All-Electronic Tolling:

Overview of Potential Tolling Options for Connecticut

Connecticut's highways and bridges are aging, in need of repair, and congested. Current transportation revenues are insufficient to maintain our existing infrastructure or make the types of improvements needed to reduce congestion. Gasoline tax revenues have been flat for ten years and are expected to begin declining as cars become more efficient, and as the sales of electric vehicles increase. We need a new source of revenue that is sufficient to improve the condition of our existing infrastructure and also finance highway improvements that will reduce congestion that clogs our major highways. Tolling is one potential source that could raise sufficient funding.

For the last few years, Connecticut has been considering tolling as a potential new source of revenue to support its transportation programs. The Connecticut Department of Transportation (CTDOT), has conducted several preliminary studies to gain greater insight into how much revenue tolls might raise, and how tolling might also be used to help manage congestion on our busiest highways. The purpose of this pamphlet is to provide a summary of findings from recent toll investigations performed by CTDOT. These preliminary studies provide a good overall assessment of the potential of tolling. The reality is, there remains a substantial amount of additional information that would be required to support a future decision by the Legislature on whether to authorize tolls in Connecticut and to obtain the required approval by the Federal Highway Administration to implement tolls. The work that was recently funded by the Bond Commission to fully develop a detailed toll proposal will include the following activities:

- **Strategic Financial Plan.** Develop a 10 to 20-year strategic financial plan with specific programs and projects as well as alternatives for how to fund and finance the operating budget and capital program beyond the current 5-year Special Transportation Fund revenues. This would include an assessment of phasing out some of the gas tax.

- **Public Engagement.** Conduct extensive public and stakeholder engagement to seek input regarding the electronic toll system and options like toll rates and discounts, gantry locations, and traffic impacts.

- **Environmental Assessment (EA).** Prepare an EA as required by the Federal Highway Administration (FHWA). For tolling projects, FHWA places special emphasis on ensuring that tolls do not create disproportionate impacts on any individual socioeconomic groups, communities, or regions of the state. The EA must fully evaluate these socioeconomic and geographic equity concerns. More generally, it must address the location of tolls, diversion of traffic, congestion relief, and the economic impact of tolls on residents, businesses, and low-income and minority neighborhoods

- **Preliminary Design Documents.** Prepare the preliminary (30%) design documents needed to support the EA, capital and operating cost estimates, and provide the basis for final design plans should tolling be authorized.

- **Revenue & Cost Estimates.** Develop detailed estimates of toll revenues and toll system capital and operating costs.

- **Traffic Forecasts.** Develop detailed traffic forecasts, congestion reduction estimates, and traffic diversion estimates. Analyze their impacts on residents and businesses.

- **Concept of Operations.** Develop a concept of operations for operating and maintaining the toll system, processing electronic toll transactions, managing toll revenues, and providing customer service.

Summary of Current Toll Studies:

While there is still much work to be done, CTDOT has developed a hypothetical toll rationale that will answer many questions such as where tolls might be located and what toll rates might be. It is based on the assumption of a system that would toll all interstate and limited access highways in CT and includes specific routes, toll rates, discounts, costs, and revenue estimates. However, it is important to understand this information is only intended to aid the discussion of tolling. It is based on a potential set of assumptions, but it is not a recommended system. Ultimately, a decision to implement tolls and to set toll rates is entirely subject to Legislative approval only after substantial public and stakeholder input and extensive technical and policy analysis.

Principles used in developing a toll scenario. There are three basic principles that were established to develop a toll framework for consideration in CT:

1. **Fairness –** tolls should be set to ensure collection of revenues from CT as well as out- of-state auto and truck trips. They should also be set to ensure the toll rates per mile are the same on all toll roads in the state.

2. **Flexibility –** the toll system should allow the flexibility to set and adjust discount rates for CT car and truck drivers – including discounts for commuters and frequent users.

3. **Revenue efficiency –** the toll system should seek to minimize the cost of collection and administration while also addressing key congestion relief objectives.

Scenario selected for discussion. The findings presented below are based on one of many toll scenarios that were tested. The scenario in this report was selected for discussion because it met three criteria:

- It set toll rates that are comparable to neighboring states, but are still some of the lowest rates in the nation.

- It minimized cost to CT drivers through the offering of low toll rates and significant discounts.

- It captured significant revenue from out-of-state drivers who use CT roads, but currently pay little or nothing for using the roads.

The findings are presented in the form of answers to the most critical questions recently raised. They provide both an overview of the system as well as information on the components of the system and system performance.

1. What is the scope of a potential statewide tolling system?

- No cash toll booths or toll plazas would be built <u>across</u> the highway; rather tolls would be collected via electronic sensors mounted <u>over</u> the highway on special toll gantries.

- Vehicles would not need to stop or slow down, so there would be no traffic delays or accidents associated with older toll systems.

2. How would tolls be collected in Connecticut?

- Unlike CT tolling systems of the past, modern tolling systems use cashless All-Electronic Tolling (AET), similar to those recently implemented on the Massachusetts Turnpike and several New York area toll bridges and tunnels.

- AET systems use electronic toll readers and cameras mounted overhead to read E-ZPass transponders and license plates of vehicles driving by at normal highway speeds.

- The vast majority of tolls would be collected using electronic transponders like E-ZPass. *90% of the tolls on the Mass Pike are collected via E-ZPass.*

- Vehicles not equipped with E-ZPass would still be able to use the tolled roads. Tolls would be collected by video imaging of license plates, and billing and payment by mail or internet. Cash would not be accepted.

- The concept evaluated in this preliminary analysis assumed overhead toll gantries, or toll points that would be spaced 6-8 miles apart. Due the numerous exits on most Connecticut highways, it is not possible to place a gantry between each exit, but spacing every 6-8 miles captures most trips. The average spacing is 6.6 miles.

- There would be no more than one gantry per tolled route, in any given town or city.

3. What payment options would drivers have?

There would be four basic payment options available:

Vehicles with an E-ZPass:

- **CT E-ZPass:** Connecticut-issued E-ZPass transponders. *These drivers are eligible for CT discounts.*

- **Out-of-state E-ZPass:** E-ZPass transponders issued by other states. *No discounts offered for out-of-state E-ZPasses.*

Vehicles without an E-ZPass:

- **Video toll:** Drivers without an E-ZPass will be billed through the license plate on their vehicle. Cameras will capture an image of the plate number. The owner of the registered vehicle will be identified from DMV records, and a bill will be mailed to the owner. Video toll rates are 50% higher than out-of-state E-ZPass rates.

- **Video toll (preregistered):** Some drivers may choose to register their license plate with the CT toll system rather than getting an E-ZPass. Preregistered toll rates will be 25% higher than an E-ZPass rate, but billing can be done electronically rather than by mail.

4. How much would the tolls be?

Sample toll rates are provided below. The out-of-state E-ZPass rate is considered the base rate and discounts or surcharges are applied to the base rate. Drivers who purchase a CT-issued E-ZPass would receive a 30% discount plus an extra 20% if they are regular commuters or frequent users (more than 40 1-way trips/month). Vehicles without an E-ZPass are charged an extra 25 or 50% depending on whether they register their license plate with the CT toll system. All drivers would be charged 25% more in the peak traffic period, assumed to be 6 a.m. to 9 a.m. and 4 p.m. to 7 p.m.

Payment Category	Discount	Off Peak (rate/mile)	Peak Period (rate/mile)
CT E-ZPass	**30%**	**4.4** cents	**5.5** cents
CT E-ZPass: commuter rate	**20%**	**3.5** cents	**4.4** cents
Out-of-state E-ZPass	**(base rate)**	**6.3** cents	**7.9** cents
Video Toll (registered)	**25%** higher	**7.9** cents	**9.9** cents
Video Toll (not registered)	**50%** higher	**9.4** cents	**11.8** cents

Sample Tolls for Consideration

In-State Car Trips

Many trips by Connecticut drivers would not involve a toll since only 539 miles of a total of 21,500 miles would have tolls.

The average trip on the toll network by Connecticut residents is 12 miles. That trip would cost $0.42 in the off-peak and $0.53 in the peak period for frequent travelers.

Out-of-State Car Trips

A trip by an out-of-state driver traveling from New York to New Haven would cost $3.69 with an E-ZPass or as much as $5.54 without an E-ZPass in the peak period.

A trip from New York to Rhode Island, would cost $8.80 with an E-ZPass or as much as $13.20 without an E-ZPass in the peak period

A trip from New York to the mall in Danbury would cost $0

Out-of-State Truck Trips

A trip by an out-of-state truck through Connecticut from New York to Rhode Island on I-95 would cost $35.20 with an E-ZPass or as much as $52.80 without an E-ZPass in the peak period.

A trip through Connecticut from New York to Massachusetts on I-84 would cost $30.80 with an E-ZPass or as much as $46.20 without an E-ZPass in the peak period.

Other typical tolls can be calculated by using the rates and discounts in the previous table.

5. What is the estimated revenue from the system?

- Gross revenue: The total gross toll revenue in the first full year of operation (2023 assumed) would yield about **$1.086 billion** per year
- Truck revenue: About **29%** of revenue would come from trucks, while 71% would come from cars.
- Out-of-state revenue: Just **over 40%** of revenue would come from out-of-state vehicles (Out-of-state vehicles are about 30% of traffic). The higher revenue share is due to discounts available to drivers with a CT- issued E-ZPass.
- CT car revenue: As a percentage of total revenue, CT autos would represent **44%** of all toll revenue.
- Net revenue: The total net toll revenue in the first full year of operation (2023 assumed) would yield about **$950 million.** The net revenues are the revenues remaining after deducting toll operating costs and annualized capital cost. The net revenues are available to pay for maintenance and improvement of the highways and bridges.

6. How much would it cost to implement and operate tolling in the state?

- **AET system:** The entire 539-mile AET system cost is estimated at **$210 million**.
- **Fiber communication system:** In addition, about 360 miles of new fiber optic communications system would be needed, which is estimated to cost approximately **$162 million**.
- **Combined cost:** The total combined cost of deployment is estimated at about **$372 million**.
- **Annualized capital cost:** The system would likely be procured using a Design, Build, Operate and Maintain (DBOM) approach with an estimated annualized capital cost of about **$38 million** per year.
- **Annual operating cost:** Toll system operating cost is estimated at about **$100 million** per year in 2023; less than 10% of gross annual toll revenue for that year.
- **Operating costs will decrease:** Operating costs are projected to decline over the forecast period, as more and more users shift from video tolling to the more efficient E-ZPass method.

7. What about congestion reduction and other impacts?

- **I-95 west of New Haven.** Tolls will be higher during peak traffic hours to manage peak demand or traffic levels. This congestion pricing saves **18 hours** per year for the average commuter on I-95 between New York and New Haven.
- **Route 15 west of New Haven.** Commuters on Rt. 15 would save about **13 hours** per year from congestion pricing.
- **All tolled highways.** Total travel time on all CT routes, including both alternative and tolled routes, will be reduced by about **12 million hours** per year based on congestion pricing (higher peak period tolls) alone, with an equivalent economic value of about **$300 million** assuming a nominal economic value of $25 per hour.