

Rhode Island Congestion Management Process: 2023 Annual Report



Fall 2023

Congestion Performance Monitoring Report 2023 Update

Table of Contents

Introduction	3
Congestion Management Process Review.....	4
Congestion Management Performance Measures.....	6
2021 Bottleneck Analysis	9
Bottlenecks Outside Top 30 from 2019 and 2020	9
2021 Bottleneck Comparison.....	10
2021 Freight Bottlenecks	12
Corridor Case Studies.....	14
Pell Bridge Ramps Phase 1 – JT Connell and Coddington Highways – Newport, RI.....	15
Two Mile Corner – Middletown, RI.....	19
Congestion Management Trends and Strategies.....	22
Performance Measures.....	22
Major Corridor Trends	23
Congestion Mitigation Strategies: Research and Trends.....	25
Appendix A: CMP Inventory Update.....	28
Appendix B: New Performance Measures Definitions, Data Sources, and Calculation Procedures	29

Introduction

A Congestion Management Process (CMP) is a systematic process for identifying congestion and its causes, developing monitoring processes to measure transportation system performance and reliability, and developing congestion management strategies and moving them into the funding and implementation stages.

All metropolitan areas with populations greater than 200,000 residents, known as Transportation Management Areas, are required by Federal regulations (23 U.S.C. 134(k)(3)) to develop a Congestion Management Process. The original Federal regulations on the Congestion Management Process date back to the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. These regulations were retained and largely unchanged by subsequent Federal legislation, including the Moving Ahead for Progress in the 21st Century Act (MAP-21), the Fixing America's Surface Transportation (FAST) Act, and the Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA).

Designation of a Metropolitan Planning Organization (MPO) as a Transportation Management Area (TMA) invokes the requirement for the CMP as well. Although the CMP does not have an update cycle established by federal regulations, both the four-year certification review cycle and the four- or five-year Metropolitan Transportation Plan (MTP) update cycle for each TMA provide a baseline for a re-evaluation/update cycle in the absence of an identified requirement. The CMP must, at minimum, be updated often enough to provide relevant, recent information as an input to each MTP update. In order to establish a routine CMP review, many MPOs chose to link CMP updates to either the MTP or the Transportation Improvement Plan (TIP) development cycle. The CMP may also operate on an independent update schedule and provide input to both the MTP and the TIP. Completing this annual report helps to meet the requirements of both reviewing the CMP every year and providing updates on the data that is contained within it.

The Rhode Island Congestion Management Process (CMP) was reviewed by the State Planning Council in the Summer of 2020 and adopted as a component of Transportation 2040 – Rhode Island's Long-Range Transportation Plan (LRTP) in December 2020.

As a part of the CMP, the Congestion Management Task Force (CMTF) recommended that an annual report be generated to monitor the status of ongoing projects related to congestion and to update performance measures with data from the last year. This is the third annual report, with the first being completed in June 2021 and the second being completed in May 2022.

The 2020 CMP collected travel time performance data from 2018 as a baseline. In this 2023 report, performance measure data is being collected from 2021. The reasoning for the delay in data collection is that some data cannot be confidently reported until very late in the following year. Rather than compile an incomplete data set, we have opted to report on the older data on a year-to-year basis until data collection methods have been improved. Trends, project status, and other elements of this report, however, will be up to date as of Summer 2023.

Congestion Management Process Review

Rhode Island's Congestion Management Process is composed of eight actions and associated questions that represent the critical elements of a successful CMP. Below, these actions are broken down as a way of assessing the functionality of the CMP.

- **Develop Objectives for Congestion Management**
 - The existing objectives of the CMP remain consistent with the goal areas of the LRTP and have been largely unchanged since the inception of the plan (contained within Table 2.1 of the CMP). These objectives remain key parts of the MPO planning process. This area is likely to remain consistent until the next update of the LRTP.
- **Define CMP Network**
 - The CMP Network, which includes the Freight Network, was originally defined in the constraints of the INRIX roadway dataset. This dataset is updated as roadways are improved across the State. The map within the CMP network may need minor revisions in the future as roadways are altered, however, for the purposes of this annual report, the most up-to-date INRIX roadway dataset is used to ensure that roadway updates are accounted for when reporting on performance in Rhode Island.
 - The 2021 Infrastructure Investment and Jobs Act (IIJA) doubled the mileage that Rhode Island can designate, to 300 miles for Critical Rural Freight Corridors (CRFCs) and 150 miles for Critical Urban Freight Corridors (CUFCs). For the 2022 update of the Rhode Island Freight and Goods Movement Plan, the freight network was expanded to include 187 miles of CRFCs and 150 miles of CUFCs, based on criteria including truck volumes, connectivity, potential freight conflicts, and stakeholder feedback. This freight network expansion is reflected in this annual report.
- **Develop Multimodal Performance Measures**
 - The performance measures from the CMP are still telling of the important metrics that are in place to measure congestion progress. The Congestion Management Task Force, as well as the performance measure group that meets to discuss the tracking and calculating of the metrics, have discussed changing some of the non-federally required measures to better represent the details of what the original plan wanted to capture. These discussions are ongoing, and it is likely that we will see changes or additions to some of these measures in future reporting.
- **Collect Data/Monitor System Performance**
 - Data collection has improved since the original plan was completed. The MPO has access to new traffic tools through INRIX and the University of Maryland's CATTLab/PDA Suite. The MPO is working with INRIX data to update the congested corridors dashboard previously completed in the INRIX Signal Analytics tool. The MPO is also working with Streetlight data to further assess congestion, and using biking and pedestrian volumes to observe the extent multimodal transportation is being utilized in areas across the state. Monitoring is done on an ongoing basis, as well as through this annual report. With the addition of new data resources, monitoring will be easier and more frequent, which was a goal of the original plan.

- **Analyze Congestion Problems and Needs**
 - Working in conjunction with groups at RIDOT (Traffic Management Center (TMC), Planning, and Traffic Safety) the CMP has assisted in programming projects based on the original congested corridors layer and the ongoing bottleneck layers that were produced in the 2020 CMP and in subsequent annual reporting efforts. This is evident in the CMP project update tables, as well as in the updated CMP project pool that resulted from this annual report which lists projects from the FFY 2022-2031 STIP that were not programmed when the original document was approved.
- **Identify and Assess Strategies**
 - The priority strategy types in the CMP remain consistent with efforts being set out by both the MPO and RIDOT to improve congestion.
- **Program and Implement Strategies**
 - Strategy implementation and programming has become more evident since the approval of the FFY 2022-2031 STIP. There are more efforts in place to improve congested corridors and bottleneck locations especially through the use of INRIX and Streetlight data, which provides bike and pedestrian volumes as well as vehicle volumes. The MPO is also writing a Complete Streets guide and utilizing data capabilities to retime signals and reduce car idling time to improve both congestion and greenhouse gas emissions.
- **Evaluate Strategy Effectiveness**
 - While the State has been effective at implementing the congestion process into the four key action divisions (Planning, Implementation, Data Collection and Monitoring, and Coordination), it is still working to implement the CMP more fully. For instance, the State's new E-STIP project intake tool will utilize congestion map data layers to prioritize the programming of projects. The recommendation from RIDOT to evaluate the effectiveness of the CMP by comparing bottleneck locations has begun as a result of these monitoring efforts. As more data becomes available, tracking of congested corridors and bottlenecks will become more granular and the results of the implementation of the CMP will be more prevalent. Although it has been challenging to compare the data on a year-to-year basis due to traffic fluctuations as a result of the COVID-19 pandemic, procedures are being discussed on how to integrate the strategies and review them with more quantitative methods.
 - This CMP update includes an analysis of the effectiveness of two completed congestion mitigation projects. This analysis can help us to understand the impact of congestion mitigation interventions in different contexts to inform their selection moving forward.

Congestion Management Performance Measures

Congestion data was compiled in the original CMP for baseline year 2018. This year, we are reporting the data from calendar year 2021. This data composition is a joint effort from RIDOT, RIPTA, RIDSP, and our consulting team. Performance measure definitions, data sources, and calculation procedures can be found in Appendix A of the 2020 CMP. For new measures, these procedures can be found in appendix A of this document. The color-coding **red** and **green** in the Congestion Management Performance Measure Tracking below indicates if a performance measure **improved** or **worsened** from year to year.

Objective	Performance Measure	2018 (Baseline)	2019	2020	2021
A. Improve Reliability of the Transportation System	A.1 Interstate Reliability	78.6%	80.6%	94.9%	87.2%
	A.2 Non-Interstate Reliability	88.7%	88.4%	93.7%	92.4%
	A.3 CMP Network Reliability	92.0%	92.3%	98.0%	95.1%
	A.4 Reliability During Inclement Weather on CMP Network	91.9%	92.3%	98.2%	96.2%
	A.5 Reliability Through Work Zones on CMP Network	91.1%	87.8%	97.3%	85.9%
	A.6 RIPTA Bus Reliability (ratio of 80 th to 50 th percentile time)	1.16	1.21	N/A	1.22
	A.7 Average Incident Clearance Time (minutes)	29	30	28	28
	A.8 Average Incident Rate (incidents/million VMT)	1.75	1.59	2.48	2.20
B. Reduce Recurring Congestion	B.1 Peak-Hour Excessive Delay (PHED) (millions of hours)	14.71	15.45	7.12	12.22
	B.2 PHED on CMP Network on CMP Network (millions of hours)	9.34	10.91	5.81	12.71
	B.3 PHED During Inclement Weather on CMP Network (millions of hours)	3.72	4.93	1.97	4.14

	B.4 PHED Through Work Zones on CMP Network (millions of hours)	0.37	1.09	0.35	0.53
	B.5 Number of Bottlenecks	160	148	127	119
	B.6 Total Delay at Bottlenecks (millions of hours)	2,900	2,489	1,229	2,570
	B.7 Transit Vehicle Load Factor (% of passenger-hours at load factor >1)	2.9%	4.7%	N/A	0.8%
	B.8 Passenger-Hours of Delay on RIPTA Buses	9,000	94,569	N/A	124,025
C. Improve Freight and Goods Movement	C.1 Truck Reliability on Interstates	1.79	1.79	1.40	1.53
	C.2 Truck Reliability on Freight Corridors	1.48	1.50	1.29	1.38
	C.3 Number of Freight Bottlenecks	27	30	15	47
	C.4 Truck Congestion Costs	\$82M	\$90M	\$29M	\$71M
D. Increase Modal Choice and Competitiveness	D.1 Bike Path Mileage	75	77	105	110
	D.2 Bike Path Usage [Future Measure]	--	--	--	--
	D.3 HOV/Dedicated Bus-Lane Route Miles	0.8	0.8	N/A	2.72
	D.4 Percent of Non-SOV Travel	18.2%	20.4%	19.1%	22.5%
	D.5 Commuter Rail Ridership (million trips)	1.21	1.28	0.47	0.37
	D.6 RIPTA Bus Ridership (million trips)	16.3	16.4	N/A	16.1
	D.7 Providence/Newport Ferry Ridership	42,778	46,405	15,412	31,679
E. Improve Intermodal Connectivity	E.1 Percent of Population with Transit Access	18.1%	18.1%	18.1%	18.1%

	E.2 Percent of Jobs with Transit Access	21.8%	21.8%	21.8%	21.8%
	E.3 Bike System Connectivity	0.3	0.3	0.21	TBD
F. Promote and Invest in Innovative Congestion Management Technologies	F.1 Number of Intersections with Advanced Traffic Control	*720/1182	*728/1190	**989/1108	996/1055
	F.2 Number of Intersections with Remote Monitoring	*4/1182	*15/1190	**15/1108	34/1055
	F.3 Number of Real-time Travel Time Signs Per Route Mile	0	0	0	0
	F.4 Number of RIPTA Bus Routes with Transit Priority Treatment	1	1	2	2
G. Promote Land Development and Infill Development/Redevelopment in Transportation-Efficient Locations	G.1 Percent of Permits in Transit Propensity Areas [Future Measure]	–	–	–	–
	G.2 Transportation Funds Invested in Transit Propensity Areas	TBD	TBD	TBD	TBD
H. Reduce Emissions and Improve Air Quality	H.1 Total Vehicle-Miles of Travel Per Capita	7,577	7,159	5,274	6,867
	H.2 Emission Reductions by CMAQ Projects [Future Measure]	–	–	--	--
	H.3 Counties in Air Quality Attainment [Future Measure]	5 of 5			
	H.4 GHG Emissions (MMTCO2e) [Future Measure]	–	–	--	--
* Intersection metrics include those under the jurisdiction of the State and City of Providence only. Total intersection number is estimate only.					
** Intersection metrics include all signalized intersections (both State- and City-owned) open to public travel in Rhode Island EXCEPT those					
TBD -Measures to be calculated later this year.					
N/A - Data could not be found					
Contains data from a modified reporting date due to reporting inconsistencies between agencies					

Table 1-1A: Congestion Metrics Table

Further Measures

The measures below on table 1-1B provide an extension of three of the performance metrics above (Table 1-1A). The reasoning behind these further measures is to provide a metric that can show these three measures at a clearer and more personal level.

Objective	Performance Measure	2018 (Baseline)	2019	2020	2021
Reduce Recurring Congestion	Annual Hours of Peak hour Excessive Delay (PHED) per capita	13.92	14.61	6.49	11.2
	Average daily delay at bottlenecks per vehicle (minutes)	5.3	5.7	3.8	6.3
Reduce Emissions and Improve Air Quality	Total Vehicle-Miles of Travel Per Capita Per Day	20.76	19.61	14.45	18.81

Table 1-1B: Further Congestion Metrics Table 2021 Bottleneck Analysis

Bottlenecks are defined as having at least ¼ mile of average queue length and at least 45 minutes of average daily duration along the CMP Road Network. It is important to note that in 2021, the exit numbers on I95 NB/SB had not been renumbered, which was implemented in 2022 ¹.

Bottlenecks Outside Top 30 from 2019 and 2020

Table 1-2 details bottlenecks that were ranked in the top 30 in either 2019 or 2020 but were not within that rank in 2021.

Bottlenecks Outside Top 30 from 2019 & 2020		
2020 Rank	2019 Rank	Head Location
12	15	US-44 W @ OAKLAND AVE
15	#N/A	US-6A E @ PETTEYS AVE/GLENBRIDGE AVE
20	#N/A	RI-12 W @ RI-2/RESERVOIR AVE
26	#N/A	RI-33 W @ RI-3/TIOGUE AVE
29	#N/A	RI-5 S @ US-6
#N/A	16	RI-146 S @ SAYLES HILL RD
#N/A	27	RI-2 S @ RI-12/PARK AVE

Most of the top ranked bottlenecks have remained for all three time periods. There were several in 2020 that were not included in either 2019 or 2021. This could be because travel patterns were highly disrupted during the COVID19 pandemic, shifting where congestion occurred. US-44 W @ Oakland Ave was ranked 12 and 15 in 2020 and 2019 but is not ranked in 2021.

Table 1-2: Bottlenecks outside top 30 from 2019 and 2020

¹ “Exit Renumbering Rhode Island Mile-Marker Exit Program”, RIDOT, 2023. <https://www.dot.ri.gov/projects/exitnumbers/index.php>

2021 Bottleneck Comparison

Table 1-3 shows the top 30 bottlenecks and where they ranked in both 2019 and 2020 along with the associated congestion metrics.

2021 Bottleneck Comparison									
2021 Rank	2020 Rank	2019 Rank	Head Location	Average max length (1)	Average daily duration (2)	Base Impact (3)	Speed differential (4)	Congestion (5)	TOTAL DELAY (6)
1	1	#N/A	I-95 S @ RI-7/RI-146/CHARLES ST/EXIT 23	2.49	3 h 41 m	178,022	6,255,538	312,288	400,918,111
2	#N/A	#N/A	I-95 N @ RI-7/RI-146/CHARLES ST/EXIT 23	2.07	1 h 38 m	61,731	2,092,068	116,902	203,117,234
3	#N/A	#N/A	I-195 W @ I-95	1.91	1 h 53 m	70,045	2,763,706	164,570	200,685,277
4	#N/A	#N/A	I-95 N @ US-6/RI-10/EXIT 22	1.81	1 h 56 m	64,356	2,139,503	119,079	198,370,955
5	3	2	RI-146 S @ I-95	0.82	4 h 46 m	99,846	3,980,821	233,308	172,144,749
6	5	4	US-6 E @ I-95	0.64	5 h 29 m	66,003	2,040,533	127,346	122,567,839
7	#N/A	#N/A	I-95 N @ RI-10/EXIT 16	2.1	52 m	36,669	1,410,184	65,565	98,539,109
8	9	9	US-1 FRONTAGE N @ I-95	0.31	4 h 19 m	28,020	482,180	37,176	70,581,442
9	28	23	RI-2 N @ RI-113/EAST AVE	1.09	3 h 50 m	79,100	1,300,526	102,952	51,077,749
10	#N/A	11	UNION AVE E @ RI-10/HUNTINGTON AVE	0.32	3 h 24 m	18,420	142,085	21,320	42,190,929
11	8	10	RI-15 W @ RI-7/DOUGLAS AVE	1.69	2 h 4 m	68,874	858,425	85,610	37,147,210
12	10	28	US-44 E @ RI-15/MINERAL SPRING AVE	0.85	3 h 41 m	68,147	1,208,843	112,586	36,480,213
13	#N/A	8	RI-146 N @ SAYLES HILL RD	0.33	6 h 4 m	50,464	1,587,953	101,356	34,078,163
14	#N/A	#N/A	RI-2 S @ RI-117/CENTERVILLE RD	1.24	2 h 52 m	65,017	1,071,095	78,412	33,537,412
15	#N/A	#N/A	RI-138A N @ THAMES ST (SOUTH)	0.28	7 h 29 m	66,566	733,548	86,152	31,427,428
16	4	12	RI-15 E @ RI-126/SMITHFIELD AVE	1.92	1 h 31 m	57,757	669,315	70,466	30,701,305
17	#N/A	3	EDDY ST S @ I-95/THURBERS AVE	0.42	1 h 11 m	12,136	111,500	14,516	29,493,853
18	#N/A	#N/A	HARTFORD AVE E @ SERVICE RD	0.28	3 h 48 m	17,734	194,069	21,726	29,230,342
19	#N/A	#N/A	RI-103 E @ RI-103/MAIN ST	1.43	2 h 41 m	71,953	1,007,397	91,032	28,215,472
20	#N/A	#N/A	RI-10 N @ US-6/WESTMINSTER ST	0.44	1 h 41 m	16,302	432,556	28,354	27,783,142
21	#N/A	#N/A	RI-114 N @ RI-103/BAKER ST/CHILD ST	0.6	5 h 49 m	75,975	1,114,264	96,923	25,884,146
22	#N/A	#N/A	US-6 W @ RHODE ISLAND/CONNECTICUT STATE LINE	0.35	9 h 16 m	63,113	1,572,249	96,809	23,454,356
23	#N/A	#N/A	RI-114 S @ VERNON ST	1.22	2 h 54 m	67,594	912,882	81,122	23,098,705
24	#N/A	#N/A	CRANSTON ST S @ MESSER ST	0.27	11 h 1 m	46,701	431,077	54,773	22,381,376
25	#N/A	#N/A	US-1 N @ RI-117/GREENWICH AVE/CENTERVILLE RD	1.01	1 h 9 m	25,359	466,261	39,109	21,520,172
26	#N/A	#N/A	US-6 E @ RI-10	0.64	48 m	10,740	347,839	24,897	20,325,803
27	#N/A	29	RI-15 E @ RI-146/LOUISQUISSET PIKE	0.52	5 h 12 m	37,264	468,749	46,531	19,321,247
28	#N/A	#N/A	BRANCH AVE E @ RI-246/CHARLES ST	0.57	5 h 48 m	59,482	607,015	70,403	18,872,716
29	24	#N/A	RI-15 E @ RI-7/DOUGLAS AVE	0.7	2 h 24 m	32,174	423,672	41,737	16,259,367
30	#N/A	#N/A	US-44 E @ RI-128/GEORGE WATERMAN RD	0.47	4 h 30 m	39,613	667,490	55,862	15,874,994

(1) - Average of the maximum queues formed during each occurrence of the bottleneck.

(2) - Average of the duration of each occurrence of the bottleneck.

(3) - Base Impact is the sum of the queue lengths over the duration of the bottleneck

(4) - Speed differential is base impact weighted by the difference between free-flow speed and observed speed.

(5) - Congestion is base impact weighted by the measured speed as a percentage of free-flow speed.

(6) - Total Delay is Base impact weighted by the difference between free-flow travel time and observed travel time multiplied by the average daily volume (ADT).

Table 1-3: 2021 Bottleneck Comparisons

The top four bottleneck locations for 2021 are associated with the interchange for I-95, I-195, RI-146, and US-6/RI-10 near downtown Providence. These locations were not ranked at all in 2019, and all but one was not ranked in 2020. These bottlenecks are likely due to construction of the Providence I-95 Viaduct Northbound project that started in 2020, and the Washington Bridge project impacting I-195 westbound that started in 2021. Several more of the 2021 bottlenecks were not ranked in 2020 or 2019 as well. This suggests that congestion is shifting.

The total delay experienced at the bottlenecks for 2021 is 579,245 hours compared to 233,893 hours in 2020 and 466,860 hours in 2019. This indicates that congestion occurring at the most congested locations increased since 2020 and since 2019.

2021 Freight Bottlenecks

Freight bottlenecks are defined as meeting the criteria of a regular bottleneck but are contained within Rhode Island’s Freight Network. Table 1-4 shows the top 20 freight bottlenecks from 2021.

2021 Freight Bottlenecks								
Freight BN Rank	BN Rank	Head Location	Average max length (1)	Average daily duration (2)	Base Impact (3)	Speed differential (4)	Congestion (5)	TOTAL DELAY (6)
1	1	I-95 S @ RI-7/RI-146/CHARLES ST/EXIT 23	2.49	3 h 41 m	178,022.00	6,255,538.00	312,288.00	400,918,111.00
2	2	I-95 N @ RI-7/RI-146/CHARLES ST/EXIT 23	2.07	1 h 38 m	61,731.00	2,092,068.00	116,902.00	203,117,234.00
3	3	I-195 W @ I-95	1.91	1 h 53 m	70,045.00	2,763,706.00	164,570.00	200,685,277.00
4	4	I-95 N @ US-6/RI-10/EXIT 22	1.81	1 h 56 m	64,356.00	2,139,503.00	119,079.00	198,370,955.00
5	5	RI-146 S @ I-95	0.82	4 h 46 m	99,846.00	3,980,821.00	233,308.00	172,144,749.00
6	6	US-6 E @ I-95	0.64	5 h 29 m	66,003.00	2,040,533.00	127,346.00	122,567,839.00
7	7	I-95 N @ RI-10/EXIT 16	2.1	52 m	36,669.00	1,410,184.00	65,565.00	98,539,109.00
8	8	US-1 FRONTAGE N @ I-95	0.31	4 h 19 m	28,020.00	482,180.00	37,176.00	70,581,442.00
9	12	US-44 E @ RI-15/MINERAL SPRING AVE	0.85	3 h 41 m	68,147.00	1,208,843.00	112,586.00	36,480,213.00
10	13	RI-146 N @ SAYLES HILL RD	0.33	6 h 4 m	50,464.00	1,587,953.00	101,356.00	34,078,163.00
11	21	RI-114 N @ RI-103/BAKER ST/CHILD ST	0.6	5 h 49 m	75,975.00	1,114,264.00	96,923.00	25,884,146.00
12	22	US-6 W @ RHODE ISLAND/CONNECTICUT STATE LINE	0.35	9 h 16 m	63,113.00	1,572,249.00	96,809.00	23,454,356.00
13	26	US-6 E @ RI-10	0.64	48 m	10,740.00	347,839.00	24,897.00	20,325,803.00
14	30	US-44 E @ RI-128/GEORGE WATERMAN RD	0.47	4 h 30 m	39,613.00	667,490.00	55,862.00	15,874,994.00
15	32	US-1 N @ RI-4	0.89	59 m	17,886.00	571,159.00	33,686.00	15,163,808.00
16	33	RI-1A S @ CENTRAL AVE	0.74	1 h 34 m	25,229.00	365,634.00	33,213.00	15,099,373.00
17	35	RI-146 S @ SAYLES HILL RD	0.98	46 m	16,194.00	476,911.00	28,000.00	13,341,441.00
18	39	US-44 W @ I-195	0.33	1 h 35 m	13,532.00	218,722.00	19,039.00	12,100,292.00
19	40	RI-114 S @ RUMSTICK RD	1.14	1 h 19 m	31,334.00	526,304.00	43,521.00	11,727,994.00
20	42	US-1 N @ RI-78/AIRPORT RD/WESTERLY BYPASS RD	0.38	6 h 53 m	34,088.00	492,293.00	37,209.00	11,098,679.00

(1) - Average of the maximum queues formed during each occurrence of the bottleneck.
 (2) - Average of the duration of each occurrence of the bottleneck.
 (3) - Base Impact is the sum of the queue lengths over the duration of the bottleneck
 (4) - Speed differential is base impact weighted by the difference between free-flow speed and observed speed.
 (5) - Congestion is base impact weighted by the measured speed as a percentage of free-flow speed.
 (6) - Total Delay is Base impact weighted by the difference between free-flow travel time and observed travel time multiplied by the average daily volume (ADT).

Table 1-4: 2021 Freight Bottlenecks

In 2020, there were fewer than 20 bottlenecks on the freight corridor, while in 2021, there were 47. An increase in bottlenecks from 2020 is expected considering the COVID-19 pandemic reduced traffic for much of 2020. Many of the top 20 freight bottlenecks were also highly rated overall bottlenecks.

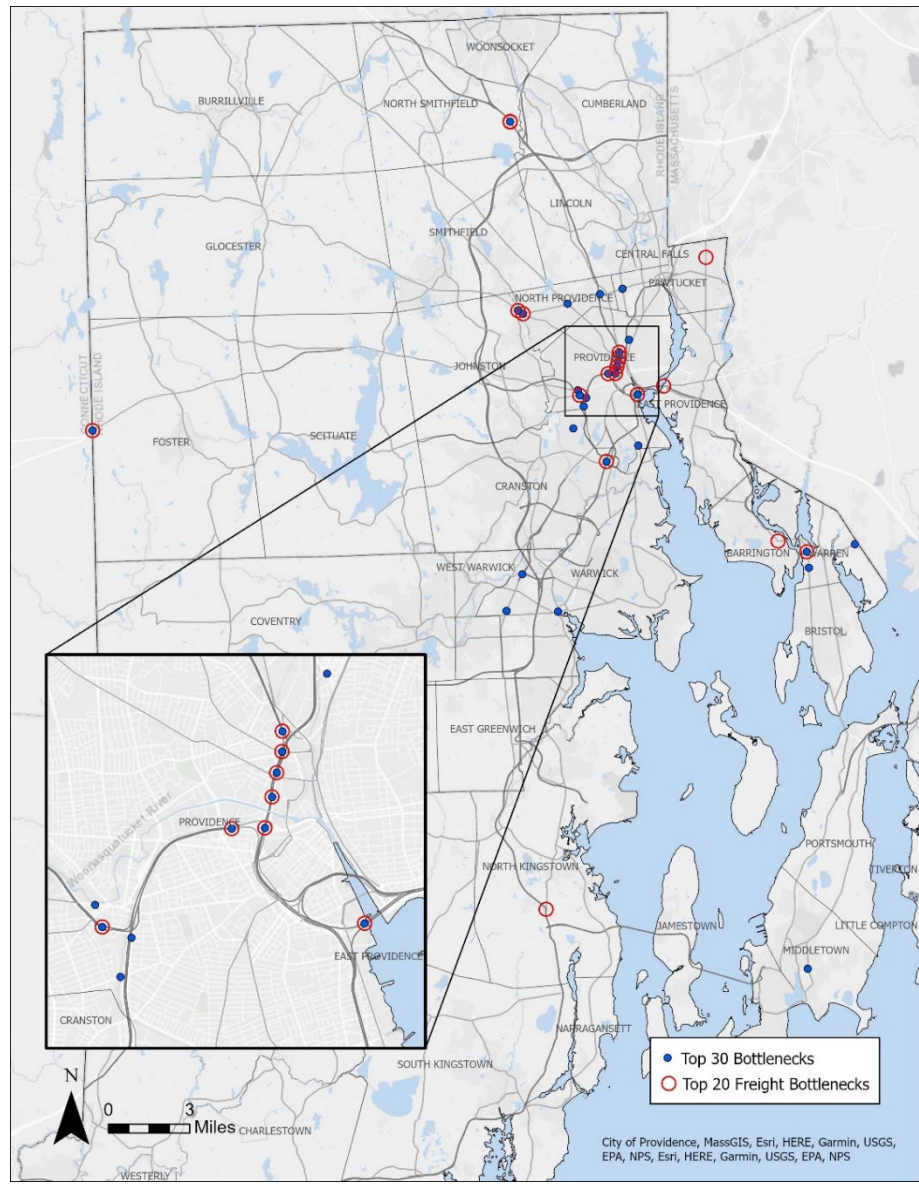


Figure 1-1 – Map of the top bottlenecks and freight bottlenecks within Rhode Island

Corridor Case Studies

For this update, two congestion mitigation projects were analyzed using the Congestion Scan Tool to better understand the impact of the projects on congestion metrics on the surrounding road segments. The analysis compares congestion metrics from before, immediately after, and a few years after construction is complete.

It is important to note some of the limitations of this analyses. We cannot draw a direct causation between the project and congestion alleviation. Many unrelated factors before and after implementing a project may impact congestion on the studied corridors. For example, there may have been other projects under construction close to the studied area that have worsened congestion in the study area. There could be new developments or activities in the area drawing more people to the area than before the project's construction. Conversely there could be fewer drivers on a particular corridor with changes in driving patterns. Some projects are difficult to analyze using this tool because they may impact many different corridors and intersections, each only a small amount – such as the new Central Falls / Pawtucket commuter rail station, which likely has drawn people away from driving on many different corridors without having a large impact on any one corridor at this point. Lastly, any analysis that includes time periods after 2020 may have altered traffic patterns and volumes due to the COVID-19 pandemic.

Regardless of the limitations of the analysis, it is important to evaluate projects to determine if they had the intended impact on congestion. As more projects are completed, we can look at these analyses in aggregate to identify patterns for how congestion mitigation projects appear to be working. From this we can learn if we need to alter some interventions to be more effective, utilize some interventions more frequently, or even retire interventions from our congestion mitigation toolbox if they seem to not be working.

Pell Bridge Ramps Phase 1 – JT Connell and Coddington Highways – Newport, RI

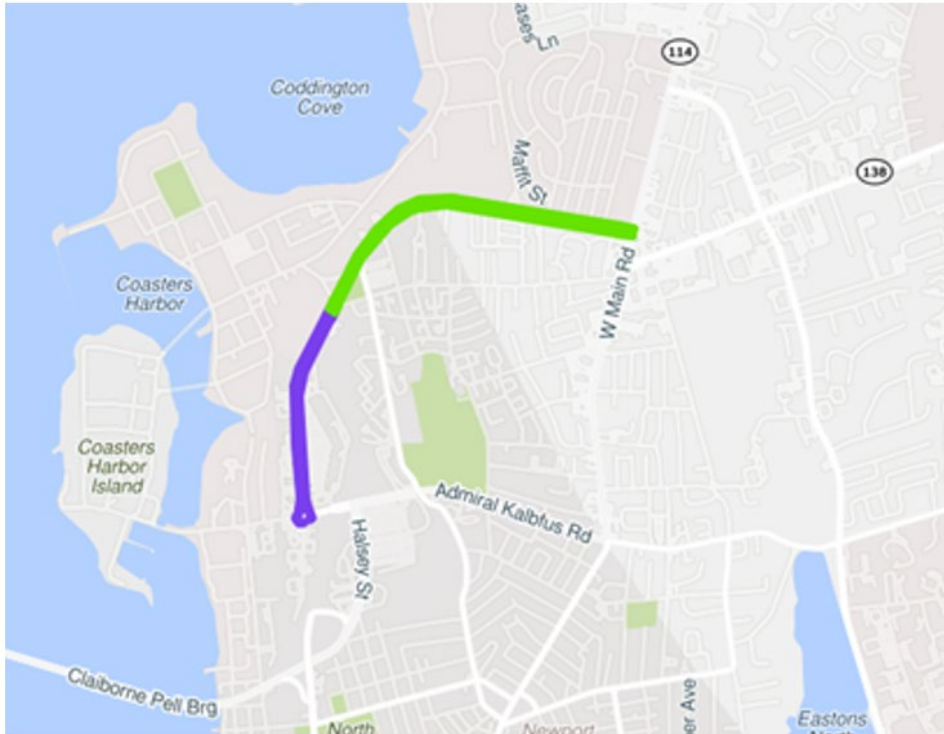


Figure 1-2: JT Connell (Purple) and Coddington Highways (Green)

It should be noted that many of these interventions were focused on making it safer and more attractive for bikes and pedestrians to use this road, as well as making driving safer. Phase 1 finished construction at the end of 2021.

Below, Figure 1-3 shows what congestion was like before and after the Phase 1 project. Construction started in 2020 and ended in late 2021 so the congestion scan analyses show 2019, 2021, and 2022. 2021 will show the results as the project was first completed, while 2022 helps illustrate the short-term impact this project had on congestion. Phase 2 of the Pell Bridge Ramps project, which started with a reconstruction of the roundabout at Admiral Kalbfus Road, began in 2021 and continued through 2022, and could impact this congestion scan analysis.

This \$10.9M project (STIP ID 1364) is the first phase of a two-phased approach at reducing vehicular congestion and queuing on the Pell Bridge and effectively reducing downtown Newport's congestion, improving connectivity between Newport's North End and Downtown area while also adding bike lanes, and spurring economic development. This phase was focused on the reconstruction of the JT Connell and Coddington Highways. A shared-use bike and pedestrian path was added for nearly the entire stretch of the project, stopping just short of Main Road at Lake Erie Street. New sidewalks were also installed for the project length. Additionally, the ramps to the closed bridge over the railroad from the intersection with Girard Avenue and Maple Avenue were removed, and those intersections were reconstructed. Maple Avenue changed from slip lanes into a T-intersection to the highway, and Girard Avenue was narrowed significantly and made into a T intersection, with a left turn lane from the highway. A center turn lane was removed from just past the intersection with John H Chafee Boulevard up to the driveway for the RIPTA Newport Division facility. From that facility driveway up to Lawrence Street, the lanes were narrowed to

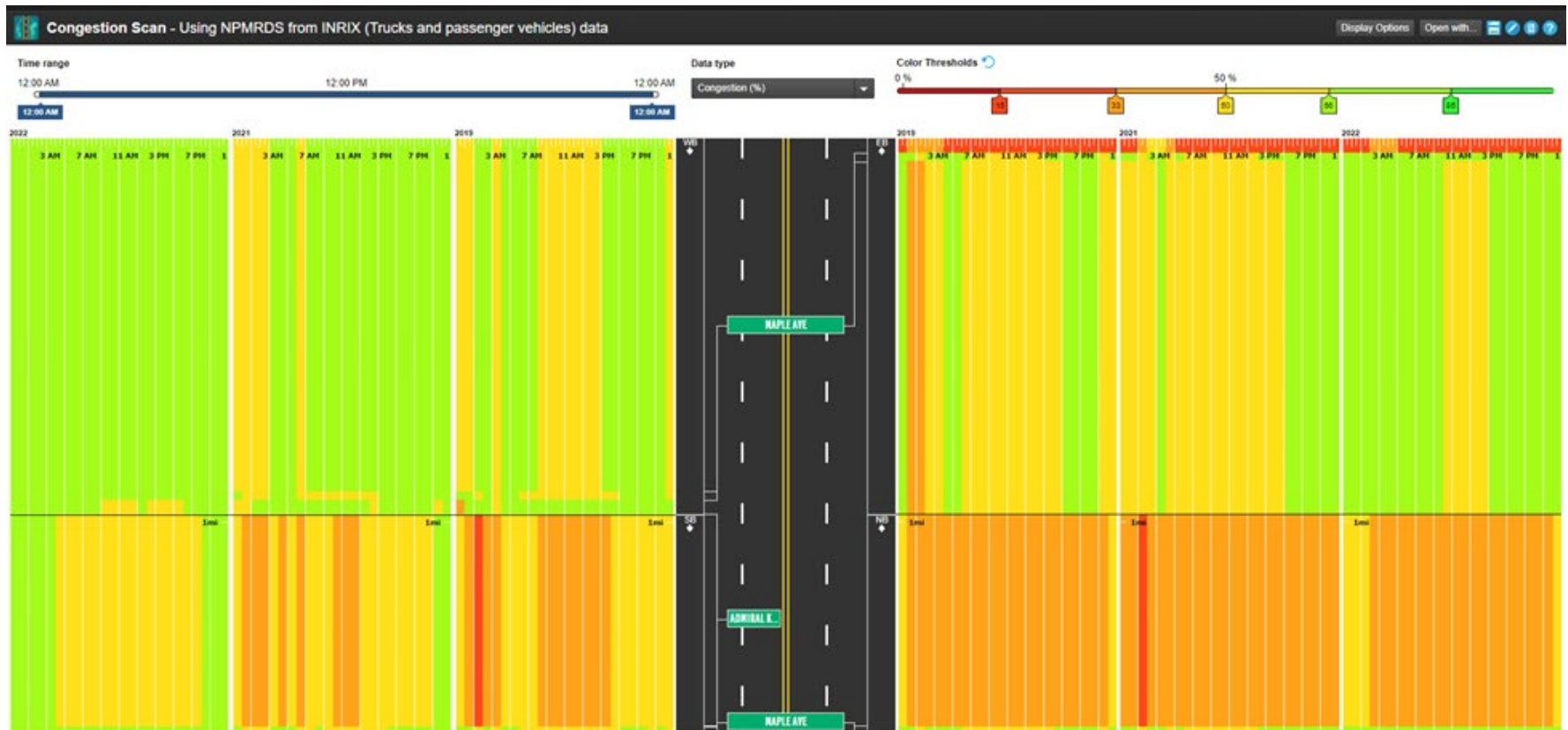


Figure 1-3 – Coddington (EB/WB) and JT Connell Highways (NB/SB)

Table 1-5 shows the amount of time it takes to travel through JT Connell (NB/SB) and Coddington (EB/WB) highways in seconds, during peak travel times. The bottom right of the table shows the difference in time from 2022 compared to 2019, before the project started. The purpose of this metric is to show how much more or less congested this studied area is when most people travel this corridor during normal driving hours.

JT Connell Highway

JT Connell Highway Northbound		JT Connell Highway Southbound	
Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)	Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)
2019	108	2019	101.4
2021	108	2021	121.8
2022	99	2022	90
Difference from 2019 - 2022	-9	Difference from 2019 - 2022	-11.4

Coddington Highway

Coddington Highway Eastbound		Coddington Highway Westbound	
Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)	Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)
2019	142.2	2019	122.4
2021	141	2021	117.6
2022	132	2022	109.8
Difference from 2019 - 2022	-10.2	Difference from 2019 - 2022	-12.6

Table 1-5: Measurement for the time it takes to drive through JT Connell and Coddington Highways in Seconds

The data from the travel time analysis (Table 1-5) shows that Coddington Highway EB saw a reduction in travel time during peak flow hours in 2022 compared to 2019 by 10.2 seconds. Coddington Highway WB saw a larger decrease time traveled through this corridor. JT Connell NB saw a decrease of 9 seconds and SB saw a decrease in 11.4 seconds.

Overall, from 2019 to 2022, there looks to be a reduction in congestion for both JT Connell (NB/SB) and Coddington (EB/WB) highways. There was a modest improvement in congestion from 2019 to 2021 for Coddington Highway both East and Westbound. In 2022, congestion continued to modestly improve in both directions.

While we can't make any definite conclusions from this small analysis, these results could indicate that improvements that make streets safer for all road users, including bikes and pedestrians, may have beneficial impacts on congestion. While lane narrowing and T intersections may seem like interventions that might slow cars down, the benefits from clear and right-fit traffic patterns may actually help to smooth traffic and reduce congestion in this case. Additionally, bike and pedestrian facilities may have incentivized some to use those modes rather than driving through this corridor. Based on a Streetlight data analysis, pedestrian volumes increased nearly 50% through this corridor after this project was completed. Many different factors could be impacting congestion in this corridor, including the construction of Phase 2 of the Pell Bridge Ramps projects at the Admiral Kalbfus intersection which could either be deterring traffic from going through this corridor or could be worsening congestion with altered traffic patterns, and lingering impacts from COVID-19.

Two Mile Corner – Middletown, RI

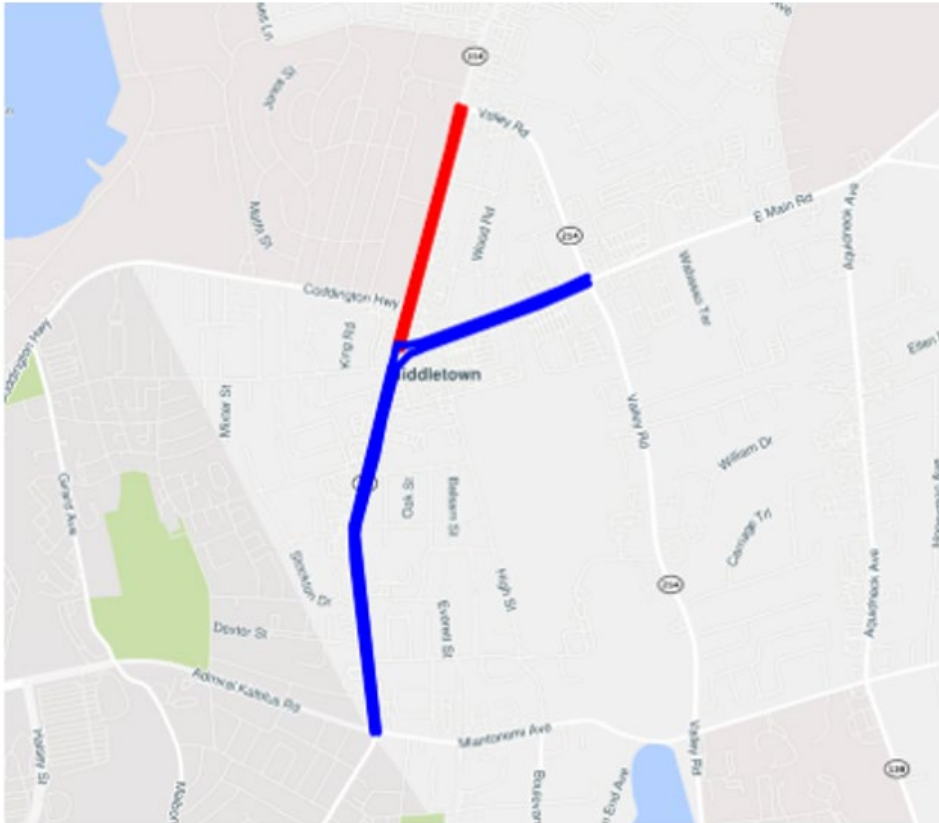


Figure 1-4: RI 114 (Red) and RI 138 (Blue)

The \$14.2M Two Mile Corner project (STIP ID 1356) aimed to improve traffic flow, help make businesses more accessible, and improve safety for pedestrians. Specific interventions include: center turn lanes on RI-114/West Main Road in both directions, removing a right slip lane from RI-138/East Main Road and shifting it to an exclusive right, new concrete sidewalks, and an upgraded traffic signal in front of the Aquidneck Shopping Centre.

Below, Figure 1-5 shows what congestion was like before and after the Two-Mile Corner project. Construction started in June 2016 and ended in September 2019, so the congestion scan analyses show 2015, 2019, and 2022. 2019 will show the results of the project shortly after its completion, while 2022 helps illustrate the longer-term impact of the project. The congestion scan included INRIX segments running from Valley Road on RI-114 to the intersection with RI-138, and from Valley Road on RI-138 from Valley Road to Admiral Kalbfus Road.

Congestion for RI-114 between RI-138/E Main Rd and Valley Rd and RI-138 using INRIX data

Averaged by 1 hour for 2015, 2019, and 2022

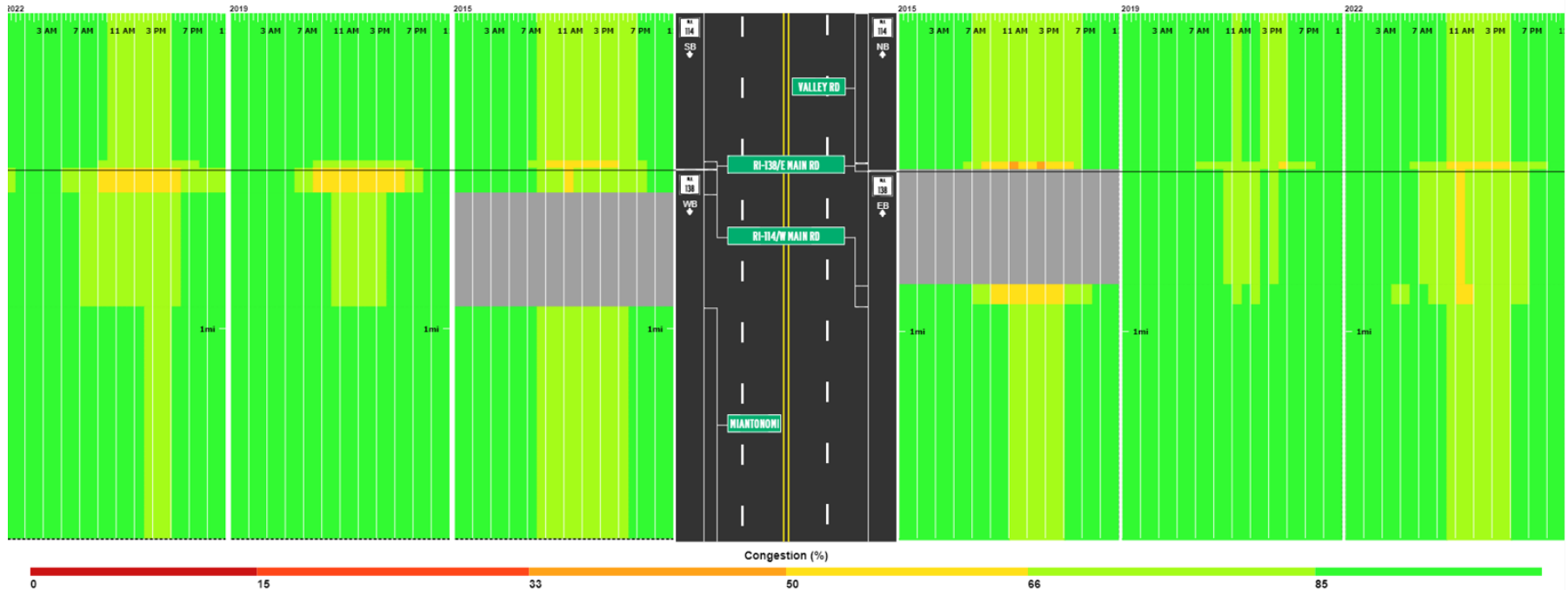


Figure 1-5: Congestion Scan of the Two-Mile Corner Project

Overall, though congestion went down for most directions of travel from 2015 to 2019, congestion appears to be creeping back up in 2022.

The new center turn lanes were likely intended to reduce congestion on 114 north and south, and 138 eastbound leading up to the Two-Mile Corner intersection. The congestion scan shows an improvement at Two Mile Corner on 114 north and south from 2015 to 2019, but congestion started worsening again from 2019 to 2022. That spot still appears to be slightly less congested than in 2015. 138 eastbound shows a similar pattern – improvement from 2015 to 2019 and then worsening from 2019 to 2022, with congestion still slightly better than in 2015. Additionally, the segment of RI-138 westbound just before Two-Mile Corner has gotten more congested since 2015, potentially an effect of turning the right slip lane into an exclusive right turn at the intersection, an intervention that improves pedestrian safety.

Below, Table 1-5 was calculated using the same methodology as JT Connell and Coddington highways. The table shows the amount of time it takes to travel through RI-114 (NB/SB) and RI-138 (EB/WB) highways in seconds, during peak travel times. The bottom right of the table shows the difference in time from 2022 compared to 2015, before the project started.

RI-114

RI-114 Northbound		RI-114 Southbound	
Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)	Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)
2015	88.2	2015	87.6
2019	85.8	2019	81.6
2022	82.2	2022	77.4
Difference from 2015 - 2022	-6	Difference from 2015 - 2022	-10.6

RI 138

RI-138 Eastbound		RI-138 Westbound	
Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)	Year	Travel time (seconds) during Peak Hours (7:00 AM - 6:30 PM)
2015	140.4	2015	127.8
2019	220.8	2019	196.8
2022	199.2	2022	198
Difference from 2015 - 2022	58.8	Difference from 2015 - 2022	70.2

Table 1-6: Measurement for the time it takes to drive through RI-114 and RI-138 in Seconds

Based on Table 1-5, the Two-Mile project seemed to show decreases in travel time on only one corridor. RI-114 shows the largest decrease in congestion from before the project began and after. RI-138 showed an increase in the amount of time that it took to travel through both eastbound and westbound corridors.

Considering the low levels of congestion on these segments, the minor traffic pattern interventions this project included, and the large spread of years analyzed, it is important to note that these changes may have been impacted by factors beyond this project. As more analyses of interventions like center turn lanes are done, they can be analyzed in aggregate to make more conclusive remarks about their effectiveness in reducing congestion.

Lastly, this project aimed not just at reducing congestion, but also at improving pedestrian safety and access to businesses in the area. The project goals may still have been achieved, even if travel times have slowed. Many projects have multiple and sometimes competing goals, reflecting the multiple and sometimes competing needs of our transportation network. In future analyses of this type, it would be helpful to learn from the project management team directly as to what project elements are aimed at what goals, and what the expected congestion mitigation impacts are. Evaluation can then benchmark off those expectations and goals.

Congestion Management Trends and Strategies

Performance Measures

Given the small size of the state of Rhode Island and its geographic location, the Providence area has a large impact on the state metrics. This is due to most of the state's population living in the Providence area, but also the relative proximity to Boston (50 miles) and Worcester (40 miles) certainly has additional impacts on congestion. When comparing Providence to other U.S. cities, Providence ranks number 23 in the U.S. based on the metric of average travel time per 10 km. This represents a modest 10 second increase from the previous year².

Performance tracking from 2021 shows stark changes to those observed in 2020, as expected considering the abnormally low congestion levels during the height of the COVID-19 pandemic in 2020. The metrics shown (Table 1-1) reflect worsening conditions for most performance measures. Reliability of the transportation system and freight movement has decreased except for average incident clearance time and average incident rate. Congestion has increased except for the number of bottlenecks, which has decreased slightly, but the total delay at these bottlenecks has increased to 2019 levels. Freight bottlenecks have increased significantly from 2020. Some commuter-based metrics such as commuter rail and bus ridership has continued to decrease, while percent non-SOV travel and ferry ridership has increased. 2021 experienced fewer people unemployed, but many were still cautious of riding with large groups people which may explain why bus and rail ridership were still down from pre-pandemic numbers. Total vehicle miles traveled also increased, which may be the basis behind many of the metrics showing a worsening of conditions in 2021 compared to 2020. Some of these metrics are still at better levels than in 2019, which is expected since 2021 still had some COVID-19 impacts.

One factor that may impact the persistence of congestion in the state is the relative inaccessibility of destinations using non-car modes. There are 84% fewer jobs accessible within a 45-minute commute by transit as compared to by car.³ Because of this inaccessibility, people may not feel they can feasibly switch to using transit instead of a car to get around. Even high levels of congestion will not deter drivers if they don't have a viable alternative to turn to when driving is inconvenient. Accessibility is based on both land use and transportation options. Improving the RIPTA system through increased frequency, spread, and speeds of public transit could help to reduce driving and congestion. Additionally, congestion could be improved by state agencies and cities shaping development and growth so that destinations concentrate in denser areas that are easy to serve with public transit.

² TomTom Traffic Index – Ranking 2022. <https://www.tomtom.com/traffic-index/ranking/?country=US>

³ Ran query for “Destination accessibility by transit” and for “Destination accessibility by car” averaged for the state of Rhode Island using the Environmental Protection Agency (EPA) Smart Location Database. URL: <https://www.epa.gov/smartgrowth/smart-location-mapping#Trans45>. Accessed August 2023.

Major Corridor Trends

Figure 1-6 provides a picture of how the major interstates in State of Rhode Island are trending. In the 2022 CMP update, two time periods were compared (May 8, 2020 to May 6, 2021 and May 7, 2021 to May 6, 2022) along two roadways (I-95 North and Southbound and RI-146 North and Southbound) using NPMRDS personal vehicle and truck data and showing Congestion percentage compared to free flow speeds. For this year's update, the period of May 1, 2022 to May 1, 2023 were added to show where we are trending from 2020, when the COVID-19 pandemic had a significant impact on congestion.

Figure 1-6 shows that the congestion percentage has increased from 2020 -2021 to 2021 - 2022, specifically around Exit 23(new exit 38A/B) on I-95 and near Charles Street along RI-146 in Providence. There is a slight uptick in congestion in this same area for 2022 – 2023 with the exception being I-95 NB decreased slightly in the most recent time period. Some other key trends are heavier peak PM travel along both RI-146 and I-95 in select locations in Providence as well as a longer range in the congestion timing for 2021 – 2023 compared to 2020 - 2021. Along I-95 SB and RI-146 SB, moderate congestion is occurring from 7:00 – 9:00 AM and picks back up from 12:00 PM – 6:00 PM, with the heaviest congestion observed from 3:00 PM – 6:00 PM for both 2021 - 2022 and 2022 - 2023. In comparison, the 2020 – 2021 range analysis shows only some moderate congestion, occurring mainly from 3:00 – 6:00 PM. There are similar delays northbound, again mainly during the PM peak hours, heaviest from 2:00 PM – 6:00 PM.



Figure 1-6: I-95 and RI-146 Corridor Congestion Scan

Congestion Mitigation Strategies: Research and Trends

The strategies utilized in the CMP projects are:

- New Capacity
- ITS and Operations
- Bicycle and Pedestrian
- Transit Operations
- Roadway / Mobility (Non-ITS)
- Demand Management

Research continues to evolve on the effectiveness of various congestion mitigating strategies, and few strategies have fully conclusive evidence on their effectiveness. Notably, the body of research showing that expanding road capacity is not generally effective at reducing congestion in the long run and tends to have detrimental effects on greenhouse gas emissions and air pollution, is growing every year.^{4,5,6,7,8} One meta-analysis by Planetizen found several common congestion mitigation interventions to be either ineffective or inconclusive when examining the body of research, including road widening, self-driving cars, tunnels, public transit, higher gas prices, and improved traffic flows.⁹ Instead, they argue that the only definitive way to reduce congestion is to reduce driving.¹⁰

Additionally, while congestion is in and of itself a cost on people's time and quality of life, there are many studies that find that some congestion mitigation interventions do not necessarily reduce carbon emissions or air pollution. The impact on the environment depends on if the project induces demand and increases VMT and depends on the makeup of the vehicle fleet. As more vehicles become more fuel efficient and even

⁴ Anupriya, et al. "Congestion in Cities: Can Road Capacity Expansions Provide a Solution?" *Transportation Research Part A: Policy and Practice*, vol. 174, Aug. 2023, p. 103726, <https://doi.org/10.1016/j.tra.2023.103726>.

⁵ Kuss, Paula, and Kimberly A. Nicholas. "A Dozen Effective Interventions to Reduce Car Use in European Cities: Lessons Learned from a Meta-Analysis and Transition Management." *Case Studies on Transport Policy*, vol. 10, no. 3, 2022, pp. 1494–1513, <https://doi.org/10.1016/j.cstp.2022.02.001>.

⁶ Sorensen, Paul, et al. "Reducing Traffic Congestion in Los Angeles." *RAND Corporation Research Brief*, 2008, <https://doi.org/10.7249/rb9385>.

⁷ Graham, Daniel J., et al. "Quantifying Causal Effects of Road Network Capacity Expansions on Traffic Volume and Density via a Mixed Model Propensity Score Estimator." *Journal of the American Statistical Association*, vol. 109, no. 508, 2014, pp. 1440–1449, <https://doi.org/10.1080/01621459.2014.956871>.

⁸ Hymel, Kent. "If You Build It, They Will Drive: Measuring Induced Demand for Vehicle Travel in Urban Areas." *Transport Policy*, vol. 76, 2019, pp. 57–66, <https://doi.org/10.1016/j.tranpol.2018.12.006>.

⁹ Brasuell, James. "How Planning Fails to Solve Congestion." *Planetizen*, 20 Apr. 2022, www.planetizen.com/features/116914-how-planning-fails-solve-congestion.

¹⁰ Brasuell, James. "Planning for Congestion Relief." *Planetizen*. 12 May 2022, <https://www.planetizen.com/features/117153-planning-congestion-relief>

electric, idling in congestion becomes less and less damaging to air pollution and emissions.¹¹¹² This is further highlighted by the fact that FHWA's Congestion Mitigation and Air Quality program does not consider the construction of new road capacity available to single occupant vehicles as an eligible project for program funding.¹³

Technological tools for congestion mitigation are continuing to evolve, including intelligent transportation systems (ITS) and autonomous vehicles (AVs). ITS is "an integrated system of advanced communications technologies embedded in the transportation infrastructure and in vehicles to improve transportation safety and mobility."¹⁴ USDOT has created an Intelligent Transportation Systems Joint Program Office to continue to track progress in the field as it relates to safety, congestion, sustainability, connected vehicles, and more. There is some evidence that ITS can be effective at reducing congestion.¹⁵¹⁶ Autonomous vehicles are still far from full implementation, and the impacts of the technology are still unknown. Several planned features of AVs could reduce traffic congestion, such as platooning and automated re-routing. Yet other simulation studies indicate AVs could worsen congestion.¹⁷¹⁸ Much of the impact of AVs depend on technological and policy decisions yet to be made. Additionally, the impact of AVs on greenhouse gas emissions is still unknown, considering the potential for induced demand as using a car becomes even easier.¹⁹

¹¹ Handy, Susan. "Increasing Highway Capacity Unlikely

To Relieve Traffic Congestion." *National Center for Sustainable Transportation Policy Brief*. October 2015.

¹² Bigazzi, Alexander Y., and Miguel A. Figliozzi. "Congestion and Emissions Mitigation: A Comparison of Capacity, Demand, and Vehicle Based Strategies." *Transportation Research Part D: Transport and Environment*, vol. 17, no. 7, 2012, pp. 538–547, <https://doi.org/10.1016/j.trd.2012.06.008>.

¹³ 23 USC 149 - Congestion Mitigation and Air Quality Improvement Program: <https://www.govinfo.gov/content/pkg/USCODE-2012-title23/html/USCODE-2012-title23-chap1-sec149.htm>

¹⁴ FHWA. Improving Safety and Operations Using Low-Cost ITS Applications on Local and Rural Roads. https://safety.fhwa.dot.gov/local_rural/training/fhwasa14086/its_apps.pdf

¹⁵ Cheng, Zhi (Aaron), et al. "Mitigating Traffic Congestion: The Role of Intelligent Transportation Systems." *Information Systems Research*, vol. 31, no. 3, 2020, pp. 653–674, <https://doi.org/10.1287/isre.2019.0894>.

¹⁶ Guo, Yuhui, et al. "Could a Smart City Ameliorate Urban Traffic Congestion? A Quasi-Natural Experiment Based on a Smart City Pilot Program in China." *Sustainability*, vol. 12, no. 6, 2020, p. 2291, <https://doi.org/10.3390/su12062291>.

¹⁷ Cummins, Liam, et al. "Simulating the Effectiveness of Wave Dissipation by Followerstopper Autonomous Vehicles." *Transportation Research Part C: Emerging Technologies*, vol. 123, 2021, p. 102954, <https://doi.org/10.1016/j.trc.2020.102954>.)

¹⁸ Kellett, Jon, et al. "How Might Autonomous Vehicles Impact the City? The Case of Commuting to Central Adelaide." *Urban Policy and Research*, vol. 37, no. 4, 2019, pp. 442–457, <https://doi.org/10.1080/08111146.2019.1674646>.

¹⁹ Massar, Moneim, et al. "Impacts of Autonomous Vehicles on Greenhouse Gas Emissions—Positive or Negative?" *International Journal of Environmental Research and Public Health*, vol. 18, no. 11, 2021, p. 5567, <https://doi.org/10.3390/ijerph18115567>.

Congestion pricing has long been found to be effective at reducing traffic congestion, particularly in urban centers.²⁰ Various forms of congestion pricing have been utilized in cities internationally for many years, but not in the United States. In June 2023, New York City cleared its final milestone with FHWA to implement congestion pricing.²¹ This will give the rest of the nation a chance to see if the congestion mitigation intervention that has been so effective in international cities can also work in the American context.

²⁰ Kuss, Paula, and Kimberly A. Nicholas. "A Dozen Effective Interventions to Reduce Car Use in European Cities: Lessons Learned from a Meta-Analysis and Transition Management." *Case Studies on Transport Policy*, vol. 10, no. 3, 2022, pp. 1494–1513, <https://doi.org/10.1016/j.cstp.2022.02.001>.

²¹ Meyersohn, Nathaniel. "Congestion pricing is coming to New York City, officials announce". CNN. June 26, 2023. <https://www.cnn.com/2023/06/26/business/new-york-city-congestion-pricing/index.html#:~:text=In%20practice%2C%20it%20works%20like,to%20%2423%20during%20peak%20hours>.

Appendix A: CMP Inventory Update

In the CMP, an inventory of over 70 projects were compiled to understand which projects from the State Transportation Improvement Program (STIP) and other plans were going to contribute to congestion mitigation. In this section, we provide updates on the statuses of those projects that have been made since last year in 2022. A new STIP for Federal Fiscal Years 2022 – 2031 was approved in September 2021. With the approval of the STIP, 48 new projects have been added to the CMP inventory that may impact congestion. In addition, some projects have been completed and therefore removed from the prior list. The new project list below over 140 projects that address congestion from the FFY 2018-2027 STIP, FFY 2022-2031 STIP, LRTP, BMP, and TMP. This updated list is provided in the following pages.

2018-2027 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Bridge Group 51A	6638; 6639; 6770	Coventry, Cranston, Warwick	2018	\$72.18	Safety Improvements to Pontiac Avenue, Sockanosset Cross Road, and the Route 37 on- and off-ramps, including the introduction of dual left-turn lanes northbound onto Sockanosset Cross Road, widening of the Route 37 West off-ramp onto Pontiac Avenue (TIP ID 6770, Bridge #126401), and signal improvements to improve traffic flow.	ITS and Operations	Moved to STIP ID 3132, see STIP 22-31
Transportation Management Center	7505	Statewide	2018	\$35.00	This program provides ITS throughout the State, including variable message boards and real-time monitoring of traffic. The TMC's broad-based information gathering and sharing capability enables the TMC to identify highway incidents and congestion with the primary goal of minimizing the environmental and economic impacts of planned and unplanned incidents and events and to improve roadway safety.	ITS and Operations	Ongoing
Two Mile Corner	1356	Middletown	2018	\$3.90	Reconstruction of Two Mile Corner (Routes 138/114) East Main Road (West Main Rd to Bailey Brook) and West Main Rd (Smythe St to Maplewood Rd), Middletown. Remove and replace pavement structure, widening to accommodate additional turn lanes, new drainage system, new traffic signal systems, and new sidewalk/ADA improvements.	New Capacity; ITS and Operations	Completed.
Pell Bridge Ramps, Phase 1	1364	Middletown, Newport	2018	\$15.25	Full reconstruction of JT Connell & Coddington Highway, miscellaneous safety and traffic signal improvements in preparation for Phase 2, and the construction of a shared use path.	ITS and Operations; Bicycle and Pedestrian	Completed.
Pedestrian and Bicycle Safety Improvements—Exchange Street	1461	Providence	2018	\$1.30	This project utilizes Federal Transit Administration grant funding and highway safety improvement program funding to provide connections for bicycle and pedestrian traffic along this heavily traveled corridor providing access to Providence Station, along Exchange Street in Providence between Fulton Street/Finance.	Bicycle and Pedestrian	Completed.
Arterial Traffic Signal Improvements—Allens Avenue	1510	Providence	2019	\$3.20	This line item includes transit signal priority improvements to Allens Avenue corridor.	Transit Operations	Completed.

2018-2027 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Arterial Traffic Signal Improvements to Route 1 and Route 3	1536	East Greenwich, West Warwick	2021	\$1.40	This line item includes establishing the coordination and communication between appropriate traffic signals on selected arterial corridors with the purpose of improving traffic operations and enabling improved traffic management.	ITS and Operations	TBD
Arterial Traffic Signal Improvements— Warwick Ave	1537	Cranston, Warwick	2021	\$2.80	This line item includes improvements to corridor travel efficiency by coordinating the operation of adjacent signals.	ITS and Operations	TBD
Roundabout at Intersection of RT. 138 and RT. 112	5219	Richmond	2018	\$3.50	Install new roundabout to alleviate congestion and safety hazards at this intersection.	Roadway/ Mobility (Non-ITS)	See STIP 22-31
Pawtucket/Central Falls Transit Center	5011	Pawtucket	2019	\$50.91	Proposed MBTA commuter rail station adjacent to downtown Pawtucket, and potential TOD, providing convenient access to employment centers in Boston and Providence.	Transit Operations	Substantial Completion achieved January 2023.
Providence Intermodal Transit Center	5204	Providence	2018	\$29.75	Creation of an expanded state-of-the-art transportation center/bus hub serving rail and bus passengers at the existing Amtrak and MBTA station.	Transit Operations	Planning & Design.
RIPTA Passenger Infrastructure Enhancement	5256	Statewide	2020	\$9.60	Establish new hubs at key destinations, including two new hubs in downtown Providence and at 6 locations throughout the State; implement a Passenger Experience Enhancement Plan, bringing bus stop amenities up to the levels established by RIPTA's board-adopted Service Standards; address bus shelters, seating, signage and other amenities in a coordinated statewide campaign.	Transit Operations	
Urban BikeRoute Markings and Amenities (Green Economy Bond)	5023	Statewide	2022	\$0.30	Pavement marking and signage for on-road bike routes in urban areas, projects to be determined (TBD).	Bicycle and Pedestrian	Completed.

2018-2027 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Providence Bicycle Infrastructure Enhancements	5199	Providence	2023	\$1.80	Design and construction of approx. 20 miles of on road bicycle lanes, shared lane markings, bicycle boxes, bicycle signal loops, bicycle racks and other related bicycle infrastructure. RIDOT/City are developing a Vulnerable User Safety Action Plan.	Bicycle and Pedestrian	
Main Street Improvements	5309	Woonsocket	2019	\$5.00	Repaving Sidewalks, elongated bump out for pedestrian crossings, lighting improvements, new crosswalks, ADA ramps, bike parking facilities, shared lane markings, signage, street trees, creation of roundabouts, and bike/ped connections to river.	Bicycle and Pedestrian	Construction. Funding runs from FY22 to FY26 with gaps.
Passenger Initiatives	7016	Statewide	2018	\$5.00	This program's funds are used towards distribution of timetables and transit marketing materials at intermodal facilities, on the web, and other key points within the State's transportation network.	Demand Management	See STIP 22-31: STIP ID 7003
Mobility Technology	7017	Statewide	2018	\$6.67	These funds will support planning for emerging projects such as Mobility Hubs, Frequent Transit Network, Crosstown Service, Rapid Bus, Regional Rapid Bus and facility and sustainability improvements associated with TMP implementation.	Study and Development	Ongoing; Funding available in 2023.
Commuter Resources	7018	Statewide	2018	\$7.27	The program includes commuter outreach and education, travel training, promotion of transit incentive programs, and transit fare subsidies or similar efforts.	Demand Management	See STIP 22-31: STIP ID 7003
Passenger Facilities	7012	Statewide	2019	\$21.85	This program funds improvements to bus stops, hubs, and intermodal facilities.	Transit Operations	Ongoing
Pawtucket Transit Center	7024	Pawtucket	2019	\$7.04	Development of bus facilities at the planned Pawtucket/Central Falls MBTA Commuter Rail station. Project also is associated with TIP ID 5011.	Transit Operations	Substantial Completion achieved January 2023.
Downtown Transit Connector	7020	Providence	2019	\$16.80	This project will provide scheduled, frequent bus service through Downtown Providence along a 1.4-mile corridor. Project also is associated with TIP ID 5184.	Transit Operations	Completed and in operation in January 2020

2018-2027 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
T-Link	5074	Statewide	2018	\$6.13	This program will allow the redesign and expansion of the fixed route bus. Service to complement MBTA operated commuter rail.	Transit Operations	Completed
Vanpool	7023	Statewide	2019	\$2.79	This program supports expansion of vanpooling in the State of Rhode Island.	Demand Management	Ongoing
Providence Viaduct, I-95 NB and SB at U.S. 6 Woonasquatucket River, Amtrak	6357	Providence	2018	\$245.91	The proposed project will transform the I-95 Northbound for motorists, as RIDOT currently is seeking to reconstruct the viaduct's six bridges, as well as rehabilitate five bridges, and construct three new bridge structures, along with the reconfiguration of a series of ramps to separate conflicting lanes of traffic. The construction of a new collector distributor road will also eliminate merging conflicts. The new configuration is expected to significantly improve traffic safety and also reduce backup from the Route 6/10 approach by up to 96 percent.	Roadway Capacity Expansion	See STIP 22-31

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
US-6 (RI-10 to I-95)	1281	Providence	2026	3.00	This line item involves resurfacing of the roadway.	Pavement - Resurfacing	This project will begin scoping in Fiscal Year 2026.
RI-103, Willett Ave. (Bullocks Point Ave. to Wampanoag Trail)	1298	Barrington/East Providence	2022	10.05	This line item involves resurfacing the roadway, limited sidewalk replacement, handicapped ramp installation, and addition of sidewalks between County Road and Willet Avenue. This project may include improvements to traffic and pedestrian safety and stormwater drainage.	Pavement - Resurfacing	This project is scheduled to advertise in August 2023.
Reservoir Rd. (US-44 to South Main St.)	1304	Burrillville/Glocester	2022	1.95	This line item involves resurfacing of the roadway. This project may include active transportation improvements, such as a dashed advisory bike lane, alongside additional improvements to traffic safety and stormwater.	Pavement - Resurfacing	This project is currently in design. This project is being coordinated with the resurfacing of US-44 under TIPIDs 9547 and 9549, sharing a PTSID of 2605N. Scheduled to advertise in August 2023.
Pell Bridge Ramps, Phase 1	1364	Middletown/Newport	2022	3.50	This project, previously named JT Connell Hwy (Admiral Kalbfus to Rt 114), involves full reconstruction of JT Connell and Coddington Highway, improvements to traffic safety, and construction of a shared use path. This line item represents Phase 1 of the Pell Bridge Ramps project.	Pavement - TAP; Roadway / Mobility (non-ITS)	This project achieved substantial completion August 31st, 2021.
US-6A (Hartford Ave, C-3)	1429	Johnston/Providence	2023	9.10	This line item involves reconstructing the roadway, replacement of sidewalks, handicapped ramp installation, and drainage improvements.	Pavement - Sidewalks	This project is currently being scoped and designed. Funding was increased in Amendment 6 to the FY22-31 STIP.
Ferry Boat Capital Funding	2067	Statewide	2067	5.00	This line item provides capital funding for ferry operators to support eligible projects on terminal facilities or ferry boats. Eligibility is subject to federal criteria and processes.	Transit Operations	This project remains in the STIP and is funded annually. Funding was increased in Amendment 6 to the FY22-31 STIP.

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Henderson Bridge Improvements, Phase 2	3062	Statewide	2023	40.00	This line item provides funding to support design of Phase 2 improvements to the Henderson Bridge and surrounding roadways. Improvements on the Providence side will include traffic calming measures, transit improvements, and the completion of shared-use path tie-ins. An overlook on the southern side of the bridge will also be designed. On the East Providence side, design will focus on shared use path connections to the work started during Phase 1 and the completion of a Henderson Parkway from Massasoit Ave to beyond Broadway.	Active Transportation - Design and Construction/Shared Use Path Connections	This project is currently being scoped and designed. Additional funding in Amendment 5 was added through Community Project Funding.
Bridge Group 57TB - Washington Bridge North	3082	East Providence	2022	63.00	Phase II work on Washington Bridge Westbound, this project includes repairs to bridge #070001 as well as restriping the approach to the bridge along I-195 Westbound. A new ramp connecting I-195 to Waterfront Drive in East Providence will also be constructed, and I-195 West will be resurfaced from Broadway in East Providence to the Providence River Bridge in Providence. This project is partially supported by a \$25M grant from the BUILD program.	Bridge	This project is in Active Construction as of September 1st, 2021. Completion is expected in August 2026.
6/10 Project	3122	Providence	2022	140.00	This project includes reconstructing the entire interchange of US-6 and RI-10 within the existing highway right of way, while replacing or removing the seven structurally deficient bridges within the project area. The project also includes new shared use paths extending from Union Avenue to Tobey Street to enhance connectivity between neighborhoods and link the Woonasquatucket River Bikeway and Washington Secondary Bike Path.	Bridge and Active Transportation/Bicycle and Pedestrian	This project is in active construction as of December 21st, 2017. Completion is expected in November 2023. Funding was increased in Amendment 6 to the FY22-31 STIP.

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Bridge Group 51A - RI 37 C-2	3132	Cranston/Warwick	2022	35.35	Bridge #062601, 062701, 062801, 062901, and 063501: Total bridge replacement. Safety Improvements to Pontiac Avenue, Sockanosset Cross Road, and the Route 37 on- and off-ramps, including the introduction of dual left-turn lanes northbound onto Sockanosset Cross Road, widening of the Route 37 West off-ramp onto Pontiac Avenue (Bridge #126401), and signal improvements to improve traffic flow. All other structures will be addressed with preservation activities to extend the useful service life of the structures.	Bridge Replacement	This project is in active construction as of January 27th, 2020. Completion is expected August 2023. Funding was increased in Amendment 6 to the FY22-31 STIP.
Bridge Group 75T 5B (I)--Providence Viaduct Northbound	3153	Providence	2022	215.50	This project will replace the 1,295-foot long northbound section of the Providence Viaduct Bridge which carries I-95 over numerous local roads and highway ramps, Amtrak's Northeast Corridor and the Woonasquatucket River. Construction of a new collector-distributor (C-D) road along the right side of the Interstate will eliminate the weaving conflicts and congestion that plague the segment of I-95 Northbound from the 6/10 Connector and Downtown on-ramps to the Route 146/State Offices interchange. Ramps will also be reconfigured to disentangle conflicting movements, improving motorist safety.	Bridge	This project is in active construction as of July 27th, 2020. Completion is expected September 2025.
Bridge Group 13D - Rt 146 C-3	3179	Lincoln/North Providence/Providence	2022	57.10	This project includes total replacement of the Wanskuck (#042801) and Admiral Street (#043001) bridges. Major rehab of the Cobble Hill Road Bridge (#041801) was previously included in Bridge Group 47C. At the merge of RI-146S and I-95S, a new collector-distributor road will be constructed linking traffic from RI-146S and I-95S directly to the US-6/RI-10 off-ramp, eliminating a conflicting weave that generates frequent congestion.	Bridge Replacement	The Schedule for this project was adjusted in Amendment 6 to shift the first year of funding for this project to 2023. Scoping for this project is expected to be completed in December of 2023.

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Bridge Group 96 - Route 146 Reconstruction	3250	Lincoln/North Smithfield	2022	147.50	Bridges #074801, 074821, and 044001: Major rehabilitation, superstructure and/or total bridge replacement. Bridges #018801 and 098701: Preservation to extend the useful service life of the structure. New construction of Bridge #134201, a new structure to be known as the Sayles Hill Road Flyover. RI-146 from I-295 to the Massachusetts State Line: Resurfacing the roadway in both directions, signage, striping, safety, and drainage improvements throughout the corridor. RI-146 Southbound from RI-15 to I-95: Installation of bus-on-shoulder lane.	Bridge and Pavement	This project remains in active construction. Funding for this project was increased in Amendment 3 from \$147.50M to \$196.86M. Completion is expected in August 2026.
Bridge Group 51B - RI 37 C-3	3300	Cranston/Johnston	2022	78.10	Replacement of bridges #072801, 072821, 062101, and 062201. Bridge #083101 will be replaced with the new structure being wider to support an additional lane, alongside installation of a high-friction surface treatment (HSFT). Bridge #062001: Preservation and realignment as a new fly-over bridge to allow a righthand merge from RI-37 East to I-295. Installation of a new off-ramp to RI-37 West. I-295 North from RI-37 to US-6: Creation and extension of an auxiliary travel lane through the Cranston Canyon.	Bridge and Pavement	This project advertised August 11th, 2021. Substantial completion is expected November 2026.
Corridor - Saylesville	3346	Lincoln/Pawtucket	2025	14.00	This line item includes repairs to several bridges along the Moshassuck River, and pavement on RI-123 and RI-126. Bridge work includes major rehabilitation, superstructure and/or total bridge replacement. Pavement will be addressed on Great Road from East Butterfly Way to Mineral Spring Avenue. This line item bundles work previously programmed under TIPIDs 1346, 1348, and 9541.	Bridge and Pavement	This project will begin scoping in Fiscal Year 2025. TIP ID 9563 was consolidated into this project in Amendment 6.

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Bridge Group 95 - I-95 / Rt 4 Missing Move	3350	Warwick	2022	103.85	This line item will support design and development of a potential future project to address the missing moves between RI-4 and I-95 and construct three deferred ramps linking US-1 and West Davisville Rd to RI-403. The funding for this line item includes a BUILD grant awarded in 2020 to plan the project, and funding to support construction if the project receives INFRA Grant support. RIDOT and QDC requested \$60M from the INFRA program in 2021.	Bridge	RIDOT is in the process of scoping this project in preparation for submission for an INFRA grant for 2023. RIDOT applied for the same grant in 2022 but was not selected. The budget for this project was increased in Amendment 6, from \$103.85M to \$115.35M.
Corridor - RI-104 Waterman/Farnum	3394	North Providence/Smithfield	2027	8.15	This line item involves the major rehabilitation of the Esmond-Georgiaville Bridge (#159). The project also includes resurfacing and sidewalk improvements (including sidewalk replacement) along RI-104 Farnum Pike and Waterman Avenue between US-44 and RI-116. This resurfacing work was previously included under TIPID 1394. Funding for this project may extend beyond 2031.	Bridge and Pavement	This project will begin scoping in Fiscal Year 2027.
Sandy Bottom Road Streetscape (Wood St. to Main St.)	5018	Coventry	2027	1.25	Install sidewalks and curbing on both sides of the road, install landscape areas and lighting for pedestrians and traffic, improved street conditions and new pavement, bike route/paths, park benches and other foot amenities	Active Transportation - Streetscape/Bicycle and Pedestrian	This project will begin scoping in Fiscal Year 2027.
Washington Secondary Bike Path Extension	5215	Providence	2025	1.71	This project will study, design, and construct an approximately 1-mile on-and-off-road multi-use trail to connect Olneyville Square to the current terminus of the Washington Secondary Bike Path at Depot Avenue in Cranston.	Active Transportation - Bicycle and Pedestrian	The Department is working through and an agreement with the City of Providence on this project. Funding was increased in Amendment 6 to the FY22-31 STIP via a federal earmark.
Roundabout at Intersection of RI-138 and RI-112	5219	Richmond	2022	3.65	Install new roundabout to alleviate congestion and safety hazards at the intersection of RI-138 Kingstown Road and RI-112 Richmond Townhouse Rd.	Traffic Safety - Roundabout	This project will begin active construction in 2023.
Quonset Ferry Terminal	5283	Statewide	2022	2.52	Construct a passenger ferry terminal at Rhode Island Fast Ferry's docks in the Quonset Business Park.	Transit Capital	No update
URI/CCRI Bus Hubs	5297	South Kingstown/Warwick	2022	10.05	Construction of bus hubs at CCRI's Knight campus and URI's Kingston campus.	Transit Capital	No update

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Travel Demand Management	7003	Statewide	2022	11.00	This program's funds are used towards distribution of timetables and transit marketing materials, as well as commuter outreach and education, travel training, promotion of transit incentive programs, and transit fare subsidies or similar efforts.	Transit Operations	Ongoing
Job Access and Reverse Commute (JARC)	7007	Statewide	2022	30.7575	This program offsets the costs of providing fixed route service associated with the Jobs Access Reverse Commute program. These routes support urban residents commuting to jobs in lower density areas.	Transit Service	Ongoing
ITS/Computers	7008	Statewide	2022	29.5002	This program funds the purchase of a variety of Intelligent Transportation Systems (ITS) equipment, including both regular replacement of standard information systems as well as upgrades.	Transit Operations/ITS	Ongoing
Service Initiatives	7015	Statewide	2022	33.75	This program's funds are used to support continuing operations of the R-Line and to defray three years of the cost of new pilot service projects.	Transit Service	Ongoing
High Capacity Transit Development	7020	Statewide	2022	2.0625	These funds will be used to support planning efforts to develop high capacity transit as called for by the transit master plan.	Transit Operations	In scoping/procurement
AMTRAK Access Fee	7101	Statewide	2022	23.26	This line item provides funding to support the flat fee assessed to all rail operators utilizing the Amtrak-owned Northeast Corridor. This fee covers Amtrak's costs for providing access to the Northeast Corridor, including dispatching, police, station operating costs, and routine maintenance. RIDOT's fee covers the MBTA operations for the territory from Providence to Wickford Junction.	RIDOT Transit Program	Administrative line item.
Other Operating Expenses	7105	Statewide	2022	5.55	This line item provides funding to address miscellaneous expenses incurred by RIDOT as a result of passenger rail operations. Expenses may include any coordination efforts with MBTA, Amtrak or RIPTA, passenger surveys, or cross-honoring programs.	RIDOT Transit Program	Administrative line item.

2022-2031 STIP							
Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
MBTA Operations (Capital for Operations)	7107	Statewide	2022	20.20	This line item makes funding available for RIDOT to reimburse MBTA with capital funds that are used on infrastructure to support the MBTA's Providence line in exchange for passenger rail service.	RIDOT Transit Program	Administrative line item.
Summer Service	7109	Statewide	2022	9.70	This line item involves the start-up operations and further development of limited seasonal bus/rail/ferry services connecting major tourist attractions and recreational facilities along Narragansett Bay. It is anticipated that the initial service in FY16 will be limited to weekends during the summer season at select locations, and depending upon usage and demand, could be expanded with additional locations and operations in subsequent years.	Transit Service	Administrative line item.
Transit Master Plan Investments	7151	Statewide	2023	67.10	Rhode Island's Transit Master Plan is being implemented through various line items throughout this TIP, sometimes as stand-alone projects, and sometimes incorporated into broader projects. This line item funds the development of additional TMP projects with a focus on project development in the constrained years. The outer-years provide larger sums for implementation of fleet enhancements, transit corridor expansion, state match funds to support future federal discretionary grants, or other projects to be developed.	RIDOT Transit Program	This project had its funding increased in Amendment 5 to the FY22-31 STIP to account for the allocation of \$2.5M of Consolidated Rail Infrastructure and Safety Improvement (CRISI) funds via Community Project Funding and Congressionally-Directed Spending to expand intermodal and parking access at Kingston Train Station.
Transit Master Plan Carbon Reduction Investments	7152	Statewide	2022	5.90	This line item funds the development of additional Transit Master Plan (TMP) projects with a focus on project implementation in the constrained years using Carbon Reduction funding provided under the IIJA. This project may be bundled with TIPID 7151, Transit Master Plan Investments, at a later date.	RIDOT Transit Program	Ongoing

2022-2031 STIP							
Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
TMC Equipment Asset Management	7508	Statewide	2022	7.15	This line item supports the regular maintenance, repair, and replacement of equipment utilized by the Traffic Management Center (TMC). This funding may be used to replace the most obsolete TMC equipment on an asset management basis.	RIDOT Maintenance	Ongoing
Maintenance Facilities and Related Expenses	7910	Statewide	2022	50.00	This line item provides RICAP funding to support expenses related to maintenance facilities and operations, including facility asset protection, salt brine and storage facilities, and annual maintenance and rental costs associated with park and ride facilities.	RIDOT Maintenance	Administrative line item.
Broad Street Regeneration Project	9007	Central Falls/Cumberland/Pawtucket	2022	5.60	Reconstruct full length of Broad Street through three communities to create complete street; Include pavement, stormwater drainage, turning/parking lanes, sidewalks, streetscape amenities, shade trees. This project combines project IDs #1307 and 1317.	Pavement	This project received notice to proceed on December 2nd, 2019. Substantial completion in June 2023.
Pell Bridge Ramps, Phase 2	9201	Newport	2022	33.00	This project, previously named "Reconstructing Pell Bridge Approaches, involves reconstructing and constructing roadways and ramps. This line item represents the second phase of the project and also includes sidewalk improvements, roundabout construction, and a shared-use path.	Pavement - Sidewalks	Notice to proceed was provided for this project on June 1st, 2021. Substantial completion is anticipated in December 2024.
Corridor - RI-2 Bald Hill Road and Quaker Lane	9273	Warwick	2030	1.40	This line item involves resurfacing RI-2 Bald Hill Road/Quaker Lane from East Greenwich Avenue to I-295. Resurfacing may include limited sidewalk replacement and handicapped ramp installation. This resurfacing was previously included under TIPID 5273. The Centerville Road Bridge (#042501) will receive additional steel and concrete repairs. Additional traffic and pedestrian safety improvements may be studied. This line item may require additional funding beyond 2031.	Bridge and Pavement	This project will begin in 2030 and represents a continued investment in Route 2 Bald Hill Road, a critical commercial corridor, following the completion of the East Avenue project.

2022-2031 STIP							
Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Intersection Safety Improvements 2019	9601	Johnston/Middletown/Portsmouth/Providence	2022	6.00	This line item include signing, striping, traffic signal phasing, turn lanes (through striping only), and other enhancements at signalized and unsignalized (including driveways) intersections statewide.	Traffic Safety	NTP was provided for this project on December 29th, 2021. Completion is expected May 2023.
Bridge Group 97 -- East Ave Corridor	9998	Warwick	2022	67.00	This project includes major rehabilitation work of bridges #682 and replacement of bridge #720, which carry RI-113 over I-295 and I-95. This project will also resurface RI-113 and improve sidewalks and ADA ramps between RI-5 Greenwich Ave and RI-2 Bald Hill Rd. A shared-use path maybe added to connect the Washington Secondary Bike Path to the CCRI Knight Campus. Improvements to turn lanes and signals at the Knight Campus intersection will also be incorporated into this corridor.	Bridge Rehabilitation and Replacement	This project is currently being scoped and evaluated. In Amendment 6 to the FY22-31 STIP additional paving was bundled into this project from other projects, including TIPID 1410 (RI-117, West Shore Road from Long Street to Oakland Beach Avenue) and TIPID 1413 (RI-113, Main Avenue from RI-5 to RI-117). In addition, paving from US-1 from RI-113 Main Avenue to Coronado Road is being incorporated with local matching funds from the City of Warwick. This project will require careful timing of signals along RI-113 and RI-2 to minimize congestion during construction.
Bridge Group 16D--Route 6 Corridor Improvements	9999	Johnston/Providence	2022	53.00	This project will complete bridge a pavement repairs along the limited-access portion of US-6 in Providence and Johnston. Bridges #060701, 060801, and 060901: Major rehab, superstructure and/or total bridge replacement. US-6 West and US-6 East from RI-128 to I-295: Resurfacing. US-6 West off-ramp to Hartford Ave: Geometry modifications and safety improvements. This project will require additional funding to complete, potentially through a discretionary grant.	Bridge and Pavement	This project is currently being scoped. Elements of the westbound section of this roadway are being resurfaced as part of an immediate action contract to remediate potholes and safety concerns.
Statewide Congested Corridor Upgrades	12113	Statewide	2022	9.50	This project will upgrade signal controller and detection equipment to mitigate congestion and improve air quality through signal coordination.	Traffic Safety	Project is ongoing, The 2024-2025 portion of this project has been reallocated to a new TIPID 13115, Statewide Congested Corridor Upgrades (2024-2025), for execution as a separate contract in Amendment 6 to the FY22-31 STIP.

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
ITS Additions to Capital Projects	12117	Statewide	2022	8.50	This line item provides funding to incorporate ITS assets into capital projects. Annual add ons may include any combination as-needed of: Camera sites for monitoring congestion and improving response times for highway incidents New/upgraded RVD sites for tracking congestion and movement of freight on NHS Workzone safety systems for real time safety and congestion management Standalone CMS signs Road Weather monitoring sites for winter operations.	RIDOT Maintenance/ITS	Ongoing
ATMS Development and Integration	12118	Statewide	2023	3.40	Develop software-based Advanced Traffic Management System (ATMS) to improve highway traffic management by integrating/streamlining all ITS Functions, improving collaboration incl. future Statewide CAD System and RI EMA Integration Activities and providing better notifications to the Public	RIDOT Maintenance/ATMS	Ongoing
Safety Service Patrols	12119	Statewide	2022	3.50	Dedicated service patrol program to cover I-95 and I-195 to quickly reach the scene of an incident and aid motorists, set up traffic control, and clear the road to reducing delay, emissions, fuel consumption and secondary incidents. Ramping up with additional vehicles /roads in future if benefits are realized. Deploy 2-vehicle fleet in Y1/Y2, 3-vehicle fleet in Y3/Y4, 4-vehicle fleet in Y5.	RIDOT Maintenance	Ongoing
Refurbishment and Expansion of CMS and Hybrid Travel Time Network	12120	Statewide	2022	5.50	Replacing 95 NB/SB Cowesett CMS in Y1, and remaining 5 overhead CMS in Y2/Y3 to provide useful traveler information and congestion mitigation. Deploying new arterial CMS to support arterial management and evac planning, phasing out HARs. Initial roll out of 10-15 hybrid travel time signs to provide multiple destination times, and alt route travel times to assist motorists in avoiding congestion.	RIDOT Maintenance/CMS	Ongoing
RIDOT Traffic Signal Systems Management Program	12121	Statewide	2022	2.50	Support for traffic-signal management related initiatives such as signal loop monitoring, diagnostics, repair/refurbish and integration.	RIDOT Maintenance	Ongoing

2022-2031 STIP

Project Name	STIP ID	Location	Year Funded	Amount (\$M)	Description	Intervention Type	2023 Status Update
Smart Corridors Initiatives	12122	Statewide	2022	0.30	Complete configuration and implement statewide streetlight mesh data network features in Y1, manage highway smart lights and support innovative new technology deployments for Connected Vehicle infrastructure and Smart Corridor development in subsequent years	RIDOT Maintenance	Ongoing
Statewide Congested Corridor Upgrades (2024-2025)	13113	Statewide	2024	4.5	This project will upgrade signal controller and detection equipment to mitigate congestion and improve air quality through signal coordination. This line item represents funding for the 2024 and 2025 contract.	Traffic Safety	This project was split from 12113 as part of Amendment 6 to the FY22-31 STIP in order to execute it as a separate contract for years 2024 through 2025.

2040 L RTP

Project Name	STIP ID	L RTP PoP#	Location	Description	Intervention Type	Project Status/ Design Status	Notes	2023 Status Update
Route 4 and I-95 Interchange Connectivity	3350	40		Connect I-95N to Rt 4 S, Rt 4N to I-95S	Roadway	Planning	TIP 4.16.18 edit—Unfunded, page 43	Design
I-195 Interchange: Taunton and Warren Avenue	42			Connectivity to/from Interstate in East Providence	Roadway	Planning	TIP 4.16.18 edit—Unfunded, page 43	West-bound I-195 Washington bridge is under construction (TIP ID 3082), includes repairs to Washington Bridge, restriping, and repaving from Providence line to Broadway in East Providence. No projects for eastbound at that interchange?
Route 146 at Sayles Hill Road	3250	16		Eliminate the traffic signal using grade separation. RIDOT requested \$90 million in INFRA 2020 application.	Roadway	10% Design	TIP 4.16.18 edit—Unfunded, page 43	Construction to begin in late summer early fall 2023
Route 403 Deferred Ramps	3350	17		Construct additional ramps to remove traffic from Devil's Foot Rd and Post Road	Roadway	Planning	TIP 4.16.18 edit—Unfunded, page 43	Design
Route 4 traffic light removal	NA	50		Grade separation to remove traffic signals from Route 4.	Roadway	Planning	TIP 4.16.18 edit—Unfunded, page 43; need more information on location	Unfunded.
Allens Ave and I-95 Southbound	NA	43		There currently is no direct connection between Allens Ave and I-95 South.	Roadway	Planning	2017 Amended Freight and Goods Movement Plan Page 152	Unfunded.
Create Access from ProvPort to I-95 Southbound	NA	19		Current configuration requires use of local roads with turning radius issues. Solution could add direct access to I-95 SB, identify alternate route, or add pavement/restriping to improve turning radii. Would improve marine port access.	Roadway/Port	Planning	2017 Amended Freight and Goods Movement Plan Page 159	Unfunded.
Widen I-295 as bypass	3300	90		I-295 has been discussed as freight bypass around Providence. This project would add capacity by increasing lane capacity from 2 lanes to 3 lanes in each direction along the southern segment of this interstate.	Roadway	10% Design	2017 Amended Freight and Goods Movement Plan Page 160	Under construction

2040 L RTP

Project Name	STIP ID	L RTP PoP#	Location	Description	Intervention Type	Project Status/ Design Status	Notes	2023 Status Update
Alleviate Bottleneck on I-195 WB @ Broadway	3082	68		I-195 WB has a lane drop between Broadway and the Washington bridge, creating a bottleneck and high congestion. Solution would add a lane to increase capacity. Note, current ROW is constrained and would require significant rebuild of retaining wall.	Roadway	Planning	2017 Amended Freight and Goods Movement Plan Page 160	Under construction
Widen I-295 Northbound at Route 37	3300	69		Bottleneck/congestion issue on I-295 NB where Route 37 merges on and extending as far north as Route 6, where 3 lane section begins. Solution could involve climbing lane or other capacity enhancements.	Roadway	10% Design	2017 Amended Freight and Goods Movement Plan Page 160	Under construction
Improve Ramps @ I-95 SB/Route 37		20		Traffic backs up onto I-95 from Route 37 ramp, due to short weaving direction before ramp splits to go to 37 EB or WB. Serves airport related traffic, plus surrounding area has increased in population, employment. Volumes exceed capacity of exit ramp. Ramp from 37 WB to Pontiac Avenue also backs up affecting I-95 off ramp.	Roadway	Planning	2017 Amended Freight and Goods Movement Plan Page 161	(TIP ID 3132)Widening of the Route 37 West off-ramp onto Pontiac Avenue (Bridge #126401), and signal improvements to improve traffic flow. Under construction in 2023
Add Capacity to Airport Road @ Post Road		70		Many traffic signals in close proximity cause congestion on Airport Road. Signal timing and coordination would help add capacity on Airport Road, better connecting T.F. Green Air freight terminal to main roads.	Roadway	Planning	2017 Amended Freight and Goods Movement Plan Page 161	Unfunded.

2040 LRTP

Project Name	STIP ID	LRTP PoP#	Location	Description	Intervention Type	Project Status/ Design Status	Notes	2023 Status Update
Improve Intersection at Route 114 and Mink Street in East Providence		21		Improve truck access by grade separation to resolve turning and access issues. Access to/from I-195 towards Fall River requires trucks to pass through commercial district on Route 6.	Roadway	Planning	2017 Amended Freight and Goods Movement Plan Page 163	Unfunded.
Improve Ramp from Post Road NB to Route 37		22		Heavy volume of trucks and other vehicles heading to 37WB from Post Road NB back up down the ramp onto Post Road. Trucks divert through surrounding neighborhood for access to Rt 37. Solution to congestion issue may be geometry or capacity enhancements.	Roadway	Planning	2017 Amended Freight and Goods Movement Plan Page 163	Unfunded.
Facilitate Truck Movements from Route 146 to Admiral Street		23		Trucks serving the USPS facility and West River industrial area have difficulty turning left off Route 146 onto Admiral, due to need for wide turn which conflicts with auto traffic.	Roadway/ Freight	Planning	2017 Amended Freight and Goods Movement Plan Page 163	Unfunded.
Improve Truck Access from Jefferson Blvd to Airport Connector		25		Poor turning radii from Jefferson Boulevard onto Airport Connector WB ramps limits truck access in surrounding industrial area.	Freight/Airport	Planning	2017 Amended Freight and Goods Movement Plan Page 164	Unfunded.
Aquidneck Island additional bus service				Extend on-Island bus service window on Route 60 (West Main and East Main Roads). Provide more off-Island limited stops or express service between Newport and TF Green Airport/Kingston Amtrak Station. Expand Flex Service areas and allow for same day scheduling.	Bus		Aquidneck Island Transportation Study (2011) Page ES-4	

2040 LRTP

Project Name	STIP ID	LRTP PoP#	Location	Description	Intervention Type	Project Status/ Design Status	Notes	2023 Status Update
Implement Rapid Bus Service for Aquidneck Island				Enhance the attractiveness of the service through new branded buses/stops and providing more frequent service. Implement transit signal priority on Route 60 along West Main Road and East Main Road, with queue jump lanes where possible. Reduce travel times by consolidating or eliminating closely spaced stops.	Bus		Aquidneck Island Transportation Study (2011) Page ES-4	
Strengthen and Expand Aquidneck Island Multimodal centers	NA			Upgrade Newport Gateway Center and create new multimodal hubs at Pell Bridge ramps and Melville. Create bicycle/ pedestrian/taxi/car sharing connections. Expand accessibility of transit passes at multimodal hubs. Integrate motor coach and intercity bus parking where appropriate. Include complementary non-transportation uses when appropriate which could help generate revenue and transit use.	General Transit		Aquidneck Island Transportation Study (2011) Page ES-5	Pell Bridge: Shared use path from Stop & Shop Plaza to Bridge Street along America's Cup Avenue is under construction, scheduled for completion in 2024. the new JT Connell and JT Connell Connector Road intersection was opened creating a straight roadway connection from Farewell Street to Admiral Kalbfus. Bridge demolition and rehabilitation work continued for the three overpasses along Route 138 (Third Street, Newport Secondary and JT Connell). The rest is unfunded?
Traffic Signal Optimization in Aquidneck Island				Coordinate Island traffic signals along major corridors.	Technology		Aquidneck Island Transportation Study (2011) Page ES-8	Not sure - under TIP 9601 there was signal work programmed in 2022 on aquidneck. Not sure if it got done or if it covers this project
West Main Road Left-Turn Lanes				Widen West Main Road to provide left turn lanes at Oliphant Lane and Forest Avenue. Extend existing left-turn lanes at Gate 17 Access Road, Valley Road, and Admiral Kalbfus Road.	Roadway		Aquidneck Island Transportation Study (2011) Page ES-9	Unfunded
Burma Road Improvements				Construct new Burma Road connections to the north and south.	Roadway		Aquidneck Island Transportation Study (2011) Page ES-9	Unfunded

2040 LRTP

Project Name	STIP ID	LRTP PoP#	Location	Description	Intervention Type	Project Status/ Design Status	Notes	2023 Status Update
East Main Road Roundabouts				Construct three roundabouts with medians for access management along East Main Road between Turnpike Avenue and Middle Road at Portsmouth Town Hall.	Roadway		Aquidneck Island Transportation Study (2011) Page ES-9	In design as of 2022
I-95 South at Route 146 South		36		Resolving merge/weave bottleneck with Route 6/10 by installing a Collector Distributor Road.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
I-95 South at Route 37	3132	37		Resolving weave/queue that extends from Pontiac Ave by mitigating queue from Pontiac Avenue	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
I-95 South at I-295 South		38		Resolving merge/weave bottleneck with Route 117/Route 4. Mitigation to be determined.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
Route 6 East at I-95		39		Resolving merge/weave bottleneck with Route 146 North by using a Collector Distributor Road.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
Route 2 between I-295 and Route 401		87		Resolving bottleneck. Mitigation to be determined.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
Route 117 between Route 2 and Route 1		77		Resolving bottleneck. Mitigation to be determined.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
Route 5 between Route 14 and Route 6A		78		Resolving bottleneck. Mitigation to be determined.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
Route 15 between Smithfield Ave and Route 246		79		Resolving bottleneck. Mitigation to be determined.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	

2040 LRTP

Project Name	STIP ID	LRTP PoP#	Location	Description	Intervention Type	Project Status/ Design Status	Notes	2023 Status Update
Route 1 between Route 37 and Airport Connector		80		Resolving bottleneck. Mitigation to be determined.	Roadway	Planning	RI*STARS Bottleneck Program Update 030718—CMTF	
Extend Shore Line East Commuter Rail Service to Rhode Island	NA			Extend Shore Line East service from its eastern terminus in New London to Providence.	Railway		Feasibility Study for Intercity Service to T.F. Green Page 9	Feasibility study completed in March 2023, terminus reduced to Westerly rather than Providence.
Implement Bus on Shoulder on Hwy 146 Southbound	3250			Implement bus on shoulder on 146 SB from Mineral Spring to Downtown (2.3 miles). Concerns about the southern limit/terminus at I-95.	Bus		RIPTA Bus on Shoulder Feasibility Study PowerPoint #2 Page 15/18	Under construction
Right turn lane at intersection of SB Rt 1 and Rte. 102—North Kingstown					Traffic Safety		2017-2028 10-Year STIP, Future Projects Unfunded and STIP Projects with Additional Funding Needs	
Branch River 146 Access—North Smithfield					Traffic Safety		2017-2028 10-Year STIP, Future Projects Unfunded and STIP Projects with Additional Funding Needs	
Mt. Hope Greenway Walking and Bike Path— Tiverton		88			Bike/Ped	Planning	2017-2028 10-Year STIP, Future Projects Unfunded and STIP Projects with Additional Funding Needs	Not programmed in the STIP.
Marine Highway Project Designation at Port of Davisville				Establish regular barge service between Quonset Development Corp (at Port of Davisville) and Port Authority of NY/NJ (at Red Hook Terminal), known as the North Atlantic Marine Highway Alliance, for service along the existing M-95 Marine Highway Corridor.	Port/Freight		2017 Application to Funding Opportunity for America's Marine Highway Projects	

Transit Master Plan						
Project Name	STIP ID	Municipality	Description/ Location	Intervention Type	Notes	2023 Status Update
Transit priority.		Providence	Smith	Transit Operations		In discussions with RIDOT
Transit priority.		Providence	Chalkstone	Transit Operations		Paused
TMP Bus on shoulder at Rt. 37 and Thurbers.		Providence/ Cranston/ Warwick	I-95	Transit Operations	Potential impacts to other Rt. 37 bottlenecks	To be determined
TMP Bus on shoulder at I- 295 and Rt. 4.		Warwick	I-95	Transit Operations		To be determined
TMP Bus on shoulder at 401 and Merge.		Warwick	I-95_Rt. 4	Transit Operations		To be determined
TMP Bus on shoulder Lafayette and W. Allenton		North Kingstown	Rt. 4	Transit Operations		To be determined
TMP Bus on shoulder Broadway and S. Main.		Providence/ East Providence	I-195	Transit Operations		To be determined
TMP Bus on shoulder at Broadway and E. Bridge End.		Providence/ East Providence	Henderson	Transit Operations		To be determined
TMP Bus on shoulder at N Broadway and Pawtucket.		Providence/ East Providence	Henderson ROW	Transit Operations		To be determined
TMP Bus on shoulder at Mineral Spring and I-95.		Providence/ North Providence	Rt. 146	Transit Operations		Bus on shoulder being installed on Route 146 reconstruction project (southbound)
TMP Bus on shoulder at Rt. 99 and Sayles Hill.		Lincoln/North Smithfield	Rt. 146	Transit Operations		
TMP Bus on shoulder at Rt. 146A and Sayles Hill.		Lincoln/North Smithfield	Rt. 146	Transit Operations		
TMP Bus on shoulder Rt. 6 and I-95.		Providence	Routes 6 to 10	Transit Operations		Unknown

Transit Master Plan						
Project Name	STIP ID	Municipality	Description/ Location	Intervention Type	Notes	2023 Status Update
Transit priority at Bev. Hill and Main.		Pawtucket	Prospect	Transit Operations		To be determined
Transit priority at Prospect and Prospect.		Pawtucket	School-Bev. Hill	Transit Operations		To be determined
Transit priority at Rt. 113 and Division.		Warwick	Bald Hill	Transit Operations		To be determined
Transit priority at Sandy and Broad.		Cranston/ Warwick	Warwick	Transit Operations		To be determined
Transit priority at Warwick and Airport.		Warwick	Post	Transit Operations		To be determined
Transit priority Goff and Roosevelt.		Pawtucket	Exchange	Transit Operations	Under development.	Completed
Transit priority N. Main and Thayer.		Providence	Bus Tunnel	Transit Operations	Already in service.	Substantial Planning completed
Transit priority at Providence Station and Point.		Providence	Downtown Transit Connector	Transit Operations	Under development.	Completed
Transit priority at Main and Cumberland.		Woonsocket	Social-Clinton	Transit Operations		Has not started
Transit priority at Rt. 6 and Killingly.		Providence	Hartford	Transit Operations		Paused
Transit priority at 6-10 and Dave Gavitt.		Providence	Westminster	Transit Operations		To be determined
Transit priority at KP and Pawtucket.		Providence/ Pawtucket	N Main	Transit Operations		In service
Transit priority at 6-10 and Empire.		Providence	Broadway	Transit Operations		Paused
Transit priority at CCRI and Dave Gavitt.		Providence/ Cranston/ Warwick	Elmwood-Reservoir	Transit Operations		HCT Feasibility Study
Transit priority at CCRI and CCRI.		Providence/ Cranston/ Warwick	113	Transit Operations		To be determined

Transit Master Plan						
Project Name	STIP ID	Municipality	Description/ Location	Intervention Type	Notes	2023 Status Update
Transit priority at CCRI and CCRI.	TBD	Providence/ Cranston/ Warwick	113	Transit Operations		To be determined
Transit priority at CCRI and Greenwich and adding crosstown service.		Cranston	Park	Transit Operations		Has not started
TMP Park and Rides at Warwick and Cranston.		Johnston	I-295 and U.S. 6	Transit Operations		Has not started
TMP Park and Rides at RI-146 and Smithfield Road.		North Smithfield	RI-146A and Smithfield Rd	Transit Operations		Has not started
TMP Park and Rides.		Lincoln	CCRI	Transit Operations		Has not started
TMP Park and Rides.		Burrillville	Pascoag	Transit Operations		Has not started
TMP Park and Rides.		Portsmouth	Mount Hope Bridge	Transit Operations		Has not started
BRT.	7020	Providence/ Cranston/ Warwick	Providence-CCRI Warwick via T.F. Green	Transit Operations		HCT Feasibility Study
Light Rail Transit/BRT.	7017	Central Falls to Warwick	Central Falls-CCRI Warwick	Transit Operations		HCT Feasibility Study
Rapid Bus/BRT/LRT.		Providence	R-Line Broad St—N Main St	Transit Operations		Awaiting RAISE 2023 Outcome
Rapid Bus.		Providence/ Cranston/ Warwick	Elmwood Ave—T.F. Green Airport	Transit Operations		Awaiting RAISE 2023 Outcome
Rapid Bus.		Providence, North Providence, Johnston	Broadway—Manton	Transit Operations		Awaiting RAISE 2023 Outcome
Rapid Bus.		Providence	Chalkstone Avenue	Transit Operations		Awaiting RAISE 2023 Outcome

Transit Master Plan						
Project Name	STIP ID	Municipality	Description/ Location	Intervention Type	Notes	2023 Status Update
Rapid Bus.		Providence, East Providence, Pawtucket	Beverage Hill Ave—East Providence	Transit Operations		Awaiting RAISE 2023 Outcome
Rapid Bus.		Pawtucket, Providence, Cranston	Attleboro- Pocasset/Dyer Ave via KP	Transit Operations		Awaiting RAISE 2023 Outcome
Rapid Bus.		Providence to Cranston	Cranston Street	Transit Operations		Awaiting RAISE 2023 Outcome
Regional Rapid.		Providence to Newport (West)	West Bay	Transit Operations		Has not started
Regional Rapid.		Providence to Woonsocket	Lincoln—Woonsocket	Transit Operations		Has not started
Regional Rapid.		Providence to Newport (East)	Providence—Newpor t	Transit Operations		Has not started
Regional Rapid.		Providence to Narragansett	URI—Galilee	Transit Operations		Has not started
Transit Emphasis Corridor.		Providence to East Providence	East Side—Brown to Pawtucket Ave (EP)	Transit Operations		Has not started
Transit Emphasis Corridor.		Providence	Olneyville to Downtown via Broadway	Transit Operations		Has not started
Intercity Rail.	NA	Providence	Amtrak Service To T.F. Green Airport	Transit Operations		RIDOT Transit
Intercity Rail.	NA	Providence	Increase Rail Service Frequency Boston— Providence	Transit Operations		RIDOT Transit

Bicycle Master Plan

Project Name	Municipality	Description/Location	Intervention Type	Notes	2023 Status Update
Woonasquatucket Greenway	Providence	Connect existing bike facilities in Johnston and Providence into a continuous protected bike path from Johnston to Waterplace Park in downtown Providence. Would serve to connect vulnerable populations in Olneyville to jobs in downtown. Upgrade Broadway to protected bike lanes.	Bicycle and Pedestrian	Also, Providence Great Streets Plan	Portions constructed. Connection from Eagle Square to Downtown Providence will commence construction in late 2023.
East Coast Greenway: Western Providence Segment	Providence	Create protected bike facilities from the current end of the Washington Secondary Bike Path in Cranston to an intersection with the Woonasquatucket Greenway in Olneyville via the new paths being constructed as part of the 6 and 10 interchange project.	Bicycle and Pedestrian	Also, Providence Great Streets Plan	Under Construction (in part)
East Coast Greenway: Eastern Providence Segment	Providence	Create protected bike facilities to connect Waterplace Park with the Pawtucket border. Fill gaps between Waterplace Park and new bike/ped bridge. Fill gaps between new East Side bike path and Blackstone Boulevard. Upgrade Blackstone Boulevard to create protected bike facilities. Create protected spur to connect to Allens Avenue.	Bicycle and Pedestrian	Also, Providence Great Streets Plan	Unfunded.
East Coast Greenway: Pawtucket/Central Falls Segment	Providence	Create protected bike route from Blackstone Boulevard in Providence to southern terminus of Blackstone Valley Greenway in Central Falls.	Bicycle and Pedestrian	Also, Providence Great Streets Plan	Unfunded.
South Side/Broad St	Providence	Create protected bike corridor connecting Waterplace Park and Roger Williams Park via either Broad Street or Elmwood Avenue	Bicycle and Pedestrian	Also, Providence Great Streets Plan	Substantially completed. Construction completed on Broad Street 2-way protected cycle track in 2021. Unprotected bike lanes on Pine/Friendship, and a two-way protected cycle track on Clifford Street (completed in 2019) connect to Downtown. Empire Street Bike lane connects to Fountain Street (completed in 2021).
North Providence Corridor	Providence	Create a protected bikeway from Waterplace Park to Mineral Spring Avenue Candidate Corridors include Admiral St, The West River Greenway, and Smith St.	Bicycle and Pedestrian	Also, Providence Great Streets Plan	Unfunded.

Appendix B: New Performance Measures Definitions, Data Sources, and Calculation Procedures

A. Reduce Recurring Congestion

<i>General</i>	
Measure Title	Annual Hours of Peak Hour Excessive Delay (PHED) per Capita
Measure Description	This measure divides the Annual Hours of Peak Hour Excessive Delay (PHED) measure by the population of the state, in order to provide a more digestible number to clarify the extent of delay people experience on average.
Technical Definition	Annual hours of delay when traveling below 20 mph or 60% of the posted speed limit (whichever is greater) on weekdays between the hours of 6AM and 10AM and between 3PM and 7PM divided by the total population of the Rhode Island.
Measure Reporting	Performance metrics are reported for each update of the Congestion Management Process for Rhode Island.
<i>Data and Results</i>	
Data Source	National Performance Measurement Research Data Set provided by FHWA AADT to estimate annual percent share of traffic volume for cars, buses and trucks. U.S. Bureau of Census American Community Survey 2021 5-Year Estimates
Data Collector	RIDSP
Algorithm Calculation	PHED / Total Statewide Population See Table 9 – B.1 Peak Hour Excessive Delay (PHED) in Appendix A of the Rhode Island Congestion Management Process – Final Plan 2020 for PHED algorithm.

<i>General</i>	
Measure Title	Average Daily Delay at Bottlenecks per Vehicle
Measure Description	This measure provides an estimate of the average daily magnitude of delay at all bottlenecks identified on the CMP network using the INRIX PDA Suite portal in B.5 performance measure, divided by the volume of traffic at the bottlenecks
Technical Definition	See Technical Descriptions in Table 13 – B.5 Number of Bottlenecks and Table 14 – B.6 Total Delay at Bottlenecks in Appendix A of the Rhode Island Congestion Management Process – Final Plan 2020. This measure divides the Total Delay at Bottlenecks by 365 days in a year, and then by the volume estimates at those bottlenecks, which are provided by the INRIX Probe Data Analytics Suite Bottleneck Analysis Tool for each identified bottleneck.
Measure Reporting	Performance metrics are reported for each update of the Congestion Management Process for Rhode Island.

<i>Data and Results</i>	
Data Source	The Bottleneck Ranking tool within the INRIX Probe Data Analytics Suite provided by the University of Maryland's CATT Lab
Data Collector	RIDSP
Algorithm Calculation	Total Delay at Bottlenecks (Top 30) / Total Volume Estimate at Bottlenecks (Top 30) / 365 See Table 13 – B.5 Number of Bottlenecks and Table 14 – B.6 Total Delay at Bottlenecks in Appendix A of the Rhode Island Congestion Management Process – Final Plan 2020 for the algorithm calculation for Total Delay at Bottlenecks.

B. Reduce Emissions and Improve Air Quality

<i>General</i>	
Measure Title	Total Vehicle-Miles of Travel per Capita per Day
Measure Description	This measure divides the total vehicle-miles of travel measure by the population of the state and the number of days in a year, in order to provide a more digestible number to clarify the magnitude of driving for residents of Rhode Island.
Technical Definition	The level of travel within the state can be measured by VMT which is the total of all vehicle trips multiplied by trip length. VMT is computed by adding the product of the ADT and the length of all highway segments within the state. The VMT statistics for Rhode Island can be obtained from RIDSP or from the Federal Highway Administration Highway Statistics annual publication, and the latest population estimate can be obtained from the U.S. Bureau of the Census. That number is then divided by 365 days in a year to understand average daily car travel per capita.
Measure Reporting	Performance metrics are reported for each update of the Congestion Management Process for Rhode Island.
<i>Data and Results</i>	
Data Source	FHWA Annual Highway Statistics U.S. Bureau of Census American Community Survey 2021 5-Year Estimates
Data Collector	RIDSP
Algorithm Calculation	Total Statewide VMT / Total Statewide Population / 365 days in a year See Table 36 – H.1 Total Vehicle Miles Traveled (VMT) Per Capita in Appendix A of the Rhode Island Congestion Management Process – Final Plan 2020 for Total VMT Per Capita algorithm.