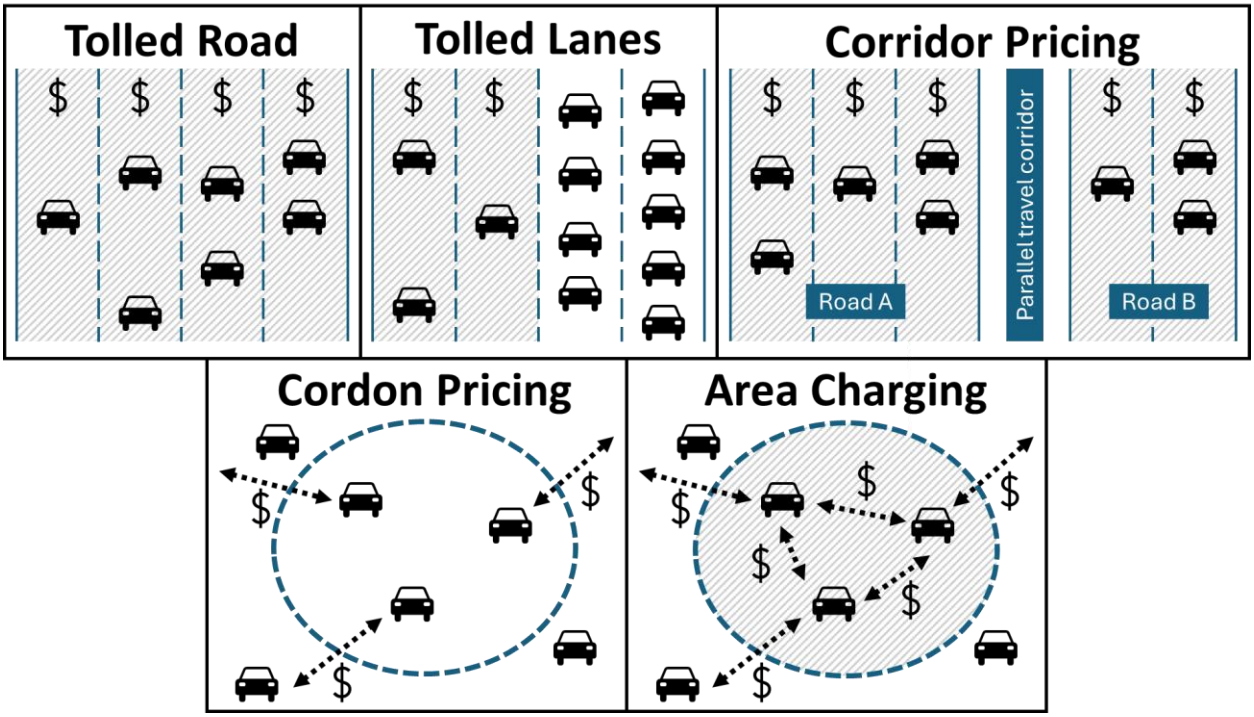

Figure 1. Overview of tolling and pricing approaches.

Tolled roads

Tolled roads require users to pay for travel on all lanes of a road, typically at all times. This may include rates that vary by time of day to manage demand and maximize revenue yields. Toll roads are widespread across many U.S. states and internationally. Most large toll road systems operate in an all-electronic tolling model, with electronic free-flow technology where drivers pay using electronic tags tied to an account or video-based identification of license plates at tolling points. Examples of tolled roads in the U.S. include public agencies like the Illinois State Toll Highway Authority (the Illinois Tollway)[1] and E-470 in Colorado[2] and private concession-

[1] Illinois Tollway, "About the Tollway." Accessed August 4, 2025, https://agency.illinoistollway.com/about.
[2] E-470 Public Highway Authority, "E470." Accessed August 4, 2025, https://www.e-470.com/.

operated facilities like the Indiana Toll Road[3] and SH-130 in Texas.[4] Most toll roads are built as toll roads from the inception, although there are limited exceptions where tolls have been added to an existing facility (e.g., IL 390). Revenues from toll roads typically support ongoing operations, maintenance, and reconstruction needs of the tolled facility or tolled system of which it is a part. In some cases, additional revenues beyond those needed for system upkeep may be directed to other specified purposes, subject to statutory restrictions and bondholder obligations, where relevant.

Tolled lanes

Unlike a tolled road, on which all lanes are subject to the toll, some facilities include a subset of tolled lanes. These facilities typically include one or two tolled lanes per direction, running adjacent to untolled "general purpose" lanes. Common categories of tolled lanes include express toll lanes, which are priced for all users regardless of occupancy, and high-occupancy toll (HOT) lanes, which offer discounted or free use to vehicles with two or more occupants (including buses). Tolled lanes are generally only feasible on multi-lane grade-separated highways or crossings (bridges/tunnels), and they are designed to provide a higher level of service than the parallel untolled lanes.

Tolled lanes are often constructed as new capacity, such as additional lanes that run alongside the existing general purpose lanes. In some cases, tolls may be added to existing lanes, such as the conversion of existing high occupancy vehicle (HOV) lanes to HOT lanes as a way of increasing utilization (allowing single occupant vehicles to use the lanes for a fee) and concurrently reducing congestion on other lanes. As with tolled roads, revenues from tolled lanes are typically used to support the operation and maintenance of the facility, which may include financing the cost of construction for any new capacity.

There are over sixty such locations in the United States, such as I-95 Express in Miami;[5] SR-91 in Orange County, California;[6] and SR-167 in the Seattle area.[7] Tolled lanes usually use the same electronic free flow technology as toll roads. Fees often vary by time of day and direction of travel, and pricing may be dynamic (changing in near-real time to reflect variations in demand). Most tolled lanes are also only for light-duty vehicles and sometimes buses, so revenue is typically not generated from heavy truck traffic.

---

[3] ITR Concession Co. LLC., "About Us." Accessed August 4, 2025, https://www.indianatollroad.org/about-itrcc/.
[4] Federal Highway Administration (FHWA), "Project Profile: SH 130 (Segments 5-6)." Accessed August 4, 2025, https://www.fhwa.dot.gov/ipd/project_profiles/tx_sh130.aspx.
[5] Florida Department of Transportation (FDOT), "95 Express." Accessed August 4, 2025, https://95express.com/.
[6] United States Department of Transportation Build America Bureau, "SR-91 Express Lanes, Orange County, CA." Accessed August 4, 2025, https://www.transportation.gov/buildamerica/projects/project-highlights/sr-91-express-lanes-orange-county-ca.
[7] Washington State Department of Transportation, "SR 167 high occupancy toll (HOT) lanes." Accessed August 4, 2025, https://wsdot.wa.gov/travel/roads-bridges/toll-roads-bridges-tunnels/sr-167-high-occupancy-toll-hot-lanes.

Tolled lanes need to be separated from other lanes so usage of those lanes can be clearly identified and controlled. These separation options range from a visual indicator (e.g., a double white line with a larger separation between the tolled lane and the untolled lanes) to a physical barrier (e.g., median). Physical barriers offer the greatest assurance for enforcement, but the layout, physical limitations, and cost of physical barriers in some corridors may limit their feasibility. Roads with tolled lanes typically have at least two untolled lanes per direction parallel to the tolled lane for safe functioning and viability of usage, with significant distances between exit and entry points.

Figure 2. Example of physical separation between tolled and untolled lanes.[8]

Corridor pricing

Corridor pricing systems have similarities to tolled roads, but differ in at least two respects:

- While tolling applies to a single highway in a corridor, corridor pricing may also apply pricing to parallel previously untolled routes, so that there is no unpriced alternative route and to avoid diverting congestion onto less suitable or lower-capacity roads.
- Under corridor pricing, the priority is generally to manage demand rather than revenue generation. As a result, tolls do not operate 24/7, but instead only operate at times of high demand.

Corridor pricing at set times has only been implemented in Singapore, the United Arab Emirates (Dubai), South Korea (Seoul), and the United Kingdom on specific crossings. The technology applied is similar to that used for toll roads, with options for tags and license plate recognition-

[8] FDOT, "About Us." Accessed August 4, 2025, https://95express.com/about-us/.

based systems. In all such cases, the priced corridor has periods during which there is no price applied or pricing that applies in only one direction. Pricing may apply in only one direction at specific times of day, reverting to the other direction in the other peak.

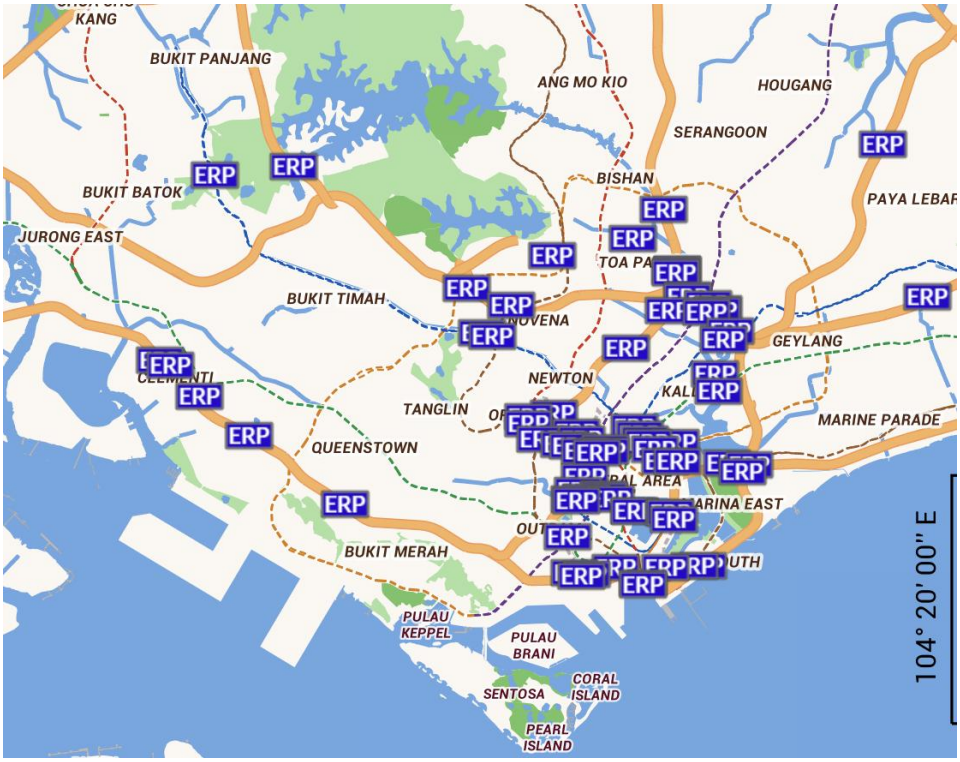

Figure 3. Singapore's Electronic Road Pricing (ERP) system includes corridor pricing.[9]

Cordon pricing

A cordon price charges travel across a specified boundary around a geographic area, with the charge applied at all the road entry (and in some cases exit) points to that location. Pricing typically applies to entry into the cordon zone and may also apply upon exit. New York City,[10] Stockholm, Gothenburg,[11] Milan,[12] Oslo,[13] and multiple other cities in Norway[14] have such

[9] Government of Singapore, "Electronic Road Pricing (ERP)." Updated July 2, 2025, https://onemotoring.lta.gov.sg/content/onemotoring/home/driving/ERP/ERP.html.
[10] Metropolitan Transportation Authority (MTA), "CONGESTION RELIEF is unlocking a better New York." Accessed August 4, 2025, https://congestionreliefzone.mta.info/.
[11] Transportstyrelsen, "Congestion taxes in Stockholm and Gothenburg." Updated November 29, 2024, https://www.transportstyrelsen.se/en/road/vehicles/taxes-and-fees/road-tolls/congestion-taxes-in-stockholm-and-gothenburg/.
[12] Municipality of Milan, "Area C | Buy the ticket." Updated March 31, 2025, https://www.comune.milano.it/en/servizi/acquista-il-ticket.
[13] Fjellinjen, "Tariffs and toll stations." Accessed August 4, 2025, https://www.fjellinjen.no/en/tariffs-and-toll-stations.
[14] Fjellinjen, "Toll companies and tariffs in Norway."

systems. Almost all these systems use tolling technology with license plate recognition cameras and toll tags. These systems may only operate at specific times on specific days to manage demand and may charge vehicles only once per day (regardless of the number of times the vehicle enters or exits the cordon) or several times per day, usually up to a capped amount. These systems are designed to minimize the risk of traffic diverting around the cordon causing congestion, often aided by geographic barriers (e.g., Stockholm, New York City). They may also have ring or bypass routes to enable through traffic to not be priced.

Figure 4. New York's Congestion Relief Zone in Manhattan is an example of cordon pricing.[15]

Area charging

Area charging is similar to a cordon, with charges that apply to travel into a specified geographic area. However, in addition to entry and exit, area pricing systems also charge traffic that circulates *within* the cordon (typically with a single fee during a priced time period). This captures any traffic movements within the cordon that have not crossed the cordon boundary during the priced period. London presently has the only operational area charge. It uses license plate recognition technology, but only charges vehicles once per day, for unlimited entry, exit

[15] MTA. "CONGESTION RELIEF is unlocking a better New York."

or circulation. This is because it is more complex to measure the number of trips within an area with the technology currently in use.

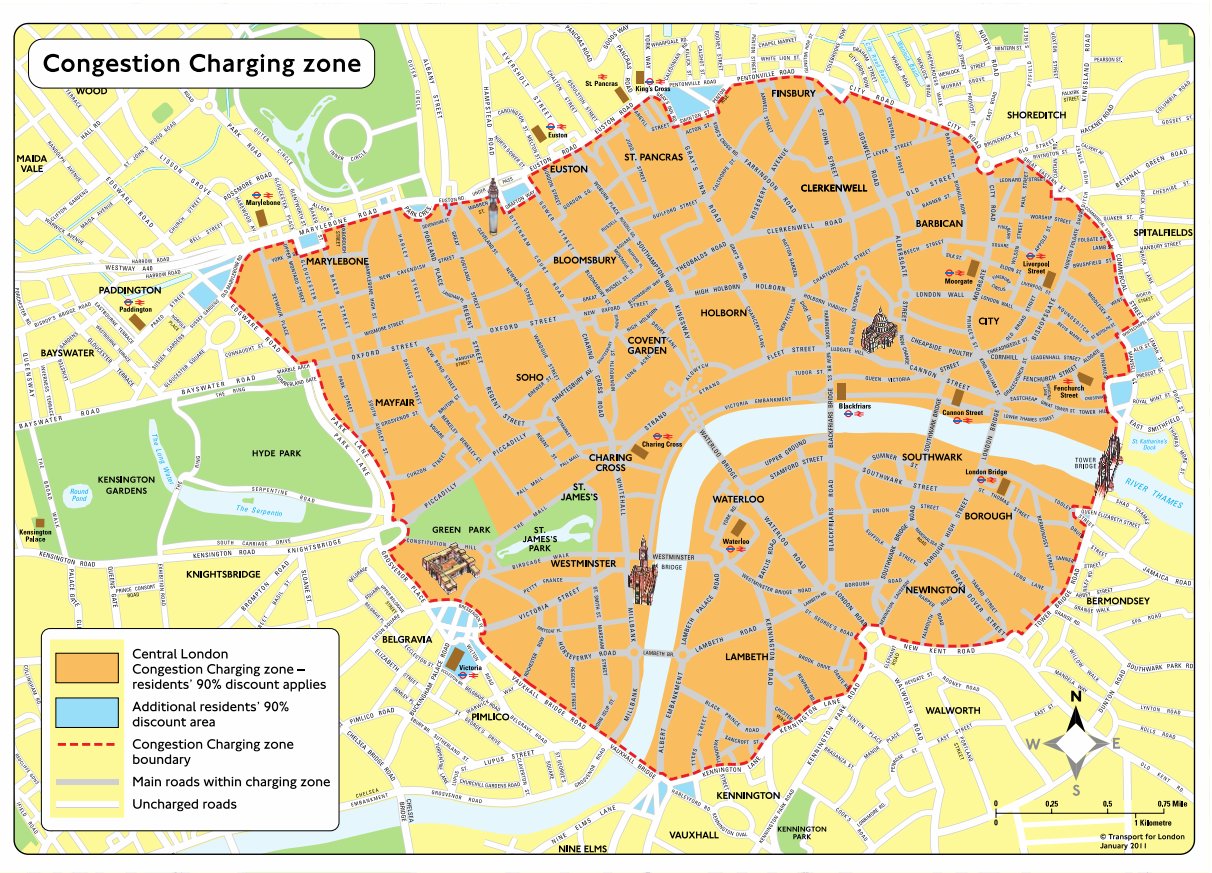

Figure 5. London's congestion charge is a form of area charging.[16]

Other pricing approaches

One other family of pricing approaches not discussed in detail in this document is pricing the entire roadway network through a system of *road usage charging*. This category of pricing will be separately addressed in a forthcoming white paper on the topic.

In some systems, which assess charges based on distance, users pay a fee based on the distance driven on the entire roadway network. These systems are commonly referred to as road usage charging or mileage-based user fees. Although such programs have been tested in several cities (e.g., Portland, OR; Seattle, WA; Brussels, Belgium), no road usage charge programs to date feature variable pricing by location and time of day. Many do feature variable rates by vehicle weight, as is also common in tolling. Assessing fees based on location or time of day requires the capability to measure vehicle road usage by time and location, typically through in-vehicle

[16] Transport for London (TfL), "Congestion Charge zone." Accessed August 4, 2025, https://tfl.gov.uk/modes/driving/congestion-charge/congestion-charge-zone.

technology–a requirement politically challenging to mandate across an entire vehicle fleet. That said, fees that vary by location and time of day could achieve similar policy objectives to those noted in the discussion on road pricing above.

Road usage charging systems (and weight-mileage taxes for heavy trucks) operate in four states for light-duty vehicles (Oregon, Utah, Virginia, and Hawaii) and five states for heavy-duty vehicles (Oregon, New Mexico, New York, Kentucky, and Connecticut). Road usage charging systems are found in multiple countries in Europe and in New Zealand. Such systems may use a wide range of technical options, from periodic odometer reporting to telematics systems installed in the vehicle or using mobile phones to measure distance with other verification systems.[17]

There is also a variant of this approach that charges for use of the road network over a given period of time. Time-based passes are issued by several countries in Europe (where they are commonly referred to as *vignettes*) to access road networks for periods ranging from one day to one year. Such systems typically involve recording license plate numbers after issuing passes, with enforcement by license plate. While U.S. states, including Illinois, do impose annual registration requirements on vehicle owners within their states, such a time-based system is otherwise not currently present in the U.S.

[17] The Eastern Transportation Coalition, "Compendium of Revenue Alternatives in Response to Fuel Economy Improvements and Vehicle Flee Electrification," January 2024. https://tetcoalitionmbuf.org/wp-content/uploads/2024/05/TETC-Compendium-Resource-Report_FINAL.pdf.

Pricing approaches

The types of pricing approaches applied to a specific facility depend on the objectives and the type of facility design. For example, systems designed primarily for revenue will set prices to meet revenue goals and are more likely to adjust prices based on inflation, rather than demand. Congestion management-based systems will set prices to optimize network flow and address targets in levels of service, which does not necessarily maximize revenue. In Singapore, prices are reviewed regularly up *or down* to optimize traffic flow and ensure pricing is not too high or too low (with prices too high seen as inhibiting economic activity). Likewise, some tolling and pricing facilities lend themselves to specific temporal pricing concepts, e.g., area charges, which can feasibly only apply a single flat charge during a priced period.

While many cities have investigated applying road pricing to existing untolled roads, few have been able to achieve public and political acceptance to implement their proposals. Even with local support, tolling of existing federal-aid highways requires meeting specific statutory conditions and often requires approval by the U.S. Department of Transportation (discussed in greater detail in a later section). Depending on the facility and the model chosen, the state legislature, a county board, and/or some other public entity may also need to provide approval. Having some flexibility in design, particularly in early stages, is important to obtaining the necessary buy-in to proceed.

The five key pricing policy components to consider when initially developing a tolling or pricing policy, assuming clearly identified objectives, are:

- **Geographic scope** of pricing (where pricing applies).
- **Temporal scope** of pricing (when pricing applies).
- **Pricing products** applied (ranging from single pass to metered use).
- **Discounts/exemptions** applied.
- **Basis for rate setting** (what will be charged and what factors will apply, if any, including factors to differentiate between vehicles).

Geographic scope (location)

Policy objectives guide the choice of where to apply tolling or pricing. If the primary purpose is to generate revenue to pay for a new corridor, new lanes, or significant upgrades to an existing corridor, then it is logical to apply tolling or pricing to that upgraded facility. The need for revenue (and traffic management) may lead to consideration of tolling approach roads to the new facility or routes that the new facility significantly improves.

In London, the newly opened Silvertown Tunnel has been opened as a tolled facility, primarily to pay for that new tunnel, but also to manage demand. At the same time, pricing has also been introduced to a nearby set of pre-existing tunnels (Blackwall Tunnel) that have seen traffic

significantly relieved by the opening of the new tunnel. Pricing of the old tunnels reflects the benefit to their users of reduced congestion during peak periods, thanks to traffic diverting to the new tunnel.[18] This is a form of corridor pricing.

Figure 6. Silvertown and Blackwall Tunnels, London (Source: Transport for London).[19]

If the primary objective of tolling or pricing is to raise revenue to upgrade the broader transportation network, then applying pricing to the use of key parts of that network, which are most likely to directly or indirectly benefit from such spending, will have better distributional impacts than applying pricing in locations that are unlikely to benefit from spending on their networks.

If the primary objective of tolling or pricing is congestion mitigation, then applying pricing to major destinations (e.g., city centers, airports), to congested corridors, and/or to facilities that approach them is an appropriate option. Indeed, such pricing policies can have impacts on congestion more widely by changing behavior on routes some distance away from the priced location, having more positive network impacts.

[18] TfL, "Blackwall and Silvertown tunnels: Where and when." Accessed August 4, 2025, https://tfl.gov.uk/modes/driving/silvertown-blackwall-tunnels-charge/blackwall-and-silvertown-tunnels-where-and-when.

[19] TfL, "Blackwall and Silvertown tunnels: Where and when."

More simply, tolled roads, tolled lanes, and corridor pricing are all variations on a similar type of pricing, which target specific routes with pricing. Corridor pricing may also price parallel routes to avoid congestion caused by traffic diverted to untolled routes. Such parallel route pricing can be done in ways that enable local traffic to avoid being tolled, by focusing on trips that would otherwise have used a tolled highway.

Cordon and area pricing are much more focused on targeting trips to (or within) a specific location, so should be designed to clearly delineate between locations of activity. Physical barriers (e.g., waterways, hills, or major highways) are easiest for this (e.g., Manhattan, Stockholm), but urban form is also important. Ideally, cordons should separate commercial/industrial locations that attract trips from residential locations that generate trips, although this is often not easy given mixed land uses in many locations.

Temporal scope (time of day, days of week)

Facilities designed to raise revenue are likely to have longer operating hours than those designed to mitigate congestion or other externalities. It is relatively easy to justify applying tolls 24/7 on new roads or significantly upgraded ones, because all drivers benefit from the new/upgraded route, but it is more difficult to obtain authorization to apply tolls at all times on all days when such roads are *not* significantly upgraded. Beyond conventional tolling, many priced facilities exist for multiple objectives (e.g., Manhattan CBD tolling is primarily about revenue but also has clear goals on reducing congestion). The Manhattan cordon operates 24/7 since the primary objective is to raise revenue to pay for major upgrades to road and transit infrastructure, but there are higher prices from 5:00 a.m. to 9:00 p.m. on weekdays and 9:00 a.m. to 9:00 p.m. on weekends to mitigate congestion.[20] By contrast, no fees apply outside weekdays from 6:00 a.m. to 6:30 p.m. in Stockholm,[21] or outside 7:00 a.m. to 6:00 p.m. in London, as congestion is significantly lower at other times.[22]

Priced facilities may also vary prices by multiple intervals during the day. Although New York City has a simple, two-tiered price structure, Stockholm has five price tiers on an average weekday (see
Table 1). Singapore's corridor-based pricing system has prices that vary by intervals at every toll point, varying by time of day and direction of travel.

[20] MTA, "Congestion Relief Zone Toll information." Accessed August 4, 2025, https://congestionreliefzone.mta.info/tolling.
[21] Transportsyrelsen, "Hours and amounts in Stockholm." Updated December 20, 2024, https://www.transportstyrelsen.se/en/road/vehicles/taxes-and-fees/road-tolls/congestion-taxes-in-stockholm-and-gothenburg/congestion-tax-in-stockholm/hours-and-amounts-in-stockholm/.
[22] TfL, "Congestion Charge zone."

Hours	Off-peak season tax amount in SEK	Peak season tax amount in SEK
6:00-6:29	15	15
6:30-6:59	25	30
7:00-8:29	35	45
8:30-8:59	25	30
9:00-9:29	15	20
9:30-14:59	11	11
15:00-15:29	15	20
15:30-15:59	25	30
16:00-17:29	35	45
17:30-17:59	25	30
18:00-18:29	15	20

Table 1. Stockholm congestion tax price schedule for city cordon, in Swedish Krona (SEK1 = US$0.10).[23]

For systems that apply tolls/pricing to multiple locations, each location may vary pricing by time of day, particularly if a key objective is to mitigate congestion that varies by location and time of day.

Pricing products

The main types of tolling/pricing products are:

- **Per passage:** Vehicles are tolled each time they pass a tolling point. This is the standard approach for tolling in Illinois today. This could include a cap on total costs incurred per day per vehicle.
- **Day pass:** Vehicles are tolled once per day when passing a tolling point, regardless of how many times they pass a tolling point.
- **Multi-use pass:** Vehicles may pass a tolled point up to a set number of times per day or per hour for a flat rate, with additional passages at a per-passage rate.

The choice of product is a function of the objectives, the overall rate structure, and what is likely acceptable to stakeholders. Key considerations in choosing products include targets for revenue, impacts on travel demand, and the impacts on users (especially when applying pricing to previously unpriced facilities), relative to policy objectives. More revenue is generated with products that charge for each passage, but when pricing a previously unpriced facility, this may unduly burden some users with poorer quality alternatives (in which case a daily cap may be appropriate).

[23] Transportsyrelsen, "Hours and amounts in Stockholm."

Discounts and exemptions

To meet the objectives of the pricing strategy, tolled or priced facilities may offer specific discounts or exemptions for some users. In all cases, the scale of discounts and exemptions can affect net revenues, impacts on congestion, and other externalities.

The most cost effective and easiest discounts and exemptions to implement, operate, and enforce are those based on vehicle class or other vehicle characteristics easily identified factually through the motor vehicle registry. Some of these may include:

- Emergency vehicles (police, fire, and emergency medical services).
- Transit buses, school buses, and/or other buses (such as long-distance or charter buses).
- Vehicles altered for people with disabilities.

Other discounts or exemptions can be based on the characteristics of the vehicle owner or user, but require some verification of that status. A risk is that there is little effective control over who drives such vehicles at any specific time. Such discounts/exemptions include:

- Disability of the driver or passenger.
- Residency location of the owner/driver (e.g., with discounts provided to residents within a certain distance of a tolled facility or who live within the boundaries of a cordon pricing system).
- Income of owner/driver or the household of the owner/driver.
- Occupation of the owner/driver (for example, public sector workers in New York City requested but were not granted a discount for the city's congestion cordon).[24]

While some exemptions are commonplace and have virtually no impact (e.g., emergency vehicles), each successive claim for a discount or exemption undermines revenue, increases administrative costs for implementing and operating the system, and risks undermining congestion mitigation objectives. There is also a risk of discount and exemption "creep" that can further undermine the effectiveness of pricing. Every discount or exemption adopted encourages lobbying by others who think their case is similar and justified. For example, in London, electric vehicles are not subject to the area charge. When combined with buses, taxis, and vehicles driven by disabled drivers, this meant that over a third of all vehicles entering the zone are not subject to payment.[25] Furthermore, residents of the zone receive a 90 percent

[24] Andrew Siff, NBC New York., "Exemptions for NYC congestion pricing: How to get one, who qualifies and more to know." Last modified April 27, 2024, https://www.nbcnewyork.com/traffic/transit-traffic/nyc-congestion-pricing-exemptions-how-to-get-one-who-qualifies/5357472/.

[25] TfL, "FOI request detail: Congestion Charge Zone – vehicle entry data." August 14, 2023, https://tfl.gov.uk/corporate/transparency/freedom-of-information/foi-request-detail?referenceId=FOI-1265-2324.

discount on the area charge. To increase revenue and maintain the charge's policy effectiveness, London officials are making adjustments to the exemptions, such as ending the electric vehicle exemption beginning December 2025.[26]

For owner-based exemptions, it can also be challenging to ensure the continued applicability of the discount or exemption. For example, has driver income remained below a threshold for a discount, or has the driver continued to be employed in a position eligible for a discount or exemption?

Discounts/exemptions designed to reflect trip purpose or factors not readily verifiable, such as vehicle occupancy, are also challenging. HOT lanes by design exempt or discount vehicles with multiple occupants and operate usually by self-declaration of occupancy. However, without intrusive camera-based enforcement, some users may improperly claim a discount even without meeting occupancy requirements. Discounts or exemptions for trips to "critical activities" such as medical appointments are generally only possible if administrative systems are set up to verify such appointments, linking them to a specific vehicle for individual trips. As with other factors that can vary depending on the driver of a vehicle, the scope to incentivize behavior to evade pricing depends on system design and resources placed into monitoring and detecting improper behavior.

Basis for rate setting

The setting of actual prices for tolling and other priced facilities is a function of revenue targets as well as the overall levels of demand and the elasticity of that demand for the different profiles of users of those facilities. Typically, demand and revenue modeling is undertaken for tolled or priced facilities to understand the traffic and revenue impacts of a range of pricing options. New toll roads or tolled lanes will have this analysis undertaken as a matter of course, as typically there are targets for revenue sought to pay for their construction. Facilities intended primarily to mitigate congestion will focus on average speeds and throughput of the priced facility or network, seeking to set prices to optimize the impacts on the network, rather than maximizing revenue. Consequently, revenue-optimized tolls are likely to be different from congestion-optimized tolls. Another consideration will be whether tolling or pricing induces demand to redistribute onto other roads, which may be positive in improving network utilization or negative if it generates higher net negative externalities (e.g., congestion or increased safety risk on local roads unsuited to arterial traffic).

Demand modeling and traffic assignment modeling are undertaken to test a range of pricing options, applied to selected geographic points (as tolled points), as to what sort of demand response will be achieved by pricing passage by a specific location at specific times of day. This

[26] TfL, "Discounts and exemptions for Congestion Charge and Blackwall and Silvertown tunnels charge." Accessed August 4, 2025, https://tfl.gov.uk/modes/driving/discounts-and-exemptions.

should be informed by experience elsewhere in the city or state on demand elasticities of existing tolled facilities, or in other comparable locations.

User-based pricing

A subset of rate-setting analysis identifies the demand profiles of various classes of users. Commuter, commercial, education, retail, and leisure traffic all are likely to have distinct demand elasticities, based on the value of time and the value of the trip to the driver. Typically, business trips have higher values of time than leisure, and commuter trips have higher values than trips to access retail. Tolling or pricing existing facilities is likely to have higher impacts on drivers with lower values of time for their trips, as the additional cost of the toll may make a specific trip less worthwhile or raise the competitiveness of alternatives (e.g., transit or changing time of travel). In Stockholm, the largest change in demand was a change in frequency of driving or the time of day of driving, rather than a change in mode, suggesting that modal choice, although important, is not definitive in enabling significant demand responses to price signals on previously unpriced roads.[27]

Price review and escalation

Prices can and often do change over time, typically to retain the purchasing power of revenue given inflation and to reflect any varying of the price elasticity of demand of customers. As noted above, some tolled systems (e.g., in Singapore) regularly review pricing to optimize traffic flow, although others may remain more stable over time (as in London).

Nevertheless, the initial effect of pricing is typically more significant than any subsequent increases to prices. In Stockholm and Gothenburg, research indicates that the demand elasticity impact of subsequent price increases for their cordon pricing facilities was much lower than when the facilities were first introduced. This appears to be a result of the most price-sensitive drivers changing their behavior initially. Those remaining, i.e., those who have chosen to pay the fee, are less sensitive to small price increases later.[28]

Dynamic pricing

Tolled lanes may have real-time dynamic pricing that reflects demand for the lanes to maintain the "premium service" offered compared to unpriced parallel lanes (and to build a loyal customer base that values trip time reliability). Dynamic pricing is typically not considered viable outside the context of tolled lanes because of the need to give drivers options and information in advance of choosing to drive on the tolled lane (which is typically a choice made near the start of such lanes, with the easy option being to continue driving on untolled lanes). Systems designed to focus on recovery of infrastructure costs may have greater focus on vehicle weight, charging higher rates for longer and larger trucks, with simple rates for light-

---

[27] M. Börjesson, Centre for Transport Studies Stockholm, "Gothenburg congestion charges." Accessed August 4, 2025, https://www.slideshare.net/slideshow/congestion-pricing-in-gothenburg/32129336#22.

[28] Börjesson, M. (2018) "Assessing the Net Overall Distributive Effect of a Congestion Charge", International Transport Forum Discussion Papers, OECD Publishing, Paris.

duty vehicles, whereas conventional toll roads or systems more concerned about congestion may have pricing based on road space occupancy more than weight.

Vehicle-based pricing

Regardless of the tolling facility type, toll rates can be applied uniformly for all types of vehicles, or they may vary by vehicle type. Many toll roads and some pricing systems will charge higher rates for trucks and vehicles with trailers, reflecting the amount of space occupied by varying classes of vehicles as well as the additional wear and tear imposed by heavier vehicles on infrastructure. For example, in London's area charge, the same price applies to all vehicles not subject to a discount or exemption, but in Singapore, corridor pricing is based on road-space occupancy, reflecting contribution to congestion.

As an example in Illinois, the Illinois Tollway has four tiers of vehicle categories for toll rates. Passenger vehicles, i.e., those with two axles and four tires or fewer, pay the lowest toll rates. The three tiers of larger vehicles are defined as "commercial vehicles and vehicles with trailers" and include small (vehicles with six tires, such as single unit trucks or buses), medium (three- to four-axle vehicles or passenger vehicles with a one- to two-axle side-car or trailer), and large (vehicles with five or more axles or passenger vehicles with a trailer having three or more axles).[29]

[29] Illinois Tollway, "Toll Rates." Accessed August 11, 2025, https://agency.illinoistollway.com/toll-rates.

Context: Local experience with tolling and pricing

Tolling

Northeastern Illinois has extensive experience with tolling. The region includes hundreds of miles of tolled facilities, including the Illinois Tollway, the Chicago Skyway, and the Houbolt Road Bridge. The Illinois Tollway is by far the largest of those systems, with 294 centerline miles of tolled facilities that generated more than $1.5 billion in toll revenues in 2024.[30] In contrast to the Illinois Tollway's role as a public agency, the Chicago Skyway[31] and the Houbolt Road Bridge[32] are both operated by private concessionaires.

One of the Illinois Tollway's routes, Illinois Route 390 (IL 390), is especially notable for its history. A portion of IL 390 was previously an untolled Illinois Department of Transportation (IDOT) facility, the Elgin-O'Hare Expressway. The Illinois Tollway took control of the facility as part of a larger investment to rehabilitate and widen the roadway and connect it to the future Interstate 490 expressway.[33] The project leveraged federal statutory tolling provisions that allow for the conversion of untolled non-Interstate highway facilities into tolled facilities as part of a reconstruction or replacement project (discussed in more detail below).[34]

The Houbolt Road Bridge is another example of a recently developed regional tolled facility. This bridge provides improved access to a freight and intermodal cluster located in Will County. It was built through a public-private partnership between IDOT, Will County, the City of Joliet, and CenterPoint Properties.[35]

There have also been discussions about additional tolled facilities in the region, such as managed lanes on both Interstate 290 (I-290) and Interstate 55. The proposed I-290 managed lanes are included in the Final Environmental Impact Statement/Record of Decision for that project.[36] Tolls were also planned to be included in the recently opened Longmeadow Parkway

---

[30] Illinois Tollway, "Illinois Tollway Annual Report 2024." 2024, https://agency.illinoistollway.com/documents/d/guest/2024-iltollway_annual-report_final.
[31] FHWA, "Project Profile: Chicago Skyway." Accessed August 4, 2025, https://www.fhwa.dot.gov/ipd/project_profiles/il_chicago_skyway.aspx.
[32] FHWA, "Project Profile: The Houbolt Road Bridge P3 Project, Joliet, Illinois." Accessed August 4, 2025, https://www.fhwa.dot.gov/ipd/project_profiles/il_houbolt_road_bridge_p3_project.aspx.
[33] FHWA and Federal Aviation Administration (FAA), "Tier Two Record of Decision Elgin O'Hare – West Bypass Cook and DuPage Counties, Illinois." December 2012, https://apps1.dot.illinois.gov/eplan/desenv/environment/Elgin-Ohare%20Final%20EIS/Tier%20Two/Tier%20Two%20Record%20of%20Decision/2012-12-12_EOWB%20Tier%202%20ROD_final%20signed.pdf.
[34] FHWA, "Federal Tolling Programs Section 129 General Tolling Program." Accessed August 4, 2025, https://www.fhwa.dot.gov/ipd/tolling_and_pricing/tolling_pricing/section_129.aspx.
[35] FHWA, "Project Profile: The Houbolt Road Bridge P3 Project, Joliet, Illinois."
[36] IDOT, "I-290 Eisenhower Expressway Final Environmental Impact Statement", June 29, 2017, https://www.eisenhowerexpressway.com/info_center/feis.aspx.

in Kane County but were removed following an increase in local funding for the project.[37] Other proposed but unbuilt projects, such as the Illiana Expressway, were also intended to include tolls.[38]

Tolling has also been a significant feature of regional planning efforts. For example, ON TO 2050 — the comprehensive plan that guides regional priorities and transportation investments in the Chicago metropolitan region — includes the high-level recommendation to "Implement tolling." As part of that strategy, ON TO 2050 recommends that regional agencies "implement tolling on existing expressways following reconstruction projects, except on very short or isolated segments, to help finance the reconstruction project." The plan also identifies the need to "expand agency authority to toll existing capacity" at both the state and federal level, as well as the need to "flexibly use toll revenues to pursue multimodal transportation system goals..." Finally, the plan notes that both IDOT and the Illinois Tollway should "implement priced managed lanes on… new capacity."[39] These recommendations built on prior planning and policy development activities from the Chicago Metropolitan Agency for Planning (CMAP), including significant public discussion of the potential for congestion pricing on regional expressways[40] as part of the development and implementation of GO TO 2040, the previous regional comprehensive plan.[41]

Aligned with these policy recommendations, the ON TO 2050 financial plan assumes that all fiscally constrained interstate reconstruction projects will include tolling, with revenue from the tolled facilities available to help recoup the costs of the reconstruction effort. The plan assumed that this would generate $13 billion (from 2015 to 2050) in reasonably expected revenues to support transportation investments.[42]

Other pricing strategies

In contrast to tolling, ON TO 2050 does not include any specific recommendations related to congestion pricing approaches such as cordon pricing or area charges. CMAP has explored these topics in greater detail in other recent planning exercises, including both the Mobility

---

[37] Kane County Illinois Division of Transportation, "Longmeadow Parkway Bridge Corridor." Accessed August 5, 2025, https://kdot.kanecountyil.gov/Pages/Projects/Longmeadow-Parkway-Bridge/Longmeadow-Pkwy.aspx.
[38] Chicago Metropolitan Agency for Planning (CMAP), "Go to 2040 Update Appendix Major Capital Projects." October 2014, https://cmap.illinois.gov/wp-content/uploads/GO-TO-2040_update_appendices_2014.pdf.
[39] CMAP, "Recommendation: Fully fund the region's transportation system." August 4, 2025, https://cmap.illinois.gov/regional-plan/goals/recommendation/fully-fund-the-regions-transportation-system/
[40] J. Hilkevitch, Chicago Tribune, "Getting Around: How much are you willing to pay to avoid traffic?" Updated August 23, 2021, https://www.chicagotribune.com/2012/10/15/getting-around-how-much-are-you-willing-to-pay-to-avoid-traffic/.
[41] CMAP, "Go To 2040 Comprehensive Regional Plan." October 2010, https://cmap.illinois.gov/wp-content/uploads/long_plan_FINAL_ONTO2040.pdf.
[42] CMAP, "On to 2050 plan update: Financial plan for transportation appendix." Accessed August 4, 2025, https://cmap.illinois.gov/wp-content/uploads/ON-TO-2050-Update-Financial-Plan-for-Transportation-Appendix.pdf.

Recovery report[43] and Plan of Action for Regional Transit.[44] Other regional stakeholders, such as the City of Chicago, have similarly identified congestion pricing as a topic for consideration in future revenue discussions.[45]

A companion memorandum on other potential revenues that could support the region's transportation system — Transportation funding strategies: Revenue options for consideration in the Financial Plan for Transportation — discusses other funding sources that may achieve some of the same goals as a downtown cordon price. These include the existing CBD surcharge on trips taken by transportation network companies like Uber and Lyft and the combined city, county, and state commercial parking taxes that constitute a significant share of the total price of parking in downtown Chicago.

[43] CMAP, "Mobility Recovery: An action plan to reimagine how people and goods move in northeastern Illinois." January 6, 2023, https://storymaps.arcgis.com/stories/88db4e4032674cdd893908446329f229.
[44] CMAP, "Plan of Action for Regional Transit for Northeastern Illinois." December 2023, https://cmap.illinois.gov/wp-content/uploads/Plan-of-Action-for-Regional-Transit_Dec2023.pdf.
[45] Q. Myers, Block Club Chicago, "Chicago 'Should Explore' Congestion Tax To Reduce Traffic, Mayor Says." Updated January 8,2025, https://blockclubchicago.org/2025/01/07/chicago-should-explore-congestion-tax-to-reduce-traffic-mayor-says/.

Implementation considerations

Before deciding on a specific tolling/pricing strategy, there are several key implementation factors to consider:

- Objectives
- Legal/regulatory context
- Applications of tolling/pricing configurations by objectives
- Potential uses of net revenues
- Delivery approach

Objectives

Any policy decision to include tolling/pricing should have clear policy objectives. While at the highest level this can be revenue generation or mitigating congestion or emissions, objectives also need to focus on the geographic application of pricing. This can range from a single facility/route that may be upgraded (or may be the subject of severe congestion), or the area around a destination (i.e., a CBD). A tolling/pricing policy may also be considered in phases, which may start on a small scale — such as a single corridor, cordon, or toll lane — and can be expanded in terms of geographic scale and/or time of operation. This allows for selection of tolling/pricing configuration options that reflect the transportation network, urban form, and demand patterns of the chosen locations, to meet the strategic focus of revenue collection, congestion mitigation, and/or other policy objectives.

Legal and regulatory context

Before determining a specific tolling/pricing approach, the legal and regulatory constraints on the various options need to be clearly understood, including at the local, state, and federal levels.

Local and state authorization

The implementation of new (or expanded) tolling in Illinois would require approval by local and/or state officials. The type of approval required varies based on the facility type, location, delivery model, and other factors. Many scenarios require multiple levels of local and state approval. Examples include:

- Public agencies such as IDOT, the Illinois Tollway, and the state's five largest counties by population are potentially allowed to pursue new tolling projects through a public-private partnership under the terms of the state's Public-Private

Partnerships for Transportation Act. The law also requires approval from the Illinois General Assembly for each project prior to the launch of a procurement process.[46]

- The Illinois Tollway must receive authorization from the ILGA prior to commencing construction of any new toll highway.[47]
- The construction of any new toll bridges over water requires the approval of the county board(s) of the county in which the bridge is to be constructed.[48]
- Any tolling project would likely also require incorporation into state and regional planning documents, such as those overseen by CMAP.
- Any implementing agency/agencies may also need to receive state authorization to implement and/or collect tolls, depending on their current statutory authorities and capabilities.

Federal authorization

Federal restrictions on tolling include, most notably, Section 301 of 23 United States Code (U.S.C.), which states that, "Except as provided in Section 129 of this title with respect to certain toll bridges and toll tunnels, all highways constructed under the provisions of this title shall be free from tolls of all kinds."

While this prohibition is broad, notable exceptions include some that are available "by right" (i.e., without additional federal approval).[49] These "by right" authorities include:

- **Tolling of new capacity**, including on the Interstate highway system, so long as the number of existing general purpose (i.e., untolled) lanes is not reduced.
- **Tolling of bridges and tunnels**, which can be tolled as part of their reconstruction or replacement, including on the Interstate highway system. Notably, the restrictions on maintaining the existing number of untolled lanes do *not* apply to bridges and tunnels.
- **Tolling following the reconstruction of non-Interstate highways,** such as the reconstruction and conversion of the Elgin O'Hare Expressway to IL 390.

---

[46] 630 ILCS 5/15. "Public-Private Partnerships for Transportation Act." Accessed August 7, 2025, https://www.ilga.gov/Legislation/ILCS/Articles?ActID=3380&ChapterID=74.
[47] 605 ILCS 10/14.1. "Toll Highway Act." Accessed August 7, 2025, http://ilga.gov/Legislation/ILCS/Articles?ActID=1746&ChapterID=45.
[48] 605 ILCS 115. "Toll Bridge Act." Accessed August 7, 2025, https://ilga.gov/Legislation/ILCS/Articles?ActID=1753&ChapterID=45.
[49] FHWA, "Federal Tolling Programs." Accessed August 7, 2025, https://www.fhwa.dot.gov/ipd/tolling_and_pricing/tolling_pricing/federal_tolling_programs.aspx.

- **Converting existing high occupancy vehicle (HOV) lanes into high occupancy/toll (HOT) lanes**, to take advantage of unused capacity in an existing HOV lane. At this time, there are no HOV lanes in the CMAP region.

In addition, several federal pilot programs provide tolling authorization beyond "by right" authorities. Pilots have a limited number of slots and require specific approval, up to and including from the U.S. Secretary of Transportation. Current pilot programs include:

- **Interstate System Reconstruction and Rehabilitation Pilot Program (ISRRPP),** which provides three slots for states interested in reconstructing Interstate highways. This program is the oldest and most restrictive of the existing pilot programs, with specified time limits and greater restrictions on the potential uses of toll revenue.[50]
- **Value Pilot Pricing Program (VPPP),** which provides fifteen slots for jurisdictions interested in exploring pricing strategies that vary based on demand. The program allows those strategies to include tolling on the National Highway System, including on Interstate highways.[51] This program serves as the basis for New York City's cordon pricing program,[52] although the federal government has subsequently reversed its support for the use of VPPP for this purpose.[53]
- **Congestion Relief Program (CRP)**, which provides ten slots for jurisdictions in large metropolitan areas to adopt tolling on the existing Interstate highway system.[54] Illinois has received a grant through this program, but at this time, none of the ten slots has been used.[55]

Transportation projects that involve tolls may also be subject to additional federal requirements, such as those related to environmental approvals. Further analysis would be required prior to project initiation depending on project specifics.

[50] FHWA, "Federal Tolling Programs: Interstate System Reconstruction and Rehabilitation Pilot Program." Accessed August 7, 2025, https://www.fhwa.dot.gov/ipd/tolling_and_pricing/tolling_pricing/interstate_rr.aspx.
[51] FHWA, "Federal Tolling Programs: Value Pricing Pilot Program." Accessed August 7, 2025, https://www.fhwa.dot.gov/ipd/tolling_and_pricing/tolling_pricing/vppp.aspx.
[52] FHWA, "Congestion Pricing – VPPP." Accessed August 7, 2025, https://www.permits.performance.gov/permitting-project/dot-projects/congestion-pricing-vppp.
[53] USDOT, "Sean P. Duffy to the Honorable Kathy Hochul." February 19, 2025, https://ops.fhwa.dot.gov/memorandum/VPPPletter_termination_021925.pdf.
[54] FHWA, "Congestion Relief Program Fact Sheet." Last modified January 31, 2025, https://www.fhwa.dot.gov/infrastructure-investment-and-jobs-act/congestion_relief.cfm.
[55] FHWA, "Congestion Relief Grant Program Awards (FY 2022 – FY 2024)." Last modified February 6, 2025, https://ops.fhwa.dot.gov/infrastructure-investment-and-jobs-act/congestion-relief/fy2022-fy2024/awards/.

Applications of tolling/pricing configurations by objective

The five configurations of tolling/pricing should be considered alongside proposed policy objectives.

For example, if the primary objective is revenue generation to support investments in a single facility or corridor, a tolled road, tolled lanes, or corridor pricing would be most suitable, since each of these strategies aligns pricing with users of that facility or corridor. In contrast, if revenue generation is sought for wider investment in transportation infrastructure in an area, then a strategy such as cordon may be more appropriate.

Similar considerations apply for non-revenue goals. For example, if the primary objective is mitigating congestion on specific facilities, tolled lanes or full-road tolling on those facilities may be the most appropriate response. Larger regional goals, e.g., improving regional travel time reliability or reducing emissions from the region's transportation system, may be more appropriately targeted through a mechanism like cordon pricing or a comprehensive network of tolled roads or priced corridors.

Clarity as to the primary objective and geographic focus can allow for a feasible list of potential tolling/pricing options to be developed.

Potential uses of net revenues

In almost all cases, regardless of the motivating policy goal(s), a tolling or pricing system will generate revenue beyond toll system operating and administrative costs, or net revenue. This is by design, as a tolling/pricing system that does not at least recoup the cost of revenue collection fails to achieve its revenue objective and is unlikely to significantly advance other policy goals. The revenue stream anticipated from a tolling system is often used as collateral to secure long-term debt, so that any new or upgraded infrastructure can be built and then subject to pricing once it opens.

In most cases, toll revenues (or the revenue from a debt issuance secured by those revenues) are first used to support the construction, operations, maintenance, and long-term investment needs of the tolled facility and/or the tolled system of which it is a part. Depending on the system and the facility in question, this may include complementary investments on intersecting or adjacent facilities, such as changes to road configurations, additional transit capacity, and improvements to intersections.

Incremental funds beyond those required to address the needs of the tolled facility may be dedicated to a range of other purposes. However, these revenues are subject to legal and political constraints, including:

- If the tolls are used to secure long-term debt financing, the uses of those revenues will likely be subject to restrictions based on the terms of bond covenants included in debt issuances. These can include specified sequences of spending (e.g., addressing system operations and maintenance needs prior to other investments)

as well as limitations on the types of expenses toward which the revenues can be directed.

- Toll revenues generated from facilities constructed as part of the federal aid highway system are subject to restrictions, with additional specific eligibilities and restrictions applied to revenues generated through one of the three pilot tolling/pricing programs noted above.
- In addition to legal and statutory constraints, there is often stakeholder interest in directing revenues from a tolling/pricing system back into investments in the geographic area or corridor subject to the price.

Delivery approaches

The implementing agency/agencies must select a project delivery method for any tolling/pricing system, along with any transportation infrastructure improvements supported or required by it. Options range from conventional project delivery for infrastructure projects to public-private partnerships (P3) which leverage the ability to raise capital supported by toll revenue forecasts to invest in upfront infrastructure improvements.

Although the delivery approach is not likely to significantly impact net revenues, it can affect the flexibility of pricing approaches if the key objective is to mitigate negative externalities. The more constrained the conditions under a P3 concession or contract, particularly around revenues, the more difficult it may be to implement changes in pricing that may *lower* net revenues if needed. For example, if a city has a network of toll roads with P3s, it will likely prove difficult to lower off-peak tolls to discourage diversion to local streets if the lower tolls also reduce concessionaire revenues.

The extent of outsourcing and transfer of control should reflect an appropriate balance of public oversight over tolling/pricing policy. Toll roads have been implemented using a full range of delivery models, ranging from public sector agencies to P3s — and Illinois has experience with both models.

Assessment

The choice of tolling/pricing options to apply depends on:

- Policy objectives such as revenue, congestion reduction, emissions reduction, modal shift, and/or improved quality of life.
- Geographic scope of the corridor, area, or region that either is to receive investment or to have externalities mitigated.
- Scale of the outcomes sought (e.g., amount of revenue to be raised, extent of congestion/emissions to be mitigated), at least in the initial phase of deployment.
- Interest in any future scaling of tolling/pricing by geography and time of day.

In this section, the five tolling and pricing facility concepts described above are assessed at a strategic level based on six criteria:

- Revenue potential
- Congestion reduction potential
- Scalability, whether ease of growth or ability to introduce in phases
- Flexibility to vary prices by location, direction, and time of day
- Precision (ability to target pricing specifically to achieve policy objectives, without unduly burdening others or distorting behavior)
- Ease of understanding and public acceptance

These criteria map loosely to CMAP's criteria for other potentially reasonably expected revenues. Note that some criteria, such as implementation timeline, administrative feasibility, and alignment with regional goals around economic prosperity and environmental resilience are challenging to evaluate in the absence of program specifics.

Even for the criteria used in this section, precise evaluation of high-level pricing concepts is necessarily incomplete. The relative performance of each concept depends on the geographic and temporal scope of application. For example, a small cordon operating 24/7 in both directions could potentially raise more revenue than a network of tolled lanes with pricing only at peak times, but all of this depends on demand and pricing on the priced networks. Similarly, a wide scale network of almost all forms of pricing would have a significant impact on revenue and congestion, while deployment of sophisticated pricing in a narrow geography or across a small portion of a regional network would have modest impacts on revenue and congestion.

Tolled roads

Criteria	Assessment
Revenue potential	Given how widespread tolling is in Illinois and across the United States, it is clear that, as long as demand is sufficient on the tolled facility, all-lane tolling can generate sufficient revenue to support renewal and upgrades to that facility. The potential to raise surplus revenue for other purposes will be dependent on the costs of any upgrades and the overall demand and elasticity of demand on that route.
Congestion reduction potential	For congestion reduction, tolling can help mitigate congestion on the tolled facility, but if an untolled diversion is readily available, congestion may be pushed onto a local, less suitable network.
Scalability	Tolling itself can be scaled easily, in that tolling points can be added on highways, notwithstanding the need to be wary of diversion onto parallel routes. With current tolling technology (gantry-suspended tag readers and cameras mounted over each lane), the cost of scaling does not enjoy economies of scale and could offer diminishing returns if tolling is extended into lower-traffic segments.
Flexibility	Tolling can be done flexibly, with higher pricing at peak times and in peak directions but is almost always applied 24/7 as it is generally a revenue raising tool.
Precision	Tolling is targeted on the tolled route and not applied to adjoining routes or parallel ones, so pricing is limited to the elasticity of demand on the tolled infrastructure relative to untolled, rather than a refined application of tolling across a full corridor (see corridor pricing).
Ease of understanding/ public acceptance	A key benefit of tolling is that it is well understood and generally accepted by the public, as long as it is directly linked to paying for the construction or upgrades to the tolled infrastructure. This is especially the case in Illinois which has extensive experience with tolling through the Illinois Tollway.

Tolled lanes

Criteria	Assessment
Revenue potential	The scale of revenue generated by tolled lanes is more modest than tolling all lanes since it is limited to one or two lanes per direction. Demand is concentrated at peak periods, with revenue at those times often high per vehicle. Tolled lanes do not generally include trucks, so revenue from perhaps 5 to 15 percent of vehicles is not available (especially notable given the higher rates trucks often pay on tolled roads). It is uncommon for HOT lanes or express lanes to raise enough revenue to pay for new lane capacity by themselves, let alone provide surplus revenue.
Congestion reduction potential	Tolled lanes are designed to deliver targeted congestion relief on the facilities they operate within by providing a lower congested alternative to untolled lanes (although they have low impact on congestion in untolled lanes). They are typically not effective in relieving congestion more widely.
Scalability	Tolled lanes have some scalability in that one corridor can have such a lane over a set distance and be extended and other parts of the network added, but tolled lanes can only be implemented on grade-separated highways with more than two lanes in each direction with sufficient distances between interchanges to minimize traffic weaving. This limits the geographic scope of the network suitable for such lanes. Moreover, care needs to be taken when changing or expanding a network of tolled lanes as it can have complex and unpredictable impacts elsewhere in the network.
Flexibility	Tolled lanes can be implemented with maximum flexibility as to pricing by time, direction of travel and route, and dynamic (real-time) changes in pricing to maintain levels of service.
Precision	Tolled lanes can be implemented in a targeted way to relieve specific corridors, albeit with the limitation on road type already mentioned, and their implementation does not unduly burden others. Drivers can choose to use tolled lanes, and those that do not can continue to use untolled lanes with no negative impact.
Ease of understanding/ public acceptance	Tolled lanes are also relatively easy to understand, presenting a choice to pay for a premium service (faster and/or more reliable travel times). As a result, public acceptance is often easier to achieve for this strategy than for other pricing options.

Corridor pricing

Criteria	Assessment
Revenue potential	Applying pricing to a corridor in its entirety has more revenue potential than tolled roads or lanes because the main highway and parallel corridors can collectively be subject to pricing and generate revenue accordingly. However, as corridor pricing typically does not operate 24/7, the revenue raising potential is limited to times of peak demand to manage congestion.
Congestion reduction potential	Given that corridor pricing applies pricing to trips on all roads within a corridor, it has the greatest potential to mitigate congestion at times of peak demand and apply appropriate pricing to all drivers.
Scalability	Corridor pricing can be scaled by applying pricing to a single segment of a corridor initially, followed by longer stretches and, ultimately, other corridors. This has been successfully implemented in Singapore, which started with three tolling points and has now extended to over seventy toll points on multiple corridors. However, corridor pricing has natural limits in urbanized or otherwise highly traveled corridors or networks.
Flexibility	Corridor pricing also has very high flexibility to target pricing by individual road segments, direction, and time of day, as has been implemented in Singapore, where pricing at each toll point is set according to conditions on those segments of corridor.
Precision	Corridor pricing can appear to offer little choice — and therefore undue burdens — on those making short trips on local roads. However, this can be addressed through careful design. It is possible to implement business rules that do not charge vehicles undertaking local trips past single toll points but rather focus on through traffic. This prevents distortionary behavior around businesses and communities adjacent to toll points.
Ease of understanding/ public acceptance	There can be public skepticism as to whether corridor pricing can effectively mitigate congestion and concern about what is done with net revenues. Depending on the geographic scale, corridor pricing may also be perceived as unfair since it applies to users in one corridor, rather than a whole network. This skepticism is often driven by lack of familiarity or experience with corridor pricing compared to other facility types and the lack of alternative routes (although there may be modal alternatives) when a whole corridor is priced.

Cordon pricing

Criteria	Assessment
Revenue potential	The potential for raising revenue with a cordon is entirely dependent on the volume of traffic flow over the cordon. Large downtown areas that include major highways can typically raise more revenue than conventional tolling, but small downtown cordons with lower levels of automobile traffic likely have limited revenue potential.
Congestion reduction potential	Cordons can effectively reduce congestion to, from, and within the location encircled, as has been seen in Stockholm, Milan and (preliminarily) New York City.
Scalability	Cordons themselves are difficult to scale, but it is possible to implement multiple cordons, either concentrically (as in Oslo, where there are three rings between the outer suburbs and the downtown), or with multiple smaller cordons in a large metropolitan area.
Flexibility	Cordons have some flexibility, as pricing on a single route into a cordon can be varied from the rest of the cordon (see Stockholm's Essingeleden motorway). Pricing can be applied differentially by direction of travel and time of day. Cordons can be priced for a single pass, all day, pay-per-crossing, or some combination with a cap.
Precision	Cordons can be somewhat targeted in their application but are highly dependent on the geography of a location being amenable for separating traffic entering the cordon from traffic that seeks to travel through it. Physical barriers are ideal, but there should also be ring or bypass routes that enable some traffic to avoid the cordon. However, cordons inevitably separate some businesses and residences from others, so there is potential for localized distortions and economic impacts.
Ease of understanding/ public acceptance	Cordons are relatively easy to understand in that entering them is subject to a price, but this may not necessarily help public acceptance. Businesses and residents within a cordon, or just outside it, are likely to resist the cordon because they fear negative impacts, either from having to pay to drive or their customers and employees having to pay. Care must be taken in cordon design and the design of complementary transportation measures (such as traffic management, transit services, and any localized exemptions) to address these concerns.

Area pricing

Although area and cordon pricing have similarities, area pricing charges for circulation within the area in addition to crossings into a cordon. The impact of area pricing can be greater, depending on the amount of traffic circulating within the cordon. The key disadvantage is that area pricing requires a single price for both crossing and circulating within the area, as it relies on tolling points at multiple locations within the area to detect vehicles.

Criteria	Assessment
Revenue potential	For the same location, area charges would generate moderately more revenue than a cordon.
Congestion reduction potential	For the same location, area charges would have more potential to reduce congestion than a cordon.
Scalability	Area charges can be scaled up easily by extending over wider areas, and more area charge zones can be implemented easily. However, even more so than cordons, larger area charge zones are very blunt, charging trips on uncongested routes as much as on congested ones. This makes it difficult for area charges to be effective at mitigating congestion, although they can generate revenue easily on a larger scale.
Precision	Area charging is blunter than cordon pricing and, consequently, less able to achieve precision than cordon charges given the application of prices at the same rate for vehicles circulating within the cordon.
Flexibility	Pricing is less flexible as area charges have to have a single charge for all travel into, out or within the area (as it is not technically possible to distinguish between locations where trips start and finish).
Ease of understanding/ public acceptance	Area charges are easy to understand, but charging all traffic circulating within an area at the same rate as vehicles entering the cordon may be seen as unfair. For this reason, significant public opposition emerged to a proposed area charge for Cambridge, UK.

Appendix: Further implementation considerations

In addition to policy objectives, pricing approaches, and facility types, there are a range of elements to consider across the three key phases of any tolling or pricing project: design, implementation, and operations and review.

Design

Once objectives are determined, and the possible locations and types of tolled facilities have been identified, the following factors also need to be considered:

- **Capital costs:** Tolling/pricing systems (i.e., the revenue collection-related infrastructure) should be able to recover their capital costs quickly, but an important factor in selecting a concept should be the cost relative to expected net revenues. In general, capital costs are influenced by the number of tolling points introduced and the scale of any complementary infrastructure measures needed alongside the tolling/pricing facility.
- **Operating costs:** Operating costs of a tolling/pricing facility arise from several design elements, including product design, pricing complexity, and the presence of discounts and exemptions (particularly if any labor-intensive processes are needed to apply for and enforce them). If net revenues are a key objective, simplicity and consistency with existing tolled facilities (e.g., the Illinois Tollway) can help reduce operating costs, along with clear processes for setting up and managing accounts, as well as making required payments.
- **Compliance:** Tolling/pricing facility design should consider the need to ensure ease of compliance with payment for the public and likewise a clear understanding of how to legally avoid paying (e.g., by altering route, time of day, or mode). As with operating costs, there may be compliance benefits in aligning with existing tolling facilities, such as the Illinois Tollway.
- **Presence of existing tolling facilities:** Existing tolled roads may already offer the technology (i.e., accounts, toll tags) that can enable quicker implementation of tolling on new facilities. Interoperability of new facilities with existing ones, including not just technology but also accounts that can be applied across facilities, helps to reduce operating costs and improve public acceptability, user experience, and compliance.
- **Phasing:** Tolling/pricing programs can be designed to implement in phases, depending on specific conditions. Phasing can be based on location (e.g., a single priced point on a network followed by additional ones), time of operation (initially pricing AM peak and later adding PM peak with the later potential for interpeak pricing) and direction of travel.

- **Scalability:** If there is interest in a tolling/pricing program expanding over time, particularly to address congestion and other externalities, consideration should be given to options that can be scaled in geography and time of operations easily.
- **Flexibility:** Tolling/pricing facilities generate both shorter- and longer-term changes in driver behavior that can more fundamentally change travel and land use demand patterns. Consideration should be given to pricing options that are easier to adjust, such as operating hours, directions of travel, and variations in pricing to reflect changes in demand.

Complementary measures

- **Complementary road changes:** Introducing tolling/pricing on existing roads will change traffic patterns, as some drivers will seek to avoid the priced facility. Cordon and area facilities typically are designed with either a ring route or bypass through route, to enable through traffic to avoid it. This is the case when through traffic is less amenable to modal shift, e.g., if transit is designed primarily to serve point-to-point journeys to and from the cordoned location. For a downtown Chicago cordon, one key consideration would be whether and where to direct a bypass through the cordon, such as via Interstate 90 (I-90), Interstate 94 (I-94), Interstate 290 (I-290), and/or DuSable Lake Shore Drive. Note that the selection of a through-route in a cordon would not preclude a separate tolling system that applies to that bypass, e.g., a downtown cordon that exempts I-90/94 could be paired with a separate (although likely lower) toll rate that applies to all trips on I-90/94, including those that pass through the cordon.
- **Complementary modal capacity:** In many cases, a key objective is to use pricing to encourage some modal shift from single occupancy automobiles to transit, and to active modes for shorter trips. Many of the existing untolled highways in the CMAP region have parallel high-capacity transit alternatives (e.g., the CTA Blue Line and several Metra lines for I-290 and I-90/I-94 to the west and northwest of the Loop or the CTA Red Line, Metra Rock Island line, and Metra Electric line for I-90/I-94 and I-57 to the south of the Loop). The regional transit network also centers on the Chicago CBD, which could provide compelling alternative modes for many trips that could be subject to a downtown cordon price. Providing additional transit capacity — from higher bus frequencies to more routes to new major fixed infrastructure — could be considered as part of the cost of implementation.

Public acceptance

- **Public acceptability:** The most challenging aspect of successful tolling/pricing implementation on existing roads is building acceptance. This requires demonstrating the value of paying to use roads that are currently “free,” which in turn requires some combination of significantly improved highway infrastructure and better management of congestion at peak times, ideally improving trip reliability and reducing travel times. Likewise, public support for pricing on existing

infrastructure simply to raise revenue is rare. New capacity and/or significant improvements to the tolled infrastructure or other complementary transportation facilities in the tolled/priced corridor are much more likely to be acceptable than if money is instead directed toward unrelated investments.

- **Impacts on various road user groups:** Assessment of the likely road user groups impacted by a pricing proposal is important, including differentiation between private and commercial users, and the types of trips affected by the pricing proposal. This helps with public acceptability, by considering the demographics of those affected. A key element of this assessment is considering the demand elasticity of those affected by trip purpose. The demand elasticity for travel to a medical appointment is likely to be much less than a leisure trip, with the economic and social impact on the former greater than the latter. Although freight traffic is often seen as having more limited demand elasticity, pricing measures have been used in some jurisdictions, including the Illinois Tollway, to encourage (and reward) more off-peak travel by trucks, as this can help ease pressure on roads during times of peak congestion.

Implementation

Implementation factors for consideration include:

- **Legal and regulatory constraints:** Implementation of tolling/pricing on existing roads typically requires state legislative approval and may involve specific regulatory constraints placed on the business rules, delivery, and operations of any such facility. There are also significant federal restrictions on tolling existing untolled roadway systems funded through federal-aid highway programs, especially for any designated Interstate highways.
- **Governance:** A critical implementation decision relates to governance and responsibility for any new tolling/pricing facility, particularly what entity will be responsible to own, operate, make business rules, and procure services for the facility. This also includes governance of net revenues collected and recommendations for any changes to rate structures and rates. Decisions on this are determined early for newly priced facilities, so there is clarity on future revenues and accountability for ensuring efficient, fair revenue collections. For example, the Metropolitan Transportation Authority in New York has primary responsibility for the procurement, management, and operations of the New York Central Business District Tolling Program. Clarity on governance helps to mitigate risks around procurement and delivery of pricing alongside complementary transportation measures.
- **Engagement:** A key parallel element to implementation is engagement with the public and stakeholders. Outreach can help to build acceptance and understanding and share information about the detailed pricing implementation process. These efforts should help inform final decisions on the design of complementary

transportation measures, whether traffic management or transit, while also educating future customers about use of and payment for the tolled/priced facility.

Operations and review

Once a tolling/pricing facility is operational, there should be a regular performance review process and oversight to monitor a range of key performance indicators such as:

- Net revenues
- Operating costs
- Customer service responsiveness
- Compliance and rates of recovery of debt from non-compliant drivers
- Impacts on traffic volumes and speeds
- Impacts on emissions
- Impacts on businesses and households served directly by the priced facility

A key success factor for operations is the management of revenues and distribution of those revenues to intended purposes. Transparent distribution of net revenue and realization of economic benefits help to maintain public acceptance. If net revenues are used for projects with net economic benefits, it can magnify the benefits of reducing negative externalities, while realizing greater value for the locations subjected to tolling/pricing. The success of major pricing projects in cities like Stockholm and Oslo appears to be the result of a carefully planned series of investments supported by revenue generated from pricing. This has been focused on projects that are transformational for access, mobility, and in reducing congestion and emissions, while obtaining sufficient support from the local community to enable pricing to be implemented in those cities.

Technology

Modern toll and pricing facilities use electronic free-flow systems that ensure traffic can drive at normal operational speeds to pass tolled points. Electronic free-flow systems have an Automatic License Plate Recognition (ALPR) system of cameras at the very least for enforcement purposes, but in many cases as the primary system for identifying vehicles. ALPR systems historically were used as a backup because they are more prone to error due to obstruction or distortion of license plate images, although in some jurisdictions the use of highly simplified plates and advanced cameras sees reliability of detection approaching 99 percent.

Many toll roads use Dedicated Short Range Communications (DSRC) technology, such as tags or stickers with DSRC antenna and chips installed by drivers in their vehicles, and associated beacons at tolling points, to reliably identify vehicles passing tolled points. For example, the Illinois Tollway's DSRC tag is known as I-PASS. The Tollway belongs to the E-ZPass Interagency

Group (IAG), a network of interoperable toll systems, meaning that I-PASS is accepted on systems such as the Indiana Toll Road and the Pennsylvania Turnpike, and that the Tollway accepts the E-ZPass tags issued by those systems and other members of IAG.[56] DSRC tags have been used for many years because they offer over 99 percent reliability in identifying vehicles, do not require high volumes of interaction with motor vehicle registries (with associated costs), and directly link vehicles to tolling accounts. These systems have achieved high levels of penetration, e.g., in 2023, electronic tolling (DSRC) usage rates at the Illinois Tollway were more than 87 percent.

In jurisdictions with well-established tolling systems with high levels of DSRC tag penetration (such as in Illinois and New York), both DSRC and ALPR are used to ensure a high proportion of vehicles are reliably detected and identified for the purposes of tolling. Some vendors in the past several years have also offered mobile phone-based products either to help drivers manage toll accounts or to offer another means of detecting and reporting vehicles passing tolling points, but these are not currently able to facilitate ubiquitous identification of vehicles. Based on current trends, it appears unlikely that the technology mix for urban pricing facilities will change significantly enough in the next five to ten years to render ALPR technology obsolete.

[56] E-ZPass Group, "About Us: Members." Accessed August 12, 2025, https://www.e-zpassiag.com/about-us/members.

The Chicago Metropolitan Agency for Planning (CMAP) is the region's comprehensive planning organization. The agency and its partners developed and are now implementing ON TO 2050, a long-range plan to help the seven counties and 284 communities of northeastern Illinois implement strategies that address transportation, housing, economic development, open space, the environment, and other quality-of-life issues.

See cmap.illinois.gov for more information.

Chicago Metropolitan Agency for Planning

433 West Van Buren Street
Suite 450

Chicago, IL 60607
cmap.illinois.gov
312-454-0400