



July 30, 2024

Subject: Gorham Connector Project
2019 Traffic & Revenue Study – For Historical Reference Only

Dear Reader:

Enclosed is the 2019 Traffic and Revenue Study for the Gorham Connector, which served as an early financial feasibility assessment of the proposed project. The data and assumptions within this report represent conceptual assumptions intended to support an early evaluation of the project's financial feasibility.

The 2019 Traffic and Revenue Study offers an initial assessment of the Gorham Connector project's financial feasibility. However, it's important to note that the data and assumptions are conceptual and were established prior to completing detailed environmental assessments, engineering work, and public engagement. Consequently, the information in the report should be considered as historical context. An updated traffic and revenue report will be released once completed, with delivery expected prior to filing for environmental permits.

To complete this study, limited evaluations were done, necessitating corresponding assumptions. All considerations outlined in this report—such as the proposed roadway configuration, alignment, toll rates, construction costs, and traffic forecasts—should be regarded as conceptual, based on the information available at the time. These assumptions were made contingent upon further study, engineering analysis, environmental assessments, and public input, among other factors.

Notably, as stated in the report, the alignment depicted is not intended to reflect a selected alignment. Instead, it serves as a composite of several potential new alignment options recommended for evaluation during future project phases. The final alignment selection will be determined based on various factors, including additional engineering evaluation, topographic considerations, property impacts, environmental assessments, and public feedback.

The cost and traffic data were also conceptual and were based on limited engineering and the prevailing conditions at the time of the study. These values are expected to change in future reports.

An updated traffic and revenue study is planned once more information about the project design and its operations are available. Currently, no specific completion date has been established for the updated study. However, delivery of the report would likely occur before filing for environmental permits.

Respectfully,

A handwritten signature in black ink, appearing to read "John P. Sirois". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

John P. Sirois
Chief Financial Officer & Treasurer

Enclosure: 2019 Traffic and Revenue Study for the Gorham Connector

MAINE TURNPIKE AUTHORITY



TRAFFIC AND REVENUE STUDY for the Gorham Connector

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Date: November 2019



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Table of Contents

Introduction.....	4
Proposed Gorham Connector Alignment.....	4
Cost Estimates.....	5
Traffic Volume Forecasting Methodology.....	7
Proposed Toll Rates	11
Revenue Estimates.....	11
Net Revenue Estimation.....	11
Conclusions.....	16

Tables

Table 1: Summary of Planning Level Cost Estimates for Option D of a Gorham Connector.....	6
Table 2: 2026 Regional Tolled Daily Traffic Volumes.....	9
Table 3: 2040 Regional Tolled Daily Traffic Volumes.....	10
Table 4: Option D Net Revenue Estimate for \$203.6M in Capital and Delivery Costs.....	12
Table 5: Option D Net Revenue Estimate for \$217.4M in Capital, Delivery, and Variable Costs.....	13
Table 6: Relative Contribution of each Revenue Component	15

INTRODUCTION

This traffic and revenue study summarizes the evaluation of whether a new east-west toll road (Gorham Connector) in the Greater Portland region is financially feasible and should be considered for advancement. Three connector options were identified: Options B, C, and D during traffic and revenue studies prepared by HNTB in 2003, 2005, and 2011. Options B and C were eliminated following the 2011 study. Option D creates the fewest free movements, with a toll plaza on the mainline at the westerly terminus of the connector and two ramp toll plazas at the Route 22 interchange. The Maine Turnpike Authority (MTA) opted to present the level of net revenue generated at three toll rates; estimated construction, operation, and maintenance costs; and level of congestion relief provided for Option D as the option most consistent with its business model.

PROPOSED GORHAM CONNECTOR ALIGNMENT

The conceptual alignment used for this analysis connects the southern terminus of the existing Gorham Bypass, completed in November 2008 to Exit 45 of the Maine Turnpike and Route 703 near the Maine Mall (Figure 1). This alignment represents a composite of several similar potential new alignments HNTB recommends for consideration during future environmental review processes and may be affected by other components of the feasibility analysis and subsequent regulatory review.

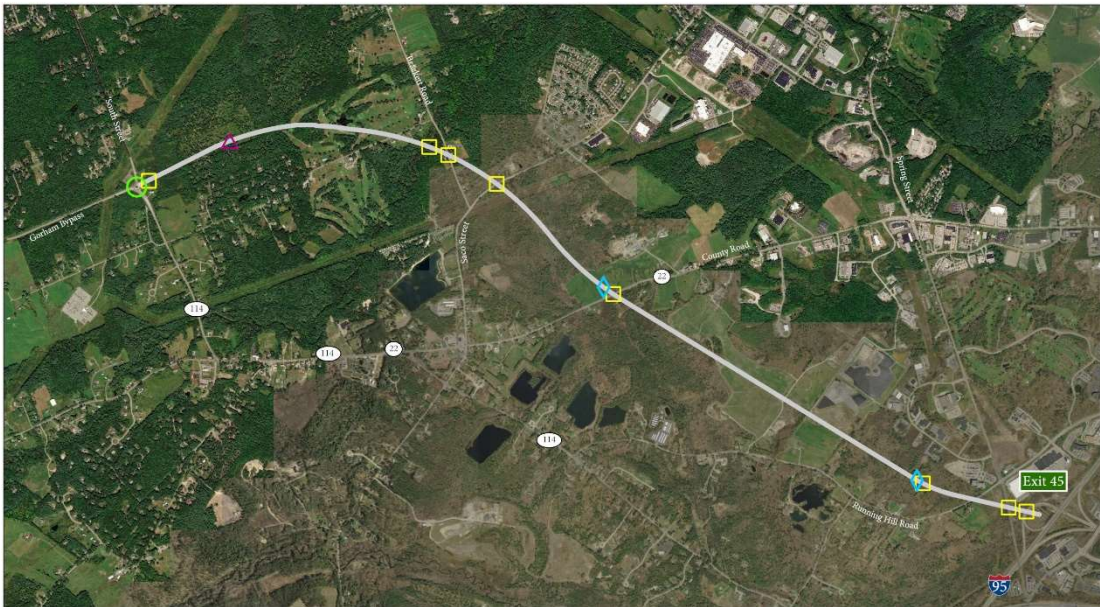


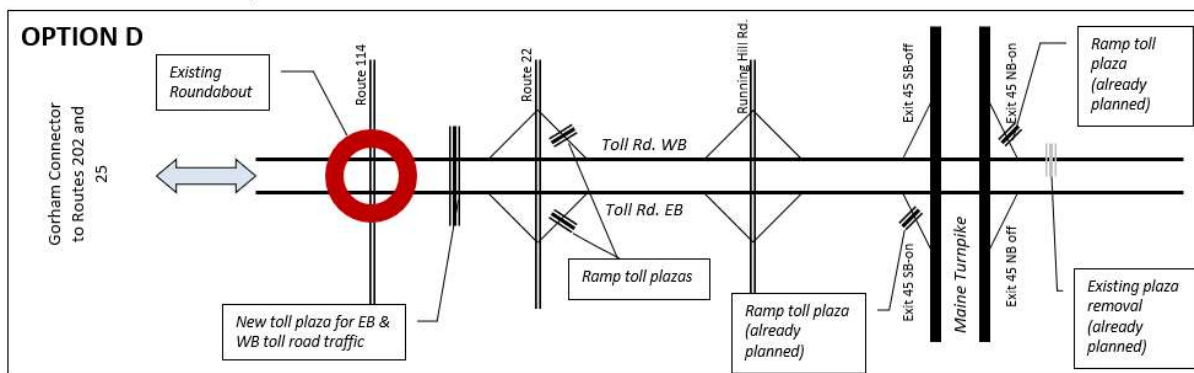
Figure 1: Preliminary Conceptual Alignment Used in the 2019 Traffic & Revenue Study.

The following assumptions were made relative to the conceptual connector shown in Figure 1.

- The western end of the proposed connector will tie directly into the existing roundabout at the Gorham Bypass, completed in November 2008, creating a fourth leg to the roundabout. Traffic evaluations indicate that this roundabout with the added Gorham Connector will function safely and efficiently until at least 2040, when reconfiguration may be needed;

- The connector will have two grade-separated interchanges—one at Route 22 and the other at Running Hill Road. Two possible interchange configurations are considered at Route 22, while the Running Hill Road interchange is assumed to have a trumpet configuration;
- The road will be a four-lane, divided, controlled access highway; and
- Modifications to Exit 45 consisting of signalization of access ramps, removal of the existing toll plaza and construction of ramp toll plazas are not part of this analysis as this construction is already in the MTA Work Plan. An additional bridge over the Maine Turnpike and ramp modifications will be required at Exit 45 for a Gorham Connector and these costs have been included in bridge and highway estimates.

Figure 2 – Gorham Connector Schematic for 2019 Traffic & Revenue Study



COST ESTIMATES

Low-, mid- and high-range cost estimates for Option D are summarized **Table 1** on the following page.

INFLATION AND FINANCING COST ASSUMPTIONS

- The assumed annual inflation rate is **3%** based on 2019 construction pricing.
- All costs are expressed in **2025 dollars** because 2026 is the assumed opening year of the facility.
- The assumed financing rate is **2.5%**.
- The assumed life of the bonds is **30 years**.

Table 1: Summary of Planning Level Cost Estimates for Option D for a Gorham Connector

Type of Cost	Cost Breakdown ¹	Cost estimates ²		
		Low-range Estimate	Mid-range Estimate	High-range Estimate
Capital	<i>a. Roadway</i>	\$ 92,200,000	\$106,200,000	\$116,800,000
	<i>b. Bridges</i>	\$39,500,000	\$45,700,000	\$50,600,000
	<i>c. Toll Plazas</i>	\$14,900,000	\$17,500,000	\$19,600,000
Capital Costs Subtotal (a-c total)		\$146,600,000	\$169,400,000	\$187,000,000
Delivery	<i>d. Right-of-Way</i>	\$10,000,000	\$10,000,000	\$10,000,000
	<i>e. NEPA & Permitting³</i>	\$2,000,000	\$2,000,000	\$2,000,000
	<i>f. Engineering & Design⁴</i>	\$7,400,000	\$8,600,000	\$9,700,000
	<i>g. Construction Services⁵</i>	\$11,800,000	\$13,600,000	\$15,000,000
Capital + Delivery Costs Subtotal (a-g total)		\$177,800,000	\$203,600,000	\$223,700,000
Variables	<i>h. Utility Relocation</i>	\$1,000,000	\$1,000,000	\$1,000,000
	<i>i. Wetland mitigation</i>	\$2,000,000	\$2,000,000	\$2,000,000
	<i>j. Multi-use Trail</i>	\$7,000,000	\$7,000,000	\$7,000,000
	<i>k. Local road improvements⁶</i>	\$3,200,000	\$3,800,000	\$4,100,000
Total Costs (a-k total)		\$191,000,000	\$ 217,400,000	\$237,800,000

¹ 20% contingency included in roadway estimate only due to uncertainty related to unknown geotechnical and soil conditions

² adjusted to 2025 dollars assuming 3% inflation for 6 years, except right of way, engineering & design, NEPA & permitting, and mitigation, where no inflation was applied because these activities will begin in 2020

³ estimated cost based on recent NEPA and permitting efforts

⁴ calculated at 6% of a-c in 2019 dollars. Engineering costs are reduced from typical values given economies of scale realized on large projects.

⁵ calculated at 8% of a-c for 2025 dollars. Inspection costs are reduced from typical values given economies of scale realized on large projects.

⁶ estimate includes 6% of 2019 costs for engineering & design and 8% of 2025 costs for construction services for local road improvements

MAINTENANCE COST ASSUMPTIONS

- *Routine maintenance costs* were extrapolated from 2018 MTA-provided data and inflated to 2025. This data yielded a value of **\$24,000 per lane-mile** in 2025. The proposed connector comprises **25.4 lane-miles**.
- *Toll system maintenance costs* reflect the 2025 annual cost to maintain 6 E-ZPass lanes and 6 cash lanes was estimated at approximately **\$110,000** based on 2017 TransCore maintenance costs.
- *Reserve maintenance costs* occur relatively predictably throughout the design life of the facility. They include repaving, bridge repairs, bridge painting and treatment, and slope repair. Repaving is the largest single cost and is assumed to occur at **Year 15** and at **Year 30**.
- *Inflation* is included because maintenance costs are projected to increase at a rate of **2.3%** per year over the design life of the facility, consistent with recent data from the Bureau of Labor Statistics.

FARE COLLECTION COST ASSUMPTIONS

- Based on 2018 MTA data, the annual cost of operating the new toll plazas is estimated to be approximately **\$325,000** per attended toll lane in 2025 dollars.
- The proposed toll facilities will require **six** additional attended lanes (four mainline and one each on the ramps) and **six** E-ZPass lanes. All four mainline attended lanes are not assumed to be staffed 24/7. Each ramp attended lane is assumed to be staffed 24/7.
- No additional costs for ETC transactions were assumed based on current MTA staffing and anticipated system improvements.
- Manual fare collection costs were projected to increase at a rate of **3%** per year.

TRAFFIC VOLUME FORECASTING METHODOLOGY

The traffic forecasts were developed using industry standard methodologies and tools as follows.

Automatic traffic recorder (ATR) and turning movement count data were collected and summarized in the region around the proposed Gorham Connector. This provided strong baseline data consisting of peak hour turning movement volumes at key intersections and daily volumes at numerous roadways throughout Gorham, Westbrook, Scarborough, and Portland. This data was used to assist in the development of calibrated 2018 base year volumes for the Portland Area Comprehensive Transportation System (PACTS) Travel Demand Model.

Traffic forecasts were developed using the PACTS Regional Travel Demand Model. The PACTS Travel Demand Model estimates future vehicular and person travel throughout the PACTS region and examines regional travel through provided demographic information. The model reflects the geographic distribution and densities of residential, commercial, government, and recreational development as forecast by Greater Portland Council of Governments (GPCOG) and municipal staff. The model accounts for the factors that affect a person's choice of travel mode (either private vehicle, transit, or walk/bike), selection of a travel path (to avoid traffic congestion delays), and accounts for the value of time to determine if a person will choose to pay a toll.

Further, the PACTS Travel Demand Model allocates person trips between Traffic Analysis Zones (TAZs) based on the accessibility of each pair of TAZs and their land use composition. The trips between pairs of TAZs are compiled into matrices called trip tables. Separate trip tables are developed for each trip purpose and for each weekday time period. The travel modes for trips between TAZ are functions of the relative performance and availability of the competing travel modes in the model: walk/bike, transit, and auto driver/passenger.

Traffic forecasts for the Gorham Connector were developed for Years 2018 and 2040, which are current PACTS travel demand model forecasts years. The Gorham Connector was incorporated into the PACTS model network and the tolls placed at the identified tolling locations shown for Option D. Traffic forecasts were developed for PM Peak Hour and Daily conditions for this alternative at a \$1.00, \$1.50, and \$2.00 opening year toll rates. All forecasts were provided in tables that were used to quantify changes in tolled volumes for both the Gorham Connector and on the mainline of the Maine Turnpike within the PACTS travel demand model region which extends from Exit 32 in Biddeford to Exit 63 in Gray.

It is expected that growth in *tolled* volumes would be accompanied by a decrease in volumes on the toll-free parallel routes. Table 2 and Table 3 on the following pages identify the projected changes in daily volumes on some of the area roadways and interchanges for 2026 and 2040, respectively.

Table 2: 2026 Regional Tolled Daily Traffic Volumes

	No Build	Option D Volumes -- 2026					
		\$1.00 Toll	Difference	\$1.50 Toll	Difference	\$2.00 Toll	Difference
Gorham Connector							
EB Connector east of SR 114	n/a	9,155	9,155	7,153	7,153	6,053	6,053
WB Connector east of SR 114	n/a	9,871	9,871	7,731	7,731	6,596	6,596
WB exit from Gorham Connector to SR 22	n/a	2,658	2,658	2,046	2,046	1,775	1,775
EB entrance to Gorham Connector from SR 22	n/a	4,261	4,261	3,299	3,299	2,821	2,821
Turnpike NB Ramps							
Turnpike NB entry from Biddeford	12,952	13,376	424	13,577	626	13,571	619
Turnpike NB entry from Saco	11,742	12,764	1,023	13,199	1,458	13,202	1,460
Turnpike NB entry from Scarborough	3,502	3,914	412	4,144	642	4,153	651
Turnpike NB exit to I-295	13,063	14,429	1,365	15,820	2,756	15,850	2,787
Turnpike NB entry from SR703	7,791	9,976	2,186	10,592	2,802	10,655	2,865
Turnpike NB entry from Jetport	7,128	6,070	(1,057)	6,334	(794)	6,342	(786)
Turnpike NB entry from Rand Rd	2,313	2,232	(81)	2,417	104	2,420	106
Turnpike NB entry from Westbrook	3,712	4,031	319	4,269	557	4,240	528
Turnpike NB exit to Falmouth Spur	5,617	6,283	665	6,452	835	6,445	827
Turnpike NB entry from Falmouth Spur	2,025	2,179	154	2,346	321	2,351	326
Turnpike NB entry from West Falmouth	1,936	1,972	36	2,259	323	2,289	353
Turnpike SB Ramps							
Turnpike SB entry from Gray	7,527	7,782	255	7,931	404	7,932	405
Turnpike SB entry from West Falmouth	5,509	5,736	227	5,890	381	5,892	383
Turnpike SB exit to Falmouth Spur	1,967	2,029	63	2,097	131	2,099	133
Turnpike SB entry from Falmouth Spur	7,175	7,283	107	7,138	(37)	7,131	(45)
Turnpike SB entry from Westbrook	8,074	8,863	790	9,200	1,127	9,190	1,117
Turnpike SB entry from Rand Rd	4,689	4,548	(141)	4,650	(39)	4,651	(38)
Turnpike SB entry from Jetport	4,276	3,448	(828)	3,482	(793)	3,497	(778)
Turnpike SB entry from SR703	6,668	10,075	3,407	10,435	3,767	10,441	3,773
Turnpike SB entry from I-295	17,024	17,197	172	17,688	663	17,783	758
Turnpike SB entry from Scarborough	3,942	2,883	(1,059)	2,867	(1,075)	2,847	(1,095)
Turnpike SB entry from Saco	6,293	6,188	(105)	6,346	53	6,350	57
Turnpike SB entry from Biddeford	3,055	3,063	7	3,085	29	3,086	30
Total	147,979	182,264	34,286	182,446	34,468	179,659	31,680

Table 3: 2040 Regional Tolled Daily Traffic Volumes

	No Build	Option D Volumes -- 2040					
		\$1.00 Toll	Difference	\$1.50 Toll	Difference	\$2.00 Toll	Difference
Gorham Connector							
EB Connector east of SR 114	n/a	9,907	9,907	7,731	7,731	6,542	6,542
WB Connector east of SR 114	n/a	11,132	11,132	8,665	8,665	7,392	7,392
WB exit from Gorham Connector to SR 22	n/a	2,924	2,924	2,300	2,300	1,995	1,995
EB entrance to Gorham Connector from SR 22	n/a	4,411	4,411	3,543	3,543	3,029	3,029
Turnpike NB Ramps							
Turnpike NB entry from Biddeford	14,426	15,032	606	15,025	2,073	15,018	2,066
Turnpike NB entry from Saco	13,141	14,228	1,087	14,283	2,541	14,286	2,544
Turnpike NB entry from Scarborough	3,904	4,422	518	4,428	926	4,438	936
Turnpike NB exit to I-295	14,459	16,513	2,054	16,598	3,535	16,630	3,567
Turnpike NB entry from SR703	8,754	12,071	3,317	12,220	4,429	12,293	4,502
Turnpike NB entry from Jetport	8,095	6,027	(2,068)	6,072	(1,056)	6,080	(1,048)
Turnpike NB entry from Rand Rd	2,575	2,469	(106)	2,508	195	2,511	198
Turnpike NB entry from Westbrook	4,157	4,597	440	4,567	855	4,536	824
Turnpike NB exit to Falmouth Spur	6,325	6,958	633	7,052	1,435	7,044	1,427
Turnpike NB entry from Falmouth Spur	2,275	2,498	223	2,491	466	2,496	471
Turnpike NB entry from West Falmouth	2,340	2,393	53	2,381	445	2,413	477
Turnpike SB Ramps							
Turnpike SB entry from Gray	8,771	9,125	354	9,145	1,618	9,146	1,619
Turnpike SB entry from West Falmouth	6,076	6,346	270	6,332	823	6,334	825
Turnpike SB exit to Falmouth Spur	2,155	2,229	74	2,229	262	2,231	264
Turnpike SB entry from Falmouth Spur	8,004	7,594	(410)	7,646	471	7,638	463
Turnpike SB entry from Westbrook	9,100	10,048	948	10,102	2,028	10,091	2,017
Turnpike SB entry from Rand Rd	5,296	5,286	(10)	5,251	562	5,252	563
Turnpike SB entry from Jetport	4,812	3,741	(1,071)	3,730	(546)	3,746	(530)
Turnpike SB entry from SR703	7,475	12,053	4,578	12,120	5,452	12,127	5,459
Turnpike SB entry from I-295	18,483	18,341	(142)	18,468	1,444	18,567	1,543
Turnpike SB entry from Scarborough	4,328	3,371	(957)	3,280	(662)	3,257	(685)
Turnpike SB entry from Saco	6,995	6,901	(94)	6,909	616	6,914	621
Turnpike SB entry from Biddeford	3,231	3,248	17	3,229	174	3,230	175
Total	165,177	203,865	38,688	198,305	50,326	195,236	47,257

PROPOSED TOLL RATES

The toll rates used in the revenue analysis were based on the following assumptions:

- A base toll rate of \$1.00 for cash-paying automobiles at the mainline toll plaza was used as it is consistent with current entry cash toll rates at most interchange plazas and the Gardiner I-295 mainline toll plaza.
- Three mainline passenger car cash toll rates were evaluated for the assumed opening year of 2026: \$1.00/\$1.50/\$2.00.
- Ramp plaza passenger car cash toll rates were assumed to be one-half of the mainline passenger car cash toll rates.
- The average toll used for revenue estimation was weighted based on the average mix of commuters receiving the volume discount and commercial vehicles that currently use the Turnpike. Using 2018 data, the volume discount for commuters averages 25% of Class 1 Personal Account revenue, and the commercial vehicle discount averages 17.7% of revenue from the Postpaid Classes 2-6.
- The average toll used for revenue estimation was weighted based on anticipated electronic toll collection (ETC) usage and discounts. For this analysis, the ETC market share for this section of the Maine Turnpike is approximately 79%. It was then assumed that the ETC market share would grow every year by 0.5% until a maximum of 85% is reached, which would occur in 2031.

REVENUE ESTIMATES

Traffic forecasts developed using the PACTS travel demand model (as described previously) were then used to estimate annual revenue for varying toll rates. As this is a new toll facility, higher than typical Turnpike system toll elasticities are seen in the traffic forecasts. Toll elasticities from the traffic forecasts are consistent with previous analyses.

The traffic volumes from the PACTS travel demand model are fall weekday traffic volumes and represent traffic levels expected during a typical weekday in autumn (September-October). Using standard revenue analysis methodology, a conversion factor was developed to convert fall weekday revenue to annual revenue by calculating the current ratio of annual traffic to fall weekday traffic at Turnpike interchanges and links from Scarborough to Falmouth.

In this analysis, the conversion factor from daily to annual traffic volumes was calculated to be 314. This factor indicates that traffic during a fall weekday is slightly greater than traffic on an average day. The fall weekday conversion factor was applied to the traffic volume estimates for each year from 2018 to 2054. Overall revenue was calculated based on estimates of annual traffic, multiplied by each identified toll rate, and assumes periodic 25% toll increases at ten-year intervals beginning in 2036.

NET REVENUE ESTIMATION

Mid-range cost estimates and projected gross revenues were used to estimate annual expected net revenue for Option D at \$203.6 million and \$217.4 million cost scenarios (Table 4 and 5). The \$203.6 million scenario includes standard capital and delivery costs, while the \$217.4 million scenario also includes additional costs that may or may not be incurred for a Gorham Connector. These include revenues directly attributable to a Gorham Connector as well as to other interchanges and plazas resulting from induced demand system-wide on the Turnpike.

Table 4: Option D Net Revenue Estimate for \$203.6M in Capital and Delivery Costs

Year	Annual Traffic			Revenue (in thousands of dollars)			Costs (in thousands of dollars)						Net Revenue (in thousands of dollars)			
	\$1.00 Toll	\$1.50 Toll	\$2.00 Toll	Annual (\$1.00)	Annual (\$1.50)	Annual (\$2.00)	Const.	Fare Collection			Maintenance			Current Yr. (\$1.00)	Current Yr. (\$1.50)	Current Yr. (\$2.00)
								Ops-Total (\$1.00)	Ops-Total (\$1.50)	Ops-Total (\$2.00)	Maint-Total (\$1.00)	Maint-Total (\$1.50)	Maint-Total (\$2.00)			
2026	9,892,013	8,405,656	7,490,779	\$10,610	\$13,930	\$15,209	\$9,728	\$1,785	\$1,785	\$1,785	\$659	\$659	\$659	(\$1,560)	\$1,760	\$3,038
2027	9,998,034	8,485,229	7,563,981	\$10,724	\$13,958	\$15,228	\$9,728	\$1,838	\$1,838	\$1,838	\$678	\$678	\$678	(\$1,519)	\$1,715	\$2,985
2028	10,104,056	8,564,802	7,637,184	\$10,838	\$13,985	\$15,247	\$9,728	\$1,893	\$1,893	\$1,893	\$840	\$840	\$840	(\$1,623)	\$1,524	\$2,786
2029	10,210,078	8,644,376	7,710,386	\$10,951	\$14,013	\$15,266	\$9,728	\$1,950	\$1,950	\$1,950	\$717	\$717	\$717	(\$1,444)	\$1,618	\$2,871
2030	10,316,100	8,723,949	7,783,589	\$11,065	\$14,040	\$15,285	\$9,728	\$2,009	\$2,009	\$2,009	\$738	\$738	\$738	(\$1,409)	\$1,566	\$2,811
2031	10,422,121	8,803,522	7,856,791	\$11,179	\$14,068	\$15,304	\$9,728	\$2,069	\$2,069	\$2,069	\$759	\$759	\$759	(\$1,377)	\$1,512	\$2,748
2032	10,528,143	8,883,096	7,929,993	\$11,292	\$14,095	\$15,323	\$9,728	\$2,131	\$2,131	\$2,131	\$781	\$781	\$781	(\$1,347)	\$1,455	\$2,683
2033	10,634,165	8,962,669	8,003,196	\$11,406	\$14,123	\$15,342	\$9,728	\$2,195	\$2,195	\$2,195	\$804	\$804	\$804	(\$1,320)	\$1,396	\$2,616
2034	10,740,186	9,042,242	8,076,398	\$11,520	\$14,150	\$15,361	\$9,728	\$2,261	\$2,261	\$2,261	\$827	\$827	\$827	(\$1,295)	\$1,335	\$2,546
2035	10,846,208	9,121,816	8,149,601	\$11,634	\$14,178	\$15,380	\$9,728	\$2,329	\$2,329	\$2,329	\$851	\$851	\$851	(\$1,273)	\$1,271	\$2,473
2036	10,952,230	9,201,389	8,222,803	\$15,582	\$18,232	\$19,862	\$9,728	\$2,398	\$2,398	\$2,398	\$876	\$876	\$876	\$2,581	\$5,230	\$6,860
2037	11,058,251	9,280,962	8,296,005	\$15,720	\$18,285	\$19,927	\$9,728	\$2,470	\$2,470	\$2,470	\$901	\$901	\$901	\$2,621	\$5,186	\$6,828
2038	11,164,273	9,360,536	8,369,208	\$15,858	\$18,339	\$19,992	\$9,728	\$2,544	\$2,544	\$2,544	\$927	\$927	\$927	\$2,659	\$5,140	\$6,793
2039	11,270,295	9,440,109	8,442,410	\$15,995	\$18,392	\$20,057	\$9,728	\$2,621	\$2,621	\$2,621	\$954	\$954	\$954	\$2,693	\$5,090	\$6,755
2040	11,376,317	9,519,682	8,515,613	\$16,133	\$18,445	\$20,123	\$9,728	\$2,699	\$2,699	\$2,699	\$982	\$982	\$982	\$2,724	\$5,037	\$6,714
2041	11,461,639	9,591,080	8,579,480	\$16,271	\$18,499	\$20,188	\$9,728	\$2,780	\$2,780	\$2,780	\$11,617	\$11,617	\$11,617	(\$7,854)	(\$5,626)	(\$3,937)
2042	11,547,601	9,663,013	8,643,826	\$16,408	\$18,552	\$20,253	\$9,728	\$2,864	\$2,864	\$2,864	\$3,068	\$3,068	\$3,068	\$749	\$2,893	\$4,594
2043	11,634,208	9,735,485	8,708,655	\$16,546	\$18,606	\$20,318	\$9,728	\$2,950	\$2,950	\$2,950	\$3,098	\$3,098	\$3,098	\$771	\$2,831	\$4,543
2044	11,721,465	9,808,502	8,773,970	\$16,683	\$18,659	\$20,383	\$9,728	\$3,038	\$3,038	\$3,038	\$3,129	\$3,129	\$3,129	\$789	\$2,764	\$4,489
2045	11,809,376	9,882,065	8,839,774	\$16,821	\$18,713	\$20,449	\$9,728	\$3,129	\$3,129	\$3,129	\$1,803	\$1,803	\$1,803	\$2,162	\$4,053	\$5,789
2046	11,897,946	9,956,181	8,906,073	\$21,311	\$23,987	\$26,179	\$9,728	\$3,223	\$3,223	\$3,223	\$1,835	\$1,835	\$1,835	\$6,524	\$9,200	\$11,393
2047	11,987,181	10,030,852	8,972,868	\$21,475	\$24,172	\$26,381	\$9,728	\$3,320	\$3,320	\$3,320	\$1,869	\$1,869	\$1,869	\$6,559	\$9,255	\$11,465
2048	12,077,085	10,106,084	9,040,165	\$21,640	\$24,357	\$26,583	\$9,728	\$3,419	\$3,419	\$3,419	\$1,904	\$1,904	\$1,904	\$6,589	\$9,306	\$11,532
2049	12,167,663	10,181,879	9,107,966	\$21,805	\$24,543	\$26,786	\$9,728	\$3,522	\$3,522	\$3,522	\$1,940	\$1,940	\$1,940	\$6,615	\$9,353	\$11,596
2050	12,258,920	10,258,243	9,176,276	\$21,969	\$24,728	\$26,988	\$9,728	\$3,628	\$3,628	\$3,628	\$1,977	\$1,977	\$1,977	\$6,637	\$9,396	\$11,656
2051	12,350,862	10,335,180	9,245,098	\$22,134	\$24,914	\$27,190	\$9,728	\$3,737	\$3,737	\$3,737	\$2,015	\$2,015	\$2,015	\$6,655	\$9,435	\$11,712
2052	12,443,494	10,412,694	9,314,436	\$22,299	\$25,099	\$27,393	\$9,728	\$3,849	\$3,849	\$3,849	\$2,054	\$2,054	\$2,054	\$6,669	\$9,469	\$11,763
2053	12,536,820	10,490,789	9,384,294	\$22,463	\$25,284	\$27,595	\$9,728	\$3,964	\$3,964	\$3,964	\$2,094	\$2,094	\$2,094	\$6,678	\$9,499	\$11,810
2054	12,630,846	10,569,470	9,454,676	\$22,628	\$25,470	\$27,797	\$9,728	\$4,083	\$4,083	\$4,083	\$2,135	\$2,135	\$2,135	\$6,683	\$9,524	\$11,852
2055	12,725,577	10,648,741	9,525,586	\$22,793	\$25,655	\$28,000	\$9,728	\$4,206	\$4,206	\$4,206	\$14,132	\$14,132	\$14,132	(\$5,272)	(\$2,410)	(\$65)
Totals	340,763,152	286,110,293	255,721,079	\$493,753	\$573,470	\$625,389	\$291,826	\$84,903	\$84,903	\$84,903	\$66,961	\$66,961	\$66,961	\$50,063	\$129,780	\$181,699

Table 5: Option D Net Revenue Estimate for \$217.4M in Capital, Delivery, and Variable Costs

Year	Annual Traffic			Revenue (in thousands of dollars)			Costs (in thousands of dollars)						Net Revenue (in thousands of dollars)			
	\$1.00 Toll	\$1.50 Toll	\$2.00 Toll	Annual (\$1.00)	Annual (\$1.50)	Annual (\$2.00)	Const.	Fare Collection			Maintenance			Current Yr. (\$1.00)	Current Yr. (\$1.50)	Current Yr. (\$2.00)
								Ops-Total (\$1.00)	Ops-Total (\$1.50)	Ops-Total (\$2.00)	Maint-Total (\$1.00)	Maint-Total (\$1.50)	Maint-Total (\$2.00)			
2026	9,892,013	8,405,656	7,490,779	\$10,610	\$13,930	\$15,209	\$10,387	\$1,785	\$1,785	\$1,785	\$659	\$659	\$659	(\$2,220)	\$1,100	\$2,379
2027	9,998,034	8,485,229	7,563,981	\$10,724	\$13,958	\$15,228	\$10,387	\$1,838	\$1,838	\$1,838	\$678	\$678	\$678	(\$2,179)	\$1,055	\$2,325
2028	10,104,056	8,564,802	7,637,184	\$10,838	\$13,985	\$15,247	\$10,387	\$1,893	\$1,893	\$1,893	\$840	\$840	\$840	(\$2,283)	\$865	\$2,127
2029	10,210,078	8,644,376	7,710,386	\$10,951	\$14,013	\$15,266	\$10,387	\$1,950	\$1,950	\$1,950	\$717	\$717	\$717	(\$2,103)	\$958	\$2,212
2030	10,316,100	8,723,949	7,783,589	\$11,065	\$14,040	\$15,285	\$10,387	\$2,009	\$2,009	\$2,009	\$738	\$738	\$738	(\$2,068)	\$907	\$2,151
2031	10,422,121	8,803,522	7,856,791	\$11,179	\$14,068	\$15,304	\$10,387	\$2,069	\$2,069	\$2,069	\$759	\$759	\$759	(\$2,036)	\$853	\$2,089
2032	10,528,143	8,883,096	7,929,993	\$11,292	\$14,095	\$15,323	\$10,387	\$2,131	\$2,131	\$2,131	\$781	\$781	\$781	(\$2,007)	\$796	\$2,024
2033	10,634,165	8,962,669	8,003,196	\$11,406	\$14,123	\$15,342	\$10,387	\$2,195	\$2,195	\$2,195	\$804	\$804	\$804	(\$1,979)	\$737	\$1,956
2034	10,740,186	9,042,242	8,076,398	\$11,520	\$14,150	\$15,361	\$10,387	\$2,261	\$2,261	\$2,261	\$827	\$827	\$827	(\$1,955)	\$675	\$1,886
2035	10,846,208	9,121,816	8,149,601	\$11,634	\$14,178	\$15,380	\$10,387	\$2,329	\$2,329	\$2,329	\$851	\$851	\$851	(\$1,933)	\$611	\$1,814
2036	10,952,230	9,201,389	8,222,803	\$15,582	\$18,232	\$19,862	\$10,387	\$2,398	\$2,398	\$2,398	\$876	\$876	\$876	\$1,921	\$4,571	\$6,201
2037	11,058,251	9,280,962	8,296,005	\$15,720	\$18,285	\$19,927	\$10,387	\$2,470	\$2,470	\$2,470	\$901	\$901	\$901	\$1,962	\$4,527	\$6,169
2038	11,164,273	9,360,536	8,369,208	\$15,858	\$18,339	\$19,992	\$10,387	\$2,544	\$2,544	\$2,544	\$927	\$927	\$927	\$1,999	\$4,480	\$6,134
2039	11,270,295	9,440,109	8,442,410	\$15,995	\$18,392	\$20,057	\$10,387	\$2,621	\$2,621	\$2,621	\$954	\$954	\$954	\$2,034	\$4,431	\$6,096
2040	11,376,317	9,519,682	8,515,613	\$16,133	\$18,445	\$20,123	\$10,387	\$2,699	\$2,699	\$2,699	\$982	\$982	\$982	\$2,065	\$4,378	\$6,055
2041	11,461,639	9,591,080	8,579,480	\$16,271	\$18,499	\$20,188	\$10,387	\$2,780	\$2,780	\$2,780	\$11,617	\$11,617	\$11,617	(\$8,514)	(\$6,285)	(\$4,596)
2042	11,547,601	9,663,013	8,643,826	\$16,408	\$18,552	\$20,253	\$10,387	\$2,864	\$2,864	\$2,864	\$3,068	\$3,068	\$3,068	\$90	\$2,234	\$3,934
2043	11,634,208	9,735,485	8,708,655	\$16,546	\$18,606	\$20,318	\$10,387	\$2,950	\$2,950	\$2,950	\$3,098	\$3,098	\$3,098	\$111	\$2,171	\$3,884
2044	11,721,465	9,808,502	8,773,970	\$16,683	\$18,659	\$20,383	\$10,387	\$3,038	\$3,038	\$3,038	\$3,129	\$3,129	\$3,129	\$129	\$2,105	\$3,829
2045	11,809,376	9,882,065	8,839,774	\$16,821	\$18,713	\$20,449	\$10,387	\$3,129	\$3,129	\$3,129	\$1,803	\$1,803	\$1,803	\$1,502	\$3,394	\$5,130
2046	11,897,946	9,956,181	8,906,073	\$21,311	\$23,987	\$26,179	\$10,387	\$3,223	\$3,223	\$3,223	\$1,835	\$1,835	\$1,835	\$5,865	\$8,541	\$10,733
2047	11,987,181	10,030,852	8,972,868	\$21,475	\$24,172	\$26,381	\$10,387	\$3,320	\$3,320	\$3,320	\$1,869	\$1,869	\$1,869	\$5,899	\$8,596	\$10,805
2048	12,077,085	10,106,084	9,040,165	\$21,640	\$24,357	\$26,583	\$10,387	\$3,419	\$3,419	\$3,419	\$1,904	\$1,904	\$1,904	\$5,930	\$8,647	\$10,873
2049	12,167,663	10,181,879	9,107,966	\$21,805	\$24,543	\$26,786	\$10,387	\$3,522	\$3,522	\$3,522	\$1,940	\$1,940	\$1,940	\$5,956	\$8,694	\$10,937
2050	12,258,920	10,258,243	9,176,276	\$21,969	\$24,728	\$26,988	\$10,387	\$3,628	\$3,628	\$3,628	\$1,977	\$1,977	\$1,977	\$5,978	\$8,737	\$10,997
2051	12,350,862	10,335,180	9,245,098	\$22,134	\$24,914	\$27,190	\$10,387	\$3,737	\$3,737	\$3,737	\$2,015	\$2,015	\$2,015	\$5,996	\$8,776	\$11,053
2052	12,443,494	10,412,694	9,314,436	\$22,299	\$25,099	\$27,393	\$10,387	\$3,849	\$3,849	\$3,849	\$2,054	\$2,054	\$2,054	\$6,010	\$8,810	\$11,104
2053	12,536,820	10,490,789	9,384,294	\$22,463	\$25,284	\$27,595	\$10,387	\$3,964	\$3,964	\$3,964	\$2,094	\$2,094	\$2,094	\$6,019	\$8,840	\$11,150
2054	12,630,846	10,569,470	9,454,676	\$22,628	\$25,470	\$27,797	\$10,387	\$4,083	\$4,083	\$4,083	\$2,135	\$2,135	\$2,135	\$6,023	\$8,865	\$11,193
2055	12,725,577	10,648,741	9,525,586	\$22,793	\$25,655	\$28,000	\$10,387	\$4,206	\$4,206	\$4,206	\$14,132	\$14,132	\$14,132	(\$5,931)	(\$3,069)	(\$724)
Totals	340,763,152	286,110,293	255,721,079	\$493,753	\$573,470	\$625,389	\$311,606	\$84,903	\$84,903	\$84,903	\$66,961	\$66,961	\$66,961	\$30,283	\$110,000	\$161,919

There are two components of the revenue growth attributable to the Gorham Connector: 1) the revenue generated by the Gorham Connector mainline and ramp toll plazas, and 2) and the additional revenue collected at other locations on the Maine Turnpike due to *new trips* being attracted to the Turnpike by the existence of the Gorham Connector.

To illustrate these components, consider a person traveling between the Haigis Parkway in Scarborough and Gorham High School.

- Under existing conditions, the person would likely go from the Haigis Parkway to Payne Rd., connecting to Route 114 by Sam's Club in Scarborough. The driver could follow Route 114 to the high school in Gorham village.
- Once the Gorham Connector is open, the same person could take the Haigis Parkway and connect directly to the Maine Turnpike at Exit 42. The driver would travel north to Exit 45, exit to the Gorham Connector, follow the facility for its entire length, and connect to Route 114 in South Gorham.
- The latter trip contributes to gross revenue in two ways—additional revenue at Exit 42 in Scarborough as well as new revenue at the Gorham Connector's toll plaza.

HNTB's analysis indicates that, for all toll rates, the additional gross revenue for each option breaks out as indicated in Table 6.

Table 6: Relative Contribution of each Revenue Component

	\$1.00 Toll				\$1.50 Toll				\$2.00 Toll			
	Total ¹	%Connector	Connector Revenue	Add'l Mainline Revenue	Total	%Connector	Connector Revenue	Add'l Mainline Revenue	Total	%Connector	Connector Revenue	Add'l Mainline Revenue
2026	\$10,632	66.6%	\$7,084	\$3,548	\$14,206	58.4%	\$8,297	\$5,908	\$15,412	61.1%	\$9,418	\$5,994
2027	\$10,746	66.4%	\$7,134	\$3,612	\$14,178	58.9%	\$8,357	\$5,821	\$15,393	61.6%	\$9,486	\$5,907
2028	\$10,629	65.4%	\$6,953	\$3,676	\$13,871	58.7%	\$8,137	\$5,734	\$15,055	61.3%	\$9,235	\$5,821
2029	\$10,974	65.9%	\$7,234	\$3,740	\$14,123	60.0%	\$8,476	\$5,647	\$15,355	62.7%	\$9,621	\$5,734
2030	\$11,088	65.7%	\$7,284	\$3,804	\$14,096	60.6%	\$8,535	\$5,560	\$15,336	63.2%	\$9,688	\$5,648
2031	\$11,202	65.5%	\$7,334	\$3,868	\$14,068	61.1%	\$8,595	\$5,473	\$15,317	63.7%	\$9,756	\$5,561
2032	\$11,316	65.3%	\$7,384	\$3,932	\$14,040	61.6%	\$8,654	\$5,387	\$15,298	64.2%	\$9,823	\$5,475
2033	\$11,430	65.0%	\$7,434	\$3,996	\$14,013	62.2%	\$8,713	\$5,300	\$15,279	64.7%	\$9,891	\$5,388
2034	\$11,544	64.8%	\$7,484	\$4,060	\$13,985	62.7%	\$8,773	\$5,213	\$15,260	65.3%	\$9,958	\$5,302
2035	\$11,658	64.6%	\$7,534	\$4,124	\$13,958	63.3%	\$8,832	\$5,126	\$15,241	65.8%	\$10,026	\$5,215
2036	\$15,552	61.0%	\$9,480	\$6,072	\$18,421	60.3%	\$11,115	\$7,306	\$20,053	62.9%	\$12,616	\$7,436
2037	\$15,707	60.8%	\$9,543	\$6,165	\$18,369	60.9%	\$11,189	\$7,180	\$20,011	63.5%	\$12,701	\$7,311
2038	\$15,863	60.6%	\$9,605	\$6,258	\$18,317	61.5%	\$11,263	\$7,054	\$19,970	64.0%	\$12,785	\$7,185
2039	\$16,018	60.4%	\$9,668	\$6,350	\$18,265	62.1%	\$11,337	\$6,928	\$19,929	64.6%	\$12,869	\$7,060
2040	\$16,173	60.2%	\$9,730	\$6,443	\$18,213	62.7%	\$11,412	\$6,802	\$19,888	65.1%	\$12,954	\$6,934
2041	\$16,294	60.2%	\$9,803	\$6,491	\$18,350	62.7%	\$11,497	\$6,853	\$20,037	65.1%	\$13,051	\$6,986
2042	\$16,417	60.2%	\$9,877	\$6,540	\$18,488	62.7%	\$11,583	\$6,904	\$20,188	65.1%	\$13,149	\$7,039
2043	\$16,540	60.2%	\$9,951	\$6,589	\$18,626	62.7%	\$11,670	\$6,956	\$20,339	65.1%	\$13,247	\$7,092
2044	\$16,664	60.2%	\$10,025	\$6,639	\$18,766	62.7%	\$11,758	\$7,008	\$20,491	65.1%	\$13,347	\$7,145
2045	\$16,789	60.2%	\$10,100	\$6,688	\$18,907	62.7%	\$11,846	\$7,061	\$20,645	65.1%	\$13,447	\$7,198
2046	\$21,318	59.7%	\$12,720	\$8,597	\$23,995	62.2%	\$14,919	\$9,076	\$26,188	64.7%	\$16,935	\$9,253
2047	\$21,478	59.7%	\$12,816	\$8,662	\$24,175	62.2%	\$15,030	\$9,144	\$26,384	64.7%	\$17,062	\$9,322
2048	\$21,639	59.7%	\$12,912	\$8,727	\$24,356	62.2%	\$15,143	\$9,213	\$26,582	64.7%	\$17,190	\$9,392
2049	\$21,801	59.7%	\$13,009	\$8,792	\$24,539	62.2%	\$15,257	\$9,282	\$26,781	64.7%	\$17,319	\$9,463
2050	\$21,964	59.7%	\$13,106	\$8,858	\$24,723	62.2%	\$15,371	\$9,351	\$26,982	64.7%	\$17,448	\$9,534
2051	\$22,129	59.7%	\$13,204	\$8,925	\$24,908	62.2%	\$15,486	\$9,422	\$27,184	64.7%	\$17,579	\$9,605
2052	\$22,295	59.7%	\$13,304	\$8,992	\$25,095	62.2%	\$15,603	\$9,492	\$27,388	64.7%	\$17,711	\$9,677
2053	\$22,462	59.7%	\$13,403	\$9,059	\$25,283	62.2%	\$15,720	\$9,563	\$27,594	64.7%	\$17,844	\$9,750
2054	\$22,631	59.7%	\$13,504	\$9,127	\$25,473	62.2%	\$15,838	\$9,635	\$27,801	64.7%	\$17,978	\$9,823
2055	\$22,801	59.7%	\$13,605	\$9,195	\$25,664	62.2%	\$15,956	\$9,707	\$28,009	64.7%	\$18,113	\$9,897

¹ All dollar amounts presented in thousands of dollars.

CONCLUSIONS

The following conclusions may be drawn from Table 2 through Table 6.

- Under all toll scenarios, Option D generates positive net revenue over the 30-year bond period;
- Under the \$1.00 toll scenario, Option D generates positive net revenue after ten years for both cost scenarios, except during years bearing reserve maintenance costs; and
- Under the \$1.50 and \$2.00 toll scenario, Option D generates positive net revenue for all years for both cost scenarios, except during years bearing reserve maintenance costs.

Over the 30-year bond period for facility financing, Option D is expected to have a positive net revenue ranging from \$30 million (at a \$1.00 toll) to \$180 million (at a \$2.00 toll), while increasing traffic on the Turnpike system and significantly reducing peak hour traffic on local roadways.