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June 2, 2020

Ms. Deborah Sharpless
Chief Financial Officer
Maryland Transportation Authority
2310 Broening Highway
Suite 150
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Subject: Maryland Transportation Authority COVID-19 Traffic and Revenue Analysis Letter Report

Dear Ms. Sharpless:

The Maryland Transportation Authority (MDTA) has requested CDM Smith to prepare this letter report to be used in support of MDTA's financial planning. Previous to this letter report, the most recent MDTA forecasts developed by CDM Smith were summarized in the "FY2020 FINAL T&R Forecast Update ICC" and "FY2020 FINAL T&R Forecast Update Legacy Facilities" reports. These reports were finalized on October 28, 2019 and included forecasts through fiscal year (FY) 2029. This letter report builds upon these most recent forecast updates to include the following main changes. These changes are discussed in more detail later in this letter report.

- The estimated negative impacts on traffic demand and corresponding recovery due to the COVID-19 pandemic.
- The impacts of other responses to the pandemic including the temporary conversion to cashless tolling on the full MDTA system beginning on March 17, 2020, as well as the pause in Notice of Toll Due (NOTD) video billing and the delay in assessing civil penalties beginning on March 27, 2020.
- Actual data were updated to include the most recently available traffic and toll revenue data.
- Other changes to construction schedules and the assumed timing of upcoming payment type (pre-pay NOTD and Pay-by-Plate) changes.

It is important to note that the intent of this letter report is to review and revise, as warranted, the forecasts developed for the October 2019 reports. Adjustments were made based on the most recent available actual traffic and toll revenue experience since the October 2019 forecast reports, including the most recent COVID-19 impacts on the MDTA system.



As of a new April 1, 2020 contract, moving forward CDM Smith will perform forecasting for MDTA's newest toll facility, the I-95 Express Toll Lanes (I-95 ETLs). However, as of the date of this letter report, CDM Smith has not yet prepared their own forecasts for this facility. The most recent forecast for the I-95 ETLs was provided by Jacobs Engineering Group in the "I-95 ETL T&R Update Existing and Extension" report dated October 22, 2019. In absence of their own forecast, CDM Smith has provided a discussion of the most recent actual COVID-19 impact trends observed on the I-95 ETLs as well as estimated impact factors on the I-95 ETLs due to the COVID-19 pandemic in this letter report. For context, based on FY 2019 (July 1, 2018 to June 30, 2019) data, the I-95 ETLs generate about two percent of MDTA systemwide toll revenues.

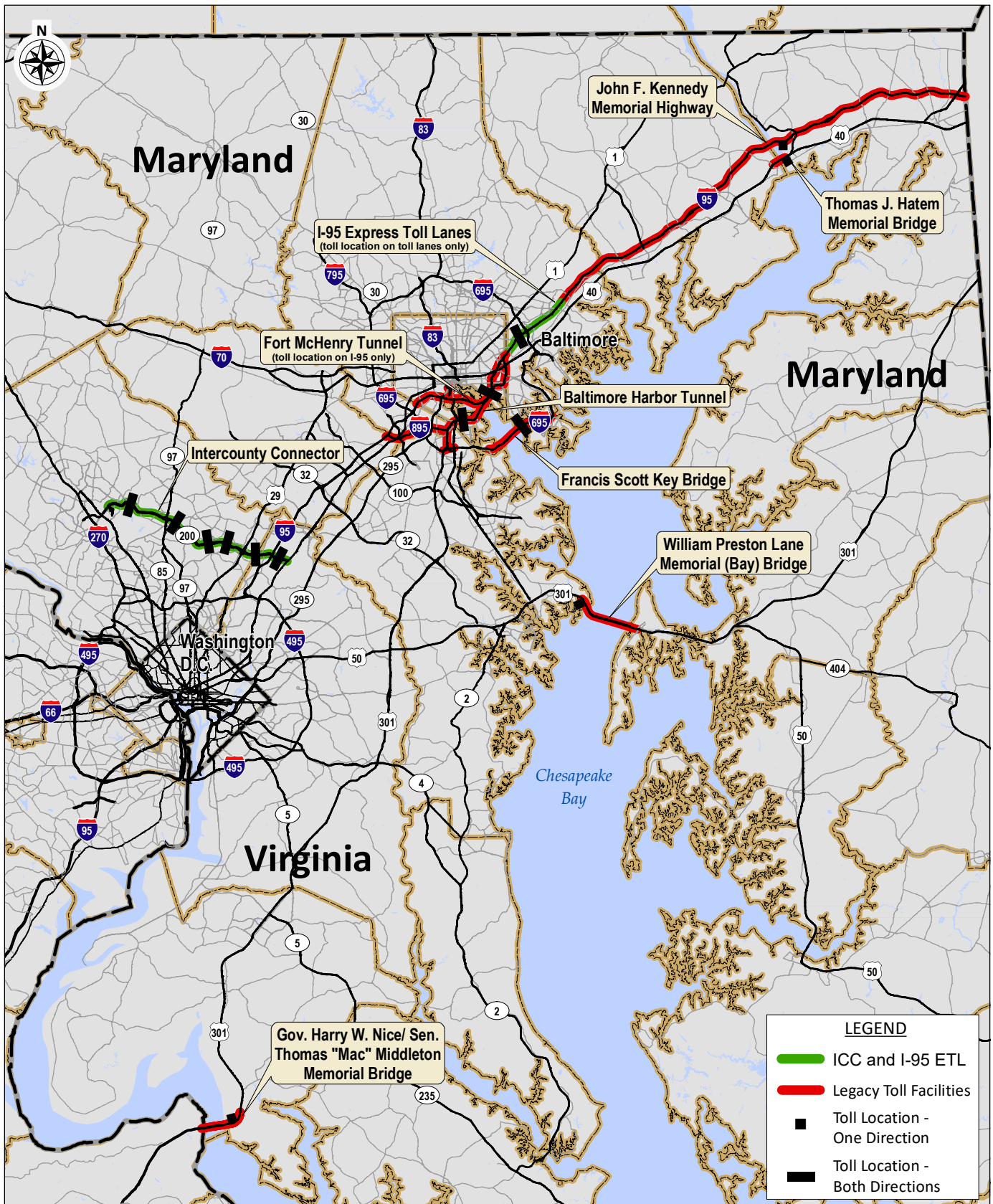
1. Introduction

1.1 MDTA System Overview

This letter report includes forecasts through FY 2029 for the seven "Legacy" toll facilities operated by MDTA, forecast for the Intercounty Connector (ICC), and a commentary on estimated COVID-19 impacts on the I-95 Express Toll Lanes (ETLs). The nine facilities operated by MDTA are listed below. Collectively, the first seven facilities in the list below are referred to as the Legacy System.

- Thomas J. Hatem Memorial Bridge (Hatem Bridge, TJH)
- John F. Kennedy Memorial Highway, excluding the I-95 Express Toll Lanes (Kennedy Highway, JFK)
- Baltimore Harbor Tunnel (Harbor Tunnel, BHT)
- Fort McHenry Tunnel (Fort McHenry Tunnel, FMT)
- Francis Scott Key Bridge (Key Bridge, FSK)
- William Preston Lane Jr. Memorial Bridge (Bay Bridge, WPL)
- Governor Harry W. Nice Memorial/Senator Thomas "Mac" Middleton Bridge (Nice/Middleton Bridge, HWN)
- Intercounty Connector (ICC/MD 200)
- I-95 Express Toll Lanes (I-95 ETLs)

Figure 1 shows the locations of the MDTA Legacy system, ICC, and I-95 ETLs toll facilities and toll gantries in a regional context. As can be implied by the geographic distribution of the different facilities, the MDTA system serves a variety of travel purposes within the regional transportation system and consequently has a diverse mix of traffic classes and payment types.



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FACILITY LOCATION MAP MARYLAND TOLL FACILITIES

FIGURE 1

In the north, the Hatem Bridge and the Kennedy Highway form two parallel crossings of the Susquehanna River. The Hatem Bridge carries US 40 over the river and is the oldest of the MDTA's facilities, having been open to traffic since August 1940. The existing structure replaced an older bridge that first opened in 1910. The John F. Kennedy Memorial Highway is a 50-mile segment of I-95 that was opened in November 1963. It currently has one mainline toll plaza located just east of the Susquehanna River. The I-95 ETLs are a separate eight-mile toll facility on I-95 between I-895 and MD 43 in Northeast Baltimore. The facility, which opened in December 2014, includes two express toll lanes in each direction in between the general purpose lanes on this segment of I-95.

There are three alternative MDTA toll routes that cross the Baltimore Harbor in the center of the region: the Baltimore Harbor Tunnel (I-895), the Francis Scott Key Bridge (I-695), and the Fort McHenry Tunnel (I-95), which are collectively referred to as the Baltimore Harbor crossings. The oldest of the three Baltimore Harbor crossings is the Harbor Tunnel which opened in November 1957. The Key Bridge was built to alleviate congestion and delays at the Harbor Tunnel and was opened in March 1977. The newest of these facilities, the Fort McHenry Tunnel, is an eight-lane crossing that opened in November 1985.

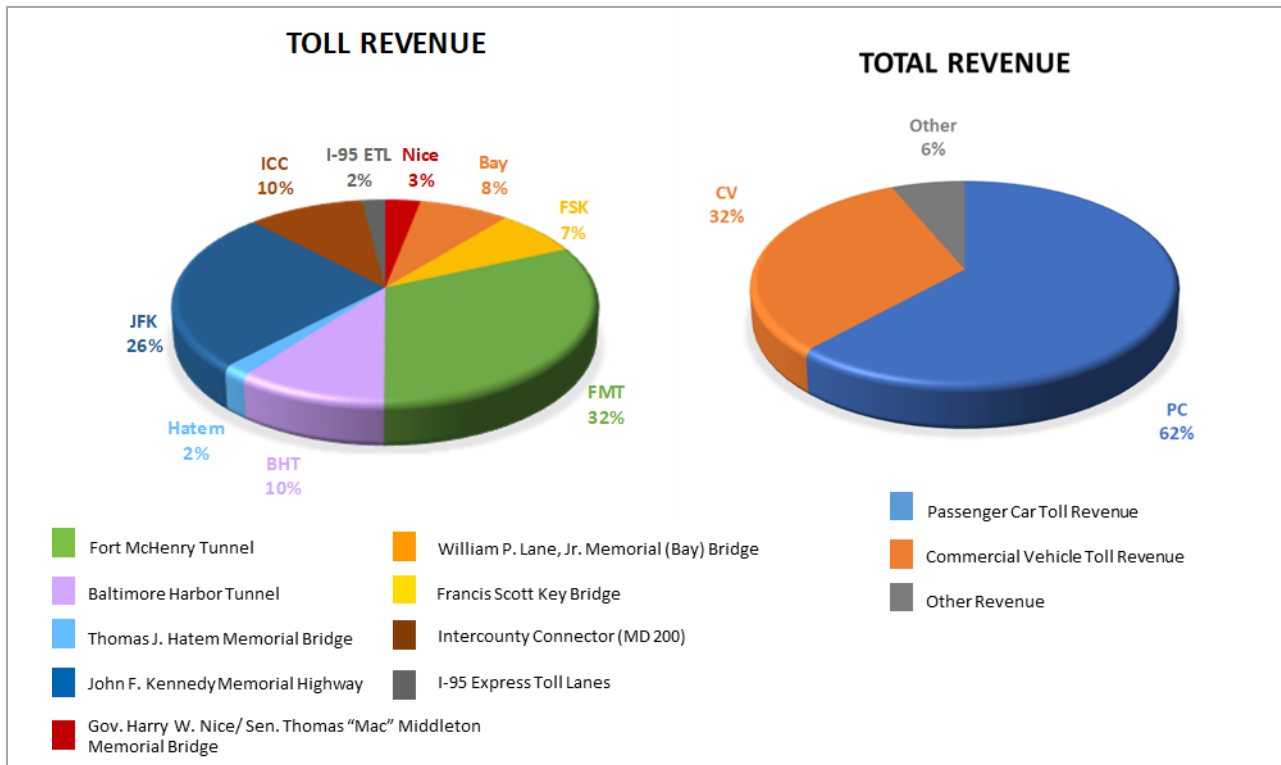
The ICC facility is in the northern Washington D.C. metro region and connects I-370 in the Gaithersburg area to I-95 and US 1 near Laurel. The ICC opened in phases. The initial segment between I-370 and MD 97 opened to traffic in February 2011 and began collecting tolls in March 2011. The segment from MD 97 to I-95 opened to traffic in November 2011 and began collecting tolls in December 2011, and the final segment between I-95 and US 1 opened and began collecting tolls in November 2014.

The southern region contains two facilities which carry US 301 to diverse destinations. The William Preston Lane Jr. Memorial (Bay) Bridge was first opened to traffic in July 1952 and crosses the Chesapeake Bay. Twenty-one years later in June 1973, a parallel span carrying westbound traffic was opened, with the original span carrying eastbound traffic. The Governor Harry W. Nice Memorial/Senator Thomas "Mac" Middleton Bridge was opened in December 1940, connecting Maryland with Virginia, thereby allowing travelers making regional through-trips to bypass the Washington DC area.

For context in this letter report, **Figure 2** shows the share of MDTA toll revenue by facility and total revenue by type for the most recent full fiscal year. As shown, about three quarters of toll revenue is from the Kennedy Highway, Fort McHenry Tunnel, Harbor Tunnel, and Key Bridge, which make up the I-95 corridor and parallel Interstate crossings near downtown Baltimore. Total revenue includes about 32 percent commercial vehicle toll revenue, about 62 percent passenger car toll revenue, and about 6 percent other revenue. Other revenue includes a combination of revenue collected and revenue deductions from unused Commuter Plan and Shoppers Plan trips, transponder fees and sales, the Hatem Bridge E-ZPass program, violation recovery (civil penalties),

commercial vehicle fees and discounts (post-usage discount, high frequency discount, and oversized permit fees), and concessions.

Figure 2
FY 2019 MDTA Share of Toll Revenue by Facility and Total Revenue by Type



1.2 Timeline of COVID-19 Events Impacting MDTA

The COVID-19 pandemic is impacting nearly all aspects of society and the economy, including travel. Beginning in March, the pandemic caused significant reductions in transactions and revenue on toll facilities around the U.S., including on the MDTA system. **Table 1** provides the timeline of events, mandates, and other announcements related to COVID-19 that have contributed to impacts to traffic and revenue on the MDTA system. Additional detail on observed traffic impacts due to COVID-19 on the MDTA system and economic impacts thus far are provided in more detail later in this letter report.

**Table 1
National, Maryland, and MDTA Mandates Related to COVID-19**

Date	Location	Description
March 11	USA	- International travel is halted (excluding Great Britain)
March 12	MD	- Gatherings of more than 250 people banned - Schools closed until March 27 th
March 13	USA	- National Emergency declared
March 16	MD	- Gatherings of more than 50 people banned - All bars and restaurants closed
March 17	MDTA	- MDTA implements all-electronic (cashless) tolling statewide until further notice
March 18	MDTA	- All E-ZPass [®] Maryland customer service centers closed until further notice. Motorists can still open accounts online and have their transponder mailed to them.
March 18 to 20	USA	- U.S./Canada and U.S./Mexico borders closed for non-essential travel
March 19	MD	- Gatherings of more than 10 people banned - Transit for essential travel only
March 23	MD	- Non-essential businesses closed
March 27	MDTA	- Paused mailing for all Notices of Toll Due (NOTD) and assessing civil penalties on unpaid NOTDs until 30 days after Maryland's state of emergency is lifted. Customers can pay online rather than waiting for NOTDs to be mailed. - Due dates extended until 30 days after the state of emergency is lifted for previously mailed NOTDs that have a due date of March 17, 2020 or later. - E-ZPass [®] customers who replenish their accounts with cash have 30 days after Maryland's state of emergency is lifted to add funds to their accounts. - Expiration dates for Commuter Plans have been extended from 45 to 90 days and for Bay Bridge Shoppers Plans from 90 to 150 days to give drivers more time to use their remaining trips. These plan holders may also change or cancel their plans due to COVID-19. - Referrals of unpaid tolling accounts to the Central Collections Unit and to the Motor Vehicle Administration for registration flagging are on hold until 30 days after the state of emergency is lifted.
March 30	MD	- Residents ordered to stay-at-home indefinitely, persons traveling into Maryland are required to self-quarantine for 14 days.
April 17	MD	- Schools closed through May 15 th
April 18	MD	- Residents ordered to wear face masks in public settings
May 6	MD	- Schools closed through the end of the academic year
May 15	MD	- Statewide Stay at Home order replaced by Safer at Home advisory. Some jurisdictions began Stage One of "Maryland Strong: Roadmap to Recovery" program but most social distancing measures generally remain in place.

Related to the MDTA announcements listed in **Table 1** and of relevance to this letter report, on March 17, 2020 MDTA implemented systemwide all-electronic (cashless) tolling until further notice. Most other larger toll agencies in the United States that had the capability to do so also converted to all-electronic tolling around this time to prevent the potential spread of COVID-19 during exchanges of cash at toll booths. The MDTA temporary cashless program was implemented by applying video tolling at cash toll rates at facilities where cash is normally accepted. The temporary MDTA cashless tolling has been applied to five facilities, the Kennedy Highway, Harbor Tunnel, Fort McHenry Tunnel, Bay Bridge, and Nice/Middleton Bridge. The other four MDTA facilities, the Hatem Bridge, Key Bridge, ICC, and I-95 ETLs, already operated with cashless tolling as of March 17, 2020. It should be noted that the Bay Bridge was already being planned to convert to cashless tolling before the pandemic. This facility officially converted to permanent cashless tolling on May 12, 2020, but former cash toll rates for video customers will still be charged until temporary cashless tolling is ended on the other four MDTA facilities where cash is normally accepted.

1.3 Toll Rate Structure

Current standard MDTA toll rates and discount programs are unchanged from those described in the October 2019 forecast reports. However, as described previously, temporary cashless tolling has effectively changed some toll rates by temporarily reducing video toll rates to cash rates at the facilities that normally offer cash rates. Additionally, listed in **Table 1**, the details of some discount programs have also been temporarily changed. The October 2019 forecast reports also incorporated some future toll rate classification changes and new toll payment options as listed below. The schedule for implementation has been updated in this letter report from what was assumed in the October 2019 report as noted:

- **Pay-by-Plate:** Beginning on July 1, 2020, a new Pay-by-Plate payment method will be offered. This new payment method allows tolls to automatically bill to credit cards at a lower rate than Pay-by-Invoice (current video rate). For the legacy system Pay-by-Plate rates will be the same as cash rates. For the ICC, customers who use this method will pay at least 20 percent less than the Pay-by-Invoice rate (the current video rate) and 25% more than the E-ZPass rate. This change was previously assumed to be implemented on May 1, 2020 in the October 2019 report.
- **Early Payment of Video Tolls:** Beginning on July 1, 2020, Pay-by-Invoice (current video rate) customers who pay their video toll before their invoices are mailed will receive a 15 percent toll discount from the full Pay-by-Invoice rate. This change was previously assumed to be implemented on May 1, 2020 in the October 2019 report.
- **New Vehicle Classes:** Beginning on September 1, 2020, new vehicle class toll rate categories will be created with lower toll rates. These new classes are motorcycles and certain three and

four-axle vehicles, specifically “light” vehicles towing one and two-axle trailers such as those towing watercraft or landscaping equipment. Motorcycles will pay a 50 percent lower toll than current two-axle rates. Three and four-axle light vehicles will pay 25 and 17 percent, respectively, lower toll than current three and four-axle rates. The date of this change is the same as assumed in the October 2019 report.

With the exception of the assumed payment type and classification changes listed above and temporary changes due to COVID-19, no other future toll rate changes are assumed on the MDTA system for the forecasting period through FY 2029.

1.4 Penalty Structure

The MDTA currently assesses a \$50 Civil Penalty per unpaid transaction for drivers that do not pay their video tolls within 45 days. A change in the Civil Penalty amount from \$50 to \$25 will be implemented for all unpaid transactions on July 1, 2020. These assumptions are changed from the October 2019 forecast report. Previously, it was assumed civil penalties would be reduced from \$50 to \$25 for only accounts with less than six outstanding transactions with civil penalties and this change would be implemented on December 1, 2020.

2. Recent Trends

This section includes data related to recent trends including the most recent official monthly data through March 2020. Later sections of this letter report include the results of more refined and more recent raw data analysis to evaluate the impacts of the COVID-19 pandemic on the MDTA system in more detail.

2.1 Total Legacy System Traffic and Revenue Trends

Monthly transaction for all of FY 2019 and FY 2020 through March for the combined Legacy facilities are shown in **Table 2**. The total transactions for first quarter and second quarter FY 2020 decreased by 0.4 percent and 3.2 percent, respectively, compared to the same period in FY 2019. The data for the third quarter of FY 2020 shows total transactions decreased by 7.5 percent for passenger cars and had increased by 0.2 percent for commercial vehicles compared to 2019. Passenger cars showed positive growth of 2.4 and 4.6 percent in January and February, respectively. This is in part due to comparing with January and February 2019 data which also included full Harbor Tunnel construction impacts.

Table 2
Total Legacy System Historical Toll Transactions Trends by Month

Month	Passenger Car Transactions				Commercial Vehicle Transactions				Total Transactions			
	FY 2019	FY 2020	Change		FY 2019	FY 2020	Change		FY 2019	FY 2020	Change	
			Number	%			Number	%			Number	%
July	9,914,824	9,923,908	9,083	0.1	773,662	819,503	45,841	5.9	10,688,486	10,743,411	54,925	0.5
August	10,480,343	10,283,982	(196,361)	(1.9)	830,903	813,871	(17,032)	(2.0)	11,311,246	11,097,853	(213,393)	(1.9)
September	8,944,590	8,945,527	938	0.0	715,093	760,493	45,399	6.3	9,659,683	9,706,020	46,337	0.5
October	9,408,311	8,929,048	(479,263)	(5.1)	833,023	802,736	(30,288)	(3.6)	10,241,334	9,731,784	(509,551)	(5.0)
November	9,054,732	8,702,585	(352,147)	(3.9)	740,634	728,813	(11,821)	(1.6)	9,795,366	9,431,397	(363,969)	(3.7)
December	8,885,384	8,792,890	(92,494)	(1.0)	711,166	724,497	13,331	1.9	9,596,550	9,517,387	(79,164)	(0.8)
January	7,965,976	8,157,865	191,889	2.4	737,233	735,113	(2,120)	(0.3)	8,703,209	8,892,978	189,769	2.2
February	7,443,094	7,788,694	345,600	4.6	670,022	668,052	(1,970)	(0.3)	8,113,116	8,456,746	343,630	4.2
March	8,958,199	6,595,047	(2,363,151)	(26.4)	770,102	779,339	9,237	1.2	9,728,300	7,374,386	(2,353,914)	(24.2)
April	9,437,635				813,564				10,251,199			
May	9,741,153				839,276				10,580,429			
June	9,643,610				800,945				10,444,555			
Q1 Total	29,339,758	29,153,417	(186,340)	(0.6)	2,319,658	2,393,867	74,209	3.2	31,659,415	31,547,284	(112,131)	(0.4)
Q2 Total	27,348,427	26,424,522	(923,905)	(3.4)	2,284,823	2,256,045	(28,778)	(1.3)	29,633,250	28,680,567	(952,683)	(3.2)
Q3 Total	24,367,268	22,541,606	(1,825,662)	(7.5)	2,177,357	2,182,504	5,147	0.2	26,544,626	24,724,110	(1,820,515)	(6.9)
Year-To-Date	81,055,453	78,119,546	(2,935,907)	(3.6)	6,781,838	6,832,415	50,578	0.7	87,837,291	84,951,961	(2,885,329)	(3.3)
Jul-Feb Total	72,097,255	71,524,499	(572,756)	(0.8)	6,011,736	6,053,076	41,341	0.7	78,108,990	77,577,575	(531,415)	(0.7)

Also, taking into consideration that 2020 is leap year, February 2020 had an additional day compared to February 2019 which can account for a portion (approximately 3%) of the passenger car transaction growth for the month. The COVID-19 impacts in March led to a total third quarter reduction of 6.9 percent compared to FY 2019. Commercial vehicles had a strong first quarter with growth of 3.2 percent, but the second and third quarters showed negative and slightly positive growth, respectively, leading to FY 2020 YTD transactions to be 0.7 percent above FY 2019.

In the third quarter, maintenance of traffic for ongoing construction on and near the Harbor Tunnel had traffic operating one lane per direction in the southbound lanes and tunnel while the northbound tunnel was closed. The project officially entered Stage 3 of construction as of April 3, 2020, where all traffic is shifted into the northbound lanes and tunnel while the southbound side is closed for construction. One lane per direction will be maintained on the northbound side with current maintenance of traffic expected to continue through the fourth quarter of FY 2020. Construction on the Bay Bridge also continued through the third quarter, with construction crews taking advantage of lower traffic volumes in the winter months and mild weather to advance the project. The 24/7 right lane closure on the westbound span ended April 1, 2020, nearly one year ahead of schedule. Ongoing work will continue in the center and left lanes of the westbound span through the fourth quarter but will be scheduled overnight or during off-peak hours to minimize traffic impacts. All lanes on the westbound span are anticipated to be fully open by the end of summer of 2020.

Monthly toll revenue for all of FY 2019 and FY 2020 through March for the combined Legacy facilities are shown in **Table 3**. Considering third quarter FY 2020 data, total revenue decreased by 4.1 percent over FY 2019, making FY 2020 YTD 2.1 percent below the same period in FY 2019. January and February experienced growth around 2 percent compared to the same months in 2019. However, the overall drop of 15.1 percent in revenue in March due to the pandemic outweighed the growth experienced in January and February for the quarter as a whole.

Table 3
Total Legacy System Historical In-Lane Toll Revenue Trends by Month

Month	Passenger Car Transactions				Commercial Vehicle Transactions				Total Transactions			
	FY 2019	FY 2020	Change		FY 2019	FY 2020	Change		FY 2019	FY 2020	Change	
			Number	%			Number	%			Number	%
July	\$ 35,578,390	\$ 34,950,054	(628,336)	(1.8)	\$ 18,525,820	\$ 19,512,463	986,643	5.3	\$ 54,104,211	\$ 54,462,517	358,307	0.7
August	36,969,487	36,431,334	(538,153)	(1.5)	19,785,322	19,362,323	(422,998)	(2.1)	56,754,808	55,793,657	(961,151)	(1.7)
September	30,554,182	30,482,333	(71,849)	(0.2)	17,179,482	18,235,807	1,056,325	6.1	47,733,664	48,718,139	984,476	2.1
October	31,433,073	29,819,247	(1,613,826)	(5.1)	19,849,806	19,516,265	(333,540)	(1.7)	51,282,879	49,335,513	(1,947,366)	(3.8)
November	31,383,297	29,755,736	(1,627,561)	(5.2)	17,927,987	17,560,259	(367,728)	(2.1)	49,311,284	47,315,995	(1,995,289)	(4.0)
December	31,224,260	30,719,541	(504,719)	(1.6)	17,380,197	17,773,440	393,243	2.3	48,604,457	48,492,980	(111,476)	(0.2)
January	25,933,910	26,741,990	808,080	3.1	18,228,074	18,239,031	10,957	0.1	44,161,984	44,981,021	819,037	1.9
February	24,581,533	25,519,111	937,578	3.8	16,450,423	16,578,251	127,829	0.8	41,031,956	42,097,362	1,065,406	2.6
March	30,195,717	21,575,204	(8,620,514)	(28.5)	18,739,373	19,959,659	1,220,286	6.5	48,935,090	41,534,863	(7,400,228)	(15.1)
April	32,515,122				19,567,940				52,083,063			
May	33,619,606				20,181,724				53,801,330			
June	34,088,809				19,222,645				53,311,454			
Q1 Total	103,102,059	101,863,721	(1,238,337)	(1.2)	55,490,624	57,110,593	1,619,969	2.9	158,592,683	158,974,314	381,631	0.2
Q2 Total	94,040,630	90,294,524	(3,746,106)	(4.0)	55,157,990	54,849,964	(308,025)	(0.6)	149,198,620	145,144,488	(4,054,131)	(2.7)
Q3 Total	80,711,161	73,836,304	(6,874,856)	(8.5)	53,417,870	54,776,941	1,359,071	2.5	134,129,030	128,613,246	(5,515,785)	(4.1)
Year-To-Date	277,853,849	265,994,550	(11,859,299)	(4.3)	164,066,484	166,737,499	2,671,015	1.6	441,920,332	432,732,048	(9,188,284)	(2.1)
Jul-Feb Total	247,658,131	244,419,346	(3,238,786)	(1.3)	145,327,111	146,777,840	1,450,729	1.0	392,985,242	391,197,186	(1,788,057)	(0.5)

2.2 ICC Traffic and Revenue Trends

Monthly transaction for all of FY 2019 and FY 2020 through March for the ICC is shown in **Table 4**. Transactions shown are based on in-lane traffic, which counts a transaction anytime a vehicle passes under a toll gantry, regardless of whether payment is collected. The total transactions for first quarter and second quarter FY 2020 increased by 6.1 percent and 4.6 percent, respectively, compared to the same period in FY 2019. The data for the third quarter of FY 2020 shows total transactions decreased by 11.5 compared to 2019. January and February had growth of 10.9 percent and 1.9 percent, respectively. The COVID-19 impacts led to a reduction of 42.5 percent compared to FY 2019 for March.

Table 4
Intercounty Connector Historical Toll Transactions Trends by Month

Month	ETC Transactions				Video Transactions				Total Transactions			
	FY 2019	FY 2020	Change		FY 2019	FY 2020	Change		FY 2019	FY 2020	Change	
			Number	%			Number	%			Number	%
July	7,216,828	7,962,929	746,101	10.3	1,609,784	1,618,516	8,732	0.5	8,826,612	9,581,445	754,833	8.6
August	7,637,644	7,935,021	297,377	3.9	1,580,443	1,608,567	28,124	1.8	9,218,087	9,543,588	325,501	3.5
September	7,241,998	7,880,479	638,481	8.8	1,567,221	1,475,273	(91,948)	(5.9)	8,809,219	9,355,752	546,533	6.2
October	8,183,663	8,557,426	373,763	4.6	1,587,176	1,585,887	(1,289)	(0.1)	9,770,839	10,143,313	372,474	3.8
November	7,498,888	7,898,411	399,523	5.3	1,438,659	1,465,379	26,720	1.9	8,937,547	9,363,790	426,243	4.8
December	7,057,116	7,525,957	468,841	6.6	1,412,791	1,385,158	(27,633)	(2.0)	8,469,907	8,911,115	441,208	5.2
January	6,752,843	7,552,920	800,077	11.8	1,233,194	1,299,692	66,498	5.4	7,986,037	8,852,612	866,575	10.9
February	6,516,086	6,778,245	262,159	4.0	1,283,809	1,168,783	(115,026)	(9.0)	7,799,895	7,947,028	147,133	1.9
March	7,727,168	4,487,388	(3,239,780)	(41.9)	1,436,046	781,158	(654,888)	(45.6)	9,163,214	5,268,546	(3,894,668)	(42.5)
April	7,978,240	-	-	-	1,485,528	-	-	-	9,463,768	-	-	-
May	8,275,786	-	-	-	1,626,920	-	-	-	9,902,706	-	-	-
June	7,870,584	-	-	-	1,711,330	-	-	-	9,581,914	-	-	-
Q1 Total	22,096,470	23,778,429	1,681,959	7.6	4,757,448	4,702,356	(55,092)	(1.2)	26,853,918	28,480,785	1,626,867	6.1
Q2 Total	22,739,667	23,981,794	1,242,127	5.5	4,438,626	4,436,424	(2,202)	(0.0)	27,178,293	28,418,218	1,239,925	4.6
Q3 Total	20,996,097	18,818,553	(2,177,544)	(10.4)	3,953,049	3,249,633	(703,416)	(17.8)	24,949,146	22,068,186	(2,880,960)	(11.5)
Jul-March Total	65,832,234	66,578,776	746,542	1.1	13,149,123	12,388,413	(760,710)	(5.8)	78,981,357	78,967,189	(14,168)	(0.0)
Jul-Feb Total	58,105,066	62,091,388	3,986,322	6.9	11,713,077	11,607,255	(105,822)	(0.9)	69,818,143	73,698,643	3,880,500	5.6

Monthly toll revenue for all of FY 2019 and FY 2020 through March for the ICC is shown in **Table 5**. Significant year-over-year declines in February and March in ETC revenue are currently overstated due to MDTA’s ongoing conversion to third generation back office and toll infrastructure systems. As part of this conversion, the processing of some transactions on the ICC was intentionally held back for quality checking. Transactions have been released from the quality checking process and are in the process of being billed as of the date the data was obtained by CDM Smith to support this letter report. The transactions shown in **Table 4** are not impacted by this delay as they are based on the raw, in lane data and are more indicative of actual trends on the ICC.

Table 5
Intercounty Connector Historical In-Lane Toll Revenue Trends by Month

Month	ETC Revenue				Video Revenue				Total Revenue			
	FY 2019	FY 2020	Change		FY 2019	FY 2020	Change		FY 2019	FY 2020	Change	
			Number	%			Number	%			Number	%
July	\$ 4,757,162	\$ 5,257,459	500,297	10.5	\$ 860,895	\$ 809,918	(50,977)	(5.9)	\$ 5,618,057	\$ 6,067,377	449,320	8.0
August	5,117,556	5,223,448	105,892	2.1	900,110	857,511	(42,599)	(4.7)	6,017,666	6,080,959	63,293	1.1
September	4,738,073	5,141,810	403,737	8.5	776,018	974,677	198,659	25.6	5,514,091	6,116,487	602,396	10.9
October	5,354,274	4,919,238	(435,036)	(8.1)	784,560	846,638	62,078	7.9	6,138,834	5,765,876	(372,958)	(6.1)
November	4,829,983	5,110,055	280,072	5.8	717,515	676,279	(41,236)	(5.7)	5,547,498	5,786,334	238,836	4.3
December	4,522,787	4,845,427	322,640	7.1	1,081,639	732,227	(349,412)	(32.3)	5,604,426	5,577,654	(26,772)	(0.5)
January	4,395,820	4,918,527	522,707	11.9	906,768	892,907	(13,861)	(1.5)	5,302,588	5,811,434	508,846	9.6
February	4,271,383	3,320,815	(950,568)	(22.3)	793,287	699,509	(93,778)	(11.8)	5,064,670	4,020,324	(1,044,346)	(20.6)
March	5,053,014	1,174,058	(3,878,956)	(76.8)	809,363	644,163	(165,200)	(20.4)	5,862,377	1,818,221	(4,044,156)	(69.0)
April	4,854,304	-	-	-	851,526	-	-	-	5,705,830	-	-	-
May	5,456,852	-	-	-	898,192	-	-	-	6,355,044	-	-	-
June	5,585,260	-	-	-	999,302	-	-	-	6,584,562	-	-	-
Q1 Total	14,612,791	15,622,718	1,009,927	6.9	2,537,023	2,642,106	105,083	4.1	17,149,814	18,264,824	1,115,010	6.5
Q2 Total	14,707,044	14,874,720	167,676	1.1	2,583,714	2,255,144	(328,570)	(12.7)	17,290,758	17,129,864	(160,894)	(0.9)
Q3 Total	13,720,217	9,413,400	(4,306,817)	(31.4)	2,509,418	2,236,579	(272,839)	(10.9)	16,229,635	11,649,979	(4,579,656)	(28.2)
Jul-March Total	43,040,052	39,910,838	(3,129,214)	(7.3)	7,630,155	7,133,829	(496,326)	(6.5)	50,670,207	47,044,667	(3,625,540)	(7.2)
Jul-Feb Total	37,987,038	38,736,780	749,742	2.0	6,820,792	6,489,666	(331,126)	(4.9)	44,807,830	45,226,446	418,616	0.9

2.3 I-95 ETL Traffic and Revenue Trends

Monthly toll transactions and toll revenue for all of FY 2019 and FY 2020 through March for the I-95 ETLs are shown in **Table 6** and **Table 7**, respectively. The first quarter of FY 2020 saw growth of 5.5 percent in transactions and 4.9 percent in revenue. The second quarter of FY 2020 saw growth of 4.0 percent in transactions and 3.6 percent in revenue. Similar to the ICC revenue, the third quarter trends are impacted by MDTA’s ongoing conversion to third generation back office and toll infrastructure systems. As part of this conversion, the processing of transactions was intentionally held back for quality checking. Transactions have been released from the quality checking process and are in the process of being billed as of the date the data was obtained by CDM Smith to support this letter report.

Table 6
I-95 ETLs Historical Toll Transactions Trends by Month

Month	Passenger Car Transactions				Commerical Vehicle Transactions				Total Transactions			
	FY 2019	FY 2020	Change		FY 2019	FY 2020	Change		FY 2019	FY 2020	Change	
			Number	%			Number	%			Number	%
July	805,139	871,180	66,041	8.2	44,351	46,613	2,262	5.1	849,490	917,793	68,303	8.0
August	856,340	877,085	20,745	2.4	46,331	47,148	817	1.8	902,671	924,233	21,562	2.4
September	686,224	732,888	46,664	6.8	41,380	42,458	1,078	2.6	727,604	775,346	47,742	6.6
October	796,411	849,326	52,915	6.6	48,113	48,847	734	1.5	844,524	898,173	53,649	6.4
November	821,872	827,573	5,701	0.7	44,710	46,550	1,840	4.1	866,582	874,123	7,541	0.9
December	781,355	820,197	38,842	5.0	44,179	46,661	2,482	5.6	825,534	866,858	41,324	5.0
January	627,492	429,235	(198,257)	(31.6)	42,241	19,699	(22,542)	(53.4)	669,733	448,934	(220,799)	(33.0)
February	608,170	433,451	(174,719)	(28.7)	37,595	21,681	(15,914)	(42.3)	645,765	455,132	(190,633)	(29.5)
March	747,798	407,181	(340,617)	(45.5)	45,033	29,764	(15,269)	(33.9)	792,831	436,945	(355,886)	(44.9)
April	880,602	-	-	-	46,535	-	-	-	927,137	-	-	-
May	879,904	-	-	-	50,637	-	-	-	930,541	-	-	-
June	839,630	-	-	-	46,411	-	-	-	886,041	-	-	-
Q1 Total	2,347,703	2,481,152	133,449	5.7	132,062	136,220	4,158	3.1	2,479,765	2,617,372	137,607	5.5
Q2 Total	2,399,638	2,497,097	97,458	4.1	137,002	142,057	5,056	3.7	2,536,640	2,639,154	102,514	4.0
Q3 Total	1,983,460	1,269,867	(713,593)	(36.0)	124,869	71,144	(53,725)	(43.0)	2,108,329	1,341,011	(767,318)	(36.4)
Jul-March Total	6,730,801	6,248,116	(482,685)	(7.2)	393,933	349,421	(44,512)	(11.3)	7,124,734	6,597,537	(527,197)	(7.4)
Jul-Feb Total	5,983,003	5,840,935	(142,068)	(2.4)	348,900	319,657	(29,243)	(8.4)	6,331,903	6,160,592	(171,311)	(2.7)

**Table 7
I-95 ETLs Historical In-Lane Toll Revenue Trends by Month**

Month	Passenger Car Revenue				Commercial Vehicle Revenue				Total Revenue			
	FY 2019	FY 2020	Change		FY 2019	FY 2020	Change		FY 2019	FY 2020	Change	
			Number	%			Number	%			Number	%
July	\$ 985,213	\$ 1,055,681	70,468	7.2	\$ 192,134	\$ 202,261	10,128	5.3	\$ 1,177,347	\$ 1,257,942	80,595	6.8
August	1,056,764	1,074,603	17,838	1.7	203,895	206,083	2,188	1.1	1,260,659	1,280,685	20,027	1.6
September	844,222	909,564	65,342	7.7	184,677	187,427	2,750	1.5	1,028,899	1,096,991	68,092	6.6
October	985,384	1,048,248	62,863	6.4	215,177	218,919	3,741	1.7	1,200,562	1,267,166	66,604	5.5
November	1,010,928	1,014,476	3,548	0.4	200,180	206,244	6,064	3.0	1,211,108	1,220,720	9,612	0.8
December	961,320	1,006,829	45,509	4.7	196,466	203,754	7,288	3.7	1,157,787	1,210,583	52,796	4.6
January	791,041	549,665	(241,377)	(30.5)	195,694	82,964	(112,730)	(57.6)	986,735	632,629	(354,106)	(35.9)
February	757,858	536,276	(221,581)	(29.2)	172,515	89,016	(83,499)	(48.4)	930,373	625,292	(305,081)	(32.8)
March	925,603	497,305	(428,299)	(46.3)	203,013	125,613	(77,400)	(38.1)	1,128,616	622,918	(505,698)	(44.8)
April	1,030,420	-	-	-	206,300	-	-	-	1,236,720	-	-	-
May	1,082,628	-	-	-	220,589	-	-	-	1,303,217	-	-	-
June	1,097,436	-	-	-	201,519	-	-	-	1,298,954	-	-	-
Q1 Total	2,886,199	3,039,848	153,648	5.3	580,705	595,771	15,066	2.6	3,466,905	3,635,619	168,714	4.9
Q2 Total	2,957,632	3,069,553	111,920	3.8	611,824	628,917	17,092	2.8	3,569,457	3,698,469	129,013	3.6
Q3 Total	2,474,502	1,583,246	(891,257)	(36.0)	571,222	297,593	(273,628)	(47.9)	3,045,724	1,880,839	(1,164,885)	(38.2)
Jul-March Total	8,318,334	7,692,646	(625,688)	(7.5)	1,763,751	1,522,281	(241,470)	(13.7)	10,082,086	9,214,927	(867,159)	(8.6)
Jul-Feb Total	7,392,731	7,195,341	(197,390)	(2.7)	1,560,739	1,396,668	(164,071)	(10.5)	8,953,469	8,592,009	(361,461)	(4.0)

2.4 MDTA Traffic Impacts Due to COVID-19

Using the most recent daily data available, CDM Smith conducted analysis on transactions from each of the MDTA facilities to determine the impacts due to the COVID-19 pandemic. For the Legacy system, which includes several facilities with significant commercial vehicle usage, the analysis was conducted separately for passenger cars and commercial vehicles. The analysis methodology used is described below:

- The most recent raw daily traffic data for each of the MDTA facilities was obtained.
- Data by day for 2020 before the COVID-19 impact (from January to early March) was compared to similar data by day for 2019 to estimate the most recent actual 2019 to 2020 growth rate by facility (and passenger car versus commercial vehicle). Note that the 2019 to 2020 comparison was made by shifting the comparison dates to the same day of week rather than the same exact date. For example, Sunday March 1, 2020 was compared to Sunday March 3, 2019.
- The 2019 to 2020 pre-COVID-19 growth rates were applied to data by day from 2019 from the days corresponding to the 2020 days after the COVID-19 impact. This resulted in an estimate of recent 2020 traffic without the COVID-19 impact.
- An adjustment was made to the estimated 2020 without COVID-19 traffic to account for the Easter weekend occurring at a different time in 2019 than 2020.

- The estimated 2020 traffic was compared with actual 2020 traffic on a seven-day rolling average basis to estimate an impact due to COVID-19. This analysis methodology accounts for seasonal impacts on traffic, which are significant on some MDTA facilities.

The results of the impact analysis are shown in three figures. **Figure 3** shows the results for Legacy system passenger cars, **Figure 4** for Legacy system commercial vehicles, and **Figure 5** for the ICC and I-95 ETLs. Total Legacy system passenger car impacts are estimated to have bottomed out in mid-April at about -63 percent, meaning that about 37 percent of normal passenger car traffic was retained on the system. The Kennedy Highway has experienced the most significant COVID-19 passenger car impacts at about -80 percent and the Harbor Tunnel has experienced the least COVID-19 passenger car impacts at about -50 percent. It should be noted that ongoing construction on the Harbor Tunnel may be impacting the trend analysis for the Harbor Tunnel, and the parallel Fort McHenry Tunnel and Key Bridge. The construction was accounted for in the analysis methodology to a certain extent, but week-to-week variations in construction-related maintenance of traffic may be impacting the trends beyond what could be accounted for in this analysis methodology. Since the most severe impact in mid-April, a gradual recovery can be observed in passenger car traffic.

Considering Legacy system commercial vehicles, impacts have been much less severe than passenger cars which also has been observed on other toll facilities around the country. Total Legacy system commercial vehicle impacts are estimated to have bottomed out in mid-April at about -23 percent, meaning that about 77 percent of normal commercial vehicle traffic was retained on the system. The Nice Bridge and Hatem Bridge have experienced the most significant COVID-19 commercial vehicle impacts at about -50 percent and the Fort McHenry Tunnel has experienced the least COVID-19 commercial vehicle impacts at about -15 percent. Since the most severe impact in mid-April, a slow but measurable recovery can be observed in commercial vehicle traffic. It appears that ongoing construction on the Harbor Tunnel is impacting the trend analysis for the Harbor Tunnel, and the parallel Fort McHenry Tunnel and Key Bridge to a greater extent for commercial vehicles as compared to passenger cars. In general, more variability is also observed in the trend analysis for commercial vehicles compared to passenger cars which is due to relatively small commercial vehicle volumes on some facilities, the construction impacts mentioned previously, and potentially more variability in responses to shipping relating to quickly changing economic conditions.

The ICC and I-95 ETLs have primarily passenger car traffic. ICC impacts are estimated to have bottomed out at about -65 percent of normal traffic, which is slightly more severe than the Legacy passenger car systemwide average. I-95 ETL impacts bottomed out at -85 percent, which is the most severe impact of any facility. Relatively more severe impacts have also been observed on express lane and priced managed lane-type facilities in other parts of the country.

Figure 3
Legacy System Passenger Car Seven Day Rolling Average COVID-19 Estimated Impacts

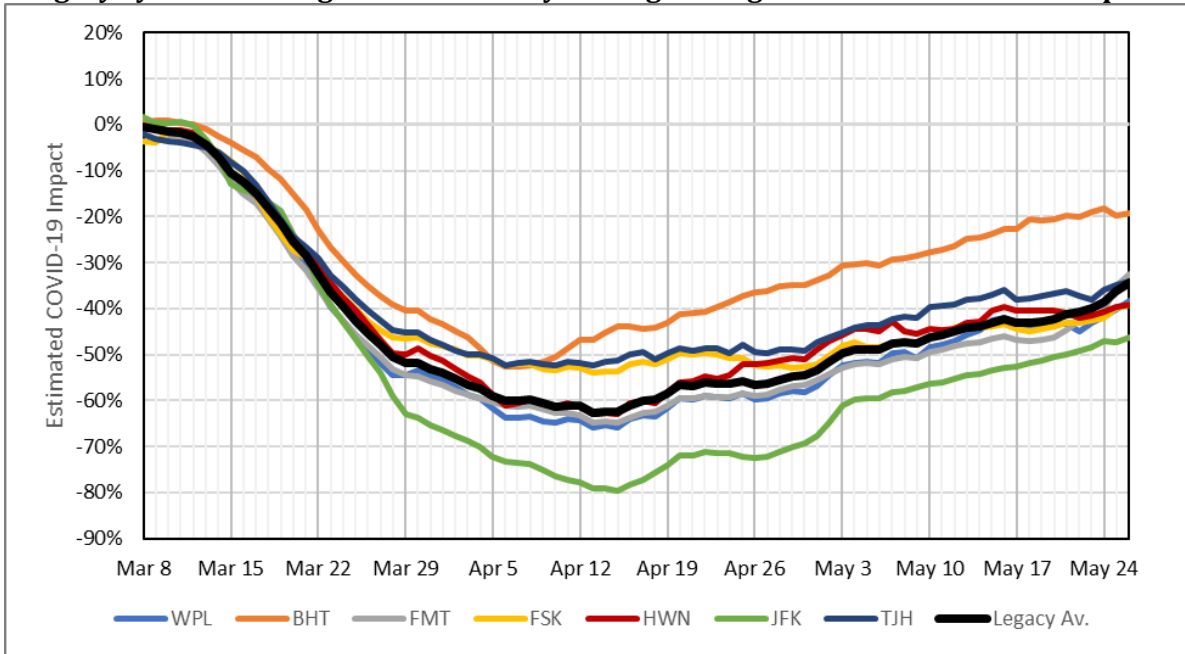


Figure 4
Legacy System Commercial Vehicle Seven Day Rolling Average COVID-19 Estimated Impacts

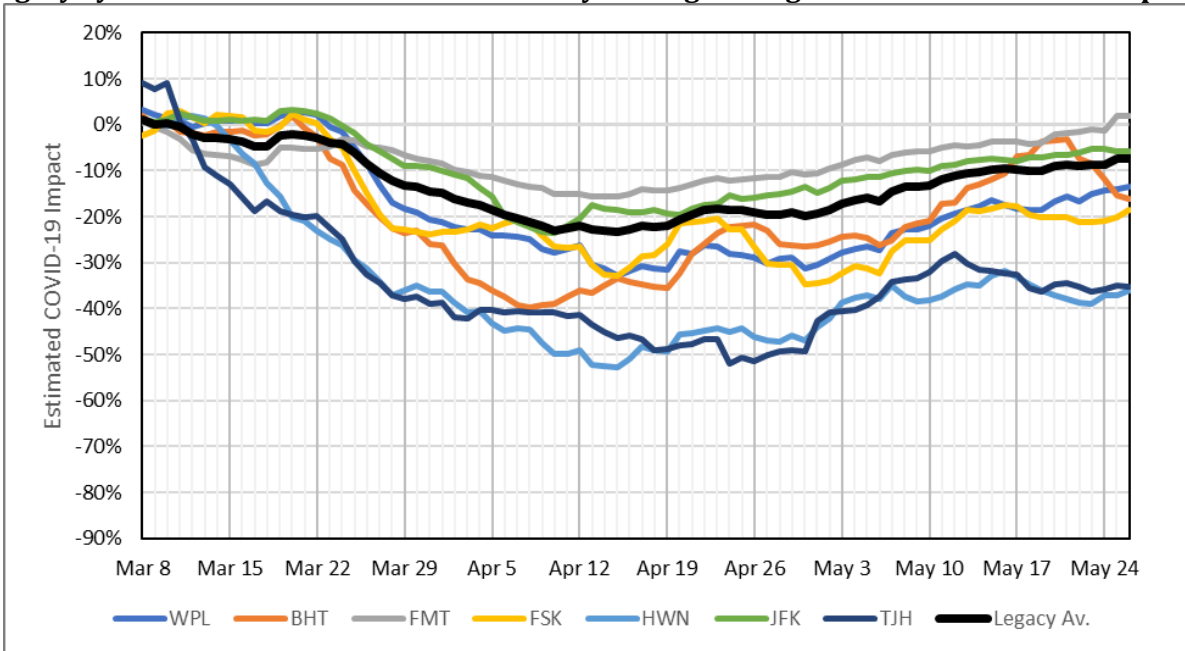
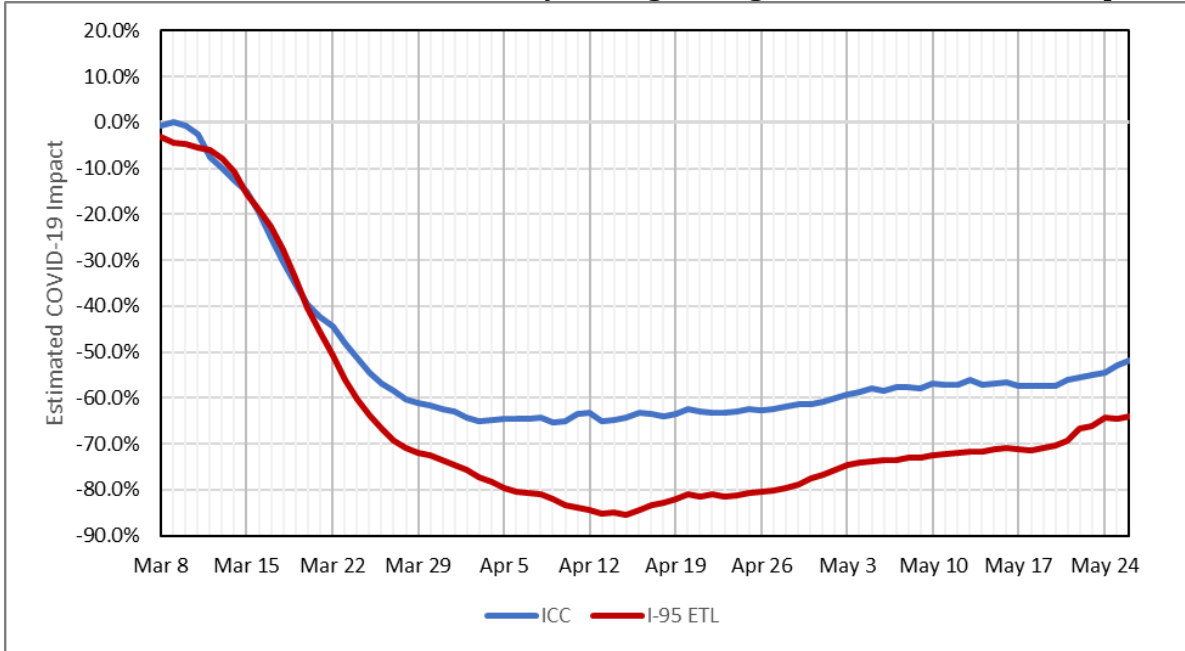


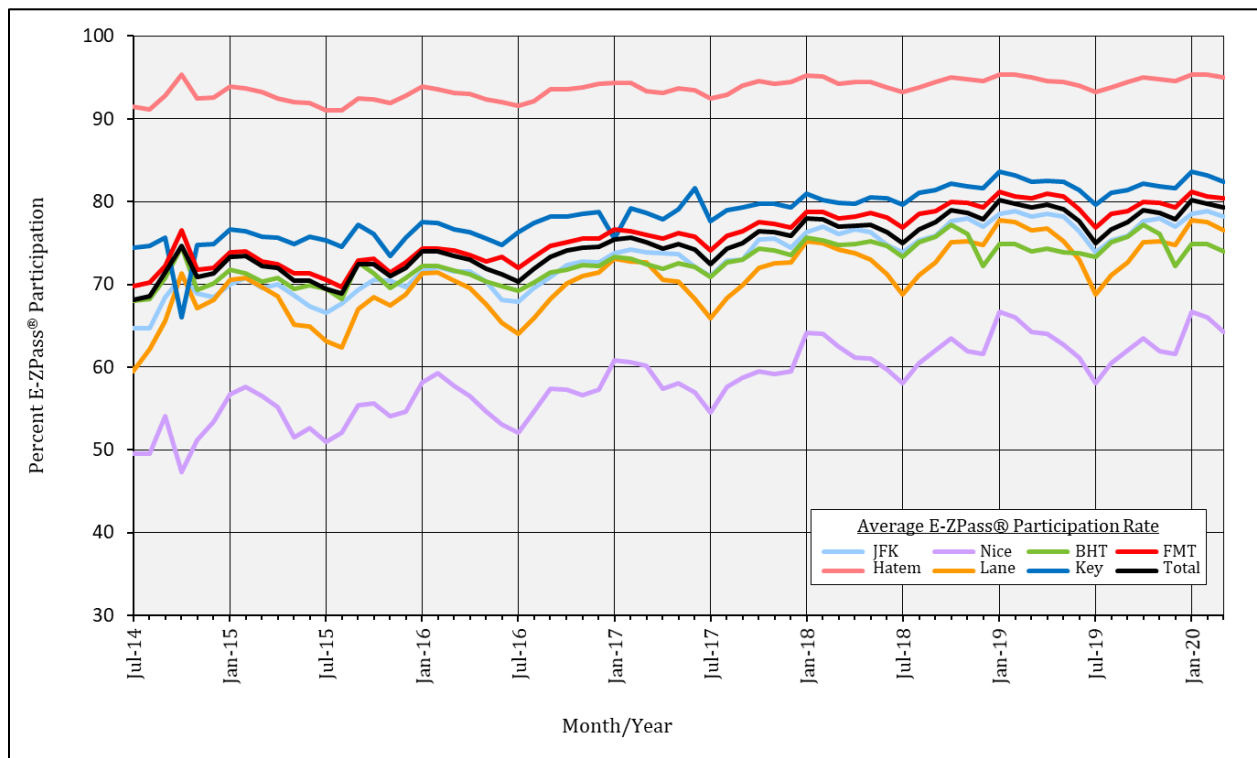
Figure 5
ICC and I-95 ETL Total Traffic Seven Day Rolling Average COVID-19 Estimated Impacts



2.5 E-ZPass Penetration

Figure 6 shows E-ZPass payment shares by facility on the Legacy system through March 2020. This trend is important to consider due to potential changes in E-ZPass payment shares resulting from MDTA’s conversion to temporary cashless tolling on the Legacy system. A change in the trend has not been observed thus far in the March data. More recent data relating to trends in E-ZPass accounts being opened was also reviewed by CDM Smith which did not show increases in E-ZPass accounts being opened. For these reasons, no change to the future E-ZPass payment shares previously assumed in the October 2019 forecast was made to the forecasts in this letter report.

Figure 6
E-ZPass Share by Legacy System Facility



3. Recent Forecasting Performance

This section compares the most recent monthly actual revenue data with CDM Smith’s most recent forecasts for the total Legacy system and the ICC. As explained previously, CDM Smith has not yet conducted I-95 ETL forecasts so no comparison is provided for this facility.

It should be emphasized that considerable variations may exist between actual and forecast values on a monthly basis. Weather events, accidents, and other variables can impact day-to-day and

month-to-month traffic in ways that would be difficult to forecast with precision. Especially related to the ICC, the timing of video revenue collections, which are accounted on a cash basis, can impact forecasting trends. As a result of these variations, actual traffic and revenue can be higher or lower than estimates, sometimes in the extreme, on a short-term basis. While forecasts attempt to account for some of these factors, (when they are known and can be quantified), the forecasts are much more meaningful when considered from a longer-term perspective, as many of these month-to-month variations tend to offset themselves.

Table 8 presents the Legacy system revenue forecasting performance. Actual total revenue was 2.1 percent above forecast in the first quarter, and 1.2 percent below forecast in the second quarter with passenger car and commercial vehicle revenue comparisons similar to the total. Total January and February had actual passenger car revenue about four percent higher than forecast and commercial vehicle revenue about even with forecast, resulting in total actual revenue about 2.3 percent higher than forecast. Previous to the COVID-19 impacts in March, total revenue through February was tracking close to forecast at about 0.9 percent higher for total revenue, 1.1 percent higher for passenger cars, and 0.5 percent higher for commercial vehicles.

**Table 8
Comparison of Legacy System Forecasted and Actual Toll Revenue**

Month	FY 2020 Toll Revenue											
	Passenger Cars				Commercial Vehicles				Total Vehicles			
	Forecast	Actual	Difference		Forecast	Actual	Difference		Forecast	Actual	Difference	
		Number	%			Number	%			Number	%	
July	\$34,433,466	\$34,950,054	516,589	1.5	\$19,393,245	\$19,512,463	119,218	0.6	\$53,826,711	\$54,462,517	635,807	1.2
August	36,134,173	36,431,334	297,160	0.8	19,358,174	19,362,323	4,149	0.0	55,492,348	55,793,657	301,309	0.5
September	29,211,026	30,482,333	1,271,307	4.4	17,250,273	18,235,807	985,534	5.7	46,461,299	48,718,139	2,256,841	4.9
October	30,265,114	29,819,247	(445,867)	(1.5)	19,852,520	19,516,265	(336,255)	(1.7)	50,117,635	49,335,513	(782,122)	(1.6)
November	30,421,141	29,755,736	(665,405)	(2.2)	17,954,508	17,560,259	(394,249)	(2.2)	48,375,649	47,315,995	(1,059,654)	(2.2)
December	30,991,753	30,719,541	(272,213)	(0.9)	17,485,828	17,773,440	287,612	1.6	48,477,581	48,492,980	15,400	0.0
January	25,511,389	26,741,990	1,230,601	4.8	18,294,774	18,239,031	(55,743)	(0.3)	43,806,163	44,981,021	1,174,858	2.7
February	24,714,518	25,519,111	804,593	3.3	16,530,020	16,578,251	48,231	0.3	41,244,538	42,097,362	852,824	2.1
March	29,685,672	21,575,204	(8,110,468)	(27.3)	18,635,150	19,959,659	1,324,508	7.1	48,320,822	41,534,863	(6,785,959)	(14.0)
April	32,265,769				19,535,130				51,800,899			
May	33,525,403				20,214,299				53,739,701			
June	33,811,532				19,237,063				53,048,595			
Q1 Total	99,778,665	101,863,721	2,085,056	2.1	56,001,692	57,110,593	1,108,901	2.0	155,780,357	158,974,314	3,193,957	2.1
Q2 Total	91,678,009	90,294,524	(1,383,485)	(1.5)	55,292,856	54,849,964	(442,892)	(0.8)	146,970,865	145,144,488	(1,826,377)	(1.2)
Q3 Total	79,911,578	73,836,304	(6,075,274)	(7.6)	53,459,944	54,776,941	1,316,997	2.5	133,371,523	128,613,246	(4,758,277)	(3.6)
Year-To-Date	271,368,252	265,994,550	(5,373,703)	(2.0)	164,754,493	166,737,499	1,983,006	1.2	436,122,745	432,732,048	(3,390,697)	(0.8)
Jul-Feb Total	241,682,581	244,419,346	2,736,765	1.1	146,119,343	146,777,840	658,497	0.5	387,801,923	391,197,186	3,395,262	0.9

Table 9 presents the ICC system revenue forecasting performance. Actual total revenue was 3.1 percent above forecast in the first quarter, and 2.8 percent below forecast in the second quarter. Actual revenue data in February and March has also been impacted by the ongoing third generation toll system transition described previously in **Section 2.2**. Despite these abnormal trends in the actual data, the total revenue forecast through February was 0.9 percent above actuals.

**Table 9
Comparison of ICC Forecasted and Actual Toll Revenue**

FY 2018	FY 2020 Collected Toll Revenue											
	ETC				Video				Total			
	Forecast (1)	Actual	Difference		Forecast (1)	Actual	Difference		Forecast (1)	Actual	Difference	
			Number	%			Number	%			Number	%
July	\$ 5.169	\$ 5.257	\$ 0.088	1.7	\$ 0.532	\$ 0.810	\$ 0.278	52.3	\$ 5.701	6.067	\$ 0.367	6.4
August	5.215	5.223	0.009	0.2	0.858	0.858	0.000	0.0	6.072	6.081	0.009	0.1
September	4.967	5.142	0.175	3.5	0.975	0.975	0.000	0.0	5.942	6.116	0.175	2.9
October	5.525	4.919	(0.606)	(11.0)	0.805	0.847	0.042	5.2	6.330	5.766	(0.564)	(8.9)
November	4.987	5.110	0.123	2.5	0.726	0.676	(0.050)	(6.9)	5.713	5.786	0.073	1.3
December	4.858	4.845	(0.013)	(0.3)	0.713	0.732	0.019	2.6	5.572	5.578	0.006	0.1
January	4.559	4.919	0.359	7.9	0.623	0.893	0.270	43.4	5.182	5.811	0.629	12.1
February	4.466	3.321	(1.145)	(25.6)	0.668	0.700	0.032	4.8	5.134	4.020	(1.113)	(21.7)
March	5.230	1.174	(4.056)	(77.6)	0.727	0.644	(0.083)	(11.4)	5.957	1.818	(4.139)	(69.5)
April	5.357	-	-	-	0.747	-	-	-	6.104	-	-	-
May	5.359	-	-	-	0.745	-	-	-	6.104	-	-	-
June	5.446	-	-	-	0.812	-	-	-	6.258	-	-	-
Q1 Total	15.351	15.623	0.272	1.8	2.364	2.642	0.278	11.8	17.714	18.265	0.550	3.1
Q2 Total	15.371	14.875	(0.496)	(3.2)	2.244	2.255	0.011	0.5	17.615	17.130	(0.485)	(2.8)
Q3 Total	14.255	9.413	(4.842)	(34.0)	2.018	2.237	0.219	10.8	16.273	11.650	(4.623)	(28.4)
Jul-March Total	44.977	39.911	(5.066)	(11.3)	6.626	7.134	0.508	7.7	51.603	47.045	(4.558)	(8.8)
Jul-Feb Total	39.747	38.737	(1.010)	(2.5)	5.899	6.490	0.591	10.0	45.645	45.226	(0.419)	(0.9)

(1) Estimate from "FY2020 FINAL T&R Forecast Update ICC " report.

4. Explanatory Factors

Several factors of relevance to the traffic and revenue forecast updates in this letter report are included below. These are the COVID-19 Pandemic, fuel prices, unemployment, gross domestic product, and port activity.

4.1 COVID-19 Pandemic

The COVID-19 virus has caused a global pandemic posing systemic economic and transport risks until herd immunity, accurate antibody testing, and/or vaccination occurs. Individual and collective behaviors have changed, especially on how we physically interact and travel. Beginning in March, COVID-19 triggered withdrawals from most physical interactions to stem contagion, with tremendous impacts to economies and transportation systems. Governments have closed borders, restricted migration, temporarily closed nonessential industries, and ordered quarantines, stay-at-home, and other restrictions. Businesses furloughed or laid-off 36 million employees (as of mid-May) in consecutively record-breaking multimillion weekly losses. Telecommuting has been required in many industries. Individuals self-isolated, retrenching from "normal" activities, including sports, social and family gatherings, vacations, conferences, and discretionary spending.

In the short term, the pandemic behavioral responses had an immediate impact on the economy and transportation. Considering the economy, April's initial unemployment rate is 14.7%, with a footnote suggesting reality is closer to 20%. First quarter GDP contracted 4.8% (annualized) and the second quarter is expected to be a record-shattering annualized decline of at least 20%. Such severe negative impacts will persist in the short-term. Even after the virus is contained many mid-term economic ripple-effects and longer-term structural changes will persist. The short term COVID-19 impacts will accelerate preexisting early-stage trends and induce new changes.

In the mid-term, supply chain industries will be indirectly impacted (for example, professional, financial, and real estate) by the directly shuttered industries (for example, leisure, hospitality, education, and retail). Pessimistic consumer confidence coupled with enormous employment losses may severely contract spending. The precipitous decline and magnitude will strain debts, likely leading to defaults and bankruptcies that will hinder the recovery. Such deep-cut economic and financial impacts may alter trade patterns, supply chains, and demand. International trade will likely constrict due to depressed demand, closed borders, and accelerated reshoring and supply-chain redundancy trends. As consumer spending languishes, the commodity bundle will focus on essentials (for example, groceries, medical emergencies, and necessary home improvements), and will be more often purchased via e-commerce, if possible.

In the long term, some impacts and shifts will be institutionalized. Some industries may not fully recover or may structurally change (for example, hospitals to telehealth and college campuses to e-learning). Some population trend changes and impacts may occur including deferral of planned births, lower immigration, and a shift of some urban residents to rural locales. If e-commerce and telecommuting increase even moderately, shifts may arise in commercial real estate, warehousing, distribution, and land use patterns.

These potential social behavior changes in the short, mid, and long term would impact travel demand and patterns. Most of the immediately observed travel demand contraction should rebound over years, once the systemic threat is removed; but some baseline travel demand may disappear or shift. Other new changes in travel demand may also emerge. Telecommuting trends will accelerate from pre-COVID-19 levels in the mid and long-term. E-commerce will likely accelerate the shift of trips from passenger to delivery vehicles and change overall travel patterns as a result. One potential change being actively discussed and studied is related to multi-passenger travel modes including cruises, airlines, buses, and passenger rail. It is likely that any mode with strangers congregating in enclosed spaces with shared touchpoints will likely have lower demand at least in the short-term and perhaps longer due to health concerns. Many factors are actively in play that could change these dynamics of overall travel demand to the positive or negative on the long term.

Table 10 provides a sample of potential factors of relevance to the MDTA system that may cause impacts to traffic due to the COVID-19 pandemic that are currently being discussed in the industry. The factors are grouped into positive, negative, and uncertain travel impacts. It should be noted that discussion of outcomes remains uncertain even for factors in the positive and negative categories related to the timing and magnitude of impacts. Additionally, the evolving pandemic situation, for example related to vaccine development, could change these factors.

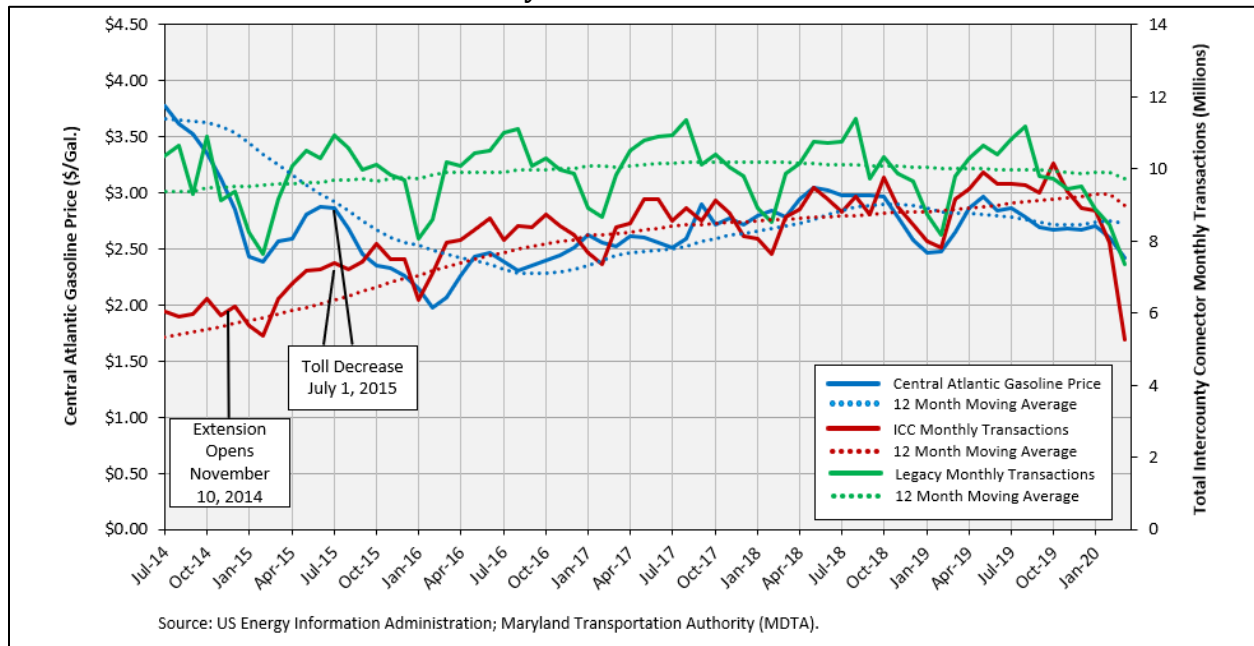
Table 10
Sample of Potential COVID-19 Impact Factors Related to MDTA Traffic

Positive Traffic Impacts		Negative Traffic Impacts		Uncertain Traffic Impacts	
Passenger Cars	Commercial Vehicles	Passenger Cars	Commercial Vehicles	Passenger Cars	Commercial Vehicles
<ul style="list-style-type: none"> • Health concerns with transit causing shifts to vehicular travel in urban areas • Lower fuel prices 	<ul style="list-style-type: none"> • Accelerated trends in e-commerce growth 	<ul style="list-style-type: none"> • Reduced travel due to stay at home orders • Employment losses • Telecommuting • Ongoing avoidance of less-critical travel due to health concerns • Accelerated trends in e-commerce growth • Lower population growth due to lower immigration 	<ul style="list-style-type: none"> • Less shipping activity and deliveries related to declines in economic activity 	<ul style="list-style-type: none"> • Potential shift to relatively more local vacation and leisure activity • Potential shifts in residential and job location patterns 	<ul style="list-style-type: none"> • Potential supply chain changes, for example related to international trade

4.2 Gasoline Prices

Figure 7 presents historical gasoline prices for the Central Atlantic Region from January 2013 through March 2020. For the third quarter of FY 2020, Central Atlantic fuel prices averaged \$2.58 per gallon, an increase of 5 cents over third quarter FY 2019 which averaged \$2.53 per gallon. Considering overall trends in recent years, gasoline prices averaged \$2.97 per gallon in October 2018 before dropping to \$2.46 per gallon in January 2019, which is a significant decrease in a three-month period. However, at the end of February 2019, average Central Atlantic gasoline prices began to rise and continued to rise, reaching \$2.97 per gallon in May. The fuel prices started declining again in August 2019, and most recently have fallen to \$2.42 per gallon in March 2020.

Figure 7
Historical Monthly Central Atlantic Gasoline Prices



For the April to September 2020 summer driving season, EIA forecasts U.S. regular gasoline retail prices will average \$1.58 per gallon as of their short-term energy outlook released April 7, 2020. This is a decrease of \$1.14 from an average of \$2.72/gal last summer. The lower forecasted gasoline prices reflect lower crude oil prices and significantly lower gasoline demand driven by COVID-19 travel restrictions and mandates. Lower gasoline prices generally have a positive impact on passenger car travel. However, other negative impacts on passenger car travel due to the COVID-19 pandemic will outweigh any positive benefit due to lower gasoline prices in the short term.

4.3 Unemployment

Unemployment and other labor market indicators impact traffic growth trends, with higher unemployment generally leading to less travel especially for passenger cars. As an example, **Figure 8** provides a comparison of the Washington D.C. MSA unemployment rate with ICC transactions from July 2014 through March 2020. Based on available data, the unemployment rate for the Washington D.C. MSA generally exhibited a steady decline with some observable seasonal variations (slight increases in January and February, and June and July). However, unemployment in March shows some increases and the fourth quarter of 2020 is expected to show drastically higher unemployment due to COVID-19.

Figure 8
Washington D.C. MSA Unemployment Rate

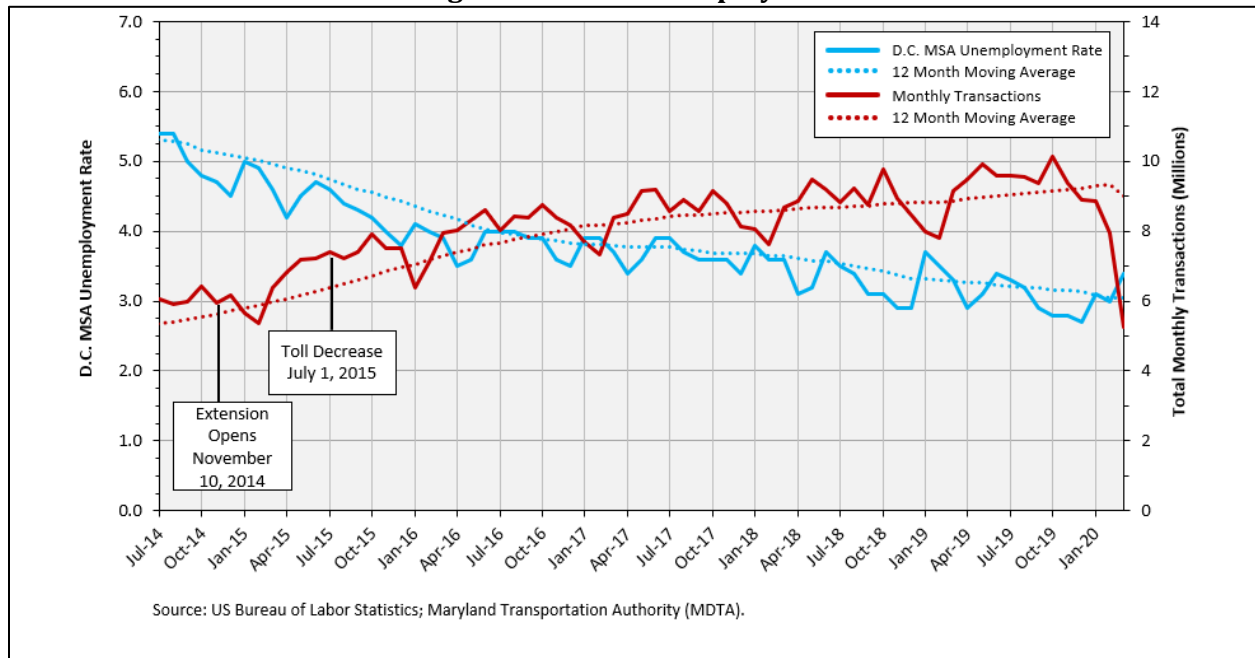


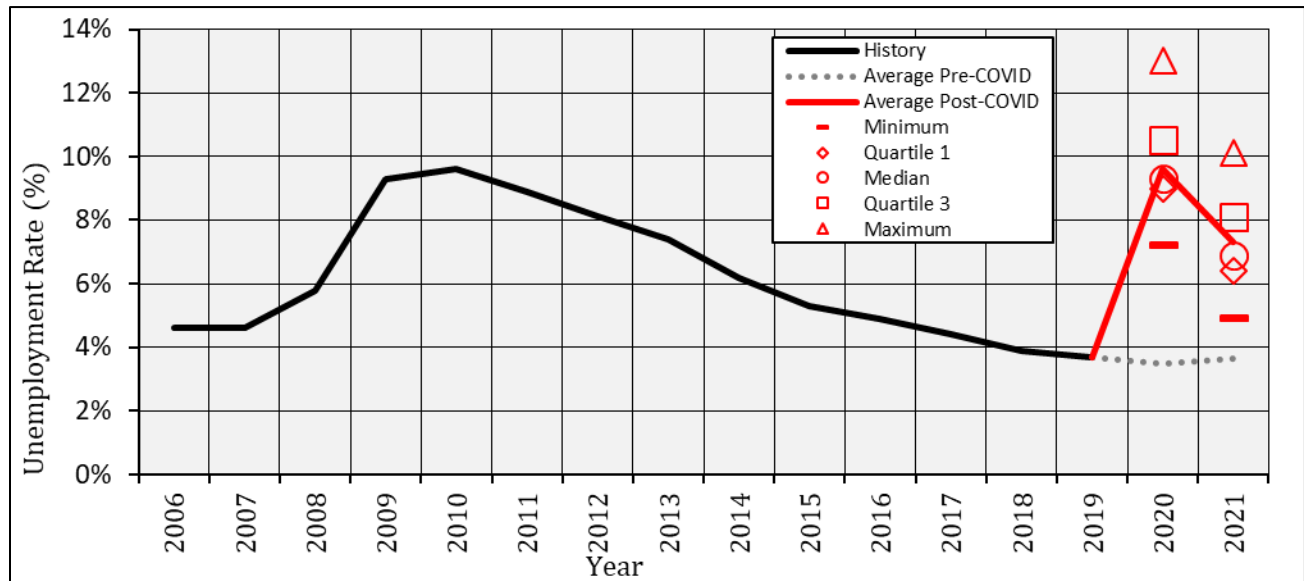
Table 11 shows a summary of national unemployment rate forecasts for calendar years 2020 and 2021. As shown, the unemployment rate is expected to significantly increase in 2020 and recover somewhat in 2021 but remain well above pre-COVID-19 levels. **Figure 9** shows a summary of the forecasts from **Table 11** graphed with the historical national unemployment rate going back to before the Great Recession. The average of the forecasts shows 2020 unemployment around the Great Recession levels from 2010, with differences among the different forecasters shown in the minimum, maximum, and quartile markings. The average of the forecasts for 2021 show a recovery to about 2013 levels, again with variation among different forecasters.

**Table 11
National Unemployment Rate Forecasts**

Source	Release Date	COVID-19	2020	2021
Federal Reserve Bank: Federal Open Market Committee (FOMC)	December 11, 2019	pre	3.50%	3.60%
Office of Management and Budget (OMB)	February 10, 2020	pre	3.50%	3.60%
Organization for Economic Cooperation and Development (OECD)	March 2, 2020	pre	3.50%	3.70%
Energy Information Administration (EIA): Short-Term Energy Outlook	April 7, 2020	post	7.20%	6.40%
Bank of Montreal (BMO) Capital Markets Economics	May 4, 2020	post	7.80%	6.00%
Royal Bank of Canada (RBC) Economics	April 9, 2020	post	8.40%	6.00%
National Association for Business Economics (NABE) ⁽¹⁾	April 10, 2020	post	8.95%	7.00%
PNC Financial Services Group	April 2020	post	9.00%	6.60%
Moody's Analytics	May 11, 2020	post	9.04%	9.02%
TD Economics	April 20, 2020	post	9.20%	4.90%
ScotiaBank Global Economics	April 17, 2020	post	9.30%	8.00%
Wells Fargo Securities Economics Group	April 8, 2020	post	9.70%	6.80%
International Monetary Fund (IMF): World Economic Outlook	April 6, 2020	post	10.40%	9.10%
University of Michigan: Research Seminar in Quantitative Economics (RSQE)	May 18, 2020	post	10.50%	7.80%
Federal Reserve Bank of Philadelphia: Survey of Professional Forecasters ⁽¹⁾	May 15, 2020	post	10.80%	8.10%
Congressional Budget Office (CBO)	April 24, 2020	post	11.40%	10.10%
National Association of Realtors	April 29, 2020	post	13.00%	6.50%
Average pre-COVID		pre	3.50%	3.63%
Average post-COVID		post	9.62%	7.31%

(1) Average from a Survey of Professional Forecasters

**Figure 9
Historical and Summary of National Unemployment Rate Forecasts**



4.4 Gross Domestic Product

Table 12 shows a summary of national GDP change forecasts for calendar years 2020 and 2021. As shown, GDP is expected to decline in 2020 and recover somewhat (form a depressed base) in 2021 but remain well below pre-COVID-19 levels. **Figure 10** shows a summary of the forecasts from **Table 12** graphed with the historical national GDP in constant 2019\$ going back to before the Great Recession. The average of the 2020 forecasts shows a much sharper decline in GDP than experienced in the Great Recession, with differences among the different forecasters shown in the minimum, maximum, and quartile markings. The average of the forecasts for 2021 show a recovery to GDP levels between 2018 and 2019, again with variation among different forecasters.

4.5 Port of Baltimore Cargo Trends

A significant factor correlated to growth in commercial vehicle transactions on the Legacy facilities, particularly at the Central Region facilities, is cargo activity at the Port of Baltimore. **Figure 11** provides a comparison of cargo activity at the port of Baltimore to Legacy commercial vehicle toll transactions from January 2013 through February 2020. The Port of Baltimore exhibited declining growth in the second half of calendar year 2018, with the 12-month moving average showing a downward trend beginning April 2018. For this same period, commercial vehicle Legacy facility transactions indicated a slowdown in commercial vehicle growth compared to prior years. Growth returned to both trends beginning in mid-FY 2019. Compared to the second quarter of FY 2019, in the second quarter of FY 2020 cargo activity increased slightly and legacy commercial vehicles declined slightly. In January and February of 2020, both the cargo trends and the Legacy commercial vehicle transactions showed declines. It is anticipated that cargo trends will decline in the upcoming months due to COVID-19.

Table 12
National Changes in Real GDP Forecasts

Source	Release Date	COVID-19	2020	2021
Office of Management and Budget (OMB)	February 10, 2020	pre	3.10%	3.00%
Woods & Poole Economics, Inc.	May 23, 2019	pre	2.11%	1.91%
Federal Reserve Bank: Federal Open Market Committee (FOMC)	December 11, 2019	pre	2.00%	1.90%
Organization for Economic Cooperation and Development (OECD)	March 2, 2020	post	1.90%	2.10%
World Bank	January 2020	post	1.80%	1.70%
Energy Information Administration (EIA): Short-Term Energy Outlook	April 7, 2020	post	-2.00%	3.70%
Economist Intelligence Unit (EIU): Global Forecasting Service	April 9, 2020	post	-2.90%	1.90%
Wells Fargo Securities Economics Group	April 8, 2020	post	-3.00%	1.70%
University of Michigan: Research Seminar in Quantitative Economics	May 18, 2020	post	-4.00%	3.30%
National Association of Realtors	April 29, 2020	post	-4.50%	3.00%
National Association for Business Economics (NABE) ¹	April 10, 2020	post	-4.83%	2.29%
PNC Financial Services Group	April 2020	post	-4.90%	4.80%
Bank of Montreal (BMO) Capital Markets Economics	May 4, 2020	post	-5.00%	5.00%
Royal Bank of Canada (RBC) Economics	April 9, 2020	post	-5.50%	5.10%
Federal Reserve Bank of Philadelphia: Survey of Professional Forecasters ¹	May 15, 2020	post	-5.60%	3.10%
Congressional Budget Office (CBO)	April 24, 2020	post	-5.60%	2.80%
Moody's Analytics	May 11, 2020	post	-5.71%	1.54%
International Monetary Fund (IMF): World Economic Outlook	April 6, 2020	post	-5.90%	4.70%
TD Economics	April 20, 2020	post	-6.20%	6.60%
ScotiaBank Global Economics	April 17, 2020	post	-6.30%	7.00%
Conference Board ²	April 9, 2020	post	-6.50%	
Average pre-COVID		pre	2.18%	2.12%
Average post-COVID		post	-4.90%	3.77%

(1) Average from a Survey of Professional Forecasters

(2) Only 2020 projections were included in this release

Figure 10
Historical and Summary of National GDP Forecasts (in constant 2019\$)

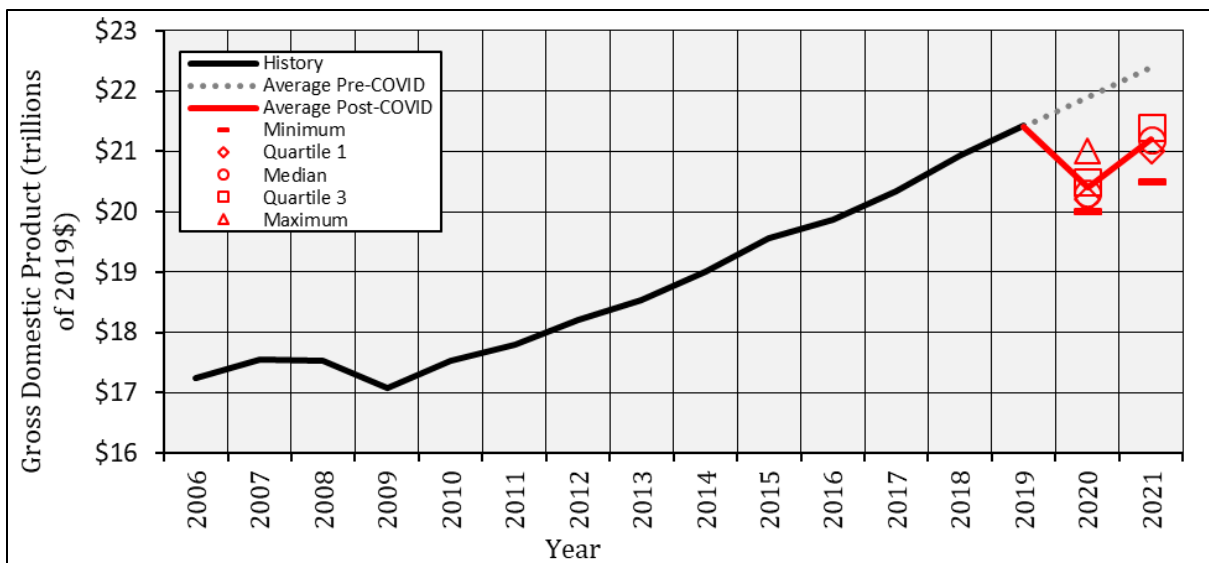
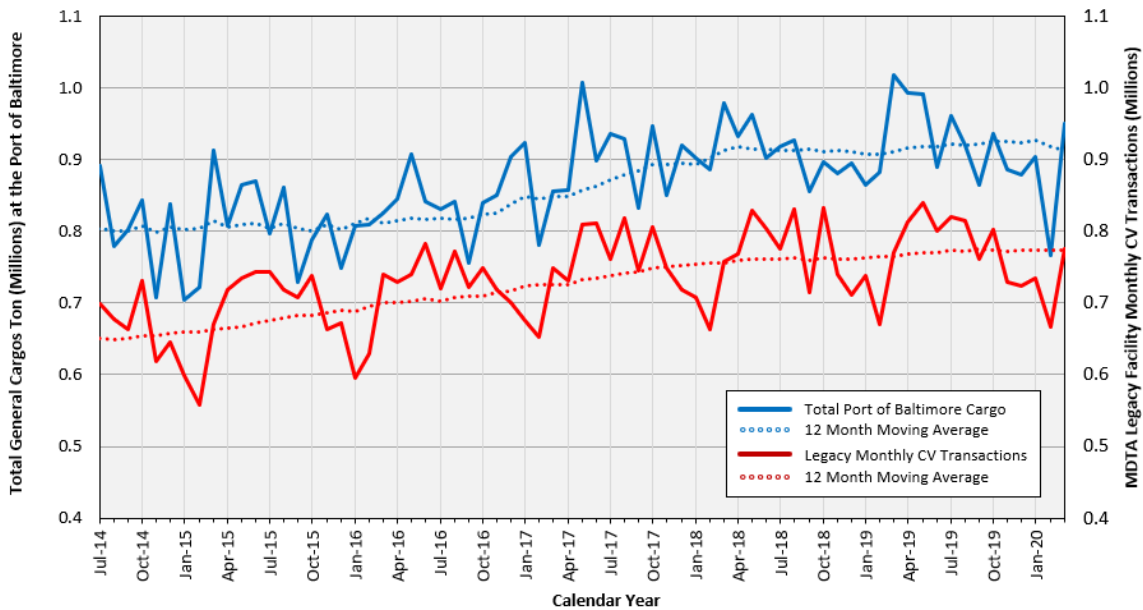


Figure 11
Monthly Port of Baltimore Total General Cargo in Tons



Source: Maryland Department of Transportation Port Administration.

5. Traffic and Revenue Forecast

5.1 Assumptions

As described previously, the intent of this letter report is to review and revise, as warranted, the forecasts developed for the October 2019 reports. Adjustments to the forecasts were made based on the most recent available actual traffic and toll revenue experience since the October 2019 forecast reports, including the most recent COVID-19 impacts on the MDTA system. Most of the underlying assumptions described in the October 2019 reports remain in place for this letter report, with the exceptions as listed below:

- The estimated negative impacts on traffic demand and corresponding recovery due to the COVID-19 pandemic.
- The impacts of temporary toll collection changes made by MDTA in response to the pandemic as previously described in this letter report. For the purposes of this forecast it is assumed that these temporary changes, including temporary cashless tolling, hold on mailing NOTDs (video invoices), and hold on assessing civil penalties, will end on June 30, 2020.
- Actual data were updated to include the most recently available traffic and toll revenue data.

- Cashless toll conversion of the Nice Bridge was assumed in FY 2023. This facility was not assumed to convert to cashless tolling in the October 2019 forecast update.
- The earlier than anticipated completion of construction on the westbound span of the Bay Bridge.
- Other changes to the implementation date of the new Pay-by-Plate and pre-pay NOTD programs and changes to the civil penalties as described previously in this letter report.

Impacts due to the COVID-19 pandemic were incorporated into the forecast using a series of negative monthly impact factors by facility and by passenger car versus commercial vehicle for the Legacy system. The factors were (in general) gradually tapered from the most recently observed impacts as shown previously in **Section 2.4** to become less negative over time. Considering the next 12 months, the factors were tapered at slower rates during late fall and winter months to account for risks related to a second wave of COVID-19 infections. A return to previous outer year growth rates was assumed beginning in FY 2023 or FY 2024, depending on the facility and class.

5.2 Toll Traffic and Revenue Forecast

Table 13 presents actual transactions and toll revenue for the Legacy system for FY 2019 and forecasted transactions and toll revenue for FY 2020 through FY 2029. **Table 14** provides the historical and forecasted total transactions and toll revenue for the Legacy system by facility.

Table 13
Total Legacy System Forecasted Transactions and Toll Revenue

Fiscal Year	Transactions			Toll Revenue		
	PC ⁽¹⁾	CV ⁽²⁾	Total	PC ⁽¹⁾	CV ⁽²⁾	Total
2019	109.9	9.2	119.1	\$ 378.1	\$ 223.0	\$ 601.1
2020	91.2	8.7	100.0	305.0	211.7	516.7
2021	90.5	8.5	98.9	308.6	203.9	512.5
2022	107.6	8.8	116.3	368.2	209.0	577.1
2023	108.0	9.0	117.0	369.5	215.0	584.6
2024	109.0	9.2	118.3	374.2	220.1	594.3
2025	109.4	9.3	118.7	375.5	220.5	596.0
2026	110.5	9.3	119.8	377.8	222.6	600.5
2027	111.3	9.4	120.6	380.1	223.7	603.8
2028	112.2	9.4	121.7	383.5	225.3	608.8
2029	112.6	9.4	122.1	384.9	225.7	610.6

⁽¹⁾ Passenger cars
⁽²⁾ Commercial Vehicles
 - Represents actual data.

Table 14
Legacy System Historical and Forecasted Transactions and Toll Revenue by Facility

Fiscal Year	Transactions (Millions)								Percent Growth
	JFK	Hatem	BHT	FMT	FSK	Bay	Nice	Total ⁽¹⁾	
2014 ⁽³⁾	14.38	4.95	24.90	41.88	10.42	12.76	3.24	112.53	(1.0)
2015	14.69	5.25	27.10	41.85	10.63	12.86	3.31	115.67	2.8
2016 ^(2,4)	15.16	5.09	28.29	42.64	11.20	13.27	3.38	119.03	2.9
2017	15.55	5.10	27.61	45.38	11.31	13.59	3.42	121.96	2.5
2018	15.45	5.09	28.01	44.72	11.43	13.52	3.33	121.54	(0.3)
2019	15.20	5.09	20.84	48.25	12.83	13.59	3.31	119.11	(2.0)
2020 ⁽²⁾	12.38	4.52	14.22	42.79	11.89	11.41	2.76	99.96	(16.1)
2021	12.04	4.18	15.74	42.85	10.72	10.65	2.75	98.93	(1.0)
2022	14.37	4.82	29.40	42.96	9.76	11.88	3.15	116.34	17.6
2023	14.59	4.87	30.72	43.49	8.61	11.94	2.77	116.98	0.5
2024 ⁽²⁾	14.78	4.91	32.96	43.93	6.49	12.41	2.80	118.29	1.1
2025	14.87	4.92	33.06	44.07	6.52	12.41	2.82	118.67	0.3
2026	15.00	4.95	30.76	44.32	9.53	12.45	2.84	119.84	1.0
2027	15.12	4.97	30.46	44.58	10.14	12.48	2.86	120.61	0.6
2028 ⁽²⁾	15.30	5.01	30.73	44.97	10.23	12.55	2.89	121.66	0.9
2029	15.39	5.02	30.83	45.10	10.26	12.55	2.90	122.05	0.3

Fiscal Year	In-Lane Toll Revenue (\$ Millions)								Percent Growth
	JFK	Hatem	BHT	FMT	FSK	Bay	Nice	Total ⁽¹⁾	
2014 ⁽³⁾	162.80	10.17	77.56	183.13	40.26	79.76	20.40	574.08	39.5
2015	166.54	11.19	85.54	185.78	42.97	81.16	21.41	594.58	3.6
2016 ^(2,4)	171.18	11.80	89.87	191.29	43.28	52.79	21.20	581.41	(2.2)
2017	175.81	12.09	89.46	204.18	44.94	53.96	21.47	601.91	3.5
2018	177.20	11.59	91.39	205.06	45.88	53.43	20.74	605.29	0.6
2019	175.99	12.17	70.26	217.45	50.53	53.74	20.97	601.12	(0.7)
2020 ⁽²⁾	152.61	10.83	46.73	196.80	47.21	45.13	17.37	516.68	(14.0)
2021	147.87	9.64	51.83	198.20	44.67	42.87	17.42	512.49	(0.8)
2022	165.83	10.63	95.66	198.44	40.84	46.15	19.55	577.10	12.6
2023	169.37	10.85	100.28	202.17	37.45	46.68	17.76	584.56	1.3
2024 ⁽²⁾	172.32	11.04	108.32	204.94	30.70	48.97	18.04	594.32	1.7
2025	173.15	11.07	108.58	205.28	30.77	49.04	18.13	596.03	0.3
2026	174.47	11.13	100.00	206.19	41.15	49.25	18.28	600.47	0.7
2027	175.79	11.19	99.07	207.10	42.71	49.47	18.42	603.76	0.5
2028 ⁽²⁾	177.61	11.29	99.89	208.58	43.02	49.82	18.62	608.83	0.8
2029	178.47	11.32	100.16	208.93	43.10	49.90	18.72	610.60	0.3

⁽¹⁾ Summations may not equal total due to rounding.

⁽²⁾ Leap Year

⁽³⁾ Year of toll increase.

⁽⁴⁾ Year of toll decrease.


 - Represents actual data.

Figure 12 presents the total Legacy system historical transactions for passenger cars and commercial vehicles from FY 2006 through FY 2019, as well as the forecasted transactions for FY 2020 through FY 2029. Note that, among other factors, historical trends are impacted by passenger car toll increases in November 2011 and July 2013 and a passenger car toll decrease in July 2015, as well as commercial vehicle toll increases in May 2009, January 2012, and July 2013 and a commercial vehicle toll decrease in July 2015. No toll increases are assumed on the Legacy system for the duration of the forecasting period. Also, changes in reporting around FY 2011 has some impact in the historical trends.

Figure 12
Total Legacy System Historical and Forecasted Transactions

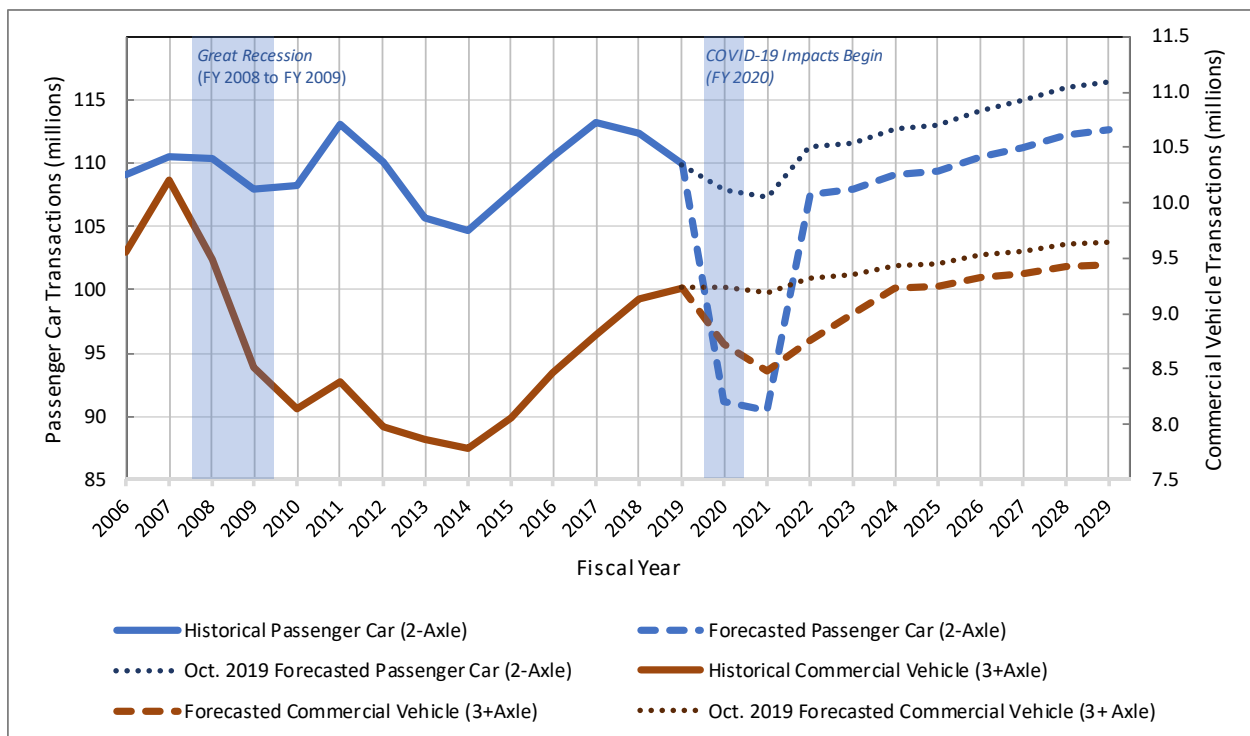


Table 15 provides the Intercounty Connector actual trips and revenue for FY 2019 and the forecasted trips and revenue for FY 2020 through FY 2029 by ETC and video.

Table 15
Intercounty Connector Forecasted Trips and Toll Revenue

Fiscal Year	Trips			Toll Revenue		
	ETC	VIDEO	Total	ETC	VIDEO	Total
2019	32.9	3.4	36.3	\$ 58.9	\$ 10.4	\$ 69.3
2020	29.0	2.3	31.4	51.9	7.1	59.0
2021	28.3	2.5	30.8	49.4	7.6	57.0
2022	34.5	2.8	37.3	60.3	8.2	68.5
2023	35.8	2.9	38.7	62.5	8.5	71.0
2024	36.5	2.9	39.5	63.8	8.7	72.5
2025	37.2	3.0	40.2	65.0	8.8	73.9
2026	38.0	3.1	41.0	66.3	9.0	75.4
2027	38.7	3.1	41.8	67.7	9.2	76.9
2028	39.5	3.2	42.7	69.0	9.4	78.4
2029	40.3	3.3	43.5	70.4	9.6	79.9


 - Represents actual data.

Figure 13 shows the historical total Intercounty Connector transactions for FY 2006 through FY 2019 and the forecasted total transactions for FY 2020 through FY 2029. Note that, among other factors, historical trends are impacted by a toll decrease in July 2015. No toll increases are assumed on the ICC for the duration of the forecasting period.

Figure 13
Total Intercounty Connector Historical and Forecasted Transactions

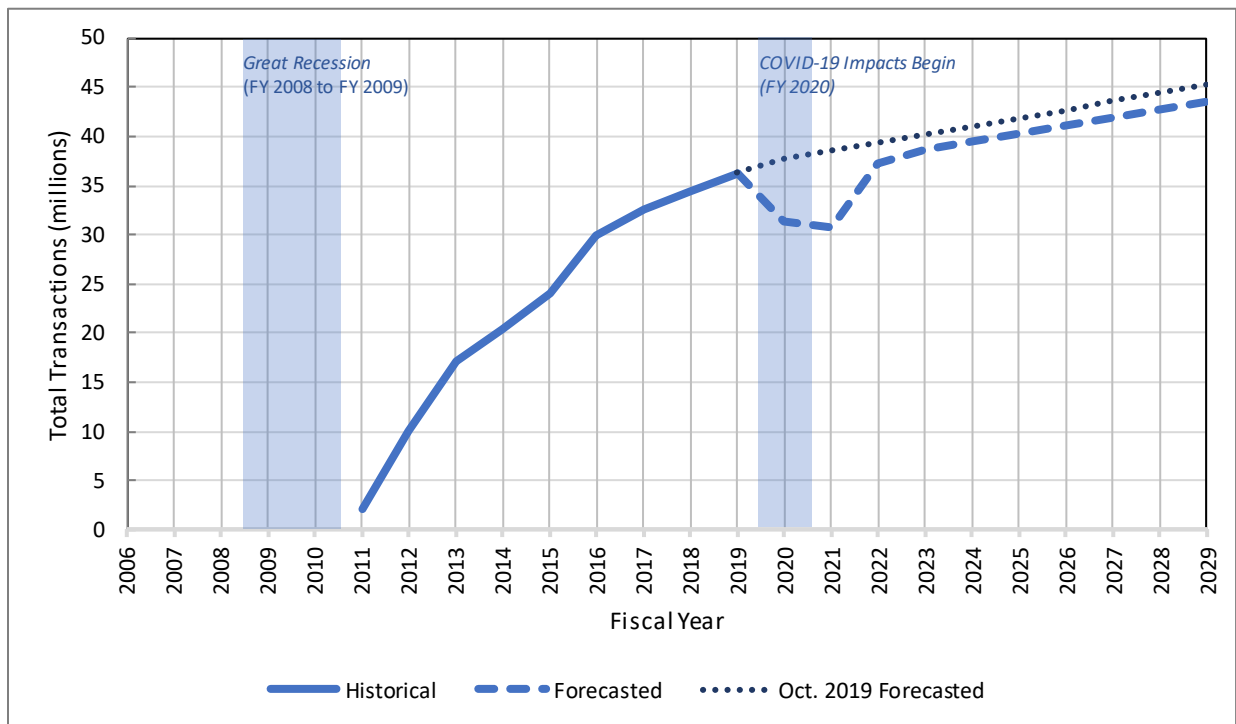


Table 16 provides the CDM Smith recommended traffic and revenue impact factors for the I-95 ETLs, which can be applied to the Jacobs Engineering Group October 2019 forecast referenced previously in this report.

Table 16
I-95 ETL Recommended Traffic and Revenue Impact Factors

Fiscal Year	COVID Impact
2020	-20%
2021	-30%
2022	-7%
2023	-5%
2024	-5%
2025	-5%
2026	-5%
2027	-5%
2028	-5%
2029	-5%

5.3 Other Revenue Forecast

Table 17 provides the other revenue forecast for the Legacy system and the combined Intercounty Connector and I-95 ETLs. More background on other revenue and the forecasting methodology for these different categories is provided in the October 2019 Legacy System report.

**Table 17
Other Revenue by Facility**

Fiscal Year	Legacy Facilities											Intercounty Connector & I-95 ETLs					Total Other Toll Revenue (5)		
	Service Fees and Sales					Violation Recovery			Commercial Vehicles			Service Fees and Sales						Violation Recovery	
	Unused Pre-Paid Trip Revenue	Transponder Sales	Monthly Account Fees	Hatem E-Z Pass Program	Notice of Toll Due Fees	Civil Penalties (3)	Violation Fees	Post-Usage Discount	High Frequency Discount	Over-size Permit Fee	Concession Revenue (4)	Transponder Sales	Monthly Account Fees	Violation Fees	Civil Penalties (3)				
2014 (1)	18.69	1.22	5.75	1.49	-	4.55	0.04	(0.64)	1.13	3.23	0.16	0.76	0.10	2.35	32.94				
2015	16.81	1.44	5.87	1.52	-	10.75	0.01	(0.62)	1.15	5.07	0.19	0.79	0.01	5.73	42.38				
2016 (2)	17.36	1.66	1.29	1.60	-	10.00	-	(6.39)	1.13	6.21	0.27	0.22	-	8.28	40.57				
2017	14.04	2.00	1.42	1.62	-	20.65	-	(6.79)	1.16	6.01	0.22	0.24	-	21.04	60.46				
2018	13.64	1.40	1.51	1.67	-	16.13	-	(7.91)	1.16	6.34	0.35	0.26	-	13.61	46.86				
2019	14.00	(0.60)	1.59	1.68	-	21.27	-	(8.58)	1.26	6.65	(0.10)	0.27	-	10.19	46.43				
2020	11.05	0.29	1.70	1.46	-	14.59	-	(7.80)	1.05	6.29	0.02	0.24	-	11.23	38.92				
2021	11.21	-	1.28	1.34	-	11.73	-	(7.69)	1.13	6.31	-	0.21	-	4.30	28.76				
2022	13.71	-	1.56	1.64	-	14.85	-	(8.31)	1.22	6.33	-	0.26	-	4.69	34.80				
2023	13.85	-	1.58	1.66	-	15.19	-	(8.62)	1.27	6.34	-	0.27	-	4.86	35.21				
2024	13.92	-	1.58	1.67	-	17.64	-	(8.84)	1.30	6.36	-	0.27	-	4.95	37.64				
2025	13.99	-	1.59	1.67	-	17.66	-	(8.93)	1.31	6.37	-	0.27	-	5.03	37.76				
2026	14.06	-	1.60	1.68	-	18.57	-	(9.02)	1.33	6.39	-	0.27	-	5.12	38.77				
2027	14.13	-	1.61	1.69	-	18.69	-	(9.11)	1.34	6.41	-	0.27	-	5.21	39.01				
2028	14.20	-	1.62	1.70	-	18.81	-	(9.20)	1.35	6.42	-	0.27	-	5.30	39.24				
2029	14.27	-	1.62	1.71	-	18.84	-	(9.29)	1.37	6.44	-	0.27	-	5.39	39.38				

Source: Historical data from MDTA

(1) Year of toll increase.

(2) Year of toll decrease.

(3) Civil penalty actuals provided by MDTA. Forecasts developed by CDM Smith incorporate cashless tolling impacts and the civil penalty reduction from \$50 to \$25 beginning July 1, 2020.

(4) Concession revenue forecast provided by MDTA and prepared by Areas Inc.

(5) Summations may not equal total due to rounding.

- Actual Data

5.4 Total Forecast

Table 18 provides the total revenue which includes the Legacy system toll revenue, Intercounty Connector toll revenue, and other revenue from all MDTA facilities.

Table 18
Total Legacy and ICC Toll Revenue and Other Revenue

Fiscal Year	Revenue (\$ Millions)				Percent Change
	Legacy	ICC	Other ⁽¹⁾	Total ⁽²⁾	
2014	574.1	48.0	32.9	655.0	35.5
2015	594.6	56.0	42.4	693.0	5.8
2016	581.4	59.3	40.6	681.3	(1.7)
2017	601.9	64.3	60.5	726.7	6.7
2018	605.3	67.5	46.9	719.7	(1.0)
2019	601.1	69.3	46.4	716.9	(0.4)
2020	516.7	59.0	38.9	614.6	(14.3)
2021	512.5	57.0	28.8	598.2	(2.7)
2022	577.1	68.5	34.8	680.4	13.7
2023	584.6	71.0	35.2	690.8	1.5
2024	594.3	72.5	37.6	704.4	2.0
2025	596.0	73.9	37.8	707.7	0.5
2026	600.5	75.4	38.8	714.6	1.0
2027	603.8	76.9	39.0	719.6	0.7
2028	608.8	78.4	39.2	726.5	0.9
2029	610.6	79.9	39.4	729.9	0.5

⁽¹⁾ Includes Other Revenue from the Legacy system, ICC, and I-95 ETL

⁽²⁾ Summations may not equal total due to rounding

- Represents actual data.

5.5 Comparison with October 2019 Forecast

Table 19 provides a comparison of the updated Legacy system forecast to the prior forecast developed in October 2019. **Table 20** provides a comparison of the updated Intercounty Connector forecast to the prior forecast developed in October 2019. For a visual representation of the comparison, **Figure 12** and **Figure 13** also show the October 2019 forecast.

Table 19
Comparison of Legacy System Forecast to October 2019 Forecast

Fiscal Year	Total Transactions								
	October 2019 Forecast			% Difference			COVID Adjusted Forecast		
	PC	CV	Total	PC	CV	Total	PC	CV	Total
2019	109.9	9.2	119.1	0.0%	0.0%	0.0%	109.9	9.2	119.1
2020	107.9	9.2	117.1	-15.4%	-5.2%	-14.6%	91.2	8.7	100.0
2021	107.3	9.2	116.4	-15.7%	-7.7%	-15.0%	90.5	8.5	98.9
2022	111.3	9.3	120.6	-3.3%	-6.0%	-3.5%	107.6	8.8	116.3
2023	111.6	9.3	120.9	-3.2%	-3.6%	-3.3%	108.0	9.0	117.0
2024	112.7	9.4	122.1	-3.2%	-2.2%	-3.1%	109.0	9.2	118.3
2025	113.1	9.5	122.5	-3.2%	-2.2%	-3.1%	109.4	9.3	118.7
2026	114.2	9.5	123.7	-3.2%	-2.2%	-3.1%	110.5	9.3	119.8
2027	115.0	9.6	124.5	-3.2%	-2.2%	-3.2%	111.3	9.4	120.6
2028	116.0	9.6	125.6	-3.2%	-2.2%	-3.2%	112.2	9.4	121.7
2029	116.4	9.6	126.0	-3.2%	-2.2%	-3.2%	112.6	9.4	122.1

Fiscal Year	Toll Revenue								
	October 2019 Forecast			% Difference			COVID Adjusted Forecast		
	PC	CV	Total	PC	CV	Total	PC	CV	Total
2019	\$ 378.1	\$ 223.0	\$ 601.1	0.0%	0.0%	0.0%	\$ 378.1	\$ 223.0	\$ 601.1
2020	371.0	223.7	594.7	-17.8%	-5.4%	-13.1%	305.0	211.7	516.7
2021	368.7	221.9	590.6	-16.3%	-8.1%	-13.2%	308.6	203.9	512.5
2022	384.2	223.4	607.6	-4.2%	-6.5%	-5.0%	368.2	209.0	577.1
2023	385.8	224.0	609.8	-4.2%	-4.0%	-4.1%	369.5	215.0	584.6
2024	390.5	225.8	616.4	-4.2%	-2.5%	-3.6%	374.2	220.1	594.3
2025	391.9	226.3	618.1	-4.2%	-2.5%	-3.6%	375.5	220.5	596.0
2026	394.4	228.5	622.9	-4.2%	-2.6%	-3.6%	377.8	222.6	600.5
2027	396.8	229.5	626.4	-4.2%	-2.6%	-3.6%	380.1	223.7	603.8
2028	400.4	231.2	631.6	-4.2%	-2.6%	-3.6%	383.5	225.3	608.8
2029	401.8	231.7	633.5	-4.2%	-2.6%	-3.6%	384.9	225.7	610.6

Table 20
Comparison of Intercounty Connector Forecast to October 2019 Forecast

Fiscal Year	ICC Total Trips								
	October 2019 Forecast			% Difference			COVID Adjusted Forecast		
	ETC	VIDEO	Total	ETC	VIDEO	Total	ETC	VIDEO	Total
2019	32.9	3.4	36.3	0.0%	0.0%	0.0%	32.9	3.4	36.3
2020	34.9	2.9	37.8	-16.8%	-20.2%	-17.1%	29.0	2.3	31.4
2021	35.7	2.9	38.6	-20.9%	-12.1%	-20.2%	28.3	2.5	30.8
2022	36.5	2.9	39.5	-5.5%	-5.5%	-5.5%	34.5	2.8	37.3
2023	37.3	3.0	40.3	-4.0%	-4.0%	-4.0%	35.8	2.9	38.7
2024	38.0	3.1	41.1	-4.0%	-4.0%	-4.0%	36.5	2.9	39.5
2025	38.8	3.1	41.9	-4.0%	-4.0%	-4.0%	37.2	3.0	40.2
2026	39.5	3.2	42.7	-4.0%	-4.0%	-4.0%	38.0	3.1	41.0
2027	40.3	3.3	43.6	-4.0%	-4.0%	-4.0%	38.7	3.1	41.8
2028	41.1	3.3	44.5	-4.0%	-4.0%	-4.0%	39.5	3.2	42.7
2029	42.0	3.4	45.3	-4.0%	-4.0%	-4.0%	40.3	3.3	43.5

Fiscal Year	ICC Toll Revenue								
	October 2019 Forecast			% Difference			COVID Adjusted Forecast		
	ETC	VIDEO	Total	ETC	VIDEO	Total	ETC	VIDEO	Total
2019	\$ 58.9	\$ 10.4	\$ 69.3	0.0%	0.0%	0.0%	\$ 58.9	\$ 10.4	\$ 69.3
2020	61.1	8.9	70.1	-15.2%	-20.2%	-15.8%	51.9	7.1	59.0
2021	62.5	8.5	71.0	-20.9%	-10.9%	-19.7%	49.4	7.6	57.0
2022	63.8	8.7	72.5	-5.5%	-5.5%	-5.5%	60.3	8.2	68.5
2023	65.1	8.9	74.0	-4.0%	-4.0%	-4.0%	62.5	8.5	71.0
2024	66.4	9.0	75.5	-4.0%	-4.0%	-4.0%	63.8	8.7	72.5
2025	67.8	9.2	77.0	-4.0%	-4.0%	-4.0%	65.0	8.8	73.9
2026	69.1	9.4	78.5	-4.0%	-4.0%	-4.0%	66.3	9.0	75.4
2027	70.5	9.6	80.1	-4.0%	-4.0%	-4.0%	67.7	9.2	76.9
2028	71.9	9.8	81.7	-4.0%	-4.0%	-4.0%	69.0	9.4	78.4
2029	73.3	10.0	83.3	-4.0%	-4.0%	-4.0%	70.4	9.6	79.9

Disclaimer

CDM Smith used currently-accepted professional practices and procedures in the development of the traffic and revenue estimates in this report. However, as with any forecast, it should be understood that differences between forecasted and actual results may occur, as caused by events and circumstances beyond the control of the forecasters. In formulating the estimates, CDM Smith reasonably relied upon the accuracy and completeness of information provided (both written and oral) by MDTA. CDM Smith also relied upon the reasonable assurances of independent parties and is not aware of any material facts that would make such information misleading.

CDM Smith made qualitative judgments related to several key variables in the development and analysis of the traffic and revenue estimates that must be considered as a whole; therefore, selecting portions of any individual result without consideration of the intent of the whole may create a misleading or incomplete view of the results and the underlying methodologies used to obtain the results. CDM Smith gives no opinion as to the value or merit of partial information extracted from this report.

All estimates and projections reported herein are based on CDM Smith's experience and judgment and on a review of information obtained from multiple agencies, including MDTA. These estimates and projections may not be indicative of actual or future values and are therefore subject to substantial uncertainty. Certain variables such as future developments, economic cycles, global pandemics and impacts related to advances in automotive technology etc. cannot be predicted with certainty and may affect the estimates or projections expressed in this report, such that CDM Smith does not specifically guarantee or warrant any estimate or projection contained within this report.

While CDM Smith believes that the projections and other forward-looking statements contained within the report are based on reasonable assumptions as of the date of the report, such forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted. Therefore, following the date of this report, CDM Smith will take no responsibility or assume any obligation to advise of changes that may affect its assumptions contained within the report, as they pertain to socioeconomic and demographic forecasts, proposed residential or commercial land use development projects and/or potential improvements to the regional transportation network.

The report and its contents are intended solely for use by the MDTA and designated parties approved by MDTA and CDM Smith. Any use by third-parties, other than as noted above, is expressly prohibited. In addition, any publication of the report without the express written consent of CDM Smith is prohibited.

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MDTA with respect to the information and material contained in this report. CDM Smith is not recommending and has not recommended any action to MDTA. MDTA should discuss the information and material contained in this report with any and all internal and external advisors that it deems appropriate before acting on this information.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Ronald Davis, III".

Ronald Davis, III
Project Manager
CDM Smith Inc.

