

**STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Maine Turnpike Authority	)	
Natural Resources Protection Act	)	
Site Location of Development Act	)	PRE-FILED DIRECT TESTIMONY
York Tollbooth Replacement	)	OF PETER SMITH
L-27241-TG-A-N	)	
L-27275-TP-A-N	)	

I. Introduction

My name is Peter Smith and I have prepared the following testimony on behalf of Think Again and the Town of York as an alternative or counter-proposal to the latest proposal submitted by the Maine Turnpike Authority (“MTA”) to the Maine Department of Environmental Protection (“Maine DEP”), in the proceeding referenced above.

In its application, the MTA recommends replacing the current York toll plaza at mile marker 7.1 with a new Open Road Tolling (“ORT”) plaza at mile marker 8.7. This proposed plaza would combine both electronic vehicle recognition and manual cash toll collection at a new facility located north of the existing tollbooth. As noted below, in my opinion a practicable alternative to the proposed ORT facility is an All Electronic Toll (“AET”) Gateway at mile marker 7.2.

MTA recognizes that AET provides significant benefits including safety, convenience, low capital cost, low maintenance cost, less staffing, and most importantly, many environmental benefits. In fact, it appears that the only reason the MTA is not proposing AET is their unproven concern about significant revenue “leakage” resulting from patrons who do not submit payment when they are billed by a camera-based system for travelling through the AET plaza without an E-ZPass transponder. Their assumption is that this revenue leakage would be financially unacceptable.

In my opinion MTA’s conclusions are incorrect. The premise underlying my testimony

is simple – by eliminating a costly initial construction investment and substantial ongoing operating expenses of a large toll plaza and by assuring a positive revenue stream through prudent management practices, the MTA can realize a strong profit while also protecting the environment and avoiding the impacts associated with a much larger ORT facility.

The following analysis utilizes current statistics provided by the MTA as well as reasonable assumptions relative to such things as inflation, traffic growth, increased toll rates and transponder usage. The 20-year comparative analysis contained in Appendix A clearly shows that the cost of leakage would be far offset by savings from elimination of the current and proposed toll plaza. It conservatively projects a first-year net revenue of about 12 million dollars and a long term (20 year) cumulative net revenue in excess of 190 million dollars.

Although the focus of this document is on financial aspects of this project, one of the most important benefits of implementing AET at the York Gateway is the elimination of any additional environmental damage. Implementation of the MTA's ORT proposal would require significant initial and ongoing expense and would result in unacceptable environmental impacts. In comparison, by implementing all electronic tolling, these expenses would be minimal and *environmental impacts would actually be reduced* from their current levels.

## II. Education and Professional Background

I am currently retired from a 45-year career in information technology - from programmer to Senior Business Analyst/Engineer. During that time I served in the fields of industry, banking, health care and insurance. I also taught structured software engineering methods to adults in corporate settings for 12 years.

I am an active member of my community, and currently serve as the Vice-Chair of the York Planning Board, a Trustee of York Public Library, President of Whippoorwill Homeowners Association (98 homes), Secretary of York Revitalization Steering Committee and am a past

Secretary of the York Charter Commission.

I have been a resident of Maine for 21 years and a resident of York for 13 years.

### III. Scope, Goals and Objectives

I was asked to conduct a financial assessment of anticipated net toll revenue, over a period of 20-years, based on information regarding MTA operations from publicly available sources, and from information submitted by MTA in its applications to the Maine DEP. All proposed functionality, processes, financial projections, and assumptions contained in this report are presented based on the best publicly available data.

The goal of this report is to evaluate whether AET is a financially viable alternative to the proposed ORT facility. Based on the application submitted by MTA, they conceded that an AET facility will result in no impacts to DEP jurisdictional resources, and that the proposed ORT facility requires filling of wetlands and other impacts requiring review and approval by Maine DEP. This assessment is also intended to evaluate the fiscally responsible alternative, and an alternative that will provide value to Maine residents and visitors for many years.

### IV. Description of Alternatives

#### A. *"Open Road" toll system (ORT) as proposed by MTA.*

MTA has proposed to replace the current toll plaza at mile marker 7.1 with a new plaza at mile marker 8.7. This new plaza would provide three central lanes in each direction on which vehicles with E-ZPass transponders would travel at highway speeds while their presence is recorded using overhead receivers and cameras. Vehicles without E-ZPass transponders would shift into multiple right-hand travel lanes that lead to traditional cash toll booths, pay their toll and then accelerate and merge back into traffic.

This approach would require construction of a complete toll plaza and its operation would require staffing by toll collectors on a 365 day, 24-hour per day basis.

Costs for ORT are estimated as follows:

- 1) Construction – \$41 million (most recent MTA estimate) – a 20 year bond at 4% per year would result in a total payback cost of \$58.2 million
- 2) Maintenance & Operating cost – \$5,436,000 per year – toll taker's salaries, benefits, utilities, etc. plus back-room collection process  
(from CDM Smith 2014 Maine Turnpike ORT/AET Impact Analysis, page 23)
- 3) Non-routine maintenance – \$4,439,200 amortized over 20 years = \$221,960 per year  
(see chart on next page)

B. "All Electronic" Toll System (AET).

I propose that it is a practicable alternative to replace the current toll plaza at mile marker 7.1 with a gantry suspended over all lanes in each direction at mile marker 7.2. All vehicles would travel under these gantries at highway speed while their presence is recorded using overhead receivers and video cameras.

A vehicle with an E-ZPass transponder would have its toll recorded using an overhead receiver. A vehicle without an E-ZPass transponder would have its license plate recorded by a high-speed camera and then the vehicle owner would be billed by a computer system using existing databases to determine contact information.

My analysis utilizes several “leakage” estimates—meaning the percentage of camera-based (currently cash) bills that would be uncollectable for several reasons. The Commonwealth of Massachusetts is reporting a leakage rate of 4% of overall revenue with their new AET system.<sup>1</sup> This constitutes 21% of the cash, or pay-by-plate, customers.<sup>2</sup> For purposes of my analysis, I have used leakage assumptions that run from 5-10%, all the way to 20-40%, for “in-state” (Maine/New Hampshire/Massachusetts) and camera-based bills out-of-state (other states

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<sup>1</sup> In its 2014 report, CDM Smith assumes 9.6% in overall leakage for an AET system in York. See CDM Smith Report p. 14.

<sup>2</sup> CDM Smith assumed a weighted average of 42.2% for leakage from video billing customers. These leakages figures, although much higher than currently experienced in Massachusetts, are based on the same factors of errors in reading plate information, out-of-date or missing DMV contact information, and non-payment of invoices.

and Canada) camera-based bills, respectively. At all estimated leakage levels, AET is more fiscally responsible alternative, even at the MTA's higher leakage rates (34% for Maine/NH/Mass motorists and 64% for other states and Canada).

Costs for AET are estimated as follows:

- 1) Construction – \$5 million (a 20 year bond at 4% per year would result in a total payback cost of \$7.1 million)
- 2) Maintenance & Operating cost – \$5,646,000 per year – routine maintenance, utilities plus back-room collection process  
(from CDM Smith 2014 Maine Turnpike ORT/AET Impact Analysis, page 21)

Each of these options will require removal of the existing toll plaza and restoration of the surrounding environment at Mile Marker 7.1. As it would be required in either case, the cost for this work is not included in construction costs shown above.

#### *Non-Routine Maintenance Summary*

<i>Activity:</i>	<i>Frequency (every x years)</i>	<i>Cost</i>	<i>Number of Times</i>	<i>Total Cost</i>
Concrete Islands, slab & other surface sealing	5	115,000	4	460,000
Approach pavement crack sealing	8	13,600	2	27,200
Canopy Roof sealing	15	58,000	1	58,000
Concrete approach pavement overlay	15	3,080,000	1	3,080,000
Tunnel and Slab rehabilitation	20	814,000	1	814,000
Total 20 Year Cost				4,439,200
<b>Amortized Annual Cost</b>				<b>221,960</b>

NOTE: Amounts shown are not adjusted for inflation

## V. Facts and Assumptions

### A. *Facts.*<sup>3</sup>

1. Approximately 17.8 million vehicles enter the York toll plaza from either the north or south each year.
2. Approximately 76% of all vehicles (13.5 million) using the York toll

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<sup>3</sup> From MTA – Operations and Maintenance Report - 2016, page 21 and from CDM Smith 2014 Maine Turnpike ORT/AET Impact Analysis, page 4, 21, 23.

plaza have E-ZPass transponders; therefore approximately 24% (4.3 million) do not.

3. Approximately 73% of all vehicles (13 million) are from Maine, NH or Mass. and the remaining 27% (4.8 million) are from other states or Canada.
4. The York toll plaza produced \$60.4 million revenue in 2016.
5. Each automobile currently pays a toll of \$3.00.
6. Class 3 - 6 truck/bus tolls = 11% of total revenue or \$6.6 million; therefore autos = 89% of total revenue or \$53.8 million
7. The average toll per vehicle is \$3.39 (\$60.4 million divided by 17.8 million vehicles).

B. *Assumptions*

1. Most vehicles using the York toll plaza are making a "round-trip" thus resulting in about 9 million "vehicle trips." This factor improves billing efficiency.
2. Initial expected "leakage" for vehicles without E-ZPass with either tolling method:
  - ~ up to 20% of tolls from Maine, NH or Mass. will be uncollectable.
  - ~ up to 40% of tolls from other states or Canada will be uncollectable.
3. Administrative fees for camera-based bills expected to be \$1.00 per tolling transaction plus \$3.00 per mailed invoice (total of \$5.00 for a single round-trip)
4. Even with Open Road tolling as proposed by the MTA, 10% of vehicles that should use cash lanes will accidentally or intentionally use the highway-speed center lanes.
5. Transponder use will increase over time due to Mass and NH going to AET.

C. *Explanation of Terms*

1. Traffic Mix
  - a. traffic is split with about 73% of all vehicles from Maine, NH or Mass. and the remaining 23% from other states or Canada.
  - b. most vehicles eventually make a round-trip through the York toll plaza
2. Revenue Components (based on Facts above)
  - a. the average toll rate is \$3.39 (\$60.4 million ÷ 17.8m vehicles)
  - b. 13.5 million vehicles (76%) use E-ZPass

- c. 4.3 million vehicles (24%) pay cash (ORT) or use video billing (AET)
  - d. one bill is prepared for round-trip travel or multiple trips within a month
  - e. 9 million trips would produce 4.5 million bills
  - f. a surcharge fee is added to each bill for those patrons without E-ZPass or a pre-paid debit account (camera-based)
  - g. 4.5 million bills with a \$5.00 fee would produce \$22.5 million of additional revenue
3. Calculation Factors applied to Revenue calculations:
- a. annual traffic increase of 2%  
*(Operations and Maintenance Report - 2016)*
  - b. annual E-ZPass usage increase of 3% for first 2 years, 2% for next 3 years and 1% for next 15 years  
*(due to publicity and increased patron acceptance)*
  - c. toll rates increase approximately 15% every 5 years  
*(from 3.00 to 3.50... etc.)*
  - d. surcharge fees for camera-based bills would be calculated as \$1.00 per transaction (trip) plus \$3.00 per mailed invoice - \$5.00 round trip
4. Leakage (violations)
- a. uncollectable bills for patrons without E-ZPass or a pre-paid debit account should occur for up to 20% of Maine/NH/Mass patrons and 40% of out-of-state patrons
  - b. violations decrease by 10% for first 2 years, 5% for next 3 years and 1% for next 15 years *(increased patron acceptance and improved collection methods)*
5. Expenses
- a. debt service – amortized cost for construction (20-year bond)
  - b. operating cost – toll plaza staffing, utilities, insurance and administrative overhead
  - c. routine maintenance – ongoing day-to-day upkeep
  - d. non-routine maintenance – infrequent surface sealing, repaving, etc.*(see section 4-D)*
  - e. an annual inflation factor of 2% is used for all expenses except debt service

VI. Explanation of Comparative Analysis Calculations (Appendix A)

tolls from E-ZPass = *total toll revenue × percent of E-ZPass users*

tolls from video billing = *total toll revenue - tolls from E-ZPass*

total toll revenue = *all tolls collected at York toll plaza*

surcharge fees from video billing = *surcharge per toll transaction + mailing fee per bill*

total gross revenue = *total toll revenue + surcharge fees from video billing*

leakage for Maine/NH/Mass vehicles = *number of vehicle trips*

*times average toll rate*

*times % of Maine/NH/Mass vehicles*

*times % of Maine/NH/Mass vehicles without E-ZPass*

*times estimated % of bills never collected*

leakage for out-of-area vehicles = *number of vehicle trips*

*times average toll rate*

*times % of out-of-area vehicles*

*times % of out-of-area vehicles without E-ZPass*

*times estimated % of bills never collected*

leakage of surcharge fees = *number of vehicle trips*

*times average toll rate divided by 2 (calculated round-trips)*

*times average surcharge per round-trip*

*times % of Maine/NH/Mass vehicles*

*times % of Maine/NH/Mass vehicles without E-ZPass*

*times estimated % of bills never collected for Maine/NH/Mass vehicles*

*plus:*

*times average toll rate divided by 2 (calculated round-trips)*

*times average surcharge per round-trip*

*times % of out-of-area vehicles*

*times % of out-of-area vehicles without E-ZPass*

*times estimated % of bills never collected for out-of-area vehicles*

total annual adjusted toll revenue = *total gross revenue*

*minus leakage for Maine/NH/Mass vehicles*

*minus leakage for out-of-area vehicles*

*minus leakage of surcharge fees*

annual debt service = *initial capital cost bonded at 4% for 20 years*

annual maintenance and operating cost = *projected amount taken from ORT/AET Impact Analysis, page 4 CDM Smith - April 2014*

annual non-routine maintenance = *from chart in section 5.D (above) amortized over 20 years*

total annual net revenue = *total annual adjusted toll revenue*

*minus annual debt service*

*minus annual maintenance and operating cost*

*minus non-routine maintenance*



## VII. Conclusions

With a 20% leakage rate for local area non-transponder motorists (consistent with local area leakage on the MassPike system) and 40% leakage rate for out-of-area motorists, and based on information from MTA regarding toll revenue and the relative expenses associated with maintenance and operation of an ORT v. an AET facility, in the first year alone MTA will likely realize an additional \$6,889,949 with an AET system. Over the first ten-year period, MTA will generate \$63,707,923 in additional toll revenue with an AET system. Although my figures are higher, they are consistent with the conclusions of CDM Smith, MTA's engineering consultant on AET, that estimated MTA would net \$24 million in additional revenue with an AET system over the first ten year period.

Even if I use MTA's unreasonably high estimates of 34% leakage for local area and 64% leakage for out-of-area drivers (CDM Smith Report p. 14), an AET system will still generate more than \$3 million more in revenue for MTA than an ORT facility.

This financial benefit to an AET facility is driven largely by the significant reductions in capital costs for an AET v. ORT facility. Annual maintenance and operating costs are also lower with an AET facility, although these cost savings are likely greater than predicted by CDM Smith (but, as noted above, I have used CDM Smith's M&O estimates, which still show AET as the rational financial alternative).

Date: 4/7/17

Peter R Smith  
Peter Smith

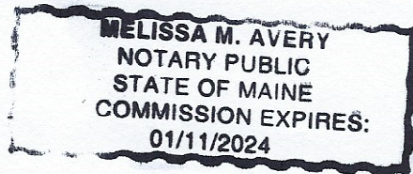
STATE OF MAINE

County of York

Date: April 7, 2017

Personally appeared before me the above named Peter Smith, who, being duly sworn, did testify that the foregoing testimony was true and correct to the best of his knowledge and belief.

Before me,



Melissa M Avery

Notary Public

My commission expires: 1/11/2024