

## Appendix D - Supporting Data

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Table: Bridge Recommendation Summary

Traffic Analysis Report

Table: Preliminary List of Property Acquisitions

Table: Newly Identified Historic Architectural Resources

Air Quality Modeling Data

Table: Delineated Wetlands and Waterways

NJDEP Natural Heritage Program Response – July 2, 2021

USFWS IPaC Response Letter – March 19, 2024

Table: Composite Plant Species List

Table: Existing Utility Crossings

Table: Potential Contaminated Sites

Table: Summary of Elected and Public Officials' Briefings

Table: Summary of Agency Meetings and Workshops

**TABLE:**  
**BRIDGE RECOMMENDATION SUMMARY**

TABLE 2.0 - Bridge Recommendation Summary

Feature Name	Feature Type	NBIS Structure No.	Milepost	Bridge Initial Recommendation	MPT Configuration	Horizontal Alignment shift
NJ Route 48 (Harding Hwy)	Local Over	M00372R	3.72R	Remain	N/A	N/A
Penns Grove Auburn Rd (CR 641)	Local Over	M004890	4.89	Full Bridge Replacement	1 lane each direction	Towards South
Stumpy Lane	Local Over	M005730	5.73	Full Bridge Replacement	1 lane each direction	Towards North
Pointers Auburn Rd (CR 646)	Local Over	M006770	6.77	Full Bridge Replacement	1 lane each direction	Towards South
Pedricktown Woodstown Rd (CR 602)	Local Over	M006960	6.96	Full Bridge Replacement	1 lane each direction	Towards North
Oldmans Creek	Waterbody - Structure	M007850	7.85	Full Bridge Replacement	2 lanes each direction	No shift
Oldmans Creek Rd (CR 602)	Local Over	M008680	8.68	Full Bridge Replacement	1 lane each direction	Towards North
Rainey Road	Local Over	M009140	9.14	Full Bridge Replacement	1 lane each direction	Towards South
Kings Highway (CR 620)	Underpass	M009710	9.71	Full Bridge Replacement	2 lanes each direction	No shift
South Jersey Railroad Company (Conrail) "Salem Branch"	Railroad	M009930	9.93	Full Bridge Replacement	2 lanes each direction	No shift
Woodstown-Swedesboro Rd (CR 605)	Underpass	M010040	10.04	Full Bridge Replacement	2 lanes each direction	No shift
Swedesboro-Monroeville Rd (CR 694)	Local Over	M011380	11.38	Full Bridge Replacement	1 lane each direction	Towards North
Franklinville Road (CR 538)	Local Over	M011500	11.50	Full Bridge Replacement	1 lane each direction	Towards South
Racoon Creek	Waterbody - Structure	M012130	12.13	Full Bridge Replacement	2 lanes each direction	No shift
Back Creek Road	Local Over	M012580	12.58	Full Bridge Replacement	1 lane each direction	Towards South
Interchange 2 - Ramp (ST & TN)	Local Over	M01286A	12.86A	Full Bridge Replacement	1 lane each direction	Towards North
US Route 322 (Swedesboro Rd)	Local Over	M013180	13.18	Full Bridge Replacement	1 lane each direction	Towards North
Tomlin Station Rd (CR 607)	Local Over	M013880	13.88	Full Bridge Replacement	1 lane each direction	Towards South
East Wolfert Station Rd (CR 664)	Local Over	M015030	15.03	Full Bridge Replacement	1 lane each direction	Towards North
Cedar Rd (CR 673)	Local Over	M015920	15.92	Full Bridge Replacement	1 lane each direction	Towards South
East Cohawkin Rd (CR 667)	Local Over	M016730	16.73	Full Bridge Replacement	1 lane each direction	Towards South
Edwards Run	Waterbody - Structure	M017500	17.50	Full Bridge Replacement	2 lanes each direction	No shift
Mantua Rd (CR 678)	Local Over	M017980	17.98	Full Bridge Replacement	1 lane each direction	Towards North
Mantua Creek	Waterbody - Structure	M018450	18.45	Full Bridge Replacement	2 lanes each direction	No shift
Ogden Rd (CR 648)	Local Over	M018880	18.88	Full Bridge Replacement	1 lane each direction	Towards South
Parkville Station Rd (CR 656)	Local Over	M019380	19.38	Full Bridge Replacement	1 lane each direction	Towards South
NJ Route 45 (Mantua Pike)	Local Over	M02023R	20.23R	Remain	N/A	N/A
Elm Avenue (CR 652)	Local Over	M020470	20.47	Full Bridge Replacement	1 lane each direction	Towards North
West Jersey Avenue, Barlow Ave, and PRSL (Conrail)	Railroad	M020960	20.96	Full Bridge Replacement	2 lanes each direction	No shift
Glassboro Rd (CR 553)	Underpass	M021080	21.08	Full Bridge Replacement	2 lanes each direction	No shift
Tanyard Rd (CR 663)	Local Over	M021520	21.52	Full Bridge Replacement	1 lane each direction	Towards North
Cooper St (CR 534)	Local Over	M022220	22.22	Full Bridge Replacement	1 lane each direction	Towards North
NJ Route 47 (North Delsea Drive)	Local Over	M022810	22.81	Full Bridge Replacement	1 lane each direction	No shift
Turkey Hill Rd (CR 646)	Local Over	M023120	23.12	Full Bridge Replacement	1 lane each direction	Towards North
Almonesson Rd (CR 621)	Local Over	M024030	24.03	Full Bridge Replacement	1 lane each direction	Towards South
Big Timber Creek	Waterbody - Structure	M024610	24.61	Full Bridge Replacement	2 lanes each direction	No shift
NJ Route 42 (SB & NB)	Local Over	412150 & 412151	24.69 & 24.71	Remain - Cut into Slope Protection	2 lanes each direction	N/A
Conrail "Grenloch Branch"	Railroad	M205720	25.72	Full Bridge Replacement	2 lanes each direction	No shift
NJ Route 168 (Blackhorse Pike)	Underpass	M025880	25.88	Full Bridge Replacement	2 lanes NS and 3 lanes SN	No shift
Turnpike Int. 3 Ramps WT/TE over NJ 168 (Blackhorse Pike)	Local Over	M02613B	26.13B	Full Bridge Replacement	1 lane each direction	No shift
Turnpike Int. 3 Ramps C & E (ST and TN)	Local Over	M2613AR	26.13AR	Full Bridge Replacement	1 lane each direction	Towards North
NJ Route 41 (Clements Bridge Rd)	Local Over	M02698R	26.98R	Remain	N/A	N/A
Shreve Avenue	Local Over	M027280	27.28	Full Bridge Replacement	1 lane each direction	Towards North

Feature Name	Feature Type	NBIS Structure No.	Milepost	Bridge Initial Recommendation	MPT Configuration	Horizontal Alignment shift
Conrail "Clementon Branch" & Atlantic Avenue (CR 727)	Railroad	M027710	27.71	Full Bridge Replacement	2 lanes each direction	No shift
US Route 30 (Whitehorse Pike)	Underpass	M027950	27.95	Full Bridge Replacement	2 lanes each direction	No shift
Warwick Rd (CR 669)	Local Over	M028190	28.19	Full Bridge Replacement	1 lane each direction	Towards North
Essex Road (I-295 Ramps to Patco Woodcrest Station)	Underpass	M029200	29.18	Super Replacement / Sub Rehab	2 lanes each direction	No shift
Cooper Creek	Waterbody - Structure	M029240	29.24	Full Bridge Replacement	2 lanes each direction	No shift
PATCO & NJ Transit (AC Line)	Railroad	M029350	29.35	Full Bridge Replacement	2 lanes each direction	No shift
Berlin Rd (CR 561)	Local Over	M029840	29.84	Full Bridge Replacement	2 lanes each direction	Towards North
Kresson Rd (CR 671)	Local Over	M030750	30.75	Remain	N/A	N/A
NJ Route 70 (East Marlton Pike)	Local Over	M032300	32.30R	Full Bridge Replacement	3 lanes each direction	Towards North
Church Rd (CR 616)	Local Over	M033940	33.94	Full Bridge Replacement	1 lane each direction and 1 right turn lane	Towards South
NJ Route 73	Local Over	M03421R	34.21R	Remain - Cut into Slope Protection	2 lanes each direction	N/A
NJ Route 73 over NJTA Ramps WT/TE	Local Over	M03449B	34.49B	Remain	N/A	N/A
Interchange 4 - Ramps ST & TN	Local Over	M03449A	34.49A	Full Bridge Replacement	1 lane each direction	Toward North
Church Street (CR 607)	Underpass	M035530	35.53	Full Bridge Replacement	3 lanes each direction	No shift

Structure to Remain	Waterbody Structure	Railroad Structure
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## **TRAFFIC ANALYSIS REPORT**



# Traffic Analysis Report

## Mainline (MP 3.5 – 36.5)

August 4, 2022

Rev 1 (Draft Final)

*Prepared for*



*Prepared by*

**AECOM**  
(OPS No. T3839)

*In association with*



**NJ Turnpike Interchanges 1-4 Capacity Enhancements Program  
Traffic Analysis Report, Mainline (MP 3.5-36.5)**

**Document Revision Record**

**Document:** Traffic Analysis Report, Mainline (MP 3.5-36.5)

**Prepared For:** New Jersey Turnpike Authority

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**Reviewed By:** Jihane Fazio, Samuel Donelson

<b>New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program</b>				
Author entity	New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program Manager			
Document title	<b>Traffic Analysis Report, Mainline (MP 3.5-36.5)</b>			
<b>Revision No.</b>	<b>Issue Date</b>	<b>Approval Date</b>	<b>Approved By</b>	<b>Description</b>
Rev 0	6/1/2022	6/1/2022	SD	Issued
Rev 1, Draft Final	8/4/2022	8/4/2022	SD	Issued

**TABLE OF CONTENTS**

<b>EXECUTIVE SUMMARY.....</b>	<b>3</b>
<b>1. INTRODUCTION.....</b>	<b>8</b>
1.1 HISTORIC OVERVIEW .....	10
<b>2. STUDY AREA.....</b>	<b>11</b>
2.1 EXISTING ROADWAY CONFIGURATIONS.....	11
2.2 INTERCHANGES AND SERVICE AREAS ALONG THE N.J. TURNPIKE WITHIN THE STUDY AREA.....	12
2.2.1 Interchange 2 – Bridgeport Rd (U.S. Route 322) .....	12
2.2.2 Interchange 3 – Black Horse Pike (N.J. Route 168).....	12
2.2.3 Interchange 4 – N.J. Route 73 .....	12
2.3 MAJOR HIGHWAYS ALONG THE N.J. TURNPIKE WITHIN THE STUDY AREA.....	12
2.3.1 I-295 .....	12
2.3.2 U.S. Route 130 (N Broadway/ Shell Rd) .....	12
2.3.3 U.S. Route 322 (Swedesboro Rd).....	12
2.3.4 N.J. Route 168 (Black Horse Pike) .....	13
2.3.5 N.J. Route 73.....	13
<b>3. DATA COLLECTION .....</b>	<b>14</b>
3.1 TOLL PLAZA/TRANSACTION DATA.....	14
3.2 SENSYS PUCK DATA.....	15
3.3 DVRPC TRAFFIC COUNTS .....	15
3.4 NJDOT TRAFFIC COUNTS.....	17
3.5 STREETLIGHT DATA.....	19
3.6 TRAFFIC STUDIES AND OTHER PROJECTS.....	19
3.7 MANUAL INTERSECTION TURNING MOVEMENT COUNTS .....	20
3.8 AUTOMATIC TRAFFIC RECORDER COUNTS.....	20
3.9 OTHER TRAFFIC DATA.....	20
3.10 PHYSICAL INVENTORY .....	20
3.11 CRASH DATA.....	21
<b>4. CRASH SUMMARY .....</b>	<b>22</b>
<b>5. TRAFFIC FORECASTING METHODOLOGY AND RESULTS .....</b>	<b>30</b>
5.1 TRAVEL DEMAND MODELS .....	30
5.1.1 South Jersey Travel Demand Model (SJTDM).....	30
5.1.2 Travel Improvement Model (TIM).....	31
5.2 METHODOLOGY FOR MODELING FUTURE CONDITIONS.....	32

5.2.1	Committed Projects .....	32
5.2.2	Development of Growth Rates .....	33
5.2.2.1	Model Coding Errors .....	34
<b>6.</b>	<b>BASE AND FORECAST TRAFFIC VOLUMES.....</b>	<b>36</b>
6.1	EXISTING VOLUMES.....	36
6.2	COVID-19 IMPACTS ON CURRENT TRAFFIC VOLUMES.....	37
6.3	2040 NO-BUILD VOLUMES .....	38
6.4	2040 BUILD VOLUMES.....	38
6.5	LOCAL ROAD CROSSINGS .....	44
<b>7.</b>	<b>ANALYSIS &amp; RESULTS.....</b>	<b>45</b>
7.1	METHODOLOGY .....	45
7.1.1	Freeway Segments.....	45
7.1.2	Signalized Intersections.....	46
7.2	ANALYSIS APPROACH .....	46
7.3	MAINLINE CAPACITY ANALYSIS.....	47
7.4	INTERCHANGE 2 ANALYSIS .....	52
7.5	INTERCHANGE 3 ANALYSIS .....	56
7.6	INTERCHANGE 4 ANALYSIS .....	63
<b>8.</b>	<b>CONCLUSION.....</b>	<b>72</b>
	<b>APPENDICES.....</b>	<b>74</b>

**APPENDIX A: CRASH ANALYSIS – HOTSPOT DIAGRAMS AND SUMMARY TABLES**

**APPENDIX B: BASE YEAR 2019 TRAFFIC FLOW DIAGRAMS**

**APPENDIX C: DESIGN YEAR 2040 NO-BUILD TRAFFIC FLOW DIAGRAMS**

**APPENDIX D: DESIGN YEAR 2040 BUILD (WIDENING ONLY) TRAFFIC FLOW DIAGRAMS**

**APPENDIX E: LOCAL ROADWAY CROSSING TRAFFIC VOLUME TABLES**

**APPENDIX F: DESIGN YEAR 2040 NO-BUILD TRAFFIC FLOW DIAGRAMS (ORIGINAL MODEL RUNS)**

**APPENDIX G: DESIGN YEAR 2040 BUILD (WIDENING ONLY) TRAFFIC FLOW DIAGRAMS (ORIGINAL MODEL RUNS)**

## **EXECUTIVE SUMMARY**

The New Jersey Turnpike Authority (NJTA) has retained the AECOM Program Team (the Program Team) to provide conceptual design, preliminary engineering, environmental investigations, and Program Management for capacity enhancements along a 36.5-mile segment of the New Jersey Turnpike from its Southern Terminus at Milepost 0.0 (N.J. Route 49 over the Turnpike) to north of Interchange 4, Milepost 36.5.

The Authority is directed by its enabling legislation to construct, maintain, and operate a modern express highway, and to remove congestion and hazardous conditions to allow vehicular traffic to operate on a non-congested Turnpike mainline and interchanges in a manner that does not expose motorists to hazardous conditions. For the Program's coverage area limits, this translates to a highway capacity level of service (LOS) of C or better.

This Traffic Analysis Report is for the Turnpike from Milepost 3.5 to 36.5, including the mainline and Interchanges 2, 3 and 4. Other improvements associated with the Program will be reported on at a later date, which will include capacity enhancements from Milepost 0.0 to 3.5 (including I-295 Interchange 1, Interchange 0A, Interchange 0B and the Interchange 1 Toll Plaza) and further enhancements outside of the toll plazas at Interchange 2 and Interchange 3.

The Program performed an assessment of current mainline vehicular volumes and future traffic demand forecasts. Existing traffic volume data collected were based on a 2019 base year; regional travel demand models were used to project the base year vehicular volumes to a Design Year of 2040. The travel demand forecasts were performed based on no widening (no-build) and with widening (build) to three mainline lanes in each direction. A previous study prepared by the Authority's General Consulting Engineer, "Traffic Operational Study of New Jersey Turnpike Interchanges 1 to 6," concluded that then-existing (2016) Maximum Traffic Volumes traffic volumes would result in level of service D or E for many of the mainline segments between Interchange 1 and Interchange 4. Maximum Traffic Volumes in that same study, forecasted to a 2040 Design Year, would result in level of service (LOS) F for nearly all segments under the current two-lane geometry. An updated study evaluated the highest traffic volumes, measured based on seasonal averages, maximum observed and congested area traffic volumes, against the existing highway geometric capacity. The results indicated that the Base Year 2019 volumes operate at level of service (LOS) C to D based on Maximum Traffic Volumes. Based on actual speeds recorded in congested areas, levels of service in the congested areas degraded to E and F. Growth to a forecast No-Build geometric condition in the Design Year 2040 will cause those mainline sections within the Program limits at existing LOS C to degrade to LOS D, while in congested areas, levels of service E and F still prevail. Under Design Year 2040 forecast demand vehicular volumes, based on only expansion of the mainline by one lane, levels of service improve to LOS C. Lower traffic volume forecasts account for the difference in LOS result between the previous study and the update.

In addition to Turnpike mainline congestion in the Program area, the existing interchanges within the Program area experience capacity and operational constraints due to high traffic volumes and geometric constraints on the interchange ramps. For instance, at Interchange 2, during the weekday P.M. peak period, traffic between the Turnpike toll plaza and the U.S. Route 322 signalized intersection will queue into the toll plaza area. Ramp queues at Interchange 3 during the weekday P.M. peak period extend

onto the exit Ramp NT deceleration lane due to traffic congestion on N.J. Route 168 northbound that restricts access to N.J. Route 168 by Turnpike traffic. Similarly, exit ramp queues at Interchange 4 during the weekday A.M. peak period are compounded by poor intersection operations at the N.J. Route 73/Fellowship Road traffic signal. These queues also impact the operation of the adjacent NS Roadway lane drop at Interchange 4 from the three-lane section to the existing two-lane section south of there. Capacity enhancements to interchange ramp networks and surrounding local roadways are warranted to mitigate congested travel conditions on the mainline and interchange ramps.

Traffic data collected for analyses performed under the Program was obtained from the following sources:

- NJDOT Traffic Monitoring System site, <https://www.njtms.org/map/>
- DVRPC Travel Monitoring Count site, <https://www.dvrpc.org/webmaps/TrafficCounts/>
- Sensys puck traffic data supplied by NJTA's Operations Department (for years 2017 through 2021)
- Toll Plaza volume data supplied by the NJTA's Operations Department (for years 2019 and 2021)
- Turnpike Origin-Destination patterns by toll plaza, supplied by NJTA's Operations Department (for year 2019)
- Origin-Destination patterns outside Turnpike ticket system obtained through Streetlight data (for year 2019)
- Traffic count data obtained through Streetlight (for year 2019)
- Crash data records, supplied by NJTA's Operations Department (for years 2017 through 2019)
- Crash data records, obtained from NJDOT Safety Voyager (for years 2017 through 2019)

Other projects and/or studies within the Program area that also contributed traffic data included the following.

- I-295/N.J. Route 168 Concept Development Study, commissioned by NJDOT (currently underway)
- N.J. Route 73 Corridor Improvements, Church Road to I-295, commissioned by NJDOT (currently underway)
- Traffic Impact Study for Proposed Warehouse Development, prepared by Consulting Engineering Services, LLC, latest revision March 2021 (development located along U.S. Route 322, east of Turnpike crossing)

Upon completing the existing data compilation, the Program Team identified gaps in the existing data and developed a traffic data collection program to obtain the missing information. This data was used to supplement the available data for integration into the proposed Program. The data collection program included manual turning movement counts (TMC) and automatic traffic recorder counts (ATR) collected during June 2021.

The data resources were used to develop balanced Traffic Volume Diagrams on the mainline Turnpike within the Program limits and crossroads at Interchanges 2, 3 and 4. These diagrams were prepared for the weekday A.M., weekday P.M. and summer

Friday P.M. peak hours. These Traffic Volume Diagrams are contained in the Appendices. Sensys puck traffic data was additionally used to identify the highest traffic volumes during each season of the year as input to the mainline capacity analysis and for pavement analyses. The TMC and ATR counts, taken in 2021, were compared to similar, pre-COVID-19 pandemic, data obtained from StreetLight, NJDOT and DVRPC resources to adjust traffic data as needed due to the impact of the COVID-19 pandemic. Traffic data for local roadway Turnpike overpasses, where available, was obtained from the NJDOT and DVRPC database. About 27% of the crashes occurred during commuter peak periods, while 20% of the crashes involved a heavy vehicle. Three crash types, Same Direction – Rear End, Same Direction – Sideswipe, and Fixed Object crashes, account for about 75% of the total crashes. An additional 10% of crashes involved Animals. Almost 80% of total crashes occurred under Dry pavement conditions and about 66% occur during Daylight hours.

A crash analysis was also performed along the Program corridor. Almost 1,800 crashes occurred during the three-year period between 2017 and 2019. Six fatalities were found among the crashes. Almost 50% of the crashes occurred on the Turnpike mainline between the interchanges, while the rest occurred at the interchange ramps or on interchange crossroads near the ramp termini.

To evaluate the impacts of the proposed capacity enhancements on the New Jersey Turnpike mainline and the proposed Interchange 2, 3, and 4 alternatives, a planning analysis was conducted using the Delaware Valley Regional Planning Commission's (DVRPC) Travel Improvement Model (TIM). This planning-level regional travel demand model consists of four basic travel demand steps: vehicle trip generation, vehicle trip distribution, travel mode choice, and travel assignment. The extent of this model includes all nine member counties in the DVRPC metropolitan area, plus an extended area covering sixteen counties spanning across New Jersey, Pennsylvania, Delaware, and Maryland.

TIM was retrofitted with the latest sociodemographic information and planned Transportation Improvement Program projects in the study area. To project future travel patterns for the No-Build and Build conditions, TIM was used to generate future travel patterns for the forecast years 2025, 2035 and 2045 highway traffic volume levels. The forecasted traffic volumes were then used to develop highway network growth rates and applied to the base traffic volumes to establish 2040 Year No-Build and Build traffic volumes for the three time periods previously noted: weekday A.M., weekday P.M., and summer Friday P.M. peak hours.

Subsequent to the initial TIM runs, highway network coding errors were discovered in two roadway links representing the I-295 Missing Moves Project ramps at the I-76/I-295/N.J. Route 42 interchange area. The roadway link coding resulted in no traffic volumes in the future years when they are expected to be opened. Rerunning of the models with the roadway links properly coded yielded mainline and interchange cross street traffic volumes that are not significantly different from the previous model runs except within the Interchange 3 area. Subsequent analyses in the Interchange 3 area were performed using the revised traffic forecasts, which can be found in Appendices B and C, while other analyses reported herein are based on the original forecast volumes reported in the Program's Concept Development Reports submitted in November 2021 and replicated in Appendices F and G.

Analysis techniques such as Synchro, VISSIM and the Highway Capacity Manual were used to evaluate existing and projected traffic operations, represented by the Base Year 2019 and Design Year 2040 traffic volumes.

Design Year 2040 Build traffic volumes on the Turnpike mainline, during peak hours and during highest traffic volume observed hours, operate at level of service (LOS) C or better in both directions with the third lane widening. This meets the Authority's level of service benchmark established. The widening to three lanes in each direction also removes the existing mainline lane drop on the NS Roadway at the Interchange 4 Ramp NT diverge and facilitates traffic flow along both the mainline and exit ramp.

At Interchange 2, traffic volumes on ramps inside the toll plaza are sufficient for the single-lane ramps provided. Alternatives were analyzed outside of the toll plaza connecting to state/local roadway facilities, as 2040 forecasted volumes on the existing roadway geometry, including new site traffic generated by several proposed developments, would result in vehicular queuing from the traffic signal at the U.S. Route 322 intersection into and possibly through the toll plaza area. The preferred alternative, a three-lane approach on the Ramp TL approach (consisting of a left-turn lane, shared left-through lane and channelized right turn lane) with localized widening on U.S. Route 322 westbound to accommodate two receiving travel lanes, results in LOS D or better on the approaches and vehicular queuing that is not expected to disrupt the operations of the toll plaza. It should be noted, however, that additional proposed developments have come to light which will add additional site trips to and potentially require further revision to the geometry of the U.S. Route 322 intersection. Further analysis incorporating these new site development trips is forthcoming under this Program and may change the preferred alternative for this interchange.

At Interchange 3, the preferred alternative widens Ramp NT to two lanes and maintains the existing geometry outside the toll. While this does not directly address the source of the existing vehicular queuing at the interchange, it allows for the remaining vehicular queues to be contained within the ramp system and not enter the Turnpike widened mainline or Ramp NT deceleration lane. It should be noted that additional analysis is underway at Interchange 3 to look at further improvements outside the toll, including an additional interchange, and that the design may be revised later to incorporate the recommendations of this analysis. This analysis considered new interchange locations north and south of the existing Interchange 3 and both partial and full interchanges to determine which alternative diverts the most traffic from the existing Interchange 3. Further revisions to the interchange geometry outside the toll may be required, in conjunction with the preferred new interchange alternative, to fully address the interchange traffic queuing. A separate Traffic Report will be developed to summarize these additional analyses. The additional geometric revisions, should they be required, will be addressed in an amendment to this Report.

At Interchange 4, four alternatives are proposed to reconstruct the ramp bridge over the Turnpike mainline. None of the alternatives revises the traffic patterns through the interchange, so no alternative is considered preferred from a traffic perspective since they all address the same traffic issues. The preferred alternative provides two lanes on Ramp TN and Ramp NT to address the high volumes to and from the north at this interchange. A separate improvement project in development by NJDOT proposes to grade separate the N.J. Route 73 intersections with Church Road south of the Turnpike interchange, but also to widen N.J. Route 73 in both directions northward to its

interchange with I-295. Under this NJDOT project, northbound left turns will be prohibited at the Fellowship Road intersection, with affected traffic making a right turn onto Fellowship Road and using a roundabout to U-turn on Fellowship Road to complete the “left” turn. This proposed improvement will eliminate the traffic weave movement across the two-lane width of N.J. Route 73 northbound and substantially reduces the queue on Ramp TW, such that the average vehicular queue would extend 100 to 200 feet from the ramp terminal with N.J. Route 73.

## **1. INTRODUCTION**

The New Jersey Turnpike Authority (NJTA) has retained the AECOM Program Team (the Program Team) to provide conceptual design, preliminary engineering, environmental investigations, and Program Management for capacity improvements on a 36.5-mile segment of the New Jersey Turnpike from its Southern Terminus at Milepost (M.P.) 0.0 (N.J. Route 49 over the Turnpike) to north of Interchange 4, Milepost 36.5.

This Traffic Analysis Report is for the Turnpike from M.P. 3.5 to 36.5, including the mainline and Interchanges 2, 3 and 4. Other enhancements associated with the Program will be reported on at a later date, which will include improvements from M.P. 0.0 to 3.5 (including I-295 Interchange 1, Interchange 0A, Interchange 0B and the Interchange 1 Toll Plaza) and improvements outside of the toll plazas at Interchange 2 and Interchange 3.

In 2017, the Authority's General Consulting Engineer (GCE) prepared a Traffic Operational Study of the New Jersey Turnpike between Interchanges 1 and 6 as part of the formation of the Authority's Strategic Plan. This effort included capacity analysis and traffic investigations. The GCE summarized their efforts in a report entitled "Traffic Operational Study of New Jersey Turnpike Interchanges 1 to 6", dated December 2017. The analysis showed that the NS Roadway between Interchanges 3 and 4, just south of the lane drop within Interchange 4, was currently the most congested segment on the Turnpike between Interchanges 1 and 6. The study concluded that by the year 2040, all Turnpike segments between Interchanges 1 and 4 are projected to be at level of service (LOS D) or worse based on Highest Seasonal Average volumes and all segments within the study area are projected to operate at LOS F under Maximum Traffic Volumes. These projected conditions warrant widening the Turnpike by one lane in each direction. By providing an additional lane in both directions, the roadway would operate at LOS C or better along all segments under the Highest Seasonal Average volumes, and at LOS D or better along all segments under Maximum Volume scenarios. This Report documents an update to the previous study based on current traffic volumes and new traffic forecasts.

Based on the GCE's study as well as the Authority's Strategic Plan the Authority decided to implement a Capacity Enhancement Program from the Turnpike's Southern Terminus to the existing six lane roadway just north of Interchange 4.

The purpose and need of the Program are to accommodate existing and foreseeable future traffic demand on the Turnpike mainline, from the Southern Terminus to Interchange 4, and at the I-295/U.S. Route 40/N.J. Route 140 interchange and Interchanges 2 through 4, thereby achieving the obligations stated in the Authority's enabling legislation to provide a non-congested roadway that addresses operational capacity needs, addresses maintenance requirements, and addresses safety needs.

The Authority is proposing to address future congestion and operational issues by adding additional travel lanes to the Turnpike and improving the Turnpike's Interchanges in this section. As part of this effort, traffic capacity and level of service analyses were performed to examine and quantify existing and future traffic operating conditions along the Turnpike mainline and its interchanges within the Program limits. The methods used to perform these analyses, and the analysis results, are documented in this Traffic

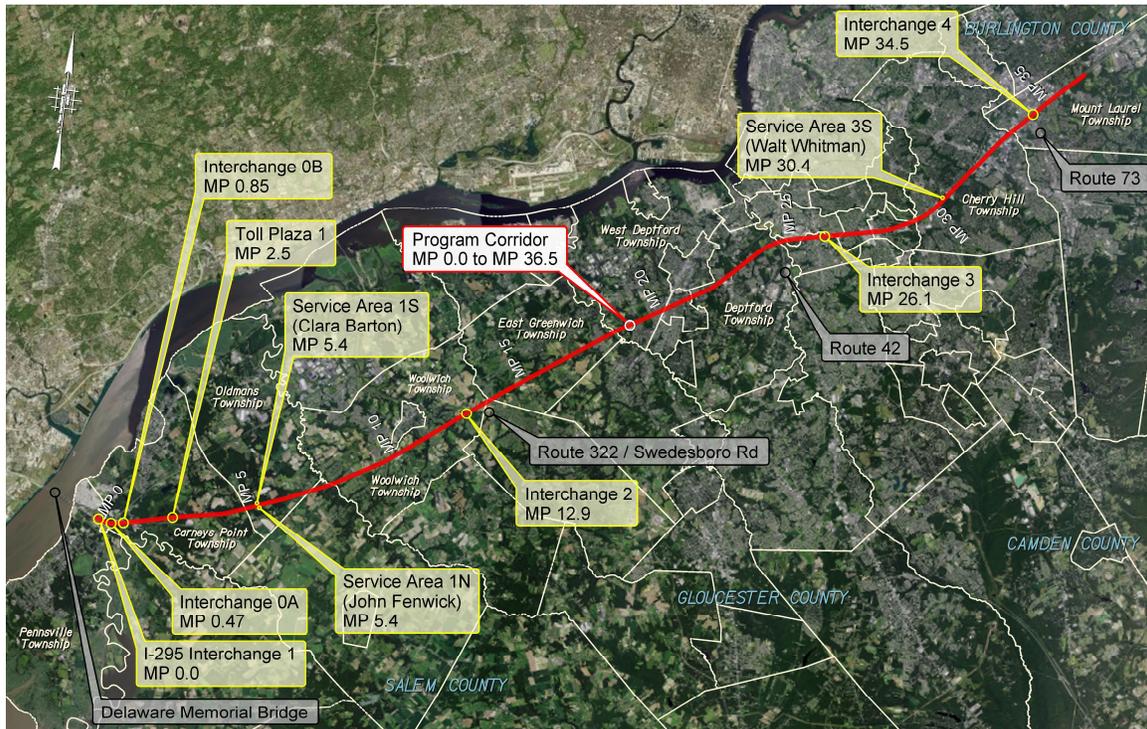
Analysis Report (Report). This Report addresses the Turnpike mainline between M.P. 3.5 and M.P. 36.5 and Interchanges 2, 3, and 4.

Based on projected traffic volumes, improvements along the mainline are necessary to maintain acceptable operation and enhance safety. The Program, therefore, will add one lane to the NS and SN Roadways and provide for a 12-foot wide right shoulder. This enhancement will extend the length of the mainline corridor to just north of Interchange 4 (N.J. Route 73), M.P. 36.5. Within these limits the Program enhancements will impact three existing interchanges (Interchanges 2, 3 and 4), as well as at-grade U-Turns, access to NJTA Maintenance District 1, and 3 service areas. As part of this Program, the NJTA has expressed a desire to eliminate the at-grade U-Turns and replace them with grade separated U-Turns. This mainline evaluation did not include the ramp connections to the three service areas (John Fenwick, Clara Barton and Walt Whitman) within the Program limits.

This Report provides details on the analysis of existing traffic volumes, preparation and use of travel demand forecasting procedures, future traffic volumes for design year 2040, and analysis of existing and future traffic operating conditions along the Turnpike mainline, its interchange ramps, and the ramp connections with local roadways. This report also presents an analysis of crash data collected for the primary study area.

Figure 1 provides a location map of the overall Program limits and identifies key features. This Report addresses the portion of the Program between M.P. 3.5 (north of the Interchange 1 toll plaza) and M.P. 36.5 (the Program northerly limit). The most southerly 3.5-mile portion of the Program is addressed separately.

Figure 1: Overall Program Location Map



## 1.1 HISTORIC OVERVIEW

Since colonial times, the corridor located along the entire Eastern Seaboard, specifically the section between New York and Philadelphia, has been heavily travelled, first by stagecoaches and rail and later by motor vehicles. The corridor between the New England States and the Mid-Atlantic States has placed New Jersey as a "Corridor State" with a key link to the East Coast travel chain. With the introduction of automobiles, this corridor gained a greater importance in the movement of people and goods along the eastern seaboard.

During the early 1930s, major routes such as U.S. Route 1 and U.S. Route 130 (south of New Brunswick) experienced severe congestion, necessitating construction of a superhighway along this corridor. In response, proposals were developed to construct a 12-lane superhighway from Boston to Washington, D.C. The initial concepts have shown a road with six carriageways each carrying two lanes of express, local and service (frontage) traffic. The restricted budgets of the Great Depression and the outbreak of World War II delayed the superhighway, originally planned as "FAI Corridor 100." Governor Alfred E. Driscoll revived the idea for its construction in his January 1947 inaugural address. The State Legislature enacted the New Jersey Turnpike Authority Act in October 1948, which created the New Jersey Turnpike Authority "to construct, maintain, repair and operate Turnpike Projects." Crews broke ground for the construction of the New Jersey Turnpike in January 1950.

The first 44-mile-long section from Interchange 1 in Carneys Point Township to Interchange 5 in Washington Township, which includes the Program study area, opened on November 5, 1951, with the full length of the original Turnpike opening by January 15, 1952. Widening north of Interchange 4 to the current three-lane configuration (to Interchange 6) occurred as part of the first Turnpike expansion project, an 83-mile long widening, in 1955.

## **2. STUDY AREA**

The primary Program study area of OPS. No. T3839, Preliminary Engineering and Environmental Services for Interchange 1 to 4 Widening, includes the Turnpike mainline from approximately M.P. 0.0 to M.P. 36.5, for a length of 36.5 miles. This Traffic Analysis Report addresses the northern 33 miles between M.P. 3.5 to M.P. 36.5.

In addition to the 36.5-mile mainline, the Program also includes analysis and preliminary design of interchanges and associated ramp systems, toll plazas, Service Areas, Maintenance Districts and Turnpike ramp connections with local roadways beyond the toll plazas. There are three interchanges, associated ramps and toll plazas within the Program area. These interchanges include:

- Interchange 2 at M.P. 12.9
- Interchange 3 at M.P. 26.1
- Interchange 4 at M.P. 34.6

The Primary Program Study area includes the 36.5-mile stretch of the Turnpike (refer to Figure 1), its interchanges within the corridor and roadways in the immediate vicinity of the Turnpike interchanges. The Secondary Study area limits extend in all directions to cover the geographic area that will have a direct effect on the proposed Program in terms of shifts in traffic patterns to north-south roadways, socioeconomic and demographic influence on trip generations, and distribution, trip travel assignment and modes of transportation.

Program-specific traffic studies are a key component for not only determining the location type and timeframe of improvements required but also in clearly establishing the Program's purpose and need, enabling key stakeholders to understand the mobility and safety related issues at hand.

### **2.1 EXISTING ROADWAY CONFIGURATIONS**

In this Report's coverage area, the New Jersey Turnpike begins at M.P. 3.5, with the northerly limit at M.P. 36.5 near the Philadelphia/Camden Suburbs of Mt. Laurel, Maple Shade and Cherry Hill. Primarily, the Turnpike in this 33-mile study area is a Freeway, Rural in Salem County, Urban in Gloucester, Camden and Burlington Counties, with two lanes in each direction, 12-foot outer shoulders and a 26-foot median (paved shoulders and concrete median barrier). The Turnpike is a major connector between Wilmington, DE; Camden, and New York City and runs through some of the most populated areas in the country. The Turnpike has interchanges with U.S. Route 322, N.J. Route 168 and N.J. Route 73. Other north-south routes in the area include I-295, and U.S. Route 130, which do not serve the same long-distance function as the Turnpike. Posted speed limits on the mainline are 65 MPH.

As part of the traffic studies conducted, a traffic analysis of the Turnpike mainline segments and ramps was performed. In addition, several area roadways were also analyzed. A brief description of each Turnpike element and/or roadway is presented below:

## **2.2 INTERCHANGES AND SERVICE AREAS ALONG THE N.J. TURNPIKE WITHIN THE STUDY AREA**

### **2.2.1 Interchange 2 – Bridgeport Rd (U.S. Route 322)**

The existing Interchange 2 is a trumpet interchange configuration providing connection to Swedesboro-Bridgeport Road (U.S. Route 322) in the Township of Woolwich and is located between Turnpike M.P. 12.7 and M.P. 13.1. Single-lane ramps to and from the Turnpike access the toll plaza, which provides a total of four (4) toll lanes serving exiting and entering traffic. The connection to U.S. Route 322 is at a signalized intersection that also provides access to a gas station/convenience store and park-and-ride lot.

### **2.2.2 Interchange 3 – Black Horse Pike (N.J. Route 168)**

The existing Interchange 3 is a double-trumpet type interchange configuration providing connection between the Turnpike and Black Horse Pike (N.J. Route 168) through a six-lane toll plaza. Ramps between the toll plaza and the Turnpike each consist of a single lane. Ramps between the toll plaza and N.J. Route 168 also each consist of a single lane.

### **2.2.3 Interchange 4 – N.J. Route 73**

The present interchange configuration is comprised of a double-trumpet interchange connecting the Turnpike and N.J. Route 73 via a nine-lane toll plaza. Ramps between the toll plaza and the Turnpike each consist of a single lane. Ramps between the toll plaza and N.J. Route 73 also each consist of a single lane.

## **2.3 MAJOR HIGHWAYS ALONG THE N.J. TURNPIKE WITHIN THE STUDY AREA**

### **2.3.1 I-295**

I-295 is a north-south urban interstate with varying cross-sections that runs parallel to the Turnpike through the study area. This highway splits from the Turnpike just north (east) of the Delaware Memorial Bridge (DMB), has an interchange with U.S. Route 322, passes through the I-76/Route 42 interchange, and has interchanges with N.J. Route 168 and N.J. Route 73 short distances from the Turnpike interchanges with the same routes. I-295 is generally two lanes in each direction between the DMB and the southerly U.S. Route 130 interchange (Exit 13), which is at approximately Turnpike Interchange 2, and generally three lanes (and varies) to the north of there. The posted speed limit varies from 55 mph to 65 mph within the Program limits.

### **2.3.2 U.S. Route 130 (N Broadway/ Shell Rd)**

U.S. Route 130 is a bi-directional north-south arterial highway that serves through and local traffic movements. U.S. Route 130 runs generally parallel to both I-295 and the Turnpike within the study limits and shares pavement with I-295 for nine miles (between I-295 Exit 13, north of U.S. Route 322, and Exit 23). Within the U.S. Route 130 corridor, at least two through travel lanes are maintained in each direction from the U.S. Route 322 interchange northward; one lane each direction exists south of this interchange. Auxiliary lanes, such as left turn bays, are available at major intersections. The posted speed limit on U.S. Route 130 varies between 40 mph and 55 mph in the vicinity of the study area.

### **2.3.3 U.S. Route 322 (Swedesboro Rd)**

U.S. Route 322 is a bi-directional, east-west roadway operating as an urban principal arterial within the Program area. It crosses the Turnpike at Interchange 2. This highway extends from

the Commodore Barry Bridge in the west to Hamilton Township, Atlantic County, in the east. The roadway varies between two lanes and four lanes within the Program limits with a speed limit of 45 mph.

#### **2.3.4 N.J. Route 168 (Black Horse Pike)**

N.J. Route 168 is a bi-directional, north-south roadway operating as an urban principal arterial within the Program area. This highway extends from Route 42 in Washington Twp., Gloucester Co., to the City of Camden. N.J. Route 168 crosses the Turnpike at Interchange 3 and provides connections between the Turnpike and other major roadways such as N.J. Route 42, I-295 and I-76. Within the Program area, it is a three-lane roadway, with one lane in each direction with a two-way center left turn lane in the median with a speed limit that varies between 35 and 40 mph. The roadway also carries a shoulder in both directions in most areas, which can be used by bicyclists to traverse the roadway. Pedestrian accommodations are provided along both sides of N.J. Route 168 via existing continuous sidewalks on both sides of the roadway, marked and signed crosswalks at ramp and side street access points, and pedestrian signals and push buttons at the signalized intersections.

#### **2.3.5 N.J. Route 73**

N.J. Route 73 is a bi-directional, north-south roadway operating as an urban principal arterial within the Program area. It is a major connecting route between I-295 and the Turnpike in central New Jersey and crosses the Turnpike at Interchange 4. This highway extends from U.S. Route 322 in the south to the Tacony-Palmyra Bridge to the north. It is a four- to six-lane roadway with a concrete barrier median within the Program limits with a speed limit of 50 mph. A reconstruction project is in development by NJDOT to widen the highway to six to eight lanes through the Turnpike interchange and grade-separate the Church Road intersections southeast of the Turnpike.

### **3. DATA COLLECTION**

The Program Team has collected various traffic studies prepared for the Authority and traffic data provided by the Authority to assist in the development of the existing traffic volume magnitudes and patterns. We have also contacted various transportation agencies and local municipalities in the area to obtain recent traffic data and land use development studies relevant to the proposed Program. The Team has reviewed these documents and data and incorporated them into the development of the traffic studies where necessary. Specific traffic data sources include those listed below.

- NJDOT Traffic Monitoring System site, <https://www.njtms.org/map/>
- DVRPC Travel Monitoring Count site, <https://www.dvrpc.org/webmaps/TrafficCounts/>
- Sensys puck data supplied by NJTA's Operations Department (for years 2017 – 2021)
- Toll Plaza volume data supplied by the NJTA's Operations Department (for 2019 and 2021)
- Turnpike Origin-Destination patterns by toll plaza, supplied by NJTA's Operations Department (for 2019)
- Origin-Destination patterns outside Turnpike ticket system obtained through Streetlight data (2019)
- Traffic count data obtained through Streetlight (2019)

Other projects and/or studies in the Program area also contributed traffic data.

- I-295/N.J. Route 168 Concept Development Study, commissioned by NJDOT
- N.J. Route 73 Corridor Improvements, Church Road to I-295, commissioned by NJDOT
- Traffic Impact Study for Proposed Warehouse Development, prepared by Consulting Engineering Services, LLC, latest revision March 2021 (development located along U.S. Route 322, east of Turnpike crossing)

Upon completing the existing data compilation, the Team identified gaps in the existing data and developed a data collection program consisting of manual intersection turning movement counts (TMC) and automatic traffic recorder counts (ATR) to obtain the missing information. This data was used to supplement available data for integration into the proposed Program.

As is typical for traffic and transportation studies, traffic data is collected to identify existing travel patterns and trends in roadway operating conditions. This data is then used to calibrate a travel demand model which emulates the existing travel patterns in the study area to establish a base condition and define future traffic demand projections. To do this, a variety of traffic data was collected within the study area, as described above. More specifically, the following data was collected as part of the traffic evaluations.

#### **3.1 TOLL PLAZA/TRANSACTION DATA**

Toll Plaza transaction data was obtained from the Authority for the years 2019 and 2021 (through April) for the four interchanges within the study limits (Interchanges 1, 2, 3 and 4). Four different months of each year, representative of the four seasons of the year, were collected: January, April, August and October. This information was compiled to determine the magnitudes and compositions of the traffic entering and exiting the toll plazas.

Additionally, toll plaza origin-destination data was provided by the Authority for patterns within the ticketing system. Data for April and August 2019 was consulted to determine magnitudes of traffic on the mainline and interchange ramps between the mainline toll barrier at Interchange 1 and north of Interchange 4. Vehicle compositions are also available from this data, based on the Authority's toll classes, which can be approximated to standard categories such as automobiles, light trucks, heavy trucks and buses.

### **3.2 SENSYS PUCK DATA**

Sensys puck data was provided by the Authority for four different months in 2019: January, April, August and October. Locations were between each interchange. Where no puck locations were fully functional during one of the months provided, 2017 and 2018 data was obtained. Where necessary, the earlier years' data was obtained in both directions to permit comparison of the earlier year to 2019 for the direction having 2019 data. The following puck locations, providing 2019 data unless otherwise noted, were used in the Turnpike mainline roadway capacity analysis as well as providing peak hour traffic volumes on the mainline segments.

- Between Interchange 1 and Interchange 2
  - T00302SN – SN Roadway, M.P. 3.02
  - T00469NS – NS Roadway, M.P. 4.69
- Between Interchange 2 and Interchange 3
  - T01597SN – SN Roadway, M.P. 15.97 (2017 data also used for comparison to 2019)
  - T01669NS – NS Roadway, M.P. 16.69 – only 2017 data was available
- Between Interchange 3 and Interchange 4
  - T03397SN – SN Roadway, M.P. 33.97 – only 2017 data was available
  - T02897NS – NS Roadway, M.P. 28.97 (2017 data also used for comparison to 2019)
  - T02860NS – NS Roadway, M.P. 28.60
- North of Interchange 4
  - T03705SN – SN Roadway, M.P. 37.05
  - T03793SN – SN Roadway, M.P. 37.93
  - T03705NS – NS Roadway, M.P. 37.05
  - T03793NS – NS Roadway, M.P. 37.93

Where possible, two Sensys pucks in each direction for each link were used for comparison to each other and to other Authority-provided data. Between Interchange 1 and Interchange 2, toll plaza data at Interchange 1 was used to combine with the Sensys puck data.

### **3.3 DVRPC TRAFFIC COUNTS**

Historical traffic count data was obtained from the Delaware Valley Regional Planning Commission's (DVRPC) Travel Monitoring Count site, <https://www.dvrpc.org/webmaps/TrafficCounts/> to supplement the Turnpike data with traffic counts on affected roadways outside the Authority's roadway system. Typical locations would be roadway crossings of the Turnpike, which would be impacted by the Program, or count locations on interchange cross streets. Traffic counts were generally collected for the time period between 2016 and February 2020, with nominal growth rates applied to the older data to adjust to the base year of 2019.

Traffic count data for interchange cross streets was obtained for the following locations. This data was used to prepare balanced traffic volume networks between the interchange cross streets, Turnpike interchange ramps, and the Turnpike mainline.

- U.S. Route 322, between Pancoast Rd. and Tomlin Station Rd., Station 151123 (EB)/151124 (WB), November 2019
- U.S. Route 322, between Kings Hwy. and N.J. Turnpike Entrance, Station 133181 (EB)/133182 (WB), January 2017
- N.J. Route 168, between Evesham Rd. and Clements Bridge Rd., Station 138237 (NB)/138238 (SB), January/February 2018

Traffic count data for roadway crossings of the Turnpike was obtained for the following locations. This data was used to determine peak hour directional volume magnitudes for the local roadway bridge replacement assessments, specifically the construction methods for the bridge replacement.

- Oldman's Creek Road (C.R. 602), between Auburn Rd. and Sharptown Rd., Station 137779 (EB)/137780 (WB), December 2017
- Monroeville Road (C.R. 694), between Glen Echo Rd. and Russell Mill Rd., Station 151145 (NB)/151146 (SB), November 2019
- Franklinville Road (C.R. 538), between Monroeville Rd. and Russell Mill Rd., Station 132218 (WB)/132219 (EB), January 2017
- Tomlin Station Road (C.R. 607), between U.S. Route 322 and Kings Hwy., Station 123958 (NB)/123959 (SB), January 2016
- Tomlin Station Road (C.R. 607), between U.S. Route 322 and Kings Hwy., Station 143366 (NB)/143367 (SB), December 2018
- Wolfert Station Road (C.R. 664), between Harrison Twp. line and Kings Hwy., Station 137484 (EB)/137485 (WB), November 2017
- Cedar Road (C.R. 673), between Cohawkin Rd. and Kings Hwy., Station 123960 (EB)/123961 (WB), January 2016
- Cohawkin Road (C.R. 667), between Heritage Rd. and Kings Hwy., Station 137486 (NB), December 2017
- Cohawkin Road (C.R. 667), between Heritage Rd. and Kings Hwy., Station 137487 (SB), November 2017
- Mantua Road (C.R. 678), between Kings Hwy. and Berkley Rd., Station 143450 (EB)/143451 (WB), December 2018
- Ogden Station Road (C.R. 648), between Kings Hwy. and N.J. Route 45, Station 137747 (EB)/137748 (WB), December 2017
- Ogden Station Road (C.R. 648), between Kings Hwy. and N.J. Route 45, Station 151091 (EB)/151092 (WB), January 2020
- Parkville Station Road (C.R. 656), between Jessup Rd. and St. Regis Dr., Station 143664 (WB)/143665 (EB), January 2019
- Route 45, between College Blvd. and Elm Ave., Station 133307 (NB)/133308 (SB), January 2017
- Elm Avenue (C.R. 652), between N.J. Route 45 and W. Jersey Ave., Station 143686 (EB)/143687 (WB), December 2018

- Barber Avenue (C.R. 663), between S. Evergreen Ave. and Turnpike Overpass, Station 143676 (NB)/143677 (SB), January 2019
- Cooper Street (C.R. 534), between Evergreen Ave. and Delsea Dr., Station 143362 (EB)/143363 (WB), January 2019
- N.J. Route 47, between Cooper St. and Deptford Ave., Station 132014 (SB)/132015 (NB), December 2016
- Almonesson Rd. (C.R. 621), between Andoloro Way and Delsea Dr., Station 143340 (SB)/143341 (NB), December 2018
- Almonesson Rd. (C.R. 621), between Andoloro Way and Caulfield Ave., 150785 (NB)/150786 (SB), February 2020
- Shreve Avenue, between N.J. Route 41 and Commerce Ave., Station 145988 (EB)/145989 (WB), October 2017
- Shreve Avenue, between N.J. Route 41 and Davis Rd., Station 151465 (EB)/151466 (WB), February 2020
- Warwick Road (C.R. 669), between Oak Ave. and I-295, Station 133617 (EB)/133618 (WB), February 2017
- Warwick Road (C.R. 669), between Charleston Ave. and Oak Ave., Station 151655 (EB)/151656 (WB), February 2020
- Haddonfield-Berlin Road (C.R. 561), at Burnt Mill Rd./Browning Ln., Station 126026 (TMC), February 2016
- Kresson Road (C.R. 671), between Browning Ln. and Markkress Rd., Station 133493 (EB)/133494 (WB), February 2017

### **3.4 NJDOT TRAFFIC COUNTS**

Historical traffic count data was obtained from the New Jersey Department of Transportation's (NJDOT) Traffic Monitoring System site, <https://www.njtms.org/map/>, to supplement the Turnpike and DVRPC data with additional traffic counts on affected roadways outside the Authority's roadway system. As with the DVRPC resource, typical locations would be roadway crossings of the Turnpike, which would be impacted by the Program, or count locations on interchange cross streets. Traffic counts were generally collected for the time period between 2016 and February 2020, with nominal growth rates applied to the older data to adjust to the base year of 2019. Additional data, as old as 2012, was used where no other information was available.

Traffic count data for interchange cross streets was obtained for the following locations. This data was used to prepare balanced traffic volume networks between the interchange cross streets, Turnpike interchange ramps, and the Turnpike mainline.

- U.S. Route 322, between Kings Highway and Turnpike entrance ramps, Station 160804, August 2016
- U.S. Route 322, east of Pancoast Rd., Station 7p6d902, June 2012
- N.J. Route 168, between Fourth Ave. and Fifth Ave. (M.P. 5.99), Station 1104c8, April 2017
- N.J. Route 73, between N.J. Turnpike and Roger's Walk, Station 120318, March 2013
- N.J. Route 73, between Ramp to N.J. Turnpike and Ramp from N.J. Turnpike, Station 130037, April 2013
- Interchange 4, Ramp ET, Station 13s013r, April 2013

- Interchange 4, Ramp WT, Station 13S010r, April 2013
- Interchange 4, Ramp TE, Station 13s011r, April 2013
- Interchange 4, Ramp TW, Station 13s012r, April 2013

Traffic count data for roadway crossings of the Turnpike was obtained for the following locations. This data was used to determine peak hour directional volume magnitudes for the local roadway bridge replacement assessments, specifically the construction methods for the bridge replacement.

- N.J. Route 48 (Harding Highway), between Laytons Lake Dr. and Stumpy Rd., Station 7-6-104, August 2017
- Pointers-Auburn Road (C.R. 646), between Pennsville-Auburn Road and Pedricktown-Woodston Rd., Station 7-8-221, October 2018
- Oldman's Creek Road (C.R. 602), between Georges Landing and Rainey Rd., Station 160809, September 2016
- Wolfert Station Road (C.R. 664), between Elaine Dr. and E. Rattling Run Rd., Station 170802, November 2017
- Cedar Road (C.R. 673), between Union Rd. and Heritage Rd., Station 130805, September 2019
- Mantua Road (C.R. 678), between N.J. Route 45 and W. Landing Rd., Station 110880, October 2017
- Ogden Station Road (C.R. 648), between Durham Ct. and Tattersall Ave., Station 110847, September 2017
- Parkville Station Road (C.R. 656), between Jessup Rd. and Heather Dr., Station 110860, May 2017
- N.J. Route 45, Station 180801, between Lincoln Ave. and Wilson Ave., June 2018
- N.J. Route 45, Station dd10720, between College Blvd. and Parkville Station Rd., March 2017
- Elm Avenue (C.R. 652), between 3<sup>rd</sup> Street and 4<sup>th</sup> Street, Station 7-4-553, August 2019
- Cooper Street (C.R. 534), between Rugby Pl. and Hunter St., Station 130816, October 2019
- N.J. Route 47, between Kohler Ave and Lander Ave., Station 090807, April 2018
- N.J. Route 47, between Deptford Ave. and Taras Ave., Station 7-6-029, October 2017
- Turkey Hill Road (C.R. 646), , between Cubler Ct. and Ladds La., Station 110845, June 2017
- Almonesson Rd (C.R. 621), between Caulfield Ave. and Lakeview Rd., Station 110823, November 2018
- N.J. Route 41, between Williams Ave. and Shreve Ave., Station 7-4-360, October 2017
- Haddonfield-Berlin Road (C.R. 561), at I-295 NB Off-Ramp, Station 17t-350 (TMC), February 2017
- Kresson Road (C.R. 671), between Old Town Rd. and Pearl Croft Rd., Station 110481, July 2017
- N.J. Route 70, between Astoria Blvd. and Rock Hill Rd., Station 7-4-376, September 2017
- Church Road (C.R. 616), between Springdale Rd. and Arbor Way, Station 170308, December 2017

### **3.5 STREETLIGHT DATA**

Another data source used for the traffic data collection program included StreetLight Data, Inc. This is an online analytical engine capable of process historical location-based cellphone and GPS device information. This platform was used to perform traffic counts and conduct Origin/Destination (O-D) studies at key roadway segments within the Program area.

Data collected was obtained for the different time periods: Fall (September 1 to October 31), Summer (July 1 to August 31), and Spring (March 1 to April 30) of 2019. Midweek, Tuesday through Thursday, traffic counts were estimated for the morning (6:00 to 10:00 a.m.), evening (4:00 to 7:00 p.m.), and summer Friday evening (3:00 to 7:00 p.m.) peak periods. Similarly, Origin-Destination studies were performed for the Fall and Spring, Midweek morning and evening peak periods.

StreetLight was used not only for the purpose of collecting traffic data at key segments, where gaps in the available traffic data were needed to be filled, but also to be able to obtain data from pre-pandemic time period, base year 2019.

Origin-Destination data obtained from StreetLight for use in the Program limits include the following locations in 2019

- Interchange 2 area: From toll plaza to/from each direction of U.S. Route 322
- Interchange 3 area: From toll plaza to/from ramps at N.J. Route 168
- Interchange 4 area: From toll plaza to/from ramps at N.J. Route 73

Link traffic count data obtained from StreetLight for major roadway crossings of the Turnpike within the Program limits in 2019 include the following locations.

- N.J. Route 42/N.J. Route 55 Interchange
- N.J. Route 42 south of Leaf Ave.

### **3.6 TRAFFIC STUDIES AND OTHER PROJECTS**

Other sources for traffic data included design projects for future improvements to corridors also impacted by this Program and traffic impact studies for future developments along the same corridors. The following studies and other projects provided base traffic count data for use in developing the balanced flow networks for the Turnpike interchange cross streets.

- Traffic Impact Study for Proposed Warehouse Development, prepared by Consulting Engineer Services, latest revisions March 2021, August 2019 volume data
- N.J. Route 168/I-295 Interchange Improvements Traffic Analysis (NJDOT), October 2017 – Exhibits 3 and 4: 2015 Demand Volumes
- Concept Development, N.J. Route 73 – Fellowship and Church Rd. Intersections (NJDOT) – May 2019 Counts

This data also served to make comparisons between pre-pandemic traffic volumes and traffic counts collected for the Program in 2021 (noted in the next two sections).

### **3.7 MANUAL INTERSECTION TURNING MOVEMENT COUNTS**

Manual intersection turning movement counts were conducted at key locations in the corridor on a mid-week weekday during June 2021 for A.M. (6:00 to 9:00 a.m.) and P.M. (3:00 to 6:00 p.m.) peak hours. The manual traffic counts were recorded in 15-minute intervals during each peak period. Vehicles counted were classified into cars, heavy trucks and buses. Pedestrian counts were also included for those crossing each leg of the intersection. The following locations were surveyed by manual turning movement counts:

- U.S. Route 322 and N.J. Turnpike ramps
- N.J. Route 47 and Deptford Ave.
- N.J. Route 47 and Lexington Dr.
- N.J. Route 168 and Benigno Blvd.
- N.J. Route 168 and Clements Bridge Rd.
- N.J. Route 73 and Fellowship Rd.
- N.J. Route 73 and Rogers Walk

### **3.8 AUTOMATIC TRAFFIC RECORDER COUNTS**

In addition, continuous (24-hour) directional Automatic Traffic Recorder (ATR) machine counts were conducted for a minimum seven-day period in June 2021. ATR counts were performed at the following locations:

- U.S. Route 322 Over N.J. Turnpike
- N.J. Route 47 Over N.J. Turnpike
- Almonesson Road (C.R. 621) Over N.J. Turnpike
- N.J. Route 168 Under N.J. Turnpike
- N.J. Route 73 Over N.J. Turnpike (one placement for each direction)

### **3.9 OTHER TRAFFIC DATA**

Other traffic data was obtained from the Authority to facilitate the various analyses to be presented later in this report. These additional data resources include the following items.

- Operations Department Traffic Counts at Interchange 3 (Ramp TW at N.J. Route 168 NB; Ramp TE at N.J. Route 168 SB), February 2020. This count also included pedestrian and bicycle movements during the hours vehicular traffic was counted.
- E-ZPass Penetration Rates at Interchanges 2, 3 and 4, April 2021, by lane, during weekday commuter peak periods
- Toll Plaza Lane Configurations

This additional data facilitates the operational modeling of toll plaza operations at the interchanges.

### **3.10 PHYSICAL INVENTORY**

The key local roadways at Turnpike Interchanges intersections were inventoried to compile information such as number and width of travel lanes on each approach roadway, signal timing, on-street parking regulations, bus stop locations, etc. These we compiled from as-built plans from NJTA and NJDOT and confirmed with surveys of the straight-line diagrams, NJDOT video log panoramic imagery and Google Maps imagery, including street view and aerial imagery. Signal timing for intersections within the study area were collected from the relevant jurisdictions

including NJDOT and counties. They were verified in the field to confirm that up-to-date information was in use for the analysis.

### **3.11 CRASH DATA**

Crash Data were obtained for a recent three-year period (2017-2019) from the Authority. This crash history was taken from a pre-pandemic time period to report on typical crash trends along this corridor. Crash data were used to identify locations within the study area with a high number of crashes, identify predominant crash types and determine if any patterns of crashes were apparent.

#### **4. CRASH SUMMARY**

In conducting initial data collection efforts, crash data was requested for the three most recent years along the Turnpike. Based on this request, the Authority's Operations Department provided available crash data between 2017 and 2019. Because of the impacts of the COVID-19 pandemic on traffic patterns and magnitudes during 2020, this year's crash data was not used in the analysis. The Authority provided a summary of crash data that included both the northbound and southbound directions. Crash data were summarized into several different categories which included crashes by Milepost, interchange, day of the week, time of day and number of injuries. The northerly limit for crash records was set at M.P. 35.0, prior to the northerly program limit being set at M.P. 36.5. Additional crash records at the interchanges and on the crossroads adjacent to the interchange ramps were obtained from the NJDOT Safety Voyager database program.

To understand the crash history of the roadway, two types of analysis were performed: "hotspot," or cluster, analysis and detailed analyses of selected hotspots which included comparisons to Statewide Averages for similar facilities. The hotspot analysis identified locations where crashes are clustered and resulted in the generation of diagrams showing cluster locations, color coded for concentration of crashes. Statistics regarding location and number of crashes are also provided for the clusters selected for the more detailed analysis. For each selected cluster, tables were generated summarizing crash type, severity, surface condition, lighting condition and vehicle type. Crash totals during the commuter peak periods were also identified separately. Percentages reflecting an aggregate of Statewide Averages from NJDOT's Bureau of Safety Programs statewide crash summaries for the three years analyzed were included in the tables for comparison to the site-specific crash data. For crash data on the Turnpike mainline, the Statewide Averages for Interstate Highways were referenced for comparison. For crashes on the State highway interchange crossroads, the corresponding Statewide Averages for State Highways were used for comparison.

Crashes at Turnpike interchange Toll Plazas, Service Areas and interchange ramp systems do not have Statewide Average tables dedicated to these facilities for comparison. For interchange ramps inside toll, the Interstate Highway statistics were used, as these facilities are more associated with freeway facilities. An aggregate of Statewide Average crash percentages for Interstate and State Highways was developed for this purpose. While not a perfect fit for comparison of these facilities, these blended averages reflect both the facilities' locations on freeways and the operational characteristics of non-freeway roadways. For this reasoning, the comparisons of these facilities' crash profiles with the blended Statewide Averages should be viewed with caution.

The length of the roadway required the division of the data into nine groups, from which the hotspot/cluster diagrams and detailed analysis tables can be more easily interpreted. A tenth "group" included a summary table for mainline crashes along the overall Program limits. The crash data was grouped as noted below.

1. Overall Mainline, M.P. 3.5- 35.0
2. SN Roadway, M.P. 3.5 - 12.8
3. NS Roadway, M.P. 3.5 - 12.8
4. Interchange 2 – SN/NS Roadways, M.P. 12.8 - 13.4
5. SN Roadway, M.P. 13.4 - 26.1
6. NS Roadway, M.P. 13.4 - 26.1
7. Interchange 3 - SN/NS Roadways, M.P. 26.0 - 26.5

8. SN Roadway, M.P. 26.5 - 34.4
9. NS Roadway, M.P. 26.5 - 34.4
10. Interchange 4 – SN/NS Roadways, M.P. 34.3 - 35.0

About 1,760 total crashes were reported in the sections noted above, with about 990 crashes on mainline segments. They are addressed in the overall mainline group. The remaining 770 crashes are located on interchange crossroads, at toll plazas, on ramps, or within Service Areas. These locations are addressed in the various hotspots within the other groups.

Each of these groups is discussed below. Overrepresentations cited for crashes resulting in Property Damage Only, during Daylight hours or under Dry Pavement conditions are not cited in the summaries below, since there are no specific factors that would contribute to these types of crashes. The crash hotspot figures and summary tables referenced below can be found in Appendix A.

1. **Overall Mainline, M.P. 3.5 - 35.0.** An overall summary table was prepared for the almost 990 mainline crashes along the 31.5 miles of Turnpike mainline roadway. The following statistics have been derived from the data.
  - About 24% of the total mainline crashes occur during either the a.m. or p.m. commuter peak periods, which cover 20 hours out of the week.
  - About 23% of the total crashes involved at least one heavy vehicle.
  - About 58% of the total mainline crashes are on the NS Roadway. The split is slightly higher between Interchanges 1 and 2 (62%), likely accounting for larger crash totals approaching the Interchange 1 toll plaza.
  - Predominant crash types within the Program limits include Same Direction – Rear End, Same Direction – Sideswipe and Fixed Object, which account for about 72% of the total crashes. This figure is lower than the 2019 Statewide Average for Interstates and Freeways, though for some individual mainline sections Fixed Object crashes trend above the Statewide Averages.
  - About 15% of the total crashes involved Animals, which also trended above the Statewide Averages.
  - Almost 77% of the crashes occur under Dry conditions.
  - About 60% of the total crashes occurred under Daylight conditions, while 33% occurred during Night or Dusk conditions. The latter figure trends above the Statewide Averages.
  - About 20% of the crashes involved either minor or serious injury, with six (6) fatal crashes recorded during the three-year period. This figure trends well above the Statewide Average.
  - The five mainline fatal crashes can be described as follows. All occurred under Dry roadway conditions. Note that police reports have not been consulted for further details than those provided.
    - At M.P. 5.4, NS Roadway, a Pedestrian fatality occurred during Night hours. This is in the vicinity of the Clara Barton Service Area.
    - At M.P. 6.6, NS Roadway, a Non-Fixed Object crash occurred during the morning hours during a Dawn/Dusk condition. This location is north of the Clara Barton Service Area.

- At M.P. 17.7, NS Roadway, a Fixed Object crash occurred during Daylight conditions. Guide rail was identified as the fixed object struck. This location is in the vicinity of the Edwards Creek crossing.
  - At M.P. 30.3, SN Roadway, a Pedestrian fatality occurred during a Dawn/Dusk condition. This location is opposite the Walt Whitman Service Area (along the NS Roadway).
  - At M.P. 33.2, SN Roadway, a Head-On crash occurred during Night hours. The location is between the Route 70 and Pennsauken Creek crossings. One of the motorists involved travelled the wrong way on the SN Roadway.
2. **SN Roadway, M.P. 3.5- 12.8.** Figure C (Appendix A) covers the SN Roadway from just north of the Interchange 1 Toll Plaza to just south of Interchange 2. A total of 111 crashes were reported and analyzed along this roadway. One hotspot, accounting for 31 crashes, was selected for more detailed analysis. The overall mainline roadway section was analyzed as a hotspot as well. The most notable crash types that exceeded the aggregate three-year Statewide Average in these hotspots are as follows.

John Fenwick Service Area (Table C-1), M.P. 5.3 - 5.7

A total of 31 crashes were reported at this hotspot during the three-year period, none of which resulted in a fatality. Crashes occurred throughout the day at this hotspot, with 12% occurring during the commuter peak periods, evenly split between the morning and evening periods. Same Direction - Sideswipe crashes (26%) were the most prevalent crash type at this hotspot and exceeded the State Averages, which for this location are an aggregate of Interstate and State Highway facilities. Animal (13%), Backing (19%), Struck Parked Vehicle (10%), and Right Angle (10%) crashes at this hotspot all exceeded the State Average. The overrepresentations in Backing and Struck Parked Vehicle crashes can be associated with movements within the Service Area not normally present on an Interstate or State highway, so these findings should be viewed cautiously. Crashes at Night (35%) also exceeded the Statewide Average. Four (14%) crashes involved a heavy vehicle.

SN Roadway, M.P. 3.5 - 12.8 (Table C-2)

A total of 80 crashes were reported along this roadway section during the three-year period, none of which resulted in a fatality. About 16% of the total crashes occurred during commuter peak periods. Fixed Object crashes (26%) were the most common; Same Direction - Sideswipe crashes (24%) were the next-most common. Along with the Fixed Object crashes, Animal (24%) crashes also exceeded the Statewide Average along this roadway. Crashes at Night (44%) also exceeded the Statewide Average. A total of 19 crashes (24%) involved a heavy vehicle, five of which occurred during commuter peak periods.

3. **NS Roadway, M.P. 3.5 - 12.8.** Figure D (Appendix A) covers the NS Roadway from just north of the Interchange 1 Toll Plaza to just south of Interchange 2. A total of 168 crashes were reported and analyzed along this roadway. One hotspot, accounting for 35 crashes, was selected for more detailed analysis. The overall mainline roadway section was analyzed as a hotspot as well. The most notable crash types that exceeded the aggregate three-year Statewide Average in these hotspots are as follows.

Clara Barton Service Area (Table D-1), M.P. 5.3 - 5.7

A total of 35 crashes were reported at this hotspot during the three-year period, none of

which were fatal. Four crashes occurred during weekday peak periods, mostly during the evening period. There was a wide variety of crash types that occurred at this hotspot. Struck Parked Vehicle (17%), Fixed Object (17%), Backing (17%), Animal (11%) and Right Angle (6%) crashes all exceeded the Statewide Average at this hotspot, which was based on an aggregate of Interstate and State Highways. The overrepresentation in Struck Parked Vehicle and Backing crashes can be associated with movements within the Service Area not normally present on an Interstate or State highway, so these findings should be viewed cautiously. Crashes at Night (37%) also exceeded the Statewide Average. A total of four crashes (11%) involving a heavy vehicle occurred at this hotspot, one of which occurring during the morning peak period.

NS Roadway, M.P. 3.5 - 12.8 (Table D-2)

A total of 133 crashes were reported along this roadway section during the three-year period. Two fatalities occurred: one pedestrian fatality occurred in the vicinity of the Clara Barton Service Area, near midnight on a Sunday night in July 2019. The other was a Non-Fixed Object crash where a 50-pound dumbbell crashed through a windshield and hit the driver, who later died from the injury sustained in the crash. Same Direction – Rear End crashes (38%) were the most common crash type along this roadway section, but they did not exceed the Statewide Average. Fixed Object (24%), Non-Fixed Object (8%) and Animal (10%) crashes occurred at rates that exceeded the Statewide Averages. Crashes at Night (28%) also exceeded the Statewide Average. Crashes resulting in Minor or Serious Injury (21% combined) both exceeded the Statewide Average. About 17% of the total crashes involved a heavy vehicle, of which two occurred during the weekday peak periods.

4. **Interchange 2 – SN/NS Roadway, M.P. 12.8 - 13.4.** Figure E (Appendix A) covers the area in the vicinity of Interchange 2, including the intersection of U.S. Route 322 and the Interchange 2 Ramps, the Interchange 2 Toll Plaza, the Turnpike entrance/exit ramps, and the Turnpike mainline roadway in each direction. A total of 42 crashes were reported and analyzed at this interchange. Two hotspots, accounting for 21 crashes, were selected for more detailed analysis. The most notable crash types that exceeded the aggregate three-year Statewide Average in these hotspots are as follows.

Interchange 2 Toll Plaza (Table E-1), M.P. 13.1

A total of 12 crashes were reported at this hotspot, none of which were fatal. Crashes occurred throughout the day at this hotspot with three (25%) occurring during the evening peak period. Statewide Average rates used for comparison were aggregates of Interstate and State Highways. Same Direction - Sideswipe crashes (42%) were the most common, with Backing crashes (25%) also prevalent. Both of these crash types exceeded the Statewide Average. The overrepresentation of Backing crashes can be associated with movements in the toll plaza area not normally found on Interstate or State highways, so this finding should be viewed cautiously. Five crashes (42%) involved a heavy vehicle at this hotspot, with one occurring during the evening peak period.

U.S. Route 322 at Interchange 2 Ramps (Table E-2), U.S. Route 322 M.P. 7.8 - 7.95

A total of nine (9) crashes were reported at this hotspot, none of which resulted in a fatal injury. Crashes largely occurred outside of commuter peak periods, with just one occurring during the evening peak period. Same Direction – Rear-End crashes (33%) were the most common, with Right Angle (22%) and Fixed Object (22%) crashes also prevalent. All but the Right Angle crashes exceeded the Statewide Averages for State

Highways, which was used for this location. Two crashes (22%) involving heavy vehicles occurred, none of which occurred during commuter peak periods.

5. **SN Roadway, M.P. 13.4 - 26.1 (Table F-1).** Figure F (Appendix A) covers the SN Roadway from just north of Interchange 2 to just south of Interchange 3. A total of 165 crashes were reported and analyzed along this roadway, none of which resulted in a fatality. Crashes occurred throughout the day, with 28% occurring during the commuter peak periods (almost evenly divided between morning and evening). Fixed Object crashes (26%) were the most prevalent crash type and exceeded the Statewide Average. Additionally, Animal (21%), Non-Fixed Object (12%) and crashes all exceeded the Statewide Average. Crashes occurring at Night (39%) also exceeded the Statewide Average. Crashes resulting in Minor or Serious Injury (19% combined) also exceeded the Statewide Average. A total of 31 crashes (19%) involving heavy vehicles occurred, eight of which occurred during commuter peak periods.
6. **NS Roadway M.P. 13.4 - 26.1 (Table G-1).** Figure G (Appendix A) covers the NS Roadway from just north of Interchange 2 to just south of Interchange 3. A total of 188 crashes were reported and analyzed along this roadway. One fatality occurred with a Fixed Object crash during the middle of the day under dry conditions. Crashes occurred throughout the day, with 15% occurring during commuter peak periods. Same Direction – Rear End crashes (28%) were the most prevalent crash type but did not surpass the Statewide Average. Fixed Object (22%), Animal (14%) and Non-Fixed Object (10%) crashes all exceeded the Statewide Average. Crashes occurring at Night (37%) and at Dusk (3%) also exceeded the Statewide Average. Crashes resulting in Minor or Serious Injury (19% combined) also exceeded the Statewide Average. A total of 56 crashes (30%) involving heavy vehicles occurred, eight of which occurred during commuter peak periods.
7. **Interchange 3 – SN/NS Roadways, M.P. 26.0 - 26.5.** Figure H (Appendix A) covers the area in the vicinity of Interchange 3, including N.J. Route 168, the Interchange 3 Toll Plaza, and the Turnpike entrance/exit ramps. A total of 225 crashes were reported and analyzed at this interchange. Four hotspots, accounting for 171 crashes, were selected for more detailed analysis. The most notable crash types that exceeded the aggregate three-year Statewide Average in these hotspots are as follows.

N.J. Route 168 at Benigno Boulevard (Table H-1), N.J. Route 168 M.P. 6.79

A total of 47 crashes were reported at this hotspot, none of which were fatal. Crashes occurred throughout the day at this hotspot, but about twice as many occurred during the evening peak period (17%) as the morning peak period (9%). Same Direction – Rear End crashes (53%) accounted for a majority of the crashes at this hotspot, exceeding the Statewide Average for State Highways. Right Angle (6%) and Backing (4%) crashes all exceeded the Statewide Average as well. Crashes occurring under Wet conditions (26%) and at Night (34%) also exceeded the State Average. A total of 11 crashes (23%) involved a heavy vehicle at this hotspot, with two occurring during the evening peak period.

Interchange 3 Toll Plaza (Table H-2), M.P. 26.2

A total of 57 crashes were reported at this hotspot, none of which were fatal. Crashes occurred throughout the day at this hotspot, with about 48% occurring during commuter peak periods. More occurred during the evening peak period (39%) than the morning peak period (9%). Same Direction - Sideswipe crashes (46%) were the most prevalent at

this hotspot and exceeded the Statewide Average, which for this location was a combination of Interstate and State Highway rates. Same Direction – Rear End crashes (37%) were also a common crash type. A total of 24 crashes (42%) involved a heavy vehicle, with one occurring in the morning peak period and 13 occurring in the evening peak period.

On/Off Ramps to/from Interchange 3 Toll Plaza (Table H-3), M.P. 26.3

A total of 21 crashes were reported at this hotspot, which is located inside toll. None of the crashes were fatal. Crashes occurred throughout the day at this hotspot, with about 48% of the crashes occurring during commuter peak periods. More occurred during the evening peak period than the morning peak period. Same Direction – Rear End crashes (48%) and Fixed Object (24%) crashes were the two most prevalent crash types at this hotspot; both exceeded the Statewide Average for Interstate Highways. Crashes under Wet conditions (29%), at Night (29%), and at Dusk (10%) all exceeded the Statewide Average as well. Crashes resulting in Minor or Serious Injury (29% combined) also exceeded the Statewide Average. Five (5) crashes involved heavy vehicles, with four (80%) occurring during the commuter peak periods.

N.J. Route 168 at NJTP Interchange 3 Ramps (Table H-4), N.J. Route 168 M.P. 6.5 - 6.7

A total of 46 crashes occurred at this hotspot, none of which were fatal. Crashes occurred throughout the day at this hotspot with about 40% occurring during commuter peak periods, evenly split between morning and evening peak periods. Same Direction – Rear End crashes (61%) were the most prevalent at this hotspot and exceeded the Statewide Average for State Highways. Same Direction – Sideswipe (20%) and Right Angle (9%) crashes were also common, but these types did not exceed the Statewide Average at this hotspot. Crashes under Wet pavement conditions (20%) also exceeded the Statewide Averages. Injury crashes of all types (Possible, Suspected Minor and Suspected Serious), 28% combined, all exceeded the Statewide Average. Nine (9) crashes (20%) involving heavy vehicles occurred, including five during the commuter peak periods.

8. **SN Roadway, M.P. 26.5 - 34.4 (Table I-1).** Figure I (Appendix A) covers the SN Roadway from just north of Interchange 3 to just south of Interchange 4. A total of 138 crashes were reported and analyzed along this roadway. Two fatal crashes occurred along this roadway. One fatality occurred with an Opposite Direction - Head On crash near midnight with Dry roadway conditions in August 2017 when a driver traveled in the wrong direction along the SN Roadway. The second fatality occurred with a Pedestrian crash early on a Sunday morning under Dry roadway conditions in September 2017. Crashes occurred throughout the day, with 25% occurring during commuter peak periods. More crashes occurred during the evening peak period than during the morning peak period. Same Direction – Rear End crashes (37%) were the most prevalent crash type but did not surpass the Statewide Average. Same Direction – Sideswipe and Fixed Object crashes (14% each) were common but also did not exceed the Statewide Average. Animal (18%), Non-Fixed Object (10%) and Overturned (3%) crashes all exceeded the Statewide Average. Crashes occurring at Night (30%) and at Dusk (6%) also exceeded the Statewide Average. Injury crashes (Suspected Minor and Suspected Serious), 18% combined, exceeded the Statewide Average. A total of 32 crashes (23%) involving heavy vehicles occurred, six of which occurred during commuter peak periods.
9. **NS Roadway, M.P. 26.5 - 34.4.** Figure J (Appendix A) covers the NS Roadway from just north of Interchange 3 to just south of Interchange 4. A total of 219 crashes were

reported and analyzed along this roadway. One hotspot, accounting for 55 crashes, was selected for more detailed analysis. The overall mainline roadway section was analyzed as a hotspot as well. The most notable crash types that exceeded the aggregate three-year Statewide Average in these hotspots are as follows.

Walt Whitman Service Area (Table J-1), M.P. 30.4 - 30.8

A total of 55 crashes were reported at this hotspot, none of which were fatal. Crashes occurred throughout the day at this hotspot, with 33% occurring during commuter peak periods. More crashes occur during the evening peak period than during the morning peak period. Backing crashes (29%) were the most common crash type at this hotspot and exceeded the Statewide Average, which was a combination of Interstate and State Highway rates. Same Direction – Sideswipe (24%), Pedestrian (5%) and Struck Parked Vehicle (7%) crashes at this hotspot all exceeded the Statewide Average as well. The prevalence of Backing, Pedestrian and Struck Parked Vehicle crashes can be associated with movements within the Service Area not typically present on an Interstate or State highway, so the findings of overrepresentations should be viewed cautiously. Fixed Object crashes (11%) were also present in this Service Area. Crashes resulting in Minor or Serious Injury (9% combined) also exceeded the Statewide Average. A total of 18 crashes (33%) involving heavy vehicles occurred, eight of which occurred during the commuter peak periods.

NS Roadway, M.P. 26.5 - 34.4 (Table J-2)

A total of 164 crashes were reported along this section of mainline roadway, none of which were fatal. Crashes occurred throughout the day, with 35% of crashes occurring during commuter peak periods. More occurred during the evening peak period than during the morning peak period. Same Direction – Rear End (51%) and Same Direction – Sideswipe (18%) crashes were the most prevalent along this roadway section, though only the Rear End type exceeded the Statewide Average. Animal (13%), Overturned (3%) and Pedestrian (2%) crashes also exceeded the Statewide Average along this roadway section. Crashes at Night and at Dusk (37% combined) both exceeded the Statewide Average, as do crashes resulting in Minor or Serious Injury (20% combined). A total of 57 crashes (26%) involved a heavy vehicle, 13 of which occurring during the commuter peak periods.

10. **Interchange 4 – SN/NS Roadways, M.P. 34.3 - 35.0.** Figure K (Appendix A) covers the area in the vicinity of Interchange 4, including N.J. Route 73, the Interchange 4 Toll Plaza, and the Turnpike entrance/exit ramps. A total of 501 crashes were reported and analyzed at this interchange. Four hotspots, accounting for 414 crashes, were selected for more detailed analysis. The most notable crash types that exceeded the aggregate three-year Statewide Average in these hotspots are as follows.

N.J. Route 73 at Fellowship Rd (Table K-1), N.J. Route 73 M.P. 27.3

A total of 154 crashes were reported at this hotspot. One fatality occurred with a Pedestrian crash under Dark, Dry conditions early on a Sunday morning in March 2017 when a pedestrian attempted to cross N.J. Route 73. Crashes occurred throughout the day at this hotspot, with 29% occurring during the weekday commuter peak periods. Nearly twice as many occurred during the evening peak periods during the morning peak period. Same Direction – Rear End (58%) and Same Direction – Sideswipe (31%) crashes were the two most common crash types at this hotspot and both exceeded the Statewide Average for State Highways. Right Angle crashes (4%) were also present at this intersection but did not exceed the Statewide Average. Crashes occurring at Night

(29%) and Dusk (4%) both exceeded the Statewide Average. Three crashes (2%) involved heavy vehicles, one of which occurred during the evening peak period.

Interchange 4 Toll Plaza (Table K-2), M.P. 34.5

A total of 64 crashes were reported at this hotspot, none of which were fatal. Crashes occurred throughout the day, with 39% of the crashes occurring during the weekday commuter peak periods. More crashes occurred during the morning peak period than the evening peak period. Same Direction – Sideswipe crashes (55%) accounted for more than half of crashes at this hotspot and exceeded the Statewide Average, which, for this location, was a combination of Interstate and State Highways. Same Direction – Rear End (25%) and Fixed Object (11%) crashes are also significant, but do not exceed the Statewide Average. Backing (5%) crashes also exceed the Statewide Average, though given that this crash type is not typical of Interstate and State highways, this finding should be viewed cautiously. Crashes under Wet pavement conditions (22%) exceeded the Statewide Average as well. A total of 20 crashes (31%) involved a heavy vehicle, including 13 during the commuter peak periods.

NS Roadway/Ramp NT (to Interchange 4 Toll Plaza) (Table K-3), M.P. 34.9 - 34.7

A total of 44 crashes were reported at this hotspot, none of which were fatal. Crashes occurred throughout the day at this hotspot, with similar numbers of crashes occurring during the morning and evening peak periods (14% each). Same Direction – Rear End (45%) and Fixed Object (27%) crashes were the most prominent at this hotspot and both exceeded the Statewide Average. Same Direction – Sideswipe crashes (20%) were also significant at this location, but did not exceed the Statewide Average. Crashes under Wet pavement conditions (39%) exceeded the Statewide Average as well. Crashes resulting in Serious Injury (25%) exceeded the Statewide Average. Five crashes (11%) involved a heavy vehicle, including three during the commuter peak periods.

N.J. Route 73 at Interchange 4 Ramps (Table K-4), N.J. Route 73 M.P. 26.9 - 27.25

A total of 152 crashes were reported at this hotspot, none of which were fatal. Crashes occurred throughout the day at this hotspot, with 32% of crashes occurring during weekday commuter peak periods. More crashes occurred during the evening peak period than the morning peak period, though the split is not overly pronounced. Same Direction – Rear End crashes (66%) accounted for the majority of crashes at this hotspot and exceeded the Statewide Average for State Highways. Same Direction – Sideswipe (18%) and Fixed Object (12%) are also significant, with the latter type exceeding the Statewide Average. Crashes under Wet conditions (23%) exceeded the Statewide Average as well. A total of 14 (9%) crashes involving heavy vehicles occurred, including seven during the commuter peak periods.

## 5. TRAFFIC FORECASTING METHODOLOGY AND RESULTS

This section of the report documents the traffic forecasting procedures used in support of the Preliminary Engineering and Environmental Services for the proposed widening of the New Jersey Turnpike between Interchanges 1 and 4 (“the Program”), and the resulting traffic projections for the Program. The Program aims to improve traffic flow along the corridor and mitigate existing congestion and operational deficiencies at the interchanges.

For this purpose, since the Program area extends across two Metropolitan Planning Organizations (MPOs), namely the Delaware Valley Regional Planning Commission (DVRPC) and the South Jersey Transportation Planning Organization (SJTPO), the Program Team reached out to both organizations to request access to their latest travel demand forecasting planning tools. Once these were obtained, each model component was reviewed for completeness including available forecast years, highway network coverage, land use and sociodemographic information accuracy, and validation results. After this exercise was completed, it was decided to use only the DVRPC’s Transportation Improvement Model (TIM), due to its comprehensiveness, relatively recent vintage, and the breadth of its geographic coverage. In the next sections, each of the planning tools obtained is described in more detail.

The TIM model was used to forecast future traffic patterns and volumes. Traffic forecasts were used to develop growth rates and applied to base traffic volumes to project future volumes.

### 5.1 TRAVEL DEMAND MODELS

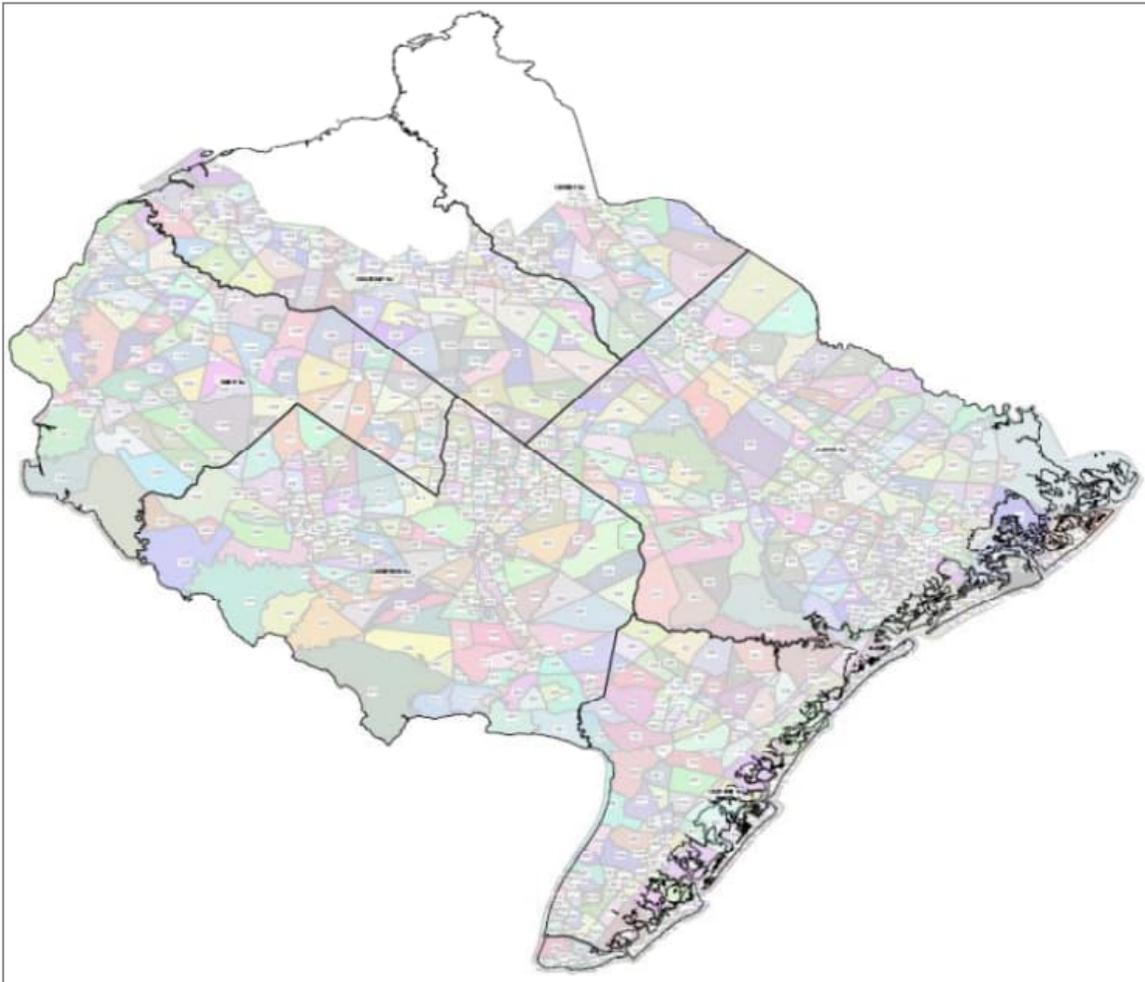
#### 5.1.1 South Jersey Travel Demand Model (SJTDM)

SJTPO utilizes the South Jersey Travel Demand Model (SJTDM) to forecast traffic conditions in their region. This planning tool relies on numerous inputs including socio-demographic information and transportation networks to project future conditions. The model covers the four counties in the SJTPO region, and it is subdivided into 985 Traffic Analysis Zones (TAZs) (see Figure 2), used to generate and distribute trips throughout the region. The SJTDM uses a standard four-step modeling approach: trip generation, trip distribution, mode choice, and travel assignment. Socio-demographic data is input into the model, including Census population and employment data, school enrollment data from the New Jersey Department of Education, and daily household trips from the 2014 South Jersey Travel Survey. Because a significant portion of travel within the SJTPO area comprises traffic from the DVRPC region, a small piece of communities within the DVRPC region were included in the SJTDM to act as a buffer. In 2015, the model was recalibrated to incorporate the latest available data. The highway network used by the SJTDM contains all major roadways in the region. The SJTDM model splits the day into four time periods:

- Morning: 6:00 AM – 9:00 AM
- Midday: 9:00 AM – 3:00 PM
- Afternoon: 3:00 PM – 7:00 PM
- Night: 12:00 AM - 6:00 AM and 7:00 PM - 12:00 AM

The SJTDM model obtained included forecasts for 2020-, 2025-, 2030-, and 2040-year horizons.

Figure 2: SJTPO Region and Model Coverage



### 5.1.2 Travel Improvement Model (TIM)

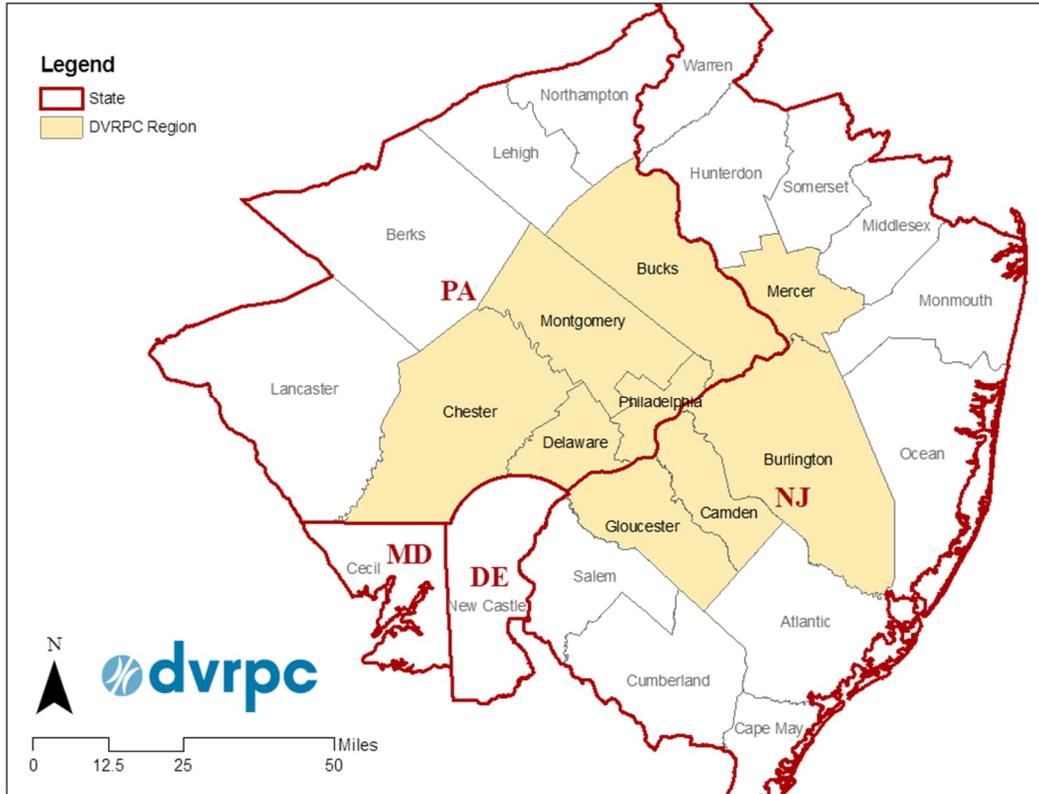
DVRPC uses the Travel Improvement Model (TIM). The current TIM version 2.4 was recently recalibrated and validated (in 2019) against numerous data sources to ensure that it accurately represents the most current travel behavior in the DVRPC region. The model study area is divided into 3,399 traffic analysis zones (TAZs), used to generate and distribute trips throughout the region. The TIM uses a standard four-step modeling approach: trip generation, trip distribution, mode choice, and travel assignment. The model's base year is 2015. The model area includes DVRPC's nine-member counties plus an extended area of 16 counties in Pennsylvania, New Jersey, Delaware, and Maryland (see Figure 3). The DVRPC counties are modeled in a high level of detail, while the extended model area is modeled at a sketch level of detail, with the primary goal being travel into and out of the DVRPC region. The TIM model splits the day into four time periods:

- Morning: 6:00 AM – 10:00 AM
- Midday: 10:00 AM – 3:00 PM
- Afternoon: 3:00 PM – 7:00 PM
- Night: 7:00 PM – 6:00 AM

Figure 3 shows the area encompassing the DVRPC region (in tan) and the larger model area (outlined in red).

The TIM model obtained included forecasts for 2019-, 2025-, 2035-, 2045, and 2050-year horizons.

**Figure 3: DVRPC Region and Extended Model Area**



## 5.2 METHODOLOGY FOR MODELING FUTURE CONDITIONS

The DVRPC's Transportation Improvement Model (TIM) was used for the modeling of future conditions, due to its comprehensiveness, relatively recent vintage, and the breadth of its geographic coverage.

### 5.2.1 Committed Projects

In developing future traffic conditions, several planned and approved transportation projects were incorporated into the TIM model to account for changes in the highway network, trip patterns, and roadway connections. These projects were determined and reviewed based on DVRPC resources, including their established FY2021 Transportation Improvement Program (FY21-FY24). Similarly, the Wilmington Area Planning Council (WILMAPCO) FY 2020-2023 TIP, and the SJTPO FY2020-2030 TIP lists were consulted to obtain relevant projects in the area.

The following projects were verified and/or incorporated into the travel demand model for the applicable years:

- I-295/I-76/N.J. Route 42 Direct Connect – reconstruction and reconfiguration of ramps and mainline roadways in this complex interchange
- I-295 Missing Moves – new ramp connections between I-76 and Route 42 and restriping of Route 55 northbound to two lanes
- Allegheny Avenue Interchange (Exit 25) – I-95 widening to four through-lanes in both directions between Ann St. and Frankford Creek
- Bridge Street Interchange / Betsy Ross Bridge Interchange– I-95 widening to four through-lanes in both directions between Comly St. and Levick St., and Comly St. and Margaret St.; construction of Adams Ave. Connector between Torresdale Ave. and Aramingo Ave.; extension of Delaware Ave. to Tacony St. with connections to Buckius St., Bridge St., and Richmond St.
- Cottman Avenue Interchange – new on ramp from State Rd. to Longshore Ave., and new I-95 southbound on-ramp at Cottman Ave.
- Girard Avenue Interchange – I-95 widening in to four through-lanes in both directions between Columbia Ave. and Ann St.; widening to four through-lanes in both directions between I-676 and Girard Ave.
- Completion of the remaining six ramps at the I-276/I-295/I-95 interchange in Bristol, PA. The I-95 connection between the Delaware Expressway and Pennsylvania Turnpike (the first two “ramps”) was completed in September 2018.

**5.2.2 Development of Growth Rates**

**To estimate travel growth rates, two conditions were developed: a No-Build and Build condition. Traffic projections for 2020, 2025, 2035, and 2045 forecast years were used to derive growth rate factors.**

Table 1 lists the Compound Annual Growth Rates (CAGR) developed for each time period and roadway segment in the Program area. The 2020 and 2025 model runs were used to develop the percentages applied to the period 2019 – 2025; the 2025 and 2035 model runs were used to develop the percentages applied to that 10-year period; the 2035 and 2045 model runs were used to develop the percentages applied to the period 2035 – 2040 for both No-Build and Build scenarios.

**Table 1: Compound Annual Growth Rate Estimates**

	2019 Existing – 2040 No-Build			2019 Existing – 2040 Build		
	2019 - 2025	2025 - 2035	2035 - 2040	2019 - 2025	2025 - 2035	2035 - 2040
<b>Mainline</b>						
Int. 1 – Int. 2	0.32%	-0.12%	0.18%	0.32%	0.68%	0.14%
Int. 2 – Int. 3	0.48%	-0.02%	0.15%	0.48%	0.95%	0.18%
Int. 3 – Int. 4	0.18%	0.09%	0.09%	0.18%	0.55%	0.09%
Int. 4 – Int. 5	0.08%	0.05%	0.11%	0.08%	0.31%	0.10%
<b>Crossroads</b>						
U.S. Route 322	0.48%	0.21%	0.59%	0.48%	0.26%	0.56%
N.J. Route 168	0.07%	-0.19%	0.08%	0.07%	-0.20%	0.06%
N.J. Route 73	0.19%	0.80%	0.09%	0.19%	0.80%	0.09%

**5.2.2.1 Model Coding Errors**

During the development of traffic forecasts for the Build alternatives, it was found that some highway links were miscoded: the two I-295 Missing Moves Project ramps, and the I-295 southbound exit ramps to N.J. Route 49 eastbound (near the Delaware Memorial Bridge) These coding errors were discovered after extensive analysis was performed in support of the Concept Development Report for the Program. In consultation with, and with DVRPC approval, it was decided to make the necessary edits to the model, rather than wait for updated files to be supplied by the agency. Traffic forecasts, therefore, were updated for these coding corrections. A comparison was made between forecast mainline and interchange crossroad volumes under the “original” model runs and the corrected model runs to assess how to address the analysis done to date based on the “original” model runs. Table 2 and Table 3 illustrate peak period volumes from the 2045 year Build forecasts model for comparison.

**Table 2: Model Comparison for Turnpike Mainline Segments**

<b>N.J. Turnpike Mainline Segments - Northbound</b>								
Segment	<b>A.M. PEAK PERIOD</b>				<b>P.M. PEAK PERIOD</b>			
	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference
M.P. 0 (DMB)	14,496	14,489	-7	0%	10,307	10,591	284	3%
Int. 1-2	9,173	9,011	-162	-2%	6,640	6,564	-76	-1%
Int. 2-3	10,450	10,332	-118	-1%	8,361	8,074	-287	-3%
Int. 3-4	10,692	10,767	75	1%	8,758	9,153	395	5%

<b>N.J. Turnpike Mainline Segments - Southbound</b>								
Segment	<b>A.M. PEAK PERIOD</b>				<b>P.M. PEAK PERIOD</b>			
	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference
M.P. 0 (DMB)	13,503	13,522	19	0%	12,702	12,834	132	1%
Int. 1-2	7,921	7,712	-209	-3%	7,622	7,142	-480	-6%
Int. 2-3	8,763	8,579	-184	-2%	9,454	8,607	-847	-9%
Int. 3-4	10,317	10,339	22	0%	9,556	9,626	70	1%

**Table 3: Model Comparison for Interchange Crossroad Segments**

<b>Interchange Crossroad Segments - Northbound/Eastbound</b>								
Segment	<b>A.M. PEAK PERIOD</b>				<b>P.M. PEAK PERIOD</b>			
	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference
N.J. Route 49/U.S. Route 130	826	829	3	0%	1,225	1,198	-27	-2%
U.S. Route 322	2,494	2,469	-25	-1%	2,958	2,960	2	0%
N.J. Route 168	4,330	4,210	-120	-3%	3,552	3,384	-168	-5%
N.J. Route 73	12,571	12,583	12	0%	11,798	12,108	310	3%

<b>Interchange Crossroad Segments - Southbound/Westbound</b>								
Segment	<b>A.M. PEAK PERIOD</b>				<b>P.M. PEAK PERIOD</b>			
	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference	2045 Widening (Original)	2045 Widening (Corrected)	Volume Difference	% Difference
N.J. Route 49/U.S. Route 130	1,129	1,112	-17	-2%	2,198	2,244	46	2%
U.S. Route 322	2,902	2,903	1	0%	2,569	2,547	-22	-1%
N.J. Route 168	3,312	3,180	-132	-4%	4,219	4,213	-6	0%
N.J. Route 73	11,730	11,686	-44	0%	11,984	12,606	622	5%

The largest differences shown in the comparison tables are between Interchanges 2 and 3 on the mainline and along N.J. Route 168 on the interchange crossroads, both locations of which are near one of the sources of error. The general lack of significant difference elsewhere on the corridor suggests that conclusions drawn from analyses previously performed using the originally coded model would not be affected by reanalysis using the corrected traffic forecasts.

For instance, mainline volume increases between Interchanges 3 and 4 during the P.M. peak period strengthen the case for widening to six lanes in this segment. The Authority agreed with this conclusion. Two sets of Traffic Flow Diagrams for the forecast year are presented in this Report: Appendices C and D contains Traffic Flow Diagrams reflecting the corrected forecast models, while Appendices F and G contains Traffic Flow Diagrams showing volumes originally used in the analysis prepared to support the Concept Development Report. The existing 2019 Base Year volumes are not affected by the change in model coding.

## **6. BASE AND FORECAST TRAFFIC VOLUMES**

Traffic volumes developed for the Program were produced using a base year of 2019, reflecting pre-pandemic magnitudes and traffic patterns. This base year was chosen as the pandemic is still on-going, as are the impacts of the pandemic on traffic magnitudes and patterns. The long-term impacts are as yet not understood, and the most recent update of the DVRPC Travel Improvement Model, on which the traffic volume forecasts are based, does not account for pandemic impacts.

Time periods chosen for analysis include the weekday a.m. and p.m. peak hours as well as a Summer Friday p.m. peak hour. The commuter peak hours reflect higher traffic volumes passing through the toll plazas and on the interchange crossroads, while the Summer Friday peak hour reflects higher mainline traffic volumes.

The Design Year for the Program is 2040. Volumes and traffic patterns were developed for the forecast year assuming the levels of growth currently anticipated by the regional models, without considering the pandemic. The current demographic forecasts do not account for the impact of the ongoing COVID-19 pandemic. Statements obtained from both DVRPC and NJTPO indicate that no determination has been made regarding COVID-19 impacts, and that it will take at least couple of years before new recurring traffic patterns are realized. Both agencies have indicated that until then they will only revise their demographic forecasts. On this basis, the forecasts currently programmed into the models will be used to project traffic to the Design Year. This can be viewed as a conservatively high estimate of traffic levels in the future, recognizing that some pandemic-era work and travel practices may continue post-pandemic.

A No-Build forecast was prepared, assuming no Program-related changes to the roadway network – improvements by others, such as the I-295 Missing Ramps at N.J. Route 42, I-76/I-295/N.J. Route 42 Direct Connect project, and N.J. Route 73 corridor improvements were included in the models. Build forecasts for the Design Year assumed a full three-lane widening between the current six-lane section at Interchange 4 and the I-295 split/junction near the Delaware Memorial Bridge.

### **6.1 EXISTING VOLUMES**

Existing traffic volumes for the 2019 Base Year are found in Appendix B. Mainline volumes are summarized in Table 4 and Table 5 on Pages 40 and 41, respectively, while interchange crossroad volumes are summarized in Table 6 and Table 7 on Pages 42 and 43, respectively. They were developed using the various data resources identified in the previous section, which included mainline, ramp and crossroad volumes. The data was seasonally adjusted and baselined to the base year 2019. A nominal growth percentage of 0.4%/annum was applied to older traffic data to obtain year 2019 estimates. This growth rate was estimated based on deriving forecasted growth rates between 2020 and 2025 for select freeway and arterial links in the respective DVRPC models and applying them to the period prior to 2019. The full network of mainline, ramp, and interchange crossroad volumes was compiled and balanced to create the Traffic Flow Diagrams in the appendix.

Separate volume diagrams were developed for each of Interchanges 2, 3, and 4 for the weekday a.m. and p.m. peak hours and a Summer Friday p.m. peak hour. The interchange crossroad volumes and patterns extended, in general, to the first major intersection on either side of the Turnpike ramps.

## **6.2 COVID-19 IMPACTS ON CURRENT TRAFFIC VOLUMES**

The on-going COVID-19 pandemic is impacting traffic patterns and employment practices. Existing traffic counts were performed in June 2021, one year into the pandemic. Recognizing this, comparisons were made between the 2021 traffic counts and historic traffic count data to assess the remaining impact of the pandemic at the time of data collection.

Monthly toll plaza transaction volumes were consulted to assess Turnpike traffic impacts. Total entry and exit transactions from April 2019, April 2020 and April 2021 were used for comparison; the percents shown are based on the April 2019 data.

Interchange 1: April 2019 – 1,705,183  
April 2020 – 478,486 (28.1%)  
April 2021 – 1,580,961 (92.7%)

Interchange 2: April 2019 – 256,758  
April 2020 – 91,158 (35.5%)  
April 2021 – 220,074 (85.7%)

Interchange 3: April 2019 – 488,737  
April 2020 – 152,764 (31.3%)  
April 2021 – 367,029 (75.1%)

Interchange 4: April 2019 – 891,967  
April 2020 – 283,214 (31.8%)  
April 2021 – 774,326 (86.8%)

Intersection Turning Movement Counts (TMC) performed in June 2021 at four intersections in the Program were compared with historic count data from pre-pandemic time periods, indexed as previously noted to 2019. Total peak hour volumes at the intersections were compared for assessment of the pandemic impact. The percentages noted below are based on the 2019 pre-pandemic volumes.

- U.S. Route 322 at Turnpike Ramps (Interchange 2): TMC from 2021 compared to 2019 count data from the Traffic Impact Study for Proposed Warehouse Development. A.M. Peak Hour - 83.6%; P.M. Peak Hour - 103.1%
- N.J. Route 168 at Benigno Blvd. (Interchange 3): TMC from 2021 compared to 2017 count data from the N.J. Route 168/I-295 Interchange Study. A.M. Peak Hour - 76.2%; P.M. Peak Hour - 91.8%
- N.J. Route 73 at Fellowship Road (Interchange 4): TMC from 2021 compared to 2019 count data from N.J. Route 73 Improvements Project. A.M. Peak Hour – 71.5%; P.M. Peak Hour – 94.6%
- N.J. Route 73 at Rogers Walk (Interchange 4): TMC from 2021 compared to 2019 count data from N.J. Route 73 Improvements Project. A.M. Peak Hour – 89.5%; P.M. Peak Hour – 89.8%

The different comparisons noted above indicated ranges of impacts due to the COVID-19 pandemic of between 7% and 25% at the Turnpike toll plazas and between 0% and 29% on the interchange crossroads. The ranges are significant enough that volume balancing along the interchange crossroads, incorporating the interchange ramp volumes, relied more on the historical data than the 2021 traffic counts. The 2021 traffic counts included vehicle

classifications that were used in the intersection analysis documented later in this report. While the truck percentages are likely slightly higher for the 2021 data than for data from pre-pandemic years (due to the lower total traffic volumes in the later year), these percentages were used in the analysis as a conservative estimate of pre-pandemic vehicle compositions.

### **6.3 2040 NO-BUILD VOLUMES**

Traffic was projected from the 2019 Base Year to a 2040 No-Build scenario. The 2040 No-Build scenario was modeled assuming no Program-related roadway changes or widening. As previously noted, other known projects and geometric changes occurring in the region have been included in the forecast models. Higher growth was observed in the model in the Interchange 2 area than in other areas of the Program corridor; this is indicative that some degree of future development anticipated along U.S. Route 322 was incorporated into the models, though extensive warehouse development in the U.S. Route 322 corridor is anticipated in the future. It is, however, not explicitly stated which future developments are covered by this higher growth. To address the possibility that the forecasted growth understates the level of development, trip generation from the Russo development, on U.S. Route 322, east of the Turnpike Crossing, as determined by the “Traffic Impact Study for Proposed Warehouse Development,” prepared by Consulting Engineer Services (latest revisions March 2021), was added to the traffic forecasts. Volumes were forecast for each of the Turnpike segments (between each exit) from Interchange 1 to Interchange 5 for the weekday A.M. and P.M. peak hours and the Summer Friday p.m. peak hour, in both the northbound and southbound directions. Table 4 and Table 5 show the mainline forecast 2040 No-Build volumes. Compared to the 2019 Base Year, traffic increases to the No-Build scenario range from 3% to 7% during the weekday peak hours, while increases to Friday Summer traffic volumes ranged from 2% to 6%. Interchange crossroad volumes are summarized in Table 6 and Table 7 for the same time periods. Traffic increases are more pronounced on U.S. Route 322, because of the increased development on the corridor, and on N.J. Route 73, likely because of the increased capacity provided by the NJDOT improvement project. The built-up area along N.J. Route 168 at Interchange 3 and constrained existing Black Horse Pike geometry both keep traffic volume changes suppressed on this roadway. The full Traffic Volume Diagrams for the 2040 No-Build scenario can be found in Appendix C.

With no change to the Turnpike geometry under the No-Build scenario, the assumed completion of improvement projects along I-95 in Philadelphia may be attracting traffic away from the Turnpike and constraining the Turnpike’s volume growth, particularly since the completion of the I-95 through connections at the I-276 crossing in Bristol, Pennsylvania, in 2018.

### **6.4 2040 BUILD VOLUMES**

Using the same 2019 Base Year volumes, traffic was projected to a 2040 Build scenario. The 2040 Build scenario was modeled assuming a six-lane widening along the length of the Turnpike within the Program limits. Similar to the No-Build forecast, other known projects, geometric changes, and assumed developments (including the one added to the forecasts as described in the No-Build scenario above) occurring in the region have been included in the forecast models. Volumes were forecast for each of the Turnpike segments (between each exit) from Interchange 1 to Interchange 5 for the weekday A.M. and P.M. peak hours and the Summer Friday P.M. peak hour, in both the northbound and southbound directions. Table 4 and Table 5 show the mainline forecast 2040 Build volumes. Compared to the 2019 Base Year, traffic increases to the No-Build scenario range from 5% to 17% during the weekday peak hours, while increases to Friday Summer traffic volumes ranged from 8% to 16%. In addition, the 2040 Build volumes increase by a range of between 2% and 11% over the 2040 No-Build

volumes during both the weekday peak hours and the Summer Friday peak hour. Interchange crossroad volumes are summarized in Table 6 and Table 7 for the same time periods. Traffic volumes on the crossroads do not change significantly (at most by about 2%) between No-Build and Build for the Design Year 2040. The full Traffic Volume Diagrams for the 2040 Build scenario can be found in Appendix D.

The higher growth in mainline volumes with the six-lane widening reflects a change in equilibrium along the corridor due to an increased capacity on one of its parallel routes. I-95 through Pennsylvania, I-295 and the Turnpike provide the three major routes between the Wilmington area and New York City. The increased capacity on the Turnpike would attract more traffic to the Turnpike and off of I-295. The small changes in traffic volumes on the crossroads between No-Build and Build suggests that the mainline traffic volume increase is primarily through traffic.

Alternatives to be studied in the next sections for Interchanges 2, 3 and 4 do not alter the traffic patterns except for localized geometric improvements, i.e. added lanes on ramps, turning restrictions at intersections, and other minor traffic signing and pavement marking improvements. The 2040 Build volumes shown in Table 4, Table 5, Table 6, and Table 7, therefore, are used as the basis for the analysis discussed in the next sections.

**Table 4: Forecast Mainline Traffic Volumes (A.M. and P.M. Peak Hours)**

Segment		2019 Base Year	2040 No-Build	2019 Base - 2040 No-Build	2040 Build	2019 Base- 2040 Build	2040 No-Build – 2040 Build
SN Roadway	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
Int. 1 – Int. 2	A.M.	1,092	1,128	3.3%	1,222	11.9%	8.3%
	P.M.	1,374	1,431	4.1%	1,557	13.3%	8.8%
Int. 2 – Int. 3	A.M.	1,529	1,596	4.4%	1,713	12.0%	7.3%
	P.M.	1,349	1,445	7.1%	1,548	14.8%	7.1%
Int. 3 – Int. 4	A.M.	2,392	2,465	3.1%	2,597	8.6%	5.4%
	P.M.	1,660	1,748	5.3%	1,945	17.2%	11.3%
Int. 4 – Int. 5	A.M.	2,705	2,765	2.2%	2,881	6.5%	4.2%
	P.M.	2,445	2,534	3.6%	2,702	10.5%	6.6%
NS Roadway	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
Int. 5 – Int. 4	A.M.	2,609	2,696	3.3%	2,804	7.5%	4.0%
	P.M.	3,151	3,223	2.3%	3,359	6.6%	4.2%
Int. 4 – Int. 3	A.M.	1,787	1,877	5.0%	1,980	10.8%	5.5%
	P.M.	2,877	2,957	2.8%	3,111	8.1%	5.2%
Int. 3 – Int. 2	A.M.	1,370	1,462	6.7%	1,601	16.9%	9.5%
	P.M.	1,897	1,981	4.4%	1,993	5.1%	0.6%
Int. 2 – Int. 1	A.M.	1,402	1,431	2.1%	1,546	10.3%	8.0%
	P.M.	1,347	1,390	3.2%	1,461	8.5%	5.1%

**Table 5: Forecast Mainline Traffic Volumes (Summer Friday P.M. Peak Hour)**

Segment		2019 Base Year	2040 No-Build	2019 Base - 2040 No-Build	2040 Build	2019 Base-2040 Build	2040 No-Build – 2040 Build
SN Roadway	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
Int. 1 – Int. 2	Fri.	2,510	2,559	2.0%	2,832	12.8%	10.7%
Int. 2 – Int. 3	Fri.	2,473	2,609	5.5%	2,847	15.1%	9.1%
Int. 3 – Int. 4	Fri.	2,755	2,874	4.3%	3,201	16.2%	11.4%
Int. 4 – Int. 5	Fri.	3,309	3,413	3.1%	3,721	12.5%	9.0%
NS Roadway	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
Int. 5 – Int. 4	Fri.	3,189	3,258	2.2%	3,442	7.9%	5.6%
Int. 4 – Int. 3	Fri.	3,333	3,432	3.0%	3,659	9.8%	6.6%
Int. 3 – Int. 2	Fri.	2,710	2,813	3.8%	2,881	8.3%	2.4%
Int. 2 – Int. 1	Fri.	2,380	2,440	2.5%	2,577	8.3%	5.6%

**Table 6: Forecast Crossroad Traffic Volumes (A.M. and P.M. Peak Hours)**

Segment		2019 Base Year	2040 No-Build	2019 Base - 2040 No-Build	2040 Build	2019 Base-2040 Build	2040 No-Build – 2040 Build
East/Northbound	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
U.S. Route 322	A.M.	442	610	38.0%	622	40.7%	2.0%
	P.M.	929	1,051	13.1%	1,057	13.8%	0.6%
N.J. Route 168	A.M.	1,254	1,246	-0.6%	1,270	1.3%	1.9%
	P.M.	657	651	-0.9%	649	-1.2%	-0.3%
N.J. Route 73	A.M.	2,273	2,539	11.7%	2,522	11.0%	-0.7%
	P.M.	2,456	2,711	10.4%	2,702	10.0%	-0.3%
West/Southbound	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
U.S. Route 322	A.M.	874	984	12.6%	988	13.0%	0.4%
	P.M.	478	676	41.4%	684	43.1%	1.2%
N.J. Route 168	A.M.	709	702	-1.0%	700	-1.3%	-0.3%
	P.M.	1,032	1,021	-1.1%	1,026	-0.6%	0.5%
N.J. Route 73	A.M.	2,088	2,297	10.0%	2,301	10.2%	0.2%
	P.M.	1,801	2,132	18.4%	2,117	17.5%	-0.7%

**Table 7: Forecast Crossroad Traffic Volumes (Summer Friday P.M. Peak Hour)**

Segment		2019 Base Year	2040 No-Build	2019 Base - 2040 No-Build	2040 Build	2019 Base - 2040 Build	2040 No-Build – 2040 Build
East/Northbound	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
U.S. Route 322	Fri.	838	953	13.7%	960	14.6%	0.7%
N.J. Route 168	Fri.	787	780	-0.9%	777	-1.3%	-0.4%
N.J. Route 73	Fri.	2,441	2,688	10.1%	2,687	10.1%	0.0%
West/Southbound	Hour	Volume	Volume	Percent Diff.	Volume	Percent Diff.	Percent Diff.
U.S. Route 322	Fri.	489	690	41.1%	718	46.8%	4.1%
N.J. Route 168	Fri.	883	878	-0.6%	896	1.5%	2.1%
N.J. Route 73	Fri.	1,830	2,071	13.2%	2,046	11.8%	-1.2%

## **6.5 LOCAL ROAD CROSSINGS**

Widening of the Turnpike to three lanes in each direction requires the replacement of many of the local roadway bridge crossings of the Turnpike. Traffic volumes on the local road crossings are required to assess the method of replacement of these bridge structures. This data was collected from a combination of historical counts from the NJDOT and DVRPC on-line traffic count databases and ADT data from bridge inspection reports.

The historical data was adjusted to the Base Year 2019 by applying an 0.4%/annum growth rate. Design Year 2040 volume forecasts were developed based on an overall local roadway growth rate that was a weighted average of growth rates of the interchange crossroads and several other major roadway crossings. An interim year during the anticipated Program construction (2028) was also included for construction staging consideration.

Appendix E contains summary tables of the local roadway crossing volumes.

**7. ANALYSIS & RESULTS**

**7.1 METHODOLOGY**

The section presents the methodology used to conduct traffic operational analyses at key locations within the Program limits of the Interchange 1 to 4 Widening Program. Specifically, the existing traffic volumes and forecast traffic volumes were used to assess the current and projected traffic operating conditions in the Program corridor. Detailed capacity and level of service analyses were conducted at the critical freeway sections, ramp junctions, weaving segments, and signalized intersections within the study corridor using the analytical procedures described in the Highway Capacity Manual (HCM), 6<sup>th</sup> Edition (2016), published by the Transportation Research Board, National Research Council, Washington, D.C. The criteria used to define level of service (LOS) for each type of facility are described below.

**7.1.1 Freeway Segments**

To qualify as a basic freeway segment for analysis purposes, a segment must be limited-access with interchange spacing at two miles or greater and free-flow speeds between 55 and 75 miles/hour. The ideal basic freeway segment has 12-foot lane widths, level terrain (with grades no greater than 2 percent), a traffic stream composed entirely of passenger cars, and a minimum lateral clearance of 6 feet for the outer shoulder and 2 feet for the inner shoulder next to the median barrier. For basic freeway segments, the LOS is determined based on the density of the roadway segment (a measure that quantifies the proximity of vehicles to each other within the traffic stream) and indicates the degree of maneuverability within the traffic stream. The LOS criteria for basic freeway segments are provided in Table 8.

**Table 8: Basic Freeway Segments Level of Service Criteria**

LOS	DENSITY RANGE (Passenger Cars per Mile per Lane)
A	0 to 11
B	>11 to 18
C	>18 to 26
D	>26 to 35
E	>35 to 45
F	>45
<i>Source: Highway Capacity Manual, 6<sup>th</sup> Edition (2016)</i>	

LOS A describes completely free flow conditions, densities of up to 11 passenger cars per mile per lane (pcpmpl), while LOS F represents forced break down flow with densities in excess of 45 pcpmpl. The Authority is directed by its enabling legislation to construct, maintain, and operate a modern express highway, and to remove congestion and hazardous conditions to allow vehicular traffic to operate on a non-congested Turnpike mainline and interchanges in a manner that does not expose motorists to hazardous conditions. From the *Traffic Operational Study of New Jersey Turnpike Interchanges 1 to 6* (HNTB, 2017):

*The Authority uses LOS ‘C’ as a benchmark for the operation of each roadway segment in its jurisdiction, as documented in the Strategic Plan. In congested or urban areas, many other agencies accept LOS ‘D’ for freeway operational design. It is understandable that the Authority desires to avoid operations at LOS ‘D’ (or worse) when queues are*

*susceptible to form for even minor incidents. HNTB is using the LOS 'C' benchmark as a threshold for considering roadway widening under this study.*

The densities corresponding to LOS A, B and C are equal to or less than 26 pcpmpl and, for the Turnpike mainline, under the definition noted above, are considered acceptable operating conditions. LOS D, E and F represent unacceptable conditions.

### **7.1.2 Signalized Intersections**

The LOS of a signalized intersection is defined in terms of control delay per vehicle (seconds per vehicle). Control delay is the portion of total delay experienced by a motorist that is attributable to the traffic signal. It is comprised of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The LOS criteria for signalized intersections, as defined in the HCM, are provided in Table 9.

**Table 9: Signalized Intersection Level Of Service Criteria**

<b>LOS</b>	<b>CONTROL DELAY (Seconds per Vehicle)</b>
A	<=10
B	>10 to 20
C	>20 to 35
D	>35 to 55
E	>55 to 80
F	>80
<i>Source: Highway Capacity Manual, 6<sup>th</sup> Edition (2016)</i>	

LOS A describes operations with minimal control delay, up to 10 seconds per vehicle, while LOS F describes operations with control delays in excess of 80 seconds per vehicle. Under LOS F, excessive delays and longer queues are common as result of over-saturated conditions (i.e. demand rates exceeding the capacity). Delays experienced at LOS A, B, C, and D (below 55 seconds per vehicle) are generally considered acceptable. LOS E and F represent unacceptable operating conditions.

## **7.2 ANALYSIS APPROACH**

To assess traffic operating conditions in the study area, a detailed capacity and LOS analysis was conducted for the Turnpike mainline sections between interchanges and local signalized intersections that are in close proximity to a Turnpike interchange.

As noted above, for Turnpike mainline sections, operations are considered unacceptable if levels of service are D or worse.

For the signalized intersections, LOS is reported for all turning movements. Level of Service D or better is considered to be acceptable for signalized intersection operations. While some analysis performed for the signalized intersections in the program may exhibit unacceptable levels of service (E or F) under the preferred alternatives, the impacts to the quality of flow of Turnpike ramp traffic took precedence in this analysis. In these cases, the LOS E or F finding would apply to isolated movements during one or more peak periods, but not necessarily the entire intersection.

### 7.3 MAINLINE CAPACITY ANALYSIS

The following assumptions were applied to the Basic Freeway Segment analysis for the Turnpike mainline, which was performed to assess mainline capacity.

- Basic, average free-flow speed on mainline roadways: 70 mph;
- Peak Hour Factor: 0.94, indicative of little variation among 15-minute periods within peak hours;
- Driver population factor: 0.975, reflective of “mostly familiar” drivers on the Turnpike;
- Appropriate passenger-car equivalency applied for heavy vehicles in the traffic stream; and
- No adjustments for lanes widths, lateral obstructions, or interchange spacing, reflective of the near-ideal geometry of Turnpike roadways.

Mainline traffic volumes between interchanges were analyzed against the geometric capacity. Two approaches were taken to perform this analysis. First, the weekday peak hours and Summer Friday peak hour volumes were analyzed. Peak hour mainline volumes are shown in Table 10 through Table 12.

**Table 10: Mainline Volume Between Interchanges – Weekday A.M. Peak Hour**

Location	A.M. Peak Hour					
	2019 Existing		2040 No-Build		2040 Build	
	NS	SN	NS	SN	NS	SN
Int. 1 - Int. 2	1,402	1,092	1,443	1,137	1,602	1,247
Int. 2 - Int. 3	1,370	1,529	1,446	1,580	1,607	1,732
Int. 3 - Int. 4	1,787	2,392	1,873	2,464	1,927	2,564
Int. 4 - Int. 5	2,609	2,705	2,716	2,786	2,765	2,819

**Table 11: Mainline Volume Between Interchanges – Weekday P.M. Peak Hour**

Location	P.M. Peak Hour					
	2019 Existing		2040 No-Build		2040 Build	
	NS	SN	NS	SN	NS	SN
Int. 1 - Int. 2	1,349	1,374	1,402	1,412	1,589	1,570
Int. 2 - Int. 3	1,897	1,349	1,962	1,427	2,151	1,569
Int. 3 - Int. 4	2,877	1,660	2,966	1,747	3,362	1,821
Int. 4 - Int. 5	3,151	2,445	3,048	2,551	3,077	2,631

**Table 12: Mainline Volume Between Interchanges – Summer Friday P.M. Peak Hour**

Location	Summer Friday P.M. Peak Hour					
	2019 Existing		2040 No-Build		2040 Build	
	NS	SN	NS	SN	NS	SN
Int. 1 - Int. 2	2,380	2,510	2,461	2,578	2,719	2,867
Int. 2 - Int. 3	2,710	2,473	2,794	2,580	3,028	2,894
Int. 3 - Int. 4	3,333	2,755	3,431	2,869	3,631	3,096
Int. 4 - Int. 5	3,189	3,309	3,283	3,436	3,450	3,630

Based on the peak hour mainline capacity and LOS analysis, all segments for each of the three peak hours, except for one location, operate at LOS C or better. Existing and No-Build analyses assumed the existing geometric configuration, two lanes in each direction. The Build analyses assumed the widened geometry, three lanes in each direction. The NS Roadway segment between Interchange 4 and Interchange 3 operates at a Level of Service D during the Summer Friday P.M. peak hour, both under 2019 Base Year and 2040 No-Build Design Year. The density, 28.5 pc/mpl under the 2040 No-Build Design Year volumes, is in the high end of the Level of Service D range. Based on a mainline volume calculation, it was determined that a mainline volume exceeding about 3,150 vph would be expected to result in a LOS D operation on the current two-lane mainline geometry south of Interchange 4.

A second analysis approach was conducted that is consistent with the analysis methodology in the *Traffic Operational Study of New Jersey Turnpike Interchanges 1 to 6* (HNTB, 2017). In that study, three versions of “highest” mainline traffic volumes recorded by the Sensys pucks were analyzed.

- Highest Seasonal Average Volumes
- Maximum Recorded Volumes
- Highest Volumes in Congested Conditions

Table 13 through Table 15 show 2019 Base Year traffic volumes corresponding with the categories described above. Note that the mainline north of Interchange 4 contains three lanes in each direction. Included with the traffic volumes are heavy vehicle percentages, median speeds and the results of the analysis, which indicates the following. The speed data was taken directly from the Sensys puck output, and the densities are calculated based on the site-specific volume and speed information provided.

- Between Interchange 3 and Interchange 4, Level of Service D operation resulted for the Highest Seasonal Average Volumes for both directions.
- Two of the eight mainline segments, both also between Interchange 3 and 4, exhibited Level of Service D operation under Maximum Recorded Volumes.
- All of the six mainline segments showing traffic volumes under Congested Conditions exhibited Level of Service D operation or worse. Many of them exhibited LOS E operation, with one at LOS F.

**Table 13: 2019 Base Year LOS Analysis: Highest Seasonal Average Volumes**

N.J. Turnpike Segment	Roadway	Highest Seasonal Average Volumes				
		2019 Volume	% Heavy Vehicles	LOS	Speed (mph)	Density (pc/mi/ln)
Between Interchanges 1 - 2	NS	2,956	2.3	C	63.1	24.5
	SN	2,936	2.2	C	65.1	24.2
Between Interchanges 2 - 3	NS	2,965	2.5	C	69.3	24.1
	SN	2,944	2.3	C	66.4	24.3
Between Interchanges 3 - 4	NS	3,398	2.5	D	65.2	28.4
	SN	3,139	2.1	D	65.1	26.2
North of Interchange 4	NS	3,931	2.3	C	69.8	20.4
	SN	3,990	2.2	C	69.7	20.7

**Table 14: 2019 Base Year LOS Analysis: Maximum Recorded Volumes**

N.J. Turnpike Segment	Roadway	Maximum Recorded Volumes				
		2019 Volume	% Heavy Vehicles	LOS	Speed (mph)	Density (pc/mi/ln)
Between Interchanges 1 - 2	NS	3,175	2.7	C	71.9	24.1
	SN	3,076	2.2	C	64.3	26.0
Between Interchanges 2 - 3	NS	3,185	10.6	C	72.3	25.9
	SN	3,142	2.3	C	66.3	25.8
Between Interchanges 3 - 4	NS	3,523	2.5	D	65.2	29.3
	SN	3,394	2.1	D	67.0	27.5
North of Interchange 4	NS	4,384	2.3	C	69.4	22.9
	SN	4,351	3.4	C	70.3	22.7

**Table 15: 2019 Base Year LOS Analysis: Highest Volumes in Congested Conditions**

N.J. Turnpike Segment	Roadway	Highest Volumes In Congested Conditions				
		2019 Volume	% Heavy Vehicles	LOS	Speed (mph)	Density (pc/mi/ln)
Between Interchanges 1 - 2	NS	3,147	9.3	E	41.0	44.6
	SN	n/a				
Between Interchanges 2 - 3	NS	n/a				
	SN	2,932	2.3	F	30.0	53.2
Between Interchanges 3 - 4	NS	3,397	2.5	E	48.0	38.6
	SN	3,280	2.1	E	41.0	43.4
North of Interchange 4	NS	4,330	2.3	E	40.0	39.7
	SN	3,555	3.4	D	39.0	33.4

The Sensys pucks used to obtain the volumes shown in the tables are near the interchanges. The unacceptable level of service results shown in Table 15 along the NS Roadway are indicative of recurring queuing near the interchanges: north of Interchange 4, the congested condition is likely the result of ramp queuing on the Interchange 4 Ramp NT and the mainline lane reduction from three lanes to two. Between Interchange 3 and 4, the congested condition may be the result of Interchange 3 Ramp NT queues. Queuing in advance of the Interchange 1 toll plaza may be the cause of the LOS E shown between Interchanges 2 and 1.

Table 16 through Table 18 show 2040 Design Year No-Build traffic volumes corresponding with the three volume categories described previously. Growth rates in daily traffic for each segment as determined by the DVRPC Travel Improvement Model were applied to the 2019 Base Year volumes in Tables 4 through 7 to derive the No-Build volumes, since these instances of highest volumes generally did not occur during the peak hours previously analyzed. As noted above, included with the traffic volumes are heavy vehicle percentages, average speeds and densities. In Table 16 and Table 17, speed and density figures shown are taken directly from the HCM analysis. The densities in Table 18 are calculated assuming the same speeds as existing, The results of the analysis indicate the following.

- Between Interchange 3 and Interchange 4, Level of Service D operation resulted for the Highest Seasonal Average Volumes.
- Mainline segments south of Interchange 4 exhibited Level of Service D operation under Maximum Recorded Volumes.
- Five of the six mainline segments having Congested Conditions exhibited Level of Service E or worse operation.

**Table 16: 2040 Design Year No-Build LOS Analysis: Highest Seasonal Average Volumes**

N.J. Turnpike Segment	Roadway	Highest Seasonal Average Volumes				
		2040 Volume	% Heavy Vehicles	LOS	Speed (mph)	Density (pc/mi/ln)
Between Interchanges 1 - 2	NS	2,956	2.3	C	65.4	25.2
	SN	3,008	2.2	C	65.5	25.0
Between Interchanges 2 - 3	NS	3,039	2.5	C	65.3	25.4
	SN	3,017	2.3	C	65.4	25.1
Between Interchanges 3 - 4	NS	3,482	2.5	D	61.4	30.9
	SN	3,217	2.1	D	64.0	27.3
North of Interchange 4	NS	4,028	2.3	C	67.2	21.7
	SN	4,088	2.2	C	67.1	22.1

**Table 17: 2040 Design Year No-Build LOS Analysis: Maximum Recorded Volumes**

N.J. Turnpike Segment	Roadway	Maximum Recorded Volumes				
		2040 Volume	% Heavy Vehicles	LOS	Speed (mph)	Density (pc/mi/ln)
Between Interchanges 1 - 2	NS	3,254	2.7	D	63.5	28.0
	SN	3,152	2.2	D	64.5	26.6
Between Interchanges 2 - 3	NS	3,264	10.6	D	61.0	31.5
	SN	3,220	2.3	D	63.9	27.4
Between Interchanges 3 - 4	NS	3,610	2.5	D	60.0	32.8
	SN	3,478	2.1	D	61.5	30.7
North of Interchange 4	NS	4,493	2.3	C	65.6	24.8
	SN	4,459	3.4	C	65.5	25.0

**Table 18: 2040 Design Year No-Build LOS Analysis: Highest Volumes in Congested Conditions**

N.J. Turnpike Segment	Roadway	Highest Volumes in Congestion Conditions				
		2040 Volume	% Heavy Vehicles	LOS	Speed (mph)	Density (pc/mi/ln)
Between Interchanges 1 - 2	NS	3,226	9.3	E	41.0	45.8
	SN	n/a				
Between Interchanges 2 - 3	NS	n/a				
	SN	3,004	2.3	F	30.0	54.5
Between Interchanges 3 - 4	NS	3,481	2.5	E	48.0	39.5
	SN	3,361	2.1	E	41.0	44.5
North of Interchange 4	NS	4,437	2.3	E	40.0	40.7
	SN	3,643	3.4	D	39.0	34.3

Based on the Authority’s definition of acceptable level of service (LOS C or better) for this area of the Turnpike, the results presented by Table 13 through Table 18 indicate that widening to a three-lane section in each direction is warranted, both under Base Year 2019 and Design Year 2040 No-Build traffic volumes.

To complete the analysis, 2040 Design Year Build traffic volumes were prepared for analysis. As with the derivation of the No-Build traffic volumes, growth rates in daily traffic for each segment as determined by the DVRPC Travel Improvement Model were applied to the 2019 Base Year volumes in Table 10 through Table 12 to derive the Build volumes, since these instances of highest volumes generally did not occur during the peak hours previously analyzed. As noted above, included with the traffic volumes are heavy vehicle percentages, average speeds and the results of the analysis. Only the Maximum Recorded Volumes were analyzed for this iteration, since they were, with one exception, higher than the traffic volumes in the other categories.

The analysis (in Table 19) shows an acceptable Level of Service C for all of the mainline segments within the Program limits.

**Table 19: 2040 Design Year Build LOS Analysis: Maximum Recorded Volumes**

N.J. Turnpike Segment	Direction	Maximum Recorded Volumes				
		2040 Volume	% Heavy Vehicles	LOS	Speed (mph)	Density (pc/mi/ln)
Between Interchanges 1 - 2	NS	3,626	3.4	C	67.9	19.6
	SN	3,513	2.8	C	68.1	18.8
Between Interchanges 2 - 3	NS	3,784	13.3	C	66.7	22.8
	SN	3,733	2.9	C	67.8	20.1
Between Interchanges 3 - 4	NS	3,763	3.1	C	67.7	20.3
	SN	3,625	2.6	C	68.0	19.4
North of Interchange 4	NS	4,502	2.9	C	65.4	25.1
	SN	4,468	4.3	C	65.3	25.3

## 7.4 INTERCHANGE 2 ANALYSIS

Interchange 2 is a trumpet interchange providing connections between the Turnpike and Swedesboro-Bridgeport Road (U.S. Route 322) in the Township of Woolwich, Gloucester County, and is located on the Turnpike mainline between M.P. 12.7 and M.P. 13.1. Figure 4 is a location map of the interchange.

Figure 4: Turnpike Interchange 2.



The existing toll plaza provides a total of four toll lanes (two in each direction) to serve exiting and entering traffic. Connections between the toll plaza and the SN Roadway are provided via Ramp ST and Ramp TN and connections between the toll plaza and the NS Roadway are provided by Ramp NT and Ramp TS. An overpass bridge carries Ramps ST and TN over the mainline roadway. Traffic exiting and entering the Turnpike is controlled by a signalized intersection at Swedesboro-Bridgeport Road (U.S. Route 322) which is approximately 500 feet from the toll plaza. At this intersection, exiting Turnpike traffic is provided two lanes - one shared left/through lane and one exclusive right turn lane. A dedicated westbound left turn lane and a dedicated eastbound right turn lane is provided for entering Turnpike traffic from Swedesboro-Bridgeport Road.

**Ramps.** During Concept Development, the ramps between the Turnpike and the toll plaza were evaluated to determine if the current single-lane operation at each ramp will provide sufficient capacity to carry Design Year 2040 traffic volumes. This analysis was based on Figure 7-A of the NJDOT Roadway Design Manual. The highest ramp Design Year Build volume in the Interchange 2 ramp system is the 666 vph on Ramp NT during the weekday P.M. peak hour. Based on projected Build traffic volumes, it was determined that the current single-lane configuration of the ramps will provide suitable capacity to maintain acceptable LOS (C or better) under Design Year Build traffic volumes.

**Toll Plaza.** Entering and exiting volumes at the toll plaza under the three traffic volume scenarios were evaluated against the service flow rates of the toll lanes provided. The two exiting lanes consist of one manual/cash only lane and one E-ZPass only lane. The total maximum service flow rate for the Exit Plaza is 1,250 vph, based on a 250-vph service flow rate for a manual cash only lane and 1,000-vph service flow rate for a E-ZPass only lane. The two

entering lanes consist of one Datim lane and one E-ZPass only lane. The total maximum service flow rate for the Entry Plaza is 1,300 vph, considering also a 300-vph service flow rate for a Datim lane. Table 20 summarizes the analysis.

**Table 20: Interchange 2 Toll Plaza Analysis Summary**

	Entry Plaza	Exit Plaza
Capacity	1,300 vph	1,250 vph
Weekday AM Peak Hour		
2019 Base Year	766 vph	297 vph
2040 No-Build	826 vph	389 vph
2040 Build	865 vph	389 vph
Weekday PM Peak Hour		
2019 Base Year	250 vph	825 vph
2040 No-Build	350 vph	897 vph
2040 Build	357 vph	898 vph
Summer Friday PM Peak Hour		
2019 Base Year	226 vph	593 vph
2040 No-Build	344 vph	677 vph
2040 Build	429 vph	674 vph

On the basis of this analysis, the existing number of toll plaza lanes and current toll collection configuration is expected to be sufficient for future traffic demand volumes passing through the toll plaza.

Four alternatives were considered for improvements to the Interchange 2 ramp system, all of which involved relocation and realignment of the ramps and the bridge structure carrying Ramp ST and Ramp TN over the Turnpike mainline. Based on the ramp and toll plaza analyses described above, all of the alternatives provide acceptable levels of service and capacity on the Turnpike side of the toll plaza.

**Bicycle and Pedestrian Accommodations.** The existing signalized intersection with U.S. Route 322 has crosswalks for pedestrian activity and shoulders for bicycle use. Intersection improvements outlined below would include preserving these accommodations but must be coordinated with improvements and accommodations proposed by developers due to the anticipated site-generated vehicular, pedestrian and bicycle traffic.

**Intersection Analysis.** On the free side of the toll plaza, the signalized Ramp TE/WT/U.S. Route 322 intersection provides access for the Turnpike traffic entering and exiting the toll road. The traffic signal operates under four signal phases with a variable cycle length up to 117 seconds. Protected-permitted left turn signal phasing movements are provided on the U.S. Route 322 westbound and Turnpike ramp northbound approaches.

Of concern is that the intersection signal phasing and turning traffic volumes on the Turnpike ramp approach to U.S. Route 322 are causing ramp traffic to queue into the toll plaza exit area, if not through the plaza. To evaluate this, capacity analyses were performed at the intersection for the 2019 Base Year and 2040 Design Year traffic volumes. Table 21 summarizes the analysis of 2019 Base Year traffic volumes for the weekday A.M. and P.M. peak hours. The Summer Friday analysis is not included here – given the lower exiting ramp volumes on the

northbound approach to the intersection, the weekday peak hour analysis was deemed to represent of the methods to mitigate vehicular queuing into/through the toll plaza.

**Table 21: Summary of Intersection Capacity Analysis – U.S. Route 322/Turnpike Ramps – 2019  
Base Year Traffic Volumes**

MOVEMENT	WEEKDAY A.M. PEAK HOUR					WEEKDAY P.M. PEAK HOUR				
	2019 BASE YEAR					2019 BASE YEAR				
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	QUEUE (feet)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	QUEUE (feet)
EB L	12	C	0.05	24.2		8	B	0.02	17.5	
EB T	322	D	0.69	36.3		521	D	0.83	37.1	
EB R	219	A	0.39	5.4		96	A	0.18	4.3	
WB L	447	D	0.93	42.3	196	139	C	0.70	31.9	102
WB T	345	B	0.41	13.7		304	B	0.38	14.4	
WB R	9					2				
NB L	186	D	0.70	41.1	241	390	D	0.88	50.1	522
NB T	11					13				
NB R	100	A	0.20	6.1		422	A	0.53	5.4	
SB L	28	C	0.24	23.6		18	C	0.07	22.3	
SB T	100					15				
SB R	22	A	0.04	0.1		17	A	0.03	0.1	

While the existing analysis shows Levels of Service of D or better for all approaches during both peak hours, the maximum queue shown for the Turnpike ramp approach during the weekday P.M. peak hour exceeds the 500-foot distance between the toll plaza area and the approach stop line. Table 22 below summarizes analysis of the same intersection for 2040 Design Year Build volumes, with no geometric improvements, but with optimized green splits. A separate analysis performed by Consulting Engineering Services in “Traffic Impact Study for Proposed Warehouse Development” proposed a 100-second background cycle and coordination of a group of intersections along U.S. Route 322. This cycle length was used in the analyses using 2040 Design Year Build volumes.

**Table 22: Summary of Intersection Capacity Analysis – U.S. Route 322/Turnpike Ramps – 2040 Design Year Build Traffic Volumes (No Geometric Improvements)**

MOVEMENT	WEEKDAY A.M. PEAK HOUR					WEEKDAY P.M. PEAK HOUR				
	2040 DESIGN YEAR BUILD					2040 DESIGN YEAR BUILD				
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	QUEUE (feet)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	QUEUE (feet)
EB L	12	B	0.04	19.6		8	B	0.02	18.4	
EB T	241	C	0.41	24.2		568	D	0.85	38.4	
EB R	397	A	0.52	4.6		103	A	0.18	4.5	
WB L	510	C	0.81	22.0	275	222	D	0.83	42.2	192
WB T	377	B	0.40	10.9		390	B	0.43	11.8	
WB R	9					2				
NB L	199	E	0.93	77.1	285	439	F	1.22	149.1	602
NB T	10					13				
NB R	170	A	0.36	6.2		500	B	0.68	10.5	
SB L	29	C	0.29	28.8		19	C	0.12	25.6	
SB T	104					15				
SB R	23	A	0.05	0.2		17	A	0.03	0.1	

Analysis of the 2040 Design Year Build volumes at the intersection shows Level of Service E and F for the Turnpike ramp approach during the weekday A.M. and weekday P.M. peak hours, respectively. The maximum queue shown for the Turnpike ramp approach during the weekday P.M. peak hour increases and still exceeds the 500-foot distance between the toll plaza area and the approach stop line.

Given this result, geometric improvements are required at the intersection to reduce vehicular queues on the Turnpike ramp approach to not impact the toll plaza operation. The initial improvement to propose is a second left-turn lane on the Turnpike ramp approach, such that the approach would be a total of three lanes consisting of a left-turn lane, shared left-through lane, and channelized right-turn lane. Widening would also be required on the westbound departure leg on U.S. Route 322 to accommodate the two-lane left turn. Table 23 below summarizes analysis of the intersection for 2040 Design Year Build volumes, with the geometric improvements just described. It should be noted that the introduction of this second left-turn lane on the approach requires a change in signal phasing for the ramp and driveway approaches.

**Table 23: Summary of Intersection Capacity Analysis – U.S. Route 322/Turnpike Ramps – Design Year 2040 Build Traffic Volumes (With Geometric Improvements)**

MOVEMENT	WEEKDAY A.M. PEAK HOUR					WEEKDAY P.M. PEAK HOUR				
	2040 DESIGN YEAR BUILD					2040 DESIGN YEAR BUILD				
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	QUEUE (feet)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	QUEUE (feet)
EBL	12	C	0.12	33.0		8	B	0.02	19.0	
EBT	241	D	0.68	42.2		568	D	0.88	40.9	
EBR	397	A	0.64	8.5		103	A	0.18	3.7	
WBL	510	D	0.89	41.7	332	222	D	0.84	44.6	239
WBT	377	B	0.49	15.9		390	B	0.44	13.8	
WBR	9					2				
NBL	199	D	0.47	40.7	126	439	D	0.65	40.9	238
NBT	10					13				
NBR	170	A	0.44	8.7		500	B	0.80	19.0	
SBL	29	D	0.63	51.4		19	D	0.30	48.0	
SBT	104					15				
SBR	23	A	0.07	0.4		17	A	0.07	0.4	

This analysis shows Levels of Service of D or better for all approaches during both peak hours, with maximum queue lengths for the Turnpike ramp approach reduced sufficiently to avoid impacting toll plaza operations.

**Further Study.** The intersection capacity analysis presented above was based on traffic volume forecasts that showed higher growth in the Interchange 2 area, suggesting that the regional models included the anticipated future site development in the area. Allowing the possibility that the regional models do not account for the full extent of the future site development, site-generated traffic from the “Traffic Impact Study for Proposed Warehouse Development,” prepared by Consulting Engineering Services, LLC, latest revision March 2021, which is for the proposed Russo development along U.S. Route 322 east of the Turnpike crossing, was added to the traffic volume forecasts. The Program Team has been made aware of additional site developments that are under consideration along the U.S. Route 322 which suggests that the regional models do not address the full extent of site-generated traffic. Further study will be undertaken once all of the traffic studies for these site developments have been obtained to determine whether further improvements will be required at the intersection, whether by the Program or by developers. Continuation of existing accommodations at the intersection, such as for pedestrians and bicycles, will need to be coordinated with the Program’s and the developers’ improvements to the intersection. Site-generated traffic to and from the Turnpike will also require revisiting the toll plaza and ramp lane recommendations to confirm those findings.

## 7.5 INTERCHANGE 3 ANALYSIS

Interchange 3 is a trumpet interchange that provides connections between the Turnpike and Black Horse Pike (N.J. Route 168) in the Boroughs of Bellmawr and Runnemede, Camden County. The interchange is located on the Turnpike mainline at M.P. 26.1. Figure 5 is a location map for the interchange. Black Horse Pike experiences heavy traffic, including truck traffic, in part because it serves as a direct connection to I-295 approximately one mile west (truly north) of the Turnpike interchange. The NJDOT has a project in Concept Development for

improvements at the N.J. Route 168/I-295 interchange. It is unclear at this time whether the project limits extend far enough south along N.J. Route 168 to impact the Turnpike ramp connections.

**Figure 5: Turnpike Interchange 3**



The existing toll plaza provides a total of six toll lanes (three in each direction) to serve exiting and entering traffic. Connections between the toll plaza and the SN Roadway are provided via Ramp ST and Ramp TN and connections between the toll plaza and the NS Roadway are provided by Ramp NT and Ramp TS. An overpass bridge carries Ramps ST and TN over the mainline roadway. Traffic exiting and entering the Turnpike at N.J. Route 168 is controlled by a second interchange trumpet that provides dedicated ramps to and from both directions of N.J. Route 168.

Existing signing on Ramp NT permits use of the right shoulder of the ramp if the ramp lane is congested. This is the current measure in place to address recurring ramp congestion during the weekday P.M. peak hour.

**Ramps.** During Concept Development, the ramps between the Turnpike and the toll plaza were evaluated to determine if the current single-lane operation at each ramp will provide sufficient capacity to carry 2040 Design Year traffic volumes. This analysis was based on Figure 7-A of the NJDOT Roadway Design Manual. The highest ramp Design Year Build volume in the Interchange 3 ramp system is the 1,272 vph on Ramp NT during the weekday P.M. peak hour. Based on projected Build traffic volumes, it was determined that this ramp should carry two lanes. Ramp TN is projected to carry 1,029 vph during the weekday A.M. peak hour – two lanes were recommended on this ramp under specific geometric conditions. The current single-lane configuration of the other two ramps will provide suitable capacity to maintain acceptable LOS (C or better) under future traffic volumes.

**Toll Plaza.** Entering and exiting volumes at the toll plaza under the three traffic volume scenarios were evaluated against the service flow rates of the toll lanes provided. The three exiting lanes consist of two manual/cash only lanes and one E-ZPass only lane. The total maximum service flow rate for the Exit Plaza is 1,500 vph, based on a 250-vph service flow rate for a manual/cash only lane and 1,000-vph service flow rate for an E-ZPass only lane. The three entering lanes consist of two Datim lanes and one E-ZPass only lane. The total maximum

service flow rate for the Entry Plaza is 1,600 vph, considering also a 300-vph processing rate for Datim lanes. Table 24 summarizes the analysis.

**Table 24: Interchange 3 Toll Plaza Analysis Summary**

	Entry Plaza	Exit Plaza
Capacity	1,600 vph	1,500 vph
Weekday AM Peak hour		
2019 Base Year	1,104 vph	658 vph
2040 No-Build	1,122 vph	668 vph
2040 Build	1,249 vph	744 vph
Weekday PM Peak hour		
2019 Base Year	524 vph	1,193 vph
2040 No-Build	553 vph	1,226 vph
2040 Build	686 vph	1,407 vph
Summer Friday PM Peak hour		
2019 Base Year	487 vph	828 vph
2040 No-Build	505 vph	859 vph
2040 Build	580 vph	1,004 vph

On the basis of this analysis, the existing number of toll plaza lanes and current toll collection configuration is expected to be sufficient for future traffic volumes passing through the toll plaza. The Exit Plaza approaches capacity during the weekday P.M. peak hour.

Three alternatives were considered for improvements to the Interchange 3 ramp system, all of which involved relocation and realignment of the ramps. Two of the alternatives replace the bridge structure carrying Ramp ST and Ramp TN over the Turnpike mainline, which was replaced under the Southern Bridge Lengthening program, while the third retains the bridge in its current location and alignment. All of the alternatives provide two lanes on Ramp NT, while the alternative that maintains the existing bridge structure is the only one of the three to maintain one lane on Ramp TN. Based on the ramp and toll plaza analyses described above, all of the alternatives would provide acceptable level of service and capacity on the Turnpike side of the toll plaza.

None of the alternatives contemplate geometric changes on the free side of the toll plaza, including at the ramp junctions with N.J. Route 168, which are currently controlled by Yield signs. Previously, these ramps were controlled by Stop signs due to the pedestrian crosswalks crossing the ramps – stop line pavement markings still exist at these crosswalks. This, however, is subject to change based on additional analysis underway at Interchange 3 outside toll, which is described further below.

**Bicycle and Pedestrian Accommodation.** A February 2020 count performed by the Operations Department noted a small presence of bicycle and pedestrian traffic along the N.J. Route 168 corridor. Intersection turning movement counts taken at the N.J. Route 168/Benigno Blvd. Intersection in June 2021 confirmed this limited presence. The existing accommodation will continue to be sufficient to serve the limited pedestrian and bicycle traffic along this corridor.

**Intersection Analysis.** Traffic analysis along N.J. Route 168 focused on two signalized intersections immediately north of the Turnpike ramps, the Benigno Road and Browning Road crossings. The following tables (Table 25 and Table 26). reflect the results of Synchro, version

11, analysis of the two intersections for the 2019 Base Year. Table 27 and Table 28 provide similar information for the 2040 Design Year case. As will be evident by the analysis, changes in traffic volumes on N.J. Route 168 are anticipated to be almost flat between the Base Year and the Design Year; similarly, traffic volume differences between the Design Year No-Build and Build are also very small. On that basis, only the 2019 Base Year and 2040 Design Year Build analysis results are shown here.

**Table 25: 2019 Base Year LOS Analysis: N.J. Route 168 and Browning Road**

MOVEMENT	WEEKDAY A.M. PEAK HOUR				WEEKDAY P.M. PEAK HOUR			
	2019 BASE YEAR				2019 BASE YEAR			
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)
EB L	152	F	1.21	180.0	168	F	1.38	239.7
EB T	210	E	0.78	57.8	298	F	1.06	105.9
EB R	72				76			
WB L	111	D	0.61	46.6	82	E	0.67	56.4
WB T	301	F	1.08	112.1	345	F	1.19	147.3
WB R	89				77			
NB L	72	B	0.31	11.7	163	D	0.78	34.0
NB T	787	E	1.04	70.4	672	D	0.98	53.5
NB R	35				73			
SB L	81	C	0.51	24.5	121	D	0.75	45.3
SB T	611	C	0.79	30.4	590	D	0.86	35.9
SB R	69				123			

**Table 26: 2019 Base Year LOS Analysis: N.J. Route 168 and Benigno Blvd.**

MOVEMENT	WEEKDAY A.M. PEAK HOUR				WEEKDAY P.M. PEAK HOUR			
	2019 BASE YEAR				2019 BASE YEAR			
	VOLUME	LOS	V/C RATIO	DELAY	VOLUME	LOS	V/C RATIO	DELAY
EB L	125	F	0.93	101.4	135	F	1.01	122.4
EB T	1				4			
EB R	274	B	0.68	13.6	141	B	0.49	12.8
WB L	4	D	0.03	38.8	3	D	0.03	38.8
WB T	1				2			
WB R	6	A	0.03	0.2	8	A	0.04	0.2
NB L	263	A	0.62	8.2	322	B	0.76	14.5
NB T	763	A	0.69	9.7	765	A	0.69	9.7
NB R	2				2			
SB L	5	A	0.01	7.4	11	A	0.03	7.5
SB T	651	B	0.63	14.7	651	B	0.63	14.7
SB R	138	A	0.15	1.7	86	A	0.10	1.9

The results of the signalized intersection analysis are informative, but can also be misleading. The N.J. Route 168/Browning Road intersection appears to be a primary source for roadway congestion on Black Horse Pike, by virtue of the failing Levels of Service (E or F) and volume-to-capacity ratios greater than 1.00 on the mainline and side streets (see Table 275 and Table 286). Vehicular queue lengths on the northbound approach to the intersection range from 800 to 970 feet, depending on the peak hour, which extends near or through the adjacent signalized intersection at Benigno Blvd. Given that the friction of driveway and side street movements was not modelled for this analysis, the actual vehicular queue lengths are likely to be worse than those reported. The misleading aspect of the analysis result is the high Level of Service showing on the N.J. Route 168 northbound approach at Benigno Blvd. (A during both weekday peak hours), given the vehicular queues that extend southward from the upstream Browning Road intersection.

VISSIM models, version 2021, were developed to simulate the existing 2019 Base Year condition on Black Horse Pike between the Turnpike and Browning Road and confirm the magnitude of vehicular queues from the Synchro analysis results. These models showed maximum vehicular queue lengths of up to 1,020 feet extending from the Browning Road intersection on N.J. Route 168 northbound. These vehicular queue lengths were measured during the weekday A.M. and weekday P.M. peak hours, and would extend through the upstream intersection at Benigno Blvd. In addition, vehicular queues of up to 775 feet, measured during the weekday P.M. peak hour, extended upstream from the Benigno Blvd. intersection along N.J. Route 168 northbound, which would extend past the Ramp TW entrance.

**Table 27: 2040 Design Year Build LOS Analysis: N.J. Route 168 and Browning Road**

MOVEMENT	WEEKDAY A.M. PEAK HOUR 2040 DESIGN YEAR BUILD				WEEKDAY P.M. PEAK HOUR 2040 DESIGN YEAR BUILD			
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)
EB L	156	F	1.28	202.3	169	F	1.38	242.2
EB T	215	E	0.79	58.1	300	F	1.02	95.1
EB R	74				75			
WB L	116	D	0.65	48.7	83	E	0.68	56.4
WB T	308	F	1.09	114.3	348	F	1.15	135.2
WB R	91				78			
NB L	71	B	0.33	12.6	166	D	0.84	43.5
NB T	760	F	1.09	86.2	626	E	1.02	64.4
NB R	60				130			
SB L	83	C	0.54	26.9	122	D	0.78	50.9
SB T	635	C	0.82	33.0	593	D	0.88	38.4
SB R	71				124			

**Table 28: 2040 Design Year Build LOS Analysis: N.J. Route 168 and Benigno Blvd.**

MOVEMENT	WEEKDAY A.M. PEAK HOUR				WEEKDAY P.M. PEAK HOUR			
	DESIGN YEAR 2040 BUILD				DESIGN YEAR 2040 BUILD			
	VOLUME	LOS	V/C RATIO	DELAY	VOLUME	LOS	V/C RATIO	DELAY
EB L	126	F	0.93	103.0	136	F	1.02	124.0
EB T	1				4			
EB R	272	B	0.68	13.6	142	B	0.50	12.8
WB L	4	D	0.03	38.8	3	D	0.03	38.8
WB T	1				2			
WB R	6	A	0.03	0.2	8	A	0.04	0.2
NB L	261	A	0.64	9.3	320	B	0.76	14.4
NB T	759	A	0.69	9.6	778	B	0.70	10.0
NB R	2				2			
SB L	5	A	0.01	7.4	11	A	0.03	7.6
SB T	681	B	0.66	15.5	654	B	0.63	14.8
SB R	139	A	0.16	1.7	86	A	0.10	1.9

As noted, traffic volumes do not differ significantly between the 2019 Base Year and 2040 Design Year time periods, likely due to the densely developed area and constrained roadway footprint on N.J. Route 168. Analysis results for the 2040 Design Year Build volumes, predictably, are very similar to the 2019 Base Year results.

Unacceptable levels of service (E or F) remaining at the signalized intersections along N.J. Route 168 are considered within the purview of the NJDOT since this agency has jurisdiction over the state highway. Additional analysis, detailed below, is underway which may change the connections between interchange ramps and signalized intersections along N.J. Route 168.

SimTraffic simulations of the 2040 Design Year Build volumes, based on the Synchro results noted above, were developed for the weekday P.M. peak hour, which is the more critical time period with respect to ramp vehicular queuing. Figure 6 shows the extent of the maximum vehicular queue length along the mainline deceleration lane at Ramp NT, assuming that Ramp NT remains a single lane. The vehicular queue extends as far as 2,900 feet in advance of the toll plaza, which extends beyond the beginning of the Ramp NT deceleration lane and onto the NS Roadway.

Figure 6: Maximum Ramp NT Vehicular Queue Length (Single-Lane Ramp) – 2040 Design Year Build Volumes – Weekday P.M. Peak Hour



A two-lane Ramp NT reduces the maximum vehicular queue length to about 1,000 feet from the toll plaza, which is fully contained past the physical ramp nose on the mainline, such that mainline operations are not expected to be impacted. The change in geometry of the merge between Ramp NT and Ramp ST likely requires that Ramp ST be placed under Yield control at this merge, causing Ramp ST vehicular queues to extend about 600 feet from the merge. Figure 7 shows the maximum vehicular queue lengths along Ramp NT and Ramp ST with a two-lane Ramp NT.

Figure 7: Maximum Ramp NT Vehicular Queue Length (Two-Lane Ramp) – 2040 Design Year Build Volumes – Weekday P.M. Peak Hour



**Further Study.** The improvements offered by the three alternatives are limited to inside toll. No improvements are contemplated under the current design on the free side of the toll plaza to address Ramp TW vehicular queuing due to the recurring congestion on Black Horse Pike. The two-lane Ramp NT contains queued traffic within the ramp system, such that it is not extended onto the mainline deceleration lane. Studies are ongoing through the Program regarding a potential new interchange south of existing Interchange 3 which would provide a direct

connection to N.J. Route 42. Other new interchange locations and configurations are under consideration through these studies. Any new connections would likely divert traffic from the existing Interchange 3 to the new interchange, further reducing the vehicular queue on Ramp TW. Additional analysis is underway to assess the need for and evaluate potential roadway and ramp changes outside toll at this interchange in conjunction with a new interchange. These analyses have not been completed and are not reported here. This area, however, will likely be revisited upon completion of the studies for consideration of further improvements to the connections between the Turnpike toll plaza and N.J. Route 168.

Further coordination is also required with the NJDOT project at the N.J. Route 168/I-295 interchange as both that project and this Program progress. Should the interchange project's limits extend south to the Turnpike ramps, any improvements proposed by that project should be incorporated into this analysis.

## **7.6 INTERCHANGE 4 ANALYSIS**

Interchange 4 is a trumpet interchange that provides connections between the Turnpike and N.J. Route 73 in the Township of Mt. Laurel in Camden County. This interchange is located on the Turnpike mainline between M.P. 34.2 and M.P. 34.9. Figure 8 provides a location map of the interchange. N.J. Route 73 experiences heavy traffic, since it serves as a direct connection to I-295 approximately 0.75 miles north of the Turnpike. The NJDOT is currently progressing a project to construct improvements along N.J. Route 73 between the I-295 interchange to the north of the Turnpike and the Church Road intersections south of the interchange. These improvements are to address congestion along the corridor, including connections with the Turnpike.

**Figure 8: Turnpike Interchange 4.**



The existing toll plaza provides a total of nine toll lanes (four entry lanes, five exiting lanes) to serve exiting and entering traffic. Connections between the toll plaza and the SN Roadway are provided via Ramp ST and Ramp TN and connections between the toll plaza and the NS Roadway are provided by Ramp NT and Ramp TS. An overpass bridge carries Ramps ST and TN over the mainline roadway. Traffic exiting and entering the Turnpike at N.J. Route 73 is

controlled by a second interchange trumpet that provides dedicated ramps to and from both directions of N.J. Route 73.

Existing signing on Ramp NT permits use of the right shoulder of the ramp if the ramp lane is congested. This is the current measure in place to address recurring ramp congestion during the weekday A.M. peak hour. Similar signing on Ramp ST also permits the use of the right shoulder on that ramp.

**Ramps.** During Concept Development, the ramps between the Turnpike and the toll plaza were evaluated to determine if the current single-lane operation at each ramp will provide sufficient capacity to carry 2040 Design Year traffic volumes. This analysis was based on Figure 7-A of the NJDOT Roadway Design Manual. The highest ramp Design Year Build volume in the Interchange 4 ramp system is the 1,141 vph on Ramp NT during the weekday A.M. peak hour. The ramp also projects to carry 1,077 vph during the weekday P.M. peak hour. Based on projected Build traffic volumes, it was determined that this ramp should carry two lanes. Ramp TN is projected to carry 1,025 vph during the weekday P.M. peak hour – two lanes were recommended on this ramp under most geometric conditions. The current single-lane configuration of the other two ramps will provide suitable capacity to maintain acceptable LOS (C or better) under future traffic volumes.

**Toll Plaza.** Entering and exiting volumes at the toll plaza under the three traffic volume scenarios were evaluated against the service flow rates of the toll lanes provided. The five exiting lanes consist of two manual/cash only lanes and three E-ZPass only lanes. The total maximum service flow rate for the Exit Plaza is 3,500 vph, based on a 250-vph service flow rate for a manual/cash only lane and 1,000-vph service flow rate for an E-ZPass only lane. The four entering lanes consist of two Datim lanes and two E-ZPass only lanes. The total maximum service flow rate for the Entry Plaza is 2,600 vph, considering also a 300-vph service flow rate for Datim lanes. Table 29 summarizes the analysis.

**Table 29: Interchange 4 Toll Plaza Analysis Summary**

	Entry Plaza	Exit Plaza
Capacity	2,600 vph	3,500 vph
Weekday AM Peak hour		
2019 Base Year	1,186 vph	1,695 vph
2040 No-Build	1,202 vph	1,721 vph
2040 Build	1,234 vph	1,744 vph
Weekday PM Peak hour		
2019 Base Year	1,776 vph	1,265 vph
2040 No-Build	1,811 vph	1,291 vph
2040 Build	1,854 vph	1,345 vph
Summer Friday PM Peak hour		
2019 Base Year	1,724 vph	1,026 vph
2040 No-Build	1,761 vph	1,048 vph
2040 Build	1,774 vph	1,084 vph

On the basis of this analysis, the existing number of toll plaza lanes and current toll collection configuration is expected to be sufficient for future traffic volumes passing through the toll plaza.

Four alternatives were considered for improvements to the Interchange 4 ramp system, all of which involved relocation and realignment of the ramps and the bridge structure carrying Ramp ST and Ramp TN over the Turnpike mainline. All of the alternatives provide two lanes on Ramp NT and two lanes on Ramp TN. Based on the ramp and toll plaza analyses described above, all of the alternatives would provide acceptable levels of service and capacity on the Turnpike side of the toll plaza.

**Bicycle and Pedestrian Accommodation.** Limited bicycle and pedestrian accommodations are provided along N.J. Route 73 in the vicinity of the Turnpike ramps. Existing shoulders are provided along both sides of N.J. Route 73 for use by bicycles – the NJDOT's proposed project appears to maintain this accommodation. A June 2021 intersection turning movement count at the N.J. Route 73/Fellowship Rd. Intersection indicated a small presence of pedestrian activity during both weekday peak hours. Pedestrian crosswalks are provided at the intersection, but no further south on N.J. Route 73. Safety walks exist on the N.J. Route 73 bridges over Ramp TE/Ramp WT and over the Turnpike mainline, but no other walkways are provided between the intersection and the bridges. South of the bridges, sidewalks are inconsistently provided. It is unclear from the latest improvement plans whether the NJDOT's proposed project will improve pedestrian accommodation along the N.J. Route 73 corridor.

**Intersection Analysis.** Two signalized intersections were analyzed along the N.J. Route 73 corridor at this interchange. The N.J. Route 73/Fellowship Road intersection, north of the Turnpike interchange, is one of the reasons for the recurring queuing that occurs on Ramp TW during the weekday A.M. peak hour. The N.J. Route 73/Rogers Walk intersection, located south of the interchange, was also analyzed. Table 30 and Table 31 show the 2019 Base Year analysis for the two intersections. The analysis results show below were generated through Synchro, version 11.

**Table 30: 2019 Base Year LOS Analysis: N.J. Route 73 and Fellowship Road**

MOVEMENT	WEEKDAY A.M. PEAK HOUR				WEEKDAY P.M. PEAK HOUR				SUMMER FRIDAY P.M. PEAK HOUR			
	2019 BASE YEAR				2019 BASE YEAR				2019 BASE YEAR			
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)
EB L	239	D	0.61	48.4	420	E	0.9	72.0	404	E	0.87	66.1
EB T	738	E	0.87	61.2	446	D	0.62	53.2	434	D	0.57	51.0
EB R	152	A	0.31	8.9	408	D	0.89	51.8	430	E	0.92	55.3
WB L	170	E	0.48	56.1	334	E	0.58	56.3	352	E	0.63	58.2
WB T	264	E	0.68	59.5	340	E	0.84	70.4	335	E	0.84	69.9
WB R	298	C	0.68	33.9	455	F	1.01	81.1	438	E	0.98	72.8
NB L	73	C	0.48	31.4	107	D	0.65	44.2	103	D	0.63	42.5
NB T	2,118	F	1.13	97.5	2,143	F	1.10	87.1	2,061	E	1.05	70.0
NB R	578				322				310			
SB T	2,153	D	0.91	47.7	1,974	D	0.94	53.5	2,083	E	0.98	59.8
SB R	604	B	0.70	12.5	301	A	0.44	7.8	317	A	0.46	9.1

**Table 31: 2019 Base Year LOS Analysis: N.J. Route 73 and Rogers Walk**

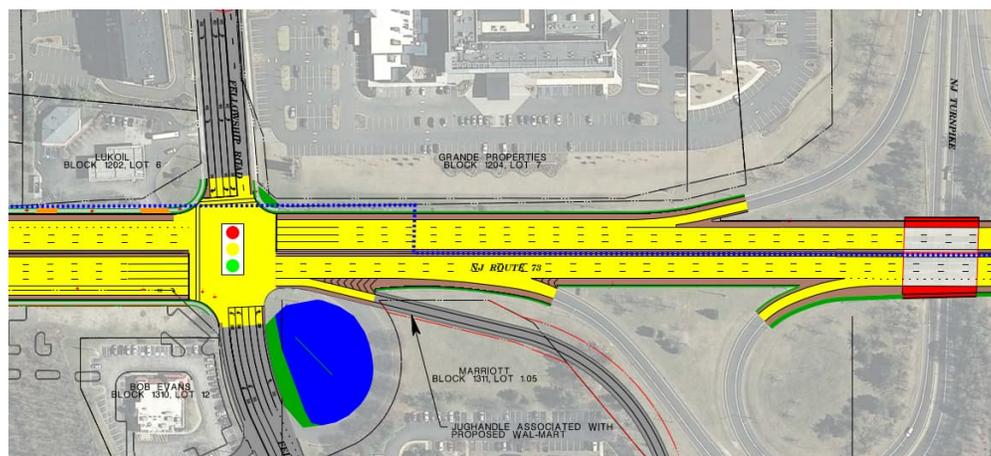
MOVEMENT	WEEKDAY A.M. PEAK HOUR				WEEKDAY P.M. PEAK HOUR				SUMMER FRIDAY P.M. PEAK HOUR			
	2019 BASE YEAR				2019 BASE YEAR				2019 BASE YEAR			
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)
EB L	12	E	0.11	58.7	118	F	0.86	102.4	117	F	0.85	101.5
EB R	1	A	0.01	0.0	8	A	0.04	0.4	8	A	0.04	0.4
WB L	62	E	0.29	60.9	145	E	0.54	64.6	147	E	0.55	64.9
WB R	40	A	0.23	2.7	116	B	0.51	16.8	115	B	0.50	16.8
NB T	2221	C	0.78	23.5	2222	B	0.71	15.3	2209	B	0.71	15.2
NB R	55	A	0.06	0.3	55	A	0.05	0.2	55	A	0.05	0.2
SB L	295	E	0.87	61.1	90	C	0.55	30.9	91	C	0.55	31.2
SB T	1742	A	0.63	5.6	1701	A	0.66	7.3	1729	A	0.67	7.4
SB R	51	A	0.04	0.9	10	A	0.01	0.0	10	A	0.01	0.0

This analysis shows Levels of Service E and F for several lane groups at each of the intersections. Of note is the northbound approach at the N.J. Route 73/Fellowship Road intersection, which consistently shows Level of Service D for the protected left turn movement, while the shared through/right turn lanes operate consistently at Level of Service E or F with volume-to-capacity (v/c) ratios above 1.00. At the N.J. Route 73/Rogers Walk intersection, several turning movements, specifically the side street left turns and the southbound left turn all operate at Level of Service E, based on the control delays indicated.

The distance between the northbound stop line at the N.J. Route 73/Fellowship Road intersection and the entrance from Turnpike Ramp TW is about 600 feet. The range of vehicular queue lengths that extend from the stop line is reported to be between 964 feet (the shortest average vehicular queue of the three time periods) and 1,300 feet (the longest 95<sup>th</sup> percentile vehicular queue of the three time periods), but actual 95<sup>th</sup> percentile vehicular queues may be considerably longer because demand exceeds capacity (LOS F).. While Ramp TW enters N.J. Route 73 northbound in its own travel lane, weaving maneuvers occur, both within the short distance between Ramp TW and the intersection, but also between Ramp TW and the downstream ramp to I-295 northbound, which is a lane drop. Traffic on Ramp TW wanting to make left turns at Fellowship Road would need to cross the two through lanes of N.J. Route 73 to make that turn, while additional weaving movements occur between N.J. Route 73 traffic destined to I-295 northbound and Ramp TW traffic desiring to remain on N.J. Route 73 northbound.

The NJDOT is advancing a project that revises the geometry of the N.J. Route 73 corridor between the Church Road intersections to the south and the I-295 interchange. Figure 9 shows the portion of the project's Preliminary Preferred Alternative that affects the Turnpike interchange.

**Figure 9: Excerpt of NJDOT N.J. Route 73 Improvement Project**



(Source: NJDOT)

The project widens N.J. Route 73 by one lane between I-295 and the bridge over the mainline Turnpike. Northbound left turns are to be prohibited at the Fellowship Road intersection, with affected traffic directed to a proposed roundabout on Fellowship Road to the east at which traffic would u-turn and continue through the westbound approach at the N.J. Route 73 intersection to complete the left turn. The auxiliary lane from Ramp TW is to be maintained, as is the lane drop to I-295 northbound upstream.

No-Build and Build analyses for the 2040 Design Year incorporate these geometric changes. No other geometric changes are proposed along N.J. Route 73 or the Ramp TW and Ramp ET termini under the Program's improvement alternatives. Table 32 and Table 33 summarize the No-Build analysis. Since the Build traffic volumes on the N.J. Route 73 corridor are very similar to the No-Build volumes, and no geometric improvements are proposed by the Program along N.J. Route 73, little change occurred between the No-Build intersection operation and the Build operation. The Build results, therefore, are not included in this summary. Table 32 and Table 33, along with the narrative that follows, can be applied to both the No-Build and Build scenarios.

The analysis shows similar operations for both intersections in comparison to the 2019 Base Year analysis with respect to side street and turning traffic. The most significant improvement, as expected, is on the northbound approach at the Fellowship Road intersection, where v/c ratios reduce by about 10% and signal control delay decreases by about 45%.

The range of vehicular queue lengths that extend from the northbound stop line at Fellowship Road is between 701 feet (the shortest average vehicular queue of the three time periods) and 1,011 feet (the longest 95<sup>th</sup> percentile vehicular queue of the three time periods), a 25% decrease over the 2019 Base Year condition despite the increase in traffic. While the N.J. Route 73 northbound mainline vehicular queue lengths at Fellowship Road still extend past the Ramp TW entrance, the weaving area is more limited to the right two lanes of the Fellowship Road approach because of the elimination of the left turn, such that the vehicular queues on Ramp TW are expected to reduce. Crash trends would be expected to decrease as well due to the elimination of the right-to-left weaving section. VISSIM modeling (version 2021) of this area for the weekday A.M. peak hour, which was identified as the critical time period for toll plaza area queuing, shows a reduction in average vehicular queue length on Ramp TW from about 1,000 feet under 2019 Base Year volumes to about 100 feet under the 2040 Design Year Build volumes.

While unacceptable levels of service (E or F) remain on several movements at the two signalized intersections along N.J. Route 73, they do not appear to adversely impact the operation of Turnpike traffic to and from the interchange ramps. Resolution of these results remains within the purview of the NJDOT, which has jurisdiction over this state highway and these intersections.

**Further Coordination.** As the NJDOT's N.J. Route 73 project continues to develop, the Program will need to continue to coordinate with the NJDOT's project team to assess proposed changes to the N.J. Route 73 project footprint, including pedestrian and bicycle accommodations, and how they would affect the operation of the Interchange 4 toll plaza and ramp network.

**Table 32: 2040 Design Year No-Build LOS Analysis: N.J. Route 73 and Fellowship Road**

MOVEMENT	WEEKDAY A.M. PEAK HOUR				WEEKDAY P.M. PEAK HOUR				SUMMER FRIDAY P.M. PEAK HOUR			
	2040 DESIGN YEAR NO-BUILD				2040 DESIGN YEAR NO-BUILD				2040 DESIGN YEAR NO-BUILD			
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)
EB L	253	D	0.64	48.5	444	E	0.95	76.2	427	E	0.92	69.3
EB T	779	E	0.88	62.1	471	D	0.55	47.9	458	D	0.52	46.9
EB R	161	C	0.356	21.4	431	E	0.96	74.3	454	F	1.00	81.8
WB L	180	E	0.48	55.3	353	E	0.70	61.3	372	E	0.74	63.4
WB T	356	E	0.85	70.1	473	F	1.17	146.1	462	F	1.14	136.8
WB R	314	D	0.75	47.4	480	F	1.18	140.5	463	F	1.14	125.3
NB T	2,242	E	1.02	55.4	2,266	D	0.97	45.3	2,179	D	0.93	40.5
NB R	688				454				435			
SB T	2,275	C	0.77	31.9	2,086	C	0.73	31.1	2,198	C	0.77	32.4
SB R	668	B	0.68	12.0	317	A	0.36	3.1	336	A	0.38	3.2

**Table 33: 2040 Design Year No-Build LOS Analysis: N.J. Route 73 and Rogers Walk**

MOVEMENT	WEEKDAY A.M. PEAK HOUR				WEEKDAY P.M. PEAK HOUR				SUMMER FRIDAY P.M. PEAK HOUR			
	2040 DESIGN YEAR NO-BUILD				2040 DESIGN YEAR NO-BUILD				2040 DESIGN YEAR NO-BUILD			
	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)	VOLUME (vph)	LOS	V/C RATIO	DELAY (sec./veh.)
EBL	12	E	0.11	58.5	125	F	0.91	112.4	124	F	0.91	111.1
EBR	1	A	0.01	0.0	8	A	0.04	0.4	8	A	0.04	0.4
WBL	66	E	0.31	61.1	154	E	0.58	65.7	156	E	0.59	66.1
WBR	42	A	0.24	2.9	123	B	0.52	16.8	122	B	0.52	16.9
NBT	2,369	C	0.85	26.7	2,351	B	0.75	16.6	2,335	B	0.75	16.5
NBR	58	A	0.06	0.5	58	A	0.06	0.3	58	A	0.06	0.3
SBL	311	E	0.88	63.0	95	C	0.57	32.5	96	C	0.57	32.8
SBT	1,842	A	0.48	3.9	1,818	A	0.49	5.1	1,850	A	0.50	5.1
SBR	54				10				10			

## **8. CONCLUSION**

The New Jersey Turnpike Authority is undertaking a major widening program between Interchange 1 and Interchange 4 as part of their Capital Program to address congested conditions during highest travel days and recurring operational issues at the interchanges. Per the Authority GEC's "Traffic Operational Study of New Jersey Turnpike Interchanges 1 to 6", dated December 2017, the goal of this Widening Program is to achieve Level of Service C on Authority roadways, in accordance with its enabling legislation to construct, maintain, and operate a modern express highway, and to remove congestion and hazardous conditions to allow vehicular traffic to operate on a non-congested Turnpike mainline and interchanges in a manner that does not expose motorists to hazardous conditions.

To achieve this, the Program team collected traffic data from available resources such as Authority Sensys puck data, toll plaza transaction data, crash data and toll plaza origin-destination data; historical traffic count data from NJDOT and DVRPC; additional data resources from design projects and site developments within the Program corridor; and crash data. This data was compiled to generate safety trends and traffic flow patterns on the Turnpike mainline, its interchange ramps and the interchanging crossroads.

Because of the on-going COVID-19 pandemic, the base year was set at year 2019, during which recurring ramp vehicular queuing occurs at each of the interchanges. At Interchange 2, the close proximity of the signalized intersection at U.S. Route 322 affects traffic flow through the exit side of the toll plaza, especially during the weekday P.M. peak hour. Congestion on N.J. Route 168 affects the ability for Ramp TW traffic to access the roadway, thereby also affecting traffic flow on the NS Roadway and Ramp TN at Interchange 3, especially during the weekday P.M. peak hour. At Interchange 4, weekday A.M. peak hour operations on Ramp NT and Ramp TW are influenced by congested conditions on N.J. Route 73 northbound at Fellowship Road, which is exacerbated by the need for Ramp TW traffic wanting to turn left onto Fellowship Road to weave across the two existing northbound through lanes. On the mainline, congestion occurs at the existing lane drop at Interchange 4 during the highest travel days of the year.

Evaluation of the mainline traffic volumes indicated that a widening from two lanes to three lanes in each direction was warranted based on an analysis of the highest observed traffic volumes during the year.

The DVRPC Travel Improvement Model (TIM) was used to forecast the Base Year traffic volumes to a 2040 Design Year. Models were prepared to evaluate the traffic volume growth trends under a No-Build condition with no mainline widening and a Build condition with a widening from two lanes to three lanes in each direction. Traffic volume networks were developed based on the growth trends presented by the models.

Several alternatives have been considered for each of the interchanges, which mostly consisted of providing two-lane ramps where needed based on traffic volume and proposed geometry and grades. Improvements were generally limited to the Turnpike side of the toll plazas. At Interchange 2, improvements were proposed at the U.S. Route 322/Turnpike Ramps intersection to reduce the likelihood of ramp traffic backing up and

through the toll plaza area. Further geometric improvements may be needed pending evaluation of the impacts of additional site-generated traffic on the revised geometry proposed here. At Interchange 3, a two-lane Ramp NT is projected to contain vehicular queues past the physical ramp nose such that traffic flow on the mainline NS Roadway is not affected. Further improvement may be required pending completion of separate studies by the Program of various new interchange alternatives, including a direct and full connection with Route 42. At Interchange 4, a design project currently under development by the NJDOT widens N.J. Route 73 north of the Turnpike interchange and prohibits the left turn at Fellowship Road, which significantly reduces the Ramp TW vehicular queue approaching this merge area. Ongoing coordination with NJDOT will be needed to keep aware of any changes to the NJDOT project design that may impact operation within the Turnpike interchange.

The analysis performed and documented in this report, based on information currently known, supports the previous recommendation to widen the Turnpike mainline from two lanes to three lanes in each direction between M.P. 3.5 and 36.5; maintain current toll plaza lane numbers and toll collection types; widen several interchange ramps to two lanes based on volume and proposed geometry; and modify the geometry at the U.S. Route 322/Interchange 2 Ramps intersection. The improvements, which result in improved levels of service, achieve the obligations stated in the Authority's enabling legislation: To provide a non-congested roadway that addresses operational capacity needs, addresses maintenance requirements, and addresses safety needs.

**APPENDICES**

**APPENDIX A: CRASH ANALYSIS – HOTSPOT DIAGRAMS AND SUMMARY TABLES**

**APPENDIX B: BASE YEAR 2019 TRAFFIC FLOW DIAGRAMS**

**APPENDIX C: DESIGN YEAR 2040 NO-BUILD TRAFFIC FLOW DIAGRAMS**

**APPENDIX D: DESIGN YEAR 2040 BUILD (WIDENING ONLY) TRAFFIC FLOW DIAGRAMS**

**APPENDIX E: LOCAL ROADWAY CROSSING TRAFFIC VOLUME TABLES**

**APPENDIX F: DESIGN YEAR 2040 NO-BUILD TRAFFIC FLOW DIAGRAMS (ORIGINAL MODEL RUNS)**

**APPENDIX G: DESIGN YEAR 2040 BUILD (WIDENING ONLY) TRAFFIC FLOW DIAGRAMS (ORIGINAL MODEL RUNS)**

# **APPENDIX A:**

## **Crash Analysis – Hotspot Diagrams And Summary Tables**

## Project Area Summary- Mainline M.P. 3.5 - 35.0

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	44.94%	23	23.47%	71	<b>51.45%</b>	338	34.25%
Right Angle	0.34%	2	<b>2.04%</b>	0	0.00%	10	<b>1.01%</b>
Same Direction - Sideswipe	24.27%	27	<b>27.55%</b>	28	20.29%	177	17.93%
Fixed Object	18.27%	29	<b>29.59%</b>	24	17.39%	196	<b>19.86%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	5	0.51%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	1	<b>0.10%</b>
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtuned	1.13%	1	1.02%	1	0.72%	19	<b>1.93%</b>
Backing	0.35%	0	0.00%	1	<b>0.72%</b>	2	0.20%
Non-fixed Object	4.55%	8	<b>8.16%</b>	8	<b>5.80%</b>	77	<b>7.80%</b>
Animal	3.82%	8	<b>8.16%</b>	3	2.17%	145	<b>14.69%</b>
Pedestrian	0.08%	0	0.00%	1	<b>0.72%</b>	4	<b>0.41%</b>
Opposite Direction (Sideswipe)	-	0	0.00%	0	0.00%	1	0.10%
Other	1.20%	0	0.00%	1	0.72%	12	<b>1.22%</b>
Total	100.00%	98	100.00%	138	100.00%	987	100.00%
By Surface Condition							
Dry	74.44%	73	<b>74.49%</b>	104	<b>75.36%</b>	762	<b>77.20%</b>
Wet	21.03%	18	18.37%	24	17.39%	148	14.99%
Other	4.53%	7	<b>7.14%</b>	10	<b>7.25%</b>	77	<b>7.80%</b>
Total	100.00%	98	100.00%	138	100.00%	987	100.00%
By Lighting Conditions							
Daylight	68.97%	94	<b>95.92%</b>	108	<b>78.26%</b>	596	60.39%
Dusk	2.56%	0	0.00%	10	<b>7.25%</b>	37	<b>3.75%</b>
Night	26.42%	2	2.04%	20	14.49%	332	<b>33.64%</b>
Other	2.06%	2	2.04%	0	0.00%	22	<b>2.23%</b>
Total	100.00%	98	100.00%	138	100.00%	987	100.00%
By Severity							
Fatal Injury	0.28%	1	<b>1.02%</b>	0	0.00%	5	<b>0.51%</b>
Suspected Serious Injury	0.49%	16	<b>16.33%</b>	16	<b>11.59%</b>	136	<b>13.78%</b>
Suspected Minor Injury	4.89%	7	<b>7.14%</b>	7	<b>5.07%</b>	65	<b>6.59%</b>
Possible Injury	15.12%	0	0.00%	1	0.72%	7	0.71%
No Apparent Injury	79.22%	74	75.51%	114	<b>82.61%</b>	774	78.42%
Total	100.00%	98	100.00%	138	100.00%	987	100.00%
Vehicle Type							
Autos	-	70	71.43%	114	82.61%	759	76.90%
Heavy Vehicles	-	28	28.57%	24	17.39%	228	23.10%
Total	-	98	100.00%	138	100.00%	987	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

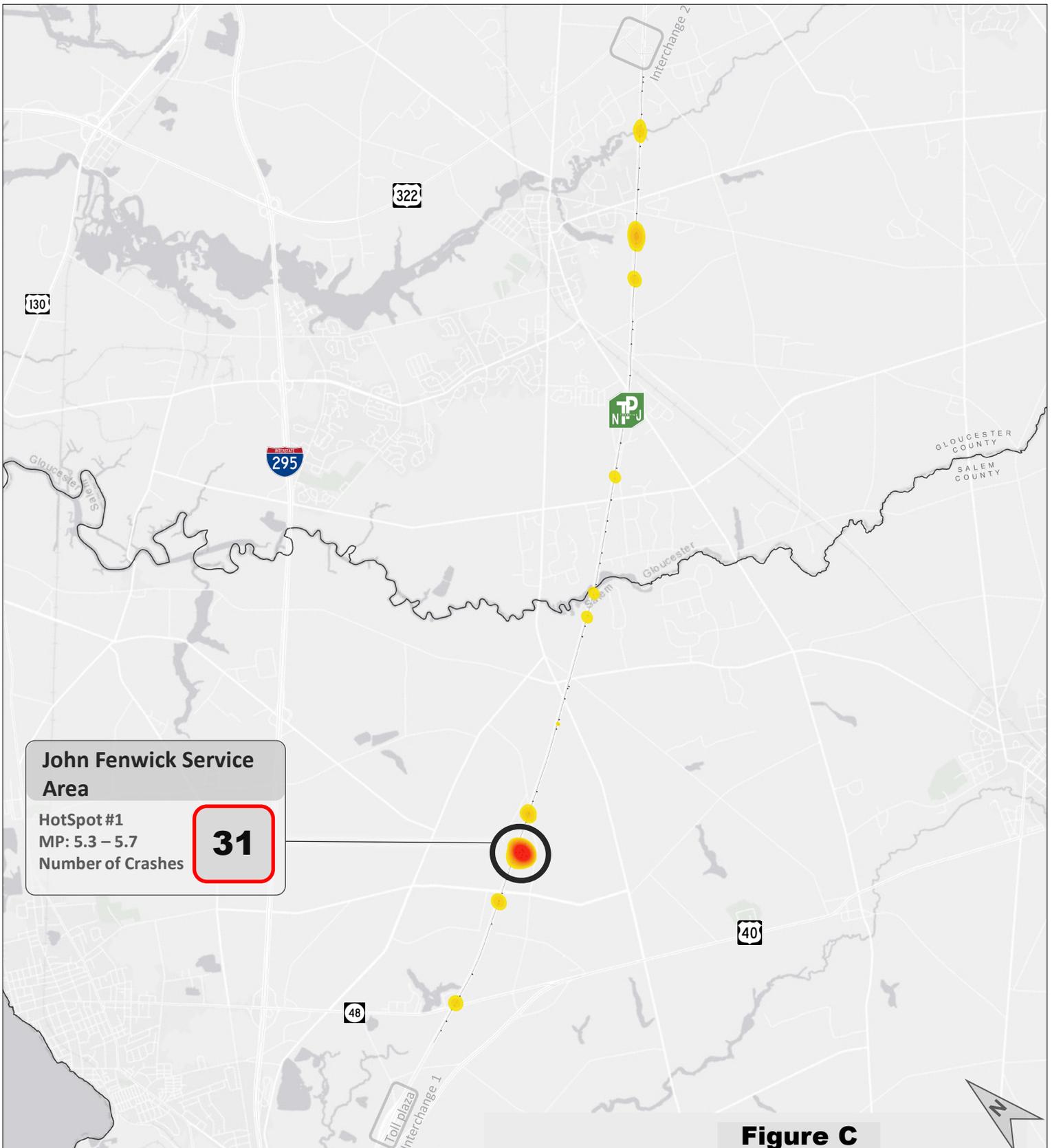
### NEW JERSEY TURNPIKE

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OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**SN/ NS Roadway, M.P. 3.5 – 35.0**



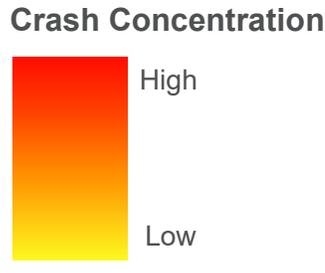
SCALE: NONE  
DATE: August, 2021



**John Fenwick Service Area**  
 HotSpot #1  
 MP: 5.3 – 5.7  
 Number of Crashes **31**

Total Crashes within Hotspots **31**

Total Crashes on the Map **111**



**Figure C**

NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
 NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
 MILEPOST 0.0 TO MILEPOST 36.5  
 OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 3.5 – 12.8**



SCALE: NONE  
 DATE: August, 2021

Table C-1: John Fenwick Service Area

Category	Crash Hotspot Location						
	Statewide Average (Int./ State)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	46.11%	0	0.00%	0	0.00%	2	6.45%
Right Angle	5.41%	1	<b>50.00%</b>	0	0.00%	3	<b>9.68%</b>
Same Direction - Sideswipe	21.99%	0	0.00%	0	0.00%	8	<b>25.81%</b>
Fixed Object	13.47%	1	<b>50.00%</b>	0	0.00%	5	<b>16.13%</b>
Struck Parked Vehicle	1.08%	0	0.00%	0	0.00%	3	<b>9.68%</b>
Left Turn/U Turn	1.10%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.85%	0	0.00%	0	0.00%	0	0.00%
Overtuned	0.81%	0	0.00%	0	0.00%	0	0.00%
Backing	0.61%	0	0.00%	2	<b>100.00%</b>	6	<b>19.35%</b>
Non-fixed Object	2.75%	0	0.00%	0	0.00%	0	0.00%
Animal	4.01%	0	0.00%	0	0.00%	4	<b>12.90%</b>
Pedestrian	0.47%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.35%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>31</b>	<b>100.00%</b>
By Surface Condition							
Dry	76.79%	2	<b>100.00%</b>	2	<b>100.00%</b>	28	<b>90.32%</b>
Wet	19.70%	0	0.00%	0	0.00%	3	9.68%
Other	3.51%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>31</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	69.58%	2	<b>100.00%</b>	1	50.00%	19	61.29%
Dusk	2.60%	0	0.00%	0	0.00%	1	<b>3.23%</b>
Night	25.84%	0	0.00%	1	<b>50.00%</b>	11	<b>35.48%</b>
Other	1.98%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>31</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.57%	0	0.00%	0	0.00%	2	<b>6.45%</b>
Suspected Minor Injury	4.99%	0	0.00%	0	0.00%	0	0.00%
Possible Injury	17.20%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	76.97%	2	<b>100.00%</b>	2	<b>100.00%</b>	29	<b>93.55%</b>
<b>Total</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>31</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	2	100.00%	2	100.00%	27	87.10%
Heavy Vehicles	-	0	0.00%	0	0.00%	4	12.90%
<b>Total</b>	<b>-</b>	<b>2</b>	<b>100.00%</b>	<b>2</b>	<b>100.00%</b>	<b>31</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate and State Highways (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 3.5 - 12.8**

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SCALE: NONE  
DATE: August, 2021

Table C-2: SN Roadway, MP 3.5-12.8

Category	Statewide Average (Interstate)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	44.94%	2	25.00%	2	40.00%	12	15.00%
Right Angle	0.34%	0	0.00%	0	0.00%	1	<b>1.25%</b>
Same Direction - Sideswipe	24.27%	2	<b>25.00%</b>	2	<b>40.00%</b>	19	23.75%
Fixed Object	18.27%	4	<b>50.00%</b>	1	<b>20.00%</b>	21	<b>26.25%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	1	<b>1.25%</b>
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	0	0.00%	0	0.00%
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	0.00%	0	0.00%	5	<b>6.25%</b>
Animal	3.82%	0	0.00%	0	0.00%	19	<b>23.75%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	1	<b>1.25%</b>
Other	1.20%	0	0.00%	0	0.00%	1	<b>1.25%</b>
Total	100.00%	8	100.00%	5	100.00%	80	100.00%
By Surface Condition							
Dry	74.44%	4	50.00%	3	60.00%	58	72.50%
Wet	21.03%	3	<b>37.50%</b>	1	20.00%	14	17.50%
Other	4.53%	1	<b>12.50%</b>	1	<b>20.00%</b>	8	<b>10.00%</b>
Total	100.00%	8	100.00%	5	100.00%	80	100.00%
By Lighting Conditions							
Daylight	68.97%	7	<b>87.50%</b>	5	<b>100.00%</b>	41	51.25%
Dusk	2.56%	0	0.00%	0	0.00%	0	0.00%
Night	26.42%	1	12.50%	0	0.00%	35	<b>43.75%</b>
Other	2.06%	0	0.00%	0	0.00%	4	<b>5.00%</b>
Total	100.00%	8	100.00%	5	100.00%	80	100.00%
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	0	0.00%	0	0.00%	11	<b>13.75%</b>
Suspected Minor Injury	4.89%	0	0.00%	0	0.00%	1	1.25%
Possible Injury	15.12%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	79.22%	8	<b>100.00%</b>	5	<b>100.00%</b>	68	<b>85.00%</b>
Total	100.00%	8	100.00%	5	100.00%	80	100.00%
Vehicle Type							
Autos	-	5	62.50%	3	60.00%	61	76.25%
Heavy Vehicles	-	3	37.50%	2	40.00%	19	23.75%
Total	-	8	100.00%	5	100.00%	80	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

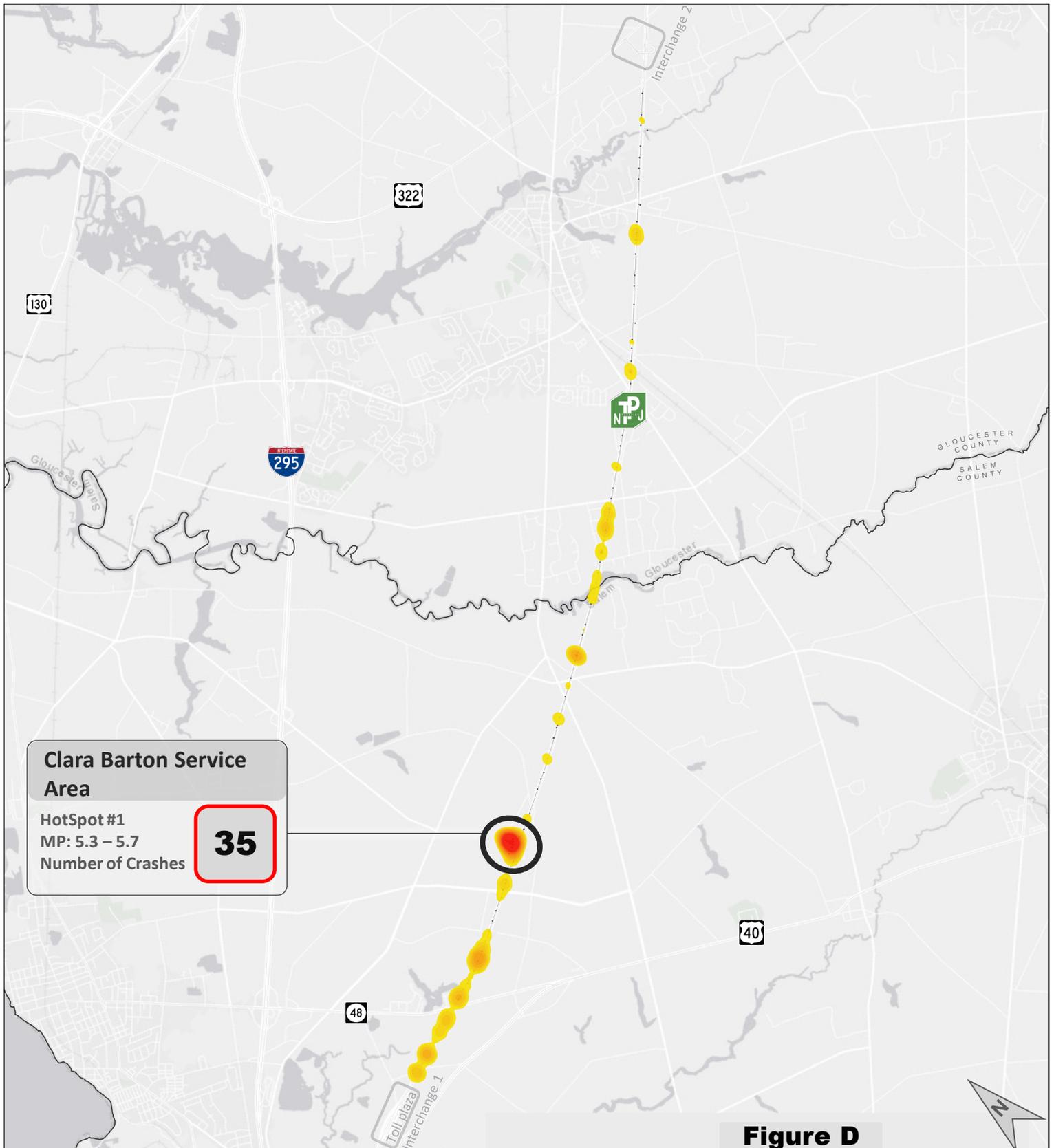
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**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 3.5 - 12.8**

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SCALE: NONE  
DATE: August, 2021

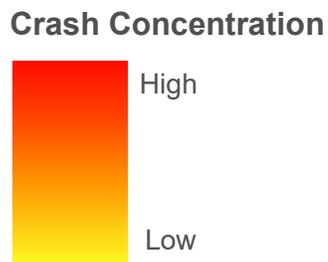


**Clara Barton Service Area**

HotSpot #1  
 MP: 5.3 – 5.7  
 Number of Crashes **35**

Total Crashes within Hotspots **35**

Total Crashes on the Map **168**



**Figure D**

NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
 NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
 MILEPOST 0.0 TO MILEPOST 36.5  
 OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P 3.5 – 12.8**



SCALE: NONE  
 DATE: August, 2021

Table D-1: Clara Barton Service Area

Category	Statewide Average (Int./ State)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	46.11%	0	0.00%	0	0.00%	2	5.71%
Right Angle	5.41%	0	0.00%	0	0.00%	2	<b>5.71%</b>
Same Direction - Sideswipe	21.99%	1	<b>100.00%</b>	0	0.00%	6	17.14%
Fixed Object	13.47%	0	0.00%	0	0.00%	6	<b>17.14%</b>
Struck Parked Vehicle	1.08%	0	0.00%	1	<b>33.33%</b>	6	<b>17.14%</b>
Left Turn/U Turn	1.10%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.85%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.81%	0	0.00%	0	0.00%	0	0.00%
Backing	0.61%	0	0.00%	2	<b>66.67%</b>	6	<b>17.14%</b>
Non-fixed Object	2.75%	0	0.00%	0	0.00%	1	<b>2.86%</b>
Animal	4.01%	0	0.00%	0	0.00%	4	<b>11.43%</b>
Pedestrian	0.47%	0	0.00%	0	0.00%	1	<b>2.86%</b>
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.35%	0	0.00%	0	0.00%	1	<b>2.86%</b>
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>35</b>	<b>100.00%</b>
By Surface Condition							
Dry	76.79%	1	<b>100.00%</b>	3	<b>100.00%</b>	34	<b>97.14%</b>
Wet	19.70%	0	0.00%	0	0.00%	1	2.86%
Other	3.51%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>35</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	69.58%	1	<b>100.00%</b>	3	<b>100.00%</b>	21	60.00%
Dusk	2.60%	0	0.00%	0	0.00%	1	<b>2.86%</b>
Night	25.84%	0	0.00%	0	0.00%	13	<b>37.14%</b>
Other	1.98%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>35</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.57%	0	0.00%	0	0.00%	3	<b>8.57%</b>
Suspected Minor Injury	4.99%	0	0.00%	0	0.00%	1	2.86%
Possible Injury	17.20%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	76.97%	1	<b>100.00%</b>	3	<b>100.00%</b>	31	<b>88.57%</b>
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>35</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	0	0.00%	3	100.00%	25	71.43%
Heavy Vehicles	-	1	100.00%	0	0.00%	10	28.57%
<b>Total</b>	<b>-</b>	<b>1</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>35</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate and State Highways (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 3.5 - 12.8**

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SCALE: NONE  
DATE: August, 2021

Table D-2: NS Roadway, MP 3.5-12.8

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	44.94%	4	28.57%	5	<b>45.45%</b>	50	37.59%
Right Angle	0.34%	2	<b>14.29%</b>	0	0.00%	4	<b>3.01%</b>
Same Direction - Sideswipe	24.27%	1	7.14%	2	18.18%	19	14.29%
Fixed Object	18.27%	5	<b>35.71%</b>	4	<b>36.36%</b>	32	<b>24.06%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	1	<b>0.75%</b>
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	0	0.00%	1	0.75%
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	2	<b>14.29%</b>	0	0.00%	11	<b>8.27%</b>
Animal	3.82%	0	0.00%	0	0.00%	13	<b>9.77%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	1	<b>0.75%</b>
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	1	0.75%
Total	100.00%	14	100.00%	11	100.00%	133	100.00%
By Surface Condition							
Dry	74.44%	9	64.29%	6	54.55%	95	71.43%
Wet	21.03%	3	<b>21.43%</b>	2	18.18%	23	17.29%
Other	4.53%	2	<b>14.29%</b>	3	<b>27.27%</b>	15	<b>11.28%</b>
Total	100.00%	14	100.00%	11	100.00%	133	100.00%
By Lighting Conditions							
Daylight	68.97%	13	<b>92.86%</b>	8	<b>72.73%</b>	87	65.41%
Dusk	2.56%	0	0.00%	0	0.00%	3	2.26%
Night	26.42%	0	0.00%	3	<b>27.27%</b>	38	<b>28.57%</b>
Other	2.06%	1	<b>7.14%</b>	0	0.00%	5	<b>3.76%</b>
Total	100.00%	14	100.00%	11	100.00%	133	100.00%
By Severity							
Fatal Injury	0.28%	1	<b>7.14%</b>	0	0.00%	2	<b>1.50%</b>
Suspected Serious Injury	0.49%	2	<b>14.29%</b>	1	<b>9.09%</b>	19	<b>14.29%</b>
Suspected Minor Injury	4.89%	1	<b>7.14%</b>	0	0.00%	9	<b>6.77%</b>
Possible Injury	15.12%	0	0.00%	0	0.00%	3	2.26%
No Apparent Injury	79.22%	10	71.43%	10	<b>90.91%</b>	100	75.19%
Total	100.00%	14	100.00%	11	100.00%	133	100.00%
Vehicle Type							
Autos	-	12	85.71%	11	100.00%	111	83.46%
Heavy Vehicles	-	2	14.29%	0	0.00%	22	16.54%
Total	-	14	100.00%	11	100.00%	133	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

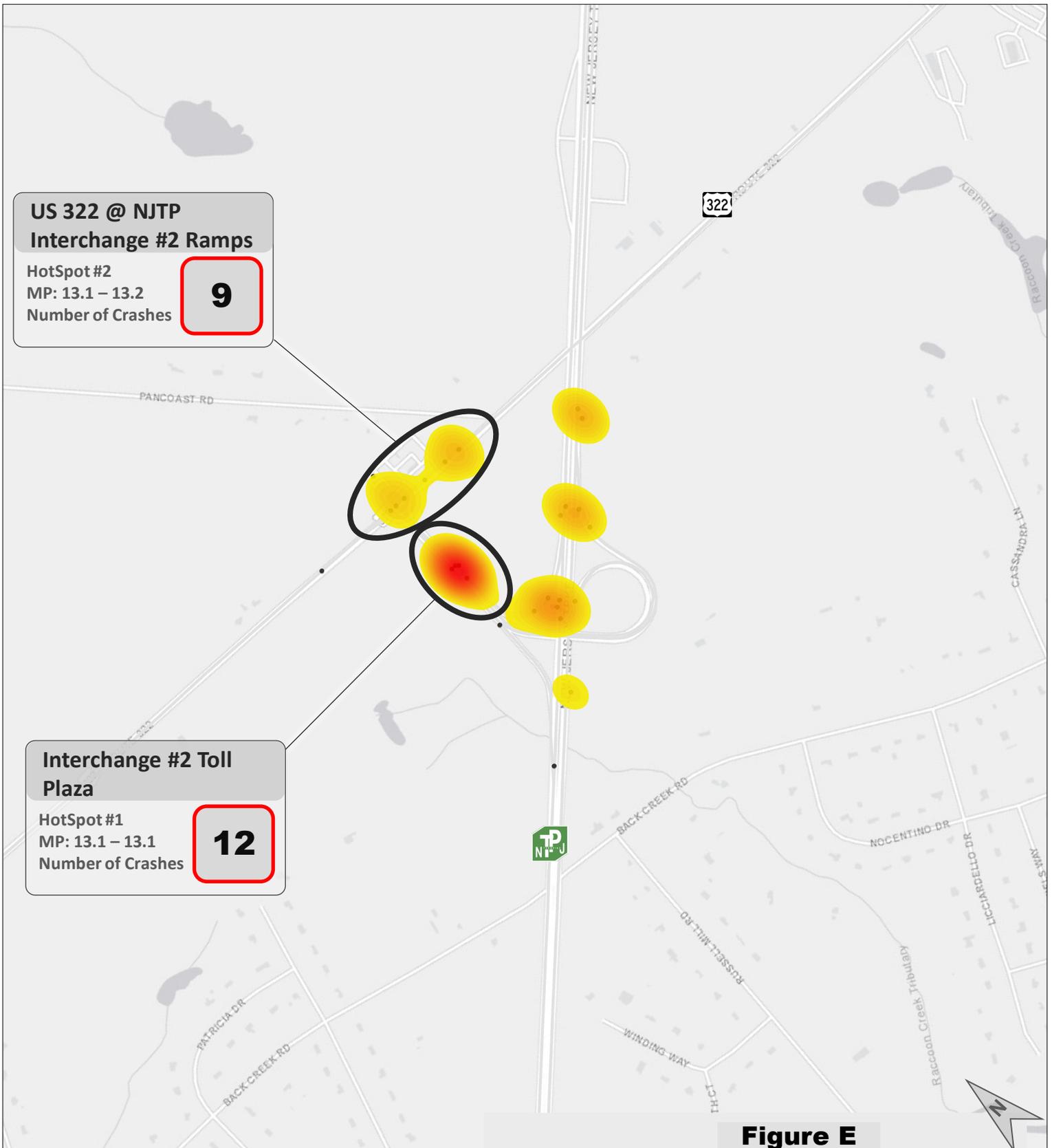
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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 3.5 - 12.8**

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SCALE: NONE  
DATE: August, 2021

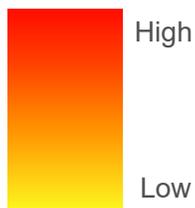


**Figure E**

Total Crashes  
within Hotspots **21**

Total Crashes  
on the Map **42**

Crash Concentration



NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
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MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 2 - SN/ NS Roadways, M.P. 12.8 – 13.4**



SCALE: NONE  
DATE: August, 2021

Table E-1: Interchange #2 Toll Plaza

Category	Crash Hotspot Location						
	Statewide Average (Int./ State)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	46.11%	0	-	1	33.33%	2	16.67%
Right Angle	5.41%	0	-	0	0.00%	0	0.00%
Same Direction - Sideswipe	21.99%	0	-	2	<b>66.67%</b>	5	<b>41.67%</b>
Fixed Object	13.47%	0	-	0	0.00%	1	8.33%
Struck Parked Vehicle	1.08%	0	-	0	0.00%	0	0.00%
Left Turn/U Turn	1.10%	0	-	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.85%	0	-	0	0.00%	0	0.00%
Overtaken	0.81%	0	-	0	0.00%	0	0.00%
Backing	0.61%	0	-	0	0.00%	3	<b>25.00%</b>
Non-fixed Object	2.75%	0	-	0	0.00%	1	<b>8.33%</b>
Animal	4.01%	0	-	0	0.00%	0	0.00%
Pedestrian	0.47%	0	-	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	-	0	0.00%	0	0.00%
Other	1.35%	0	-	0	0.00%	0	0.00%
Total	100.00%	0	0.00%	3	100.00%	12	100.00%
By Surface Condition							
Dry	76.79%	0	-	3	<b>100.00%</b>	9	75.00%
Wet	19.70%	0	-	0	0.00%	2	16.67%
Other	3.51%	0	-	0	0.00%	1	<b>8.33%</b>
Total	100.00%	0	0.00%	3	100.00%	12	100.00%
By Lighting Conditions							
Daylight	69.58%	0	-	2	66.67%	9	<b>75.00%</b>
Dusk	2.60%	0	-	0	0.00%	0	0.00%
Night	25.84%	0	-	1	<b>33.33%</b>	3	25.00%
Other	1.98%	0	-	0	0.00%	0	0.00%
Total	100.00%	0	0.00%	3	100.00%	12	100.00%
By Severity							
Fatal Injury	0.28%	0	-	0	0.00%	0	0.00%
Suspected Serious Injury	0.57%	0	-	0	0.00%	0	0.00%
Suspected Minor Injury	4.99%	0	-	0	0.00%	0	0.00%
Possible Injury	17.20%	0	-	0	0.00%	0	0.00%
No Apparent Injury	76.97%	0	-	3	<b>100.00%</b>	12	<b>100.00%</b>
Total	100.00%	0	0.00%	3	100.00%	12	100.00%
Vehicle Type							
Autos	-	0	-	2	66.67%	7	58.33%
Heavy Vehicles	-	0	-	1	33.33%	5	41.67%
Total	-	0	0.00%	3	100.00%	12	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate and State Highways (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 2 - SN/ NS Roadways, M.P. 12.8 – 13.4**

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SCALE: NONE  
DATE: August, 2021

Table E-2: US 322 @ Interchange #2 Ramps

Category	Crash Hotspot Location						
	Statewide Average (State)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	32.48%	0	-	1	100.00%	3	33.33%
Right Angle	27.46%	0	-	0	0.00%	2	22.22%
Same Direction - Sideswipe	17.90%	0	-	0	0.00%	1	11.11%
Fixed Object	6.07%	0	-	0	0.00%	2	22.22%
Struck Parked Vehicle	0.56%	0	-	0	0.00%	0	0.00%
Left Turn/U Turn	6.22%	0	-	0	0.00%	0	0.00%
Opposite Direction (Head On)	2.94%	0	-	0	0.00%	0	0.00%
Overtaken	0.30%	0	-	0	0.00%	0	0.00%
Backing	0.78%	0	-	0	0.00%	0	0.00%
Non-fixed Object	0.36%	0	-	0	0.00%	0	0.00%
Animal	1.38%	0	-	0	0.00%	1	11.11%
Pedestrian	1.70%	0	-	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	-	0	0.00%	0	0.00%
Other	1.85%	0	-	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>1</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
By Surface Condition							
Dry	79.93%	0	-	1	100.00%	9	100.00%
Wet	18.02%	0	-	0	0.00%	0	0.00%
Other	2.05%	0	-	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>1</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	70.70%	0	-	0	0.00%	5	55.56%
Dusk	2.67%	0	-	1	100.00%	2	22.22%
Night	24.86%	0	-	0	0.00%	2	22.22%
Other	1.77%	0	-	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>1</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.33%	0	-	0	0.00%	0	0.00%
Suspected Serious Injury	0.76%	0	-	0	0.00%	0	0.00%
Suspected Minor Injury	6.52%	0	-	0	0.00%	1	11.11%
Possible Injury	21.82%	0	-	0	0.00%	1	11.11%
No Apparent Injury	70.55%	0	-	1	100.00%	7	77.78%
<b>Total</b>	<b>99.99%</b>	<b>0</b>	<b>0.00%</b>	<b>1</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	0	-	1	100.00%	7	77.78%
Heavy Vehicles	-	0	-	0	0.00%	2	22.22%
<b>Total</b>	<b>-</b>	<b>0</b>	<b>0.00%</b>	<b>1</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for State Highway at Intersection (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
 NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
 MILEPOST 0.0 TO MILEPOST 36.5  
 OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 2 - SN/ NS Roadways, M.P. 12.8 – 13.4**



SCALE: NONE  
 DATE: August, 2021

Table E-3: SN Roadway, MP 12.8 - 13.4

Category	Statewide Average (Interstate)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	44.94%	0	-	1	50.00%	3	33.33%
Right Angle	0.34%	0	-	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	0	-	1	50.00%	4	44.44%
Fixed Object	18.27%	0	-	0	0.00%	0	0.00%
Struck Parked Vehicle	0.88%	0	-	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	-	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	-	0	0.00%	0	0.00%
Overtaken	1.13%	0	-	0	0.00%	1	11.11%
Backing	0.35%	0	-	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	-	0	0.00%	0	0.00%
Animal	3.82%	0	-	0	0.00%	1	11.11%
Pedestrian	0.08%	0	-	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	-	0	0.00%	0	0.00%
Other	1.20%	0	-	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
By Surface Condition							
Dry	74.44%	0	-	1	50.00%	6	66.67%
Wet	21.03%	0	-	1	50.00%	1	11.11%
Other	4.53%	0	-	0	0.00%	2	22.22%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	68.97%	0	-	2	100.00%	5	55.56%
Dusk	2.56%	0	-	0	0.00%	1	11.11%
Night	26.42%	0	-	0	0.00%	2	22.22%
Other	2.06%	0	-	0	0.00%	1	11.11%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	-	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	0	-	0	0.00%	1	11.11%
Suspected Minor Injury	4.89%	0	-	0	0.00%	1	11.11%
Possible Injury	15.12%	0	-	0	0.00%	0	0.00%
No Apparent Injury	79.22%	0	-	2	100.00%	7	77.78%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	0	-	2	100.00%	5	55.56%
Heavy Vehicles	-	0	-	0	0.00%	4	44.44%
<b>Total</b>	<b>-</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 12.8 – 13.4**

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SCALE: NONE  
DATE: August, 2021

Table E-4: NS Roadway, MP 12.8 - 13.4

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	44.94%	0	-	0	0.00%	2	28.57%
Right Angle	0.34%	0	-	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	0	-	0	0.00%	2	<b>28.57%</b>
Fixed Object	18.27%	0	-	1	<b>100.00%</b>	2	<b>28.57%</b>
Struck Parked Vehicle	0.88%	0	-	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	-	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	-	0	0.00%	0	0.00%
Overtaken	1.13%	0	-	0	0.00%	0	0.00%
Backing	0.35%	0	-	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	-	0	0.00%	0	0.00%
Animal	3.82%	0	-	0	0.00%	1	<b>14.29%</b>
Pedestrian	0.08%	0	-	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	-	0	0.00%	0	0.00%
Other	1.20%	0	-	0	0.00%	0	0.00%
Total	100.00%	0	0.00%	1	100.00%	7	100.00%
By Surface Condition							
Dry	74.44%	0	-	1	<b>100.00%</b>	4	57.14%
Wet	21.03%	0	-	0	0.00%	1	14.29%
Other	4.53%	0	-	0	0.00%	2	<b>28.57%</b>
Total	100.00%	0	0.00%	1	100.00%	7	100.00%
By Lighting Conditions							
Daylight	68.97%	0	-	1	<b>100.00%</b>	4	57.14%
Dusk	2.56%	0	-	0	0.00%	0	0.00%
Night	26.42%	0	-	0	0.00%	3	<b>42.86%</b>
Other	2.06%	0	-	0	0.00%	0	0.00%
Total	100.00%	0	0.00%	1	100.00%	7	100.00%
By Severity							
Fatal Injury	0.28%	0	-	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	0	-	0	0.00%	0	0.00%
Suspected Minor Injury	4.89%	0	-	1	<b>100.00%</b>	2	<b>28.57%</b>
Possible Injury	15.12%	0	-	0	0.00%	0	0.00%
No Apparent Injury	79.22%	0	-	0	0.00%	5	71.43%
Total	100.00%	0	0.00%	1	100.00%	7	100.00%
Vehicle Type							
Autos	-	0	-	1	100.00%	6	85.71%
Heavy Vehicles	-	0	-	0	0.00%	1	14.29%
Total	-	0	0.00%	1	100.00%	7	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

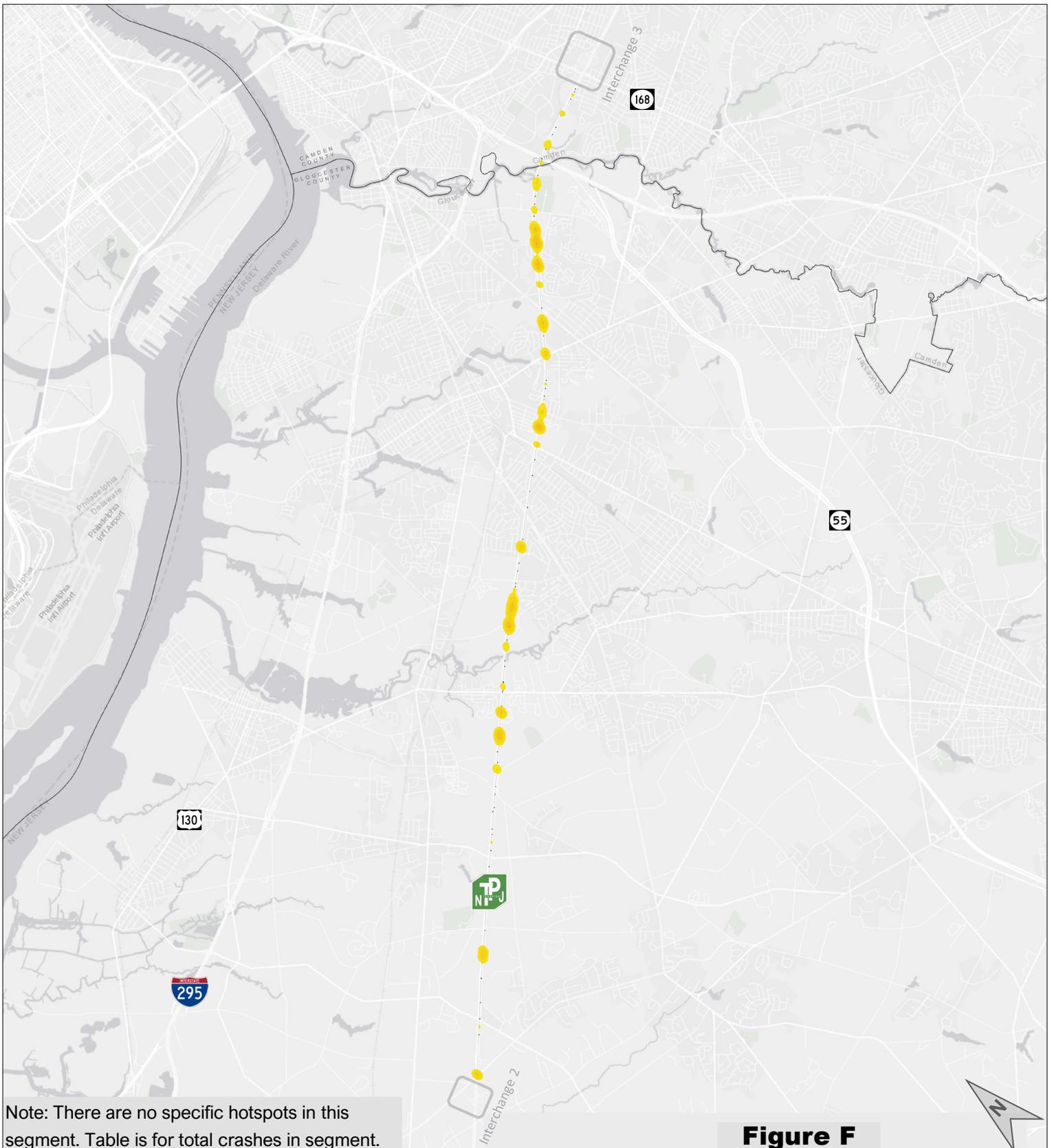
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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 12.8 – 13.4**

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SCALE: NONE  
DATE: August, 2021



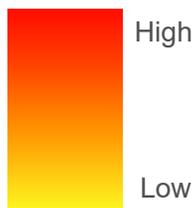
Note: There are no specific hotspots in this segment. Table is for total crashes in segment.

**Figure F**

Total Crashes within Hotspots

-

Crash Concentration



Total Crashes on the Map

165

NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
 NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
 MILEPOST 0.0 TO MILEPOST 36.5  
 OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 13.4 – 26.1**



SCALE: NONE  
 DATE: August, 2021

Table F-1: SN Roadway, MP 13.4 - 26.1

Category	Statewide Average (Interstate)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	44.94%	4	18.18%	12	<b>48.00%</b>	39	23.64%
Right Angle	0.34%	0	0.00%	0	0.00%	2	<b>1.21%</b>
Same Direction - Sideswipe	24.27%	6	<b>27.27%</b>	1	4.00%	19	11.52%
Fixed Object	18.27%	6	<b>27.27%</b>	9	<b>36.00%</b>	43	<b>26.06%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	2	<b>1.21%</b>
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	0	0.00%	4	<b>2.42%</b>
Backing	0.35%	0	0.00%	0	0.00%	1	<b>0.61%</b>
Non-fixed Object	4.55%	3	<b>13.64%</b>	3	<b>12.00%</b>	20	<b>12.12%</b>
Animal	3.82%	3	<b>13.64%</b>	0	0.00%	34	<b>20.61%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	1	0.61%
Total	100.00%	22	100.00%	25	100.00%	165	100.00%
By Surface Condition							
Dry	74.44%	14	63.64%	21	<b>84.00%</b>	132	<b>80.00%</b>
Wet	21.03%	6	<b>27.27%</b>	4	16.00%	18	10.91%
Other	4.53%	2	<b>9.09%</b>	0	0.00%	15	<b>9.09%</b>
Total	100.00%	22	100.00%	25	100.00%	165	100.00%
By Lighting Conditions							
Daylight	68.97%	20	<b>90.91%</b>	22	<b>88.00%</b>	93	56.36%
Dusk	2.56%	0	0.00%	1	<b>4.00%</b>	4	2.42%
Night	26.42%	1	4.55%	2	8.00%	65	<b>39.39%</b>
Other	2.06%	1	<b>4.55%</b>	0	0.00%	3	1.82%
Total	100.00%	22	100.00%	25	100.00%	165	100.00%
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	4	<b>18.18%</b>	5	<b>20.00%</b>	19	<b>11.52%</b>
Suspected Minor Injury	4.89%	1	4.55%	3	<b>12.00%</b>	13	<b>7.88%</b>
Possible Injury	15.12%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	79.22%	17	77.27%	17	68.00%	133	<b>80.61%</b>
Total	100.00%	22	100.00%	25	100.00%	165	100.00%
Vehicle Type							
Autos	-	17	77.27%	22	88.00%	134	81.21%
Heavy Vehicles	-	5	22.73%	3	12.00%	31	18.79%
Total	-	22	100.00%	25	100.00%	165	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

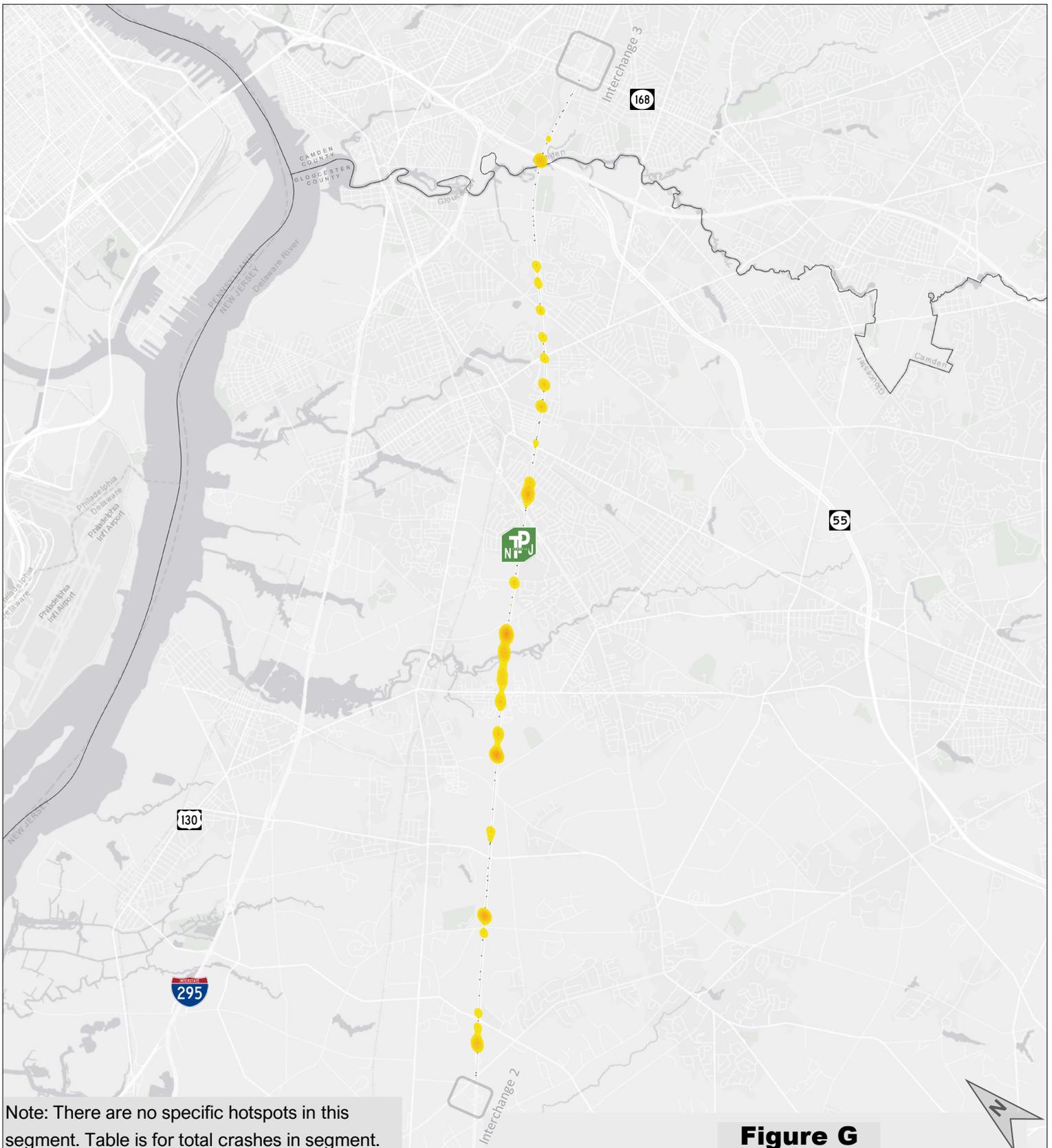
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**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 13.4 – 26.1**

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SCALE: NONE  
DATE: August, 2021



Note: There are no specific hotspots in this segment. Table is for total crashes in segment.

**Figure G**

<b>Total Crashes within Hotspots</b>	-	<b>Crash Concentration</b>	
<b>Total Crashes on the Map</b>	189		

<p>NEW JERSEY TURNPIKE AUTHORITY</p> <p><b>NEW JERSEY TURNPIKE</b></p> <p>NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM</p> <p>MILEPOST 0.0 TO MILEPOST 36.5</p> <p>OPS NO. T3839</p>
<p><b>Crash Hotspot Diagram (2017 – 2019)</b></p> <p><b>NS Roadway, M.P. 13.4 – 26.1</b></p>

SCALE: NONE  
DATE: August, 2021

Table G-1: NS Roadway, MP 13.4 - 26.1

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	44.94%	2	16.67%	4	25.00%	53	28.04%
Right Angle	0.34%	0	0.00%	0	0.00%	2	<b>1.06%</b>
Same Direction - Sideswipe	24.27%	4	<b>33.33%</b>	5	<b>31.25%</b>	43	22.75%
Fixed Object	18.27%	5	<b>41.67%</b>	5	<b>31.25%</b>	41	<b>21.69%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	0	0.00%	3	<b>1.59%</b>
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	0.00%	1	<b>6.25%</b>	19	<b>10.05%</b>
Animal	3.82%	1	<b>8.33%</b>	1	<b>6.25%</b>	26	<b>13.76%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	2	1.06%
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>16</b>	<b>100.00%</b>	<b>189</b>	<b>100.00%</b>
By Surface Condition							
Dry	74.44%	11	<b>91.67%</b>	13	<b>81.25%</b>	139	73.54%
Wet	21.03%	0	0.00%	1	6.25%	28	14.81%
Other	4.53%	1	<b>8.33%</b>	2	<b>12.50%</b>	22	<b>11.64%</b>
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>16</b>	<b>100.00%</b>	<b>189</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	68.97%	12	<b>100.00%</b>	12	<b>75.00%</b>	110	58.20%
Dusk	2.56%	0	0.00%	1	<b>6.25%</b>	6	<b>3.17%</b>
Night	26.42%	0	0.00%	3	18.75%	69	<b>36.51%</b>
Other	2.06%	0	0.00%	0	0.00%	4	<b>2.12%</b>
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>16</b>	<b>100.00%</b>	<b>189</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	1	<b>0.53%</b>
Suspected Serious Injury	0.49%	2	<b>16.67%</b>	2	<b>12.50%</b>	24	<b>12.70%</b>
Suspected Minor Injury	4.89%	0	0.00%	1	<b>6.25%</b>	13	<b>6.88%</b>
Possible Injury	15.12%	0	0.00%	0	0.00%	1	0.53%
No Apparent Injury	79.22%	10	<b>83.33%</b>	13	<b>81.25%</b>	150	<b>79.37%</b>
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>16</b>	<b>100.00%</b>	<b>189</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	8	66.67%	12	75.00%	133	70.37%
Heavy Vehicles	-	4	33.33%	4	25.00%	56	29.63%
<b>Total</b>	<b>-</b>	<b>12</b>	<b>100.00%</b>	<b>16</b>	<b>100.00%</b>	<b>189</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

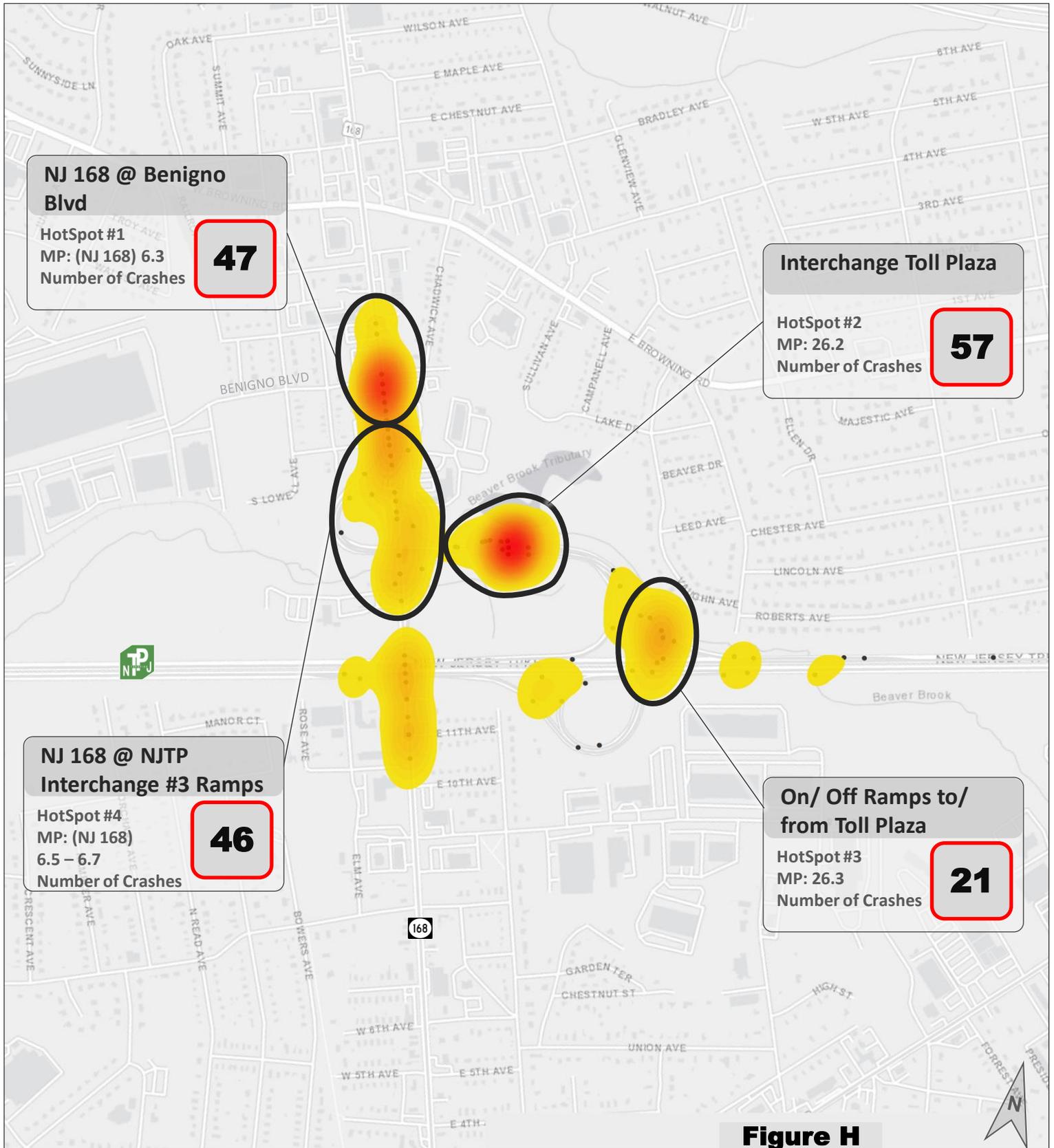
NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 13.4 – 26.1**



SCALE: NONE

DATE: August, 2021

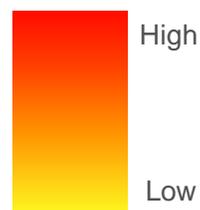


**Figure H**

Total Crashes within Hotspots **171**

Total Crashes on the Map **225**

Crash Concentration



NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 3 - SN/ NS Roadways, M.P. 26.0 – 26.5**



SCALE: NONE  
DATE: August, 2021

Table H-1: NJ 168 @ Benigno Blvd

Category	Crash Hotspot Location						
	Statewide Average (State)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	32.48%	1	25.00%	5	<b>62.50%</b>	25	<b>53.19%</b>
Right Angle	27.46%	0	0.00%	1	12.50%	3	6.38%
Same Direction - Sideswipe	17.90%	3	<b>75.00%</b>	1	12.50%	8	17.02%
Fixed Object	6.07%	0	0.00%	0	0.00%	6	<b>12.77%</b>
Struck Parked Vehicle	0.56%	0	0.00%	1	<b>12.50%</b>	1	<b>2.13%</b>
Left Turn/U Turn	6.22%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	2.94%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.30%	0	0.00%	0	0.00%	0	0.00%
Backing	0.78%	0	0.00%	0	0.00%	2	<b>4.26%</b>
Non-fixed Object	0.36%	0	0.00%	0	0.00%	0	0.00%
Animal	1.38%	0	0.00%	0	0.00%	0	0.00%
Pedestrian	1.70%	0	0.00%	0	0.00%	1	<b>2.13%</b>
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.85%	0	0.00%	0	0.00%	1	<b>2.13%</b>
<b>Total</b>	<b>100.00%</b>	<b>4</b>	<b>100.00%</b>	<b>8</b>	<b>100.00%</b>	<b>47</b>	<b>100.00%</b>
By Surface Condition							
Dry	79.93%	4	<b>100.00%</b>	8	<b>100.00%</b>	35	74.47%
Wet	18.02%	0	0.00%	0	0.00%	12	<b>25.53%</b>
Other	2.05%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>4</b>	<b>100.00%</b>	<b>8</b>	<b>100.00%</b>	<b>47</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	70.70%	3	<b>75.00%</b>	7	<b>87.50%</b>	30	63.83%
Dusk	2.67%	0	0.00%	0	0.00%	1	2.13%
Night	24.86%	1	<b>25.00%</b>	1	12.50%	16	<b>34.04%</b>
Other	1.77%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>4</b>	<b>100.00%</b>	<b>8</b>	<b>100.00%</b>	<b>47</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.33%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.76%	0	0.00%	0	0.00%	0	0.00%
Suspected Minor Injury	6.52%	0	0.00%	0	0.00%	3	6.38%
Possible Injury	21.82%	1	<b>25.00%</b>	4	<b>50.00%</b>	11	<b>23.40%</b>
No Apparent Injury	70.55%	3	<b>75.00%</b>	4	50.00%	33	70.21%
<b>Total</b>	<b>99.99%</b>	<b>4</b>	<b>100.00%</b>	<b>8</b>	<b>100.00%</b>	<b>47</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	4	100.00%	6	75.00%	36	76.60%
Heavy Vehicles	-	0	0.00%	2	25.00%	11	23.40%
<b>Total</b>	<b>-</b>	<b>4</b>	<b>100.00%</b>	<b>8</b>	<b>100.00%</b>	<b>47</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for State Highway at Intersection (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 3 - SN/ NS Roadways, M.P. 26.0 – 26.5**

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SCALE: NONE  
DATE: August, 2021

Table H-2: Interchange #3 Toll Plaza

Category	Crash Hotspot Location						
	Statewide Average (Int./ State)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	46.11%	1	20.00%	6	27.27%	21	36.84%
Right Angle	5.41%	0	0.00%	0	0.00%	0	0.00%
Same Direction - Sideswipe	21.99%	3	<b>60.00%</b>	14	<b>63.64%</b>	26	<b>45.61%</b>
Fixed Object	13.47%	0	0.00%	1	4.55%	5	8.77%
Struck Parked Vehicle	1.08%	0	0.00%	0	0.00%	1	<b>1.75%</b>
Left Turn/U Turn	1.10%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.85%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.81%	0	0.00%	0	0.00%	0	0.00%
Backing	0.61%	0	0.00%	1	<b>4.55%</b>	2	<b>3.51%</b>
Non-fixed Object	2.75%	0	0.00%	0	0.00%	1	1.75%
Animal	4.01%	1	<b>20.00%</b>	0	0.00%	1	1.75%
Pedestrian	0.47%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.35%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>5</b>	<b>100.00%</b>	<b>22</b>	<b>100.00%</b>	<b>57</b>	<b>100.00%</b>
By Surface Condition							
Dry	76.79%	5	<b>100.00%</b>	17	<b>77.27%</b>	45	<b>78.95%</b>
Wet	19.70%	0	0.00%	4	18.18%	9	15.79%
Other	3.51%	0	0.00%	1	<b>4.55%</b>	3	<b>5.26%</b>
<b>Total</b>	<b>100.00%</b>	<b>5</b>	<b>100.00%</b>	<b>22</b>	<b>100.00%</b>	<b>57</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	69.58%	5	<b>100.00%</b>	14	63.64%	43	<b>75.44%</b>
Dusk	2.60%	0	0.00%	3	<b>13.64%</b>	3	<b>5.26%</b>
Night	25.84%	0	0.00%	4	18.18%	10	17.54%
Other	1.98%	0	0.00%	1	<b>4.55%</b>	1	1.75%
<b>Total</b>	<b>100.00%</b>	<b>5</b>	<b>100.00%</b>	<b>22</b>	<b>100.00%</b>	<b>57</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.57%	0	0.00%	1	<b>4.55%</b>	3	<b>5.26%</b>
Suspected Minor Injury	4.99%	0	0.00%	0	0.00%	1	1.75%
Possible Injury	17.20%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	76.97%	5	<b>100.00%</b>	21	<b>95.45%</b>	53	<b>92.98%</b>
<b>Total</b>	<b>100.00%</b>	<b>5</b>	<b>100.00%</b>	<b>22</b>	<b>100.00%</b>	<b>57</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	4	80.00%	9	40.91%	33	57.89%
Heavy Vehicles	-	1	20.00%	13	59.09%	24	42.11%
<b>Total</b>	<b>-</b>	<b>5</b>	<b>100.00%</b>	<b>22</b>	<b>100.00%</b>	<b>57</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate and State Highways (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 3 - SN/ NS Roadways, M.P. 26.0 – 26.5**

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SCALE: NONE  
DATE: August, 2021

Table H-3: On/ Off Ramps to/ from Interchange #3 Toll Plaza

Category	Statewide Average (Interstate)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	44.94%	1	33.33%	3	42.86%	10	<b>47.62%</b>
Right Angle	0.34%	0	0.00%	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	0	0.00%	3	<b>42.86%</b>	4	19.05%
Fixed Object	18.27%	1	<b>33.33%</b>	1	14.29%	5	<b>23.81%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	1	<b>33.33%</b>	0	0.00%	1	<b>4.76%</b>
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	0.00%	0	0.00%	0	0.00%
Animal	3.82%	0	0.00%	0	0.00%	1	<b>4.76%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>	<b>21</b>	<b>100.00%</b>
By Surface Condition							
Dry	74.44%	1	33.33%	7	<b>100.00%</b>	15	71.43%
Wet	21.03%	2	<b>66.67%</b>	0	0.00%	6	<b>28.57%</b>
Other	4.53%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>	<b>21</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	68.97%	3	<b>100.00%</b>	3	42.86%	13	61.90%
Dusk	2.56%	0	0.00%	2	<b>28.57%</b>	2	<b>9.52%</b>
Night	26.42%	0	0.00%	2	<b>28.57%</b>	6	<b>28.57%</b>
Other	2.06%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>	<b>21</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	1	<b>33.33%</b>	1	<b>14.29%</b>	4	<b>19.05%</b>
Suspected Minor Injury	4.89%	0	0.00%	1	<b>14.29%</b>	2	<b>9.52%</b>
Possible Injury	15.12%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	79.22%	2	66.67%	5	71.43%	15	71.43%
<b>Total</b>	<b>100.00%</b>	<b>3</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>	<b>21</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	2	66.67%	4	57.14%	16	76.19%
Heavy Vehicles	-	1	33.33%	3	42.86%	5	23.81%
<b>Total</b>	<b>-</b>	<b>3</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>	<b>21</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

## NEW JERSEY TURNPIKE

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 3 - SN/ NS Roadways, M.P. 26.0 – 26.5**

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SCALE: NONE  
DATE: August, 2021

Table H-4: NJ 168 @ NJTP Interchange #3 Toll Plaza Ramps

Category	Statewide Average (State)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	47.27%	7	<b>77.78%</b>	6	<b>66.67%</b>	28	<b>60.87%</b>
Right Angle	10.48%	0	0.00%	0	0.00%	4	8.70%
Same Direction - Sideswipe	19.71%	2	<b>22.22%</b>	2	<b>22.22%</b>	9	19.57%
Fixed Object	8.68%	0	0.00%	1	<b>11.11%</b>	2	4.35%
Struck Parked Vehicle	1.27%	0	0.00%	0	0.00%	1	<b>2.17%</b>
Left Turn/U Turn	2.17%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	1.56%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.49%	0	0.00%	0	0.00%	0	0.00%
Backing	0.86%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	0.95%	0	0.00%	0	0.00%	0	0.00%
Animal	4.21%	0	0.00%	0	0.00%	1	2.17%
Pedestrian	0.86%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.49%	0	0.00%	0	0.00%	1	<b>2.17%</b>
<b>Total</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>46</b>	<b>100.00%</b>
By Surface Condition							
Dry	79.15%	8	<b>88.89%</b>	6	66.67%	37	<b>80.43%</b>
Wet	18.37%	1	11.11%	3	<b>33.33%</b>	9	<b>19.57%</b>
Other	2.48%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>46</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	70.19%	9	<b>100.00%</b>	8	<b>88.89%</b>	39	<b>84.78%</b>
Dusk	2.65%	0	0.00%	1	<b>11.11%</b>	2	<b>4.35%</b>
Night	25.27%	0	0.00%	0	0.00%	4	8.70%
Other	1.90%	0	0.00%	0	0.00%	1	<b>2.17%</b>
<b>Total</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>46</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.27%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.65%	0	0.00%	0	0.00%	1	<b>2.17%</b>
Suspected Minor Injury	5.09%	0	0.00%	0	0.00%	3	<b>6.52%</b>
Possible Injury	19.28%	3	<b>33.33%</b>	2	<b>22.22%</b>	9	<b>19.57%</b>
No Apparent Injury	74.71%	6	66.67%	7	<b>77.78%</b>	33	71.74%
<b>Total</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>46</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	5	55.56%	8	88.89%	37	80.43%
Heavy Vehicles	-	4	44.44%	1	11.11%	9	19.57%
<b>Total</b>	<b>-</b>	<b>9</b>	<b>100.00%</b>	<b>9</b>	<b>100.00%</b>	<b>46</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for State Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 3 - SN/ NS Roadways, M.P. 26.0 – 26.5**

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SCALE: NONE  
DATE: August, 2021

Table H-5: SN Roadway, MP 26.0 - 26.5

Category	Statewide Average (Interstate)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	44.94%	1	25.00%	0	-	6	<b>46.15%</b>
Right Angle	0.34%	0	0.00%	0	-	0	0.00%
Same Direction - Sideswipe	24.27%	2	<b>50.00%</b>	0	-	3	23.08%
Fixed Object	18.27%	1	<b>25.00%</b>	0	-	3	<b>23.08%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	-	1	<b>7.69%</b>
Left Turn/U Turn	0.03%	0	0.00%	0	-	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	-	0	0.00%
Overtaken	1.13%	0	0.00%	0	-	0	0.00%
Backing	0.35%	0	0.00%	0	-	0	0.00%
Non-fixed Object	4.55%	0	0.00%	0	-	0	0.00%
Animal	3.82%	0	0.00%	0	-	0	0.00%
Pedestrian	0.08%	0	0.00%	0	-	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	-	0	0.00%
Other	1.20%	0	0.00%	0	-	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>4</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>13</b>	<b>100.00%</b>
By Surface Condition							
Dry	74.44%	4	<b>100.00%</b>	0	-	12	<b>92.31%</b>
Wet	21.03%	0	0.00%	0	-	1	7.69%
Other	4.53%	0	0.00%	0	-	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>4</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>13</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	68.97%	4	<b>100.00%</b>	0	-	11	<b>84.62%</b>
Dusk	2.56%	0	0.00%	0	-	0	0.00%
Night	26.42%	0	0.00%	0	-	2	15.38%
Other	2.06%	0	0.00%	0	-	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>4</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>13</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	-	0	0.00%
Suspected Serious Injury	0.49%	1	<b>25.00%</b>	0	-	2	<b>15.38%</b>
Suspected Minor Injury	4.89%	0	0.00%	0	-	0	0.00%
Possible Injury	15.12%	0	0.00%	0	-	0	0.00%
No Apparent Injury	79.22%	3	75.00%	0	-	11	<b>84.62%</b>
<b>Total</b>	<b>100.00%</b>	<b>4</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>13</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	3	75.00%	0	-	9	69.23%
Heavy Vehicles	-	1	25.00%	0	-	4	30.77%
<b>Total</b>	<b>-</b>	<b>4</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>13</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 26.0 – 26.5**

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SCALE: NONE  
DATE: August, 2021

Table H-6: NS Roadway, MP 26.0 - 26.5

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	44.94%	0	-	2	100.00%	5	71.43%
Right Angle	0.34%	0	-	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	0	-	0	0.00%	0	0.00%
Fixed Object	18.27%	0	-	0	0.00%	1	14.29%
Struck Parked Vehicle	0.88%	0	-	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	-	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	-	0	0.00%	0	0.00%
Overturned	1.13%	0	-	0	0.00%	0	0.00%
Backing	0.35%	0	-	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	-	0	0.00%	0	0.00%
Animal	3.82%	0	-	0	0.00%	1	14.29%
Pedestrian	0.08%	0	-	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	-	0	0.00%	0	0.00%
Other	1.20%	0	-	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>
By Surface Condition							
Dry	74.44%	0	-	1	50.00%	5	71.43%
Wet	21.03%	0	-	0	0.00%	1	14.29%
Other	4.53%	0	-	1	50.00%	1	14.29%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	68.97%	0	-	0	0.00%	2	28.57%
Dusk	2.56%	0	-	2	100.00%	2	28.57%
Night	26.42%	0	-	0	0.00%	3	42.86%
Other	2.06%	0	-	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	-	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	0	-	1	50.00%	2	28.57%
Suspected Minor Injury	4.89%	0	-	0	0.00%	1	14.29%
Possible Injury	15.12%	0	-	0	0.00%	0	0.00%
No Apparent Injury	79.22%	0	-	1	50.00%	4	57.14%
<b>Total</b>	<b>100.00%</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	0	-	2	100.00%	7	100.00%
Heavy Vehicles	-	0	-	0	0.00%	0	0.00%
<b>Total</b>	<b>-</b>	<b>0</b>	<b>0.00%</b>	<b>2</b>	<b>100.00%</b>	<b>7</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

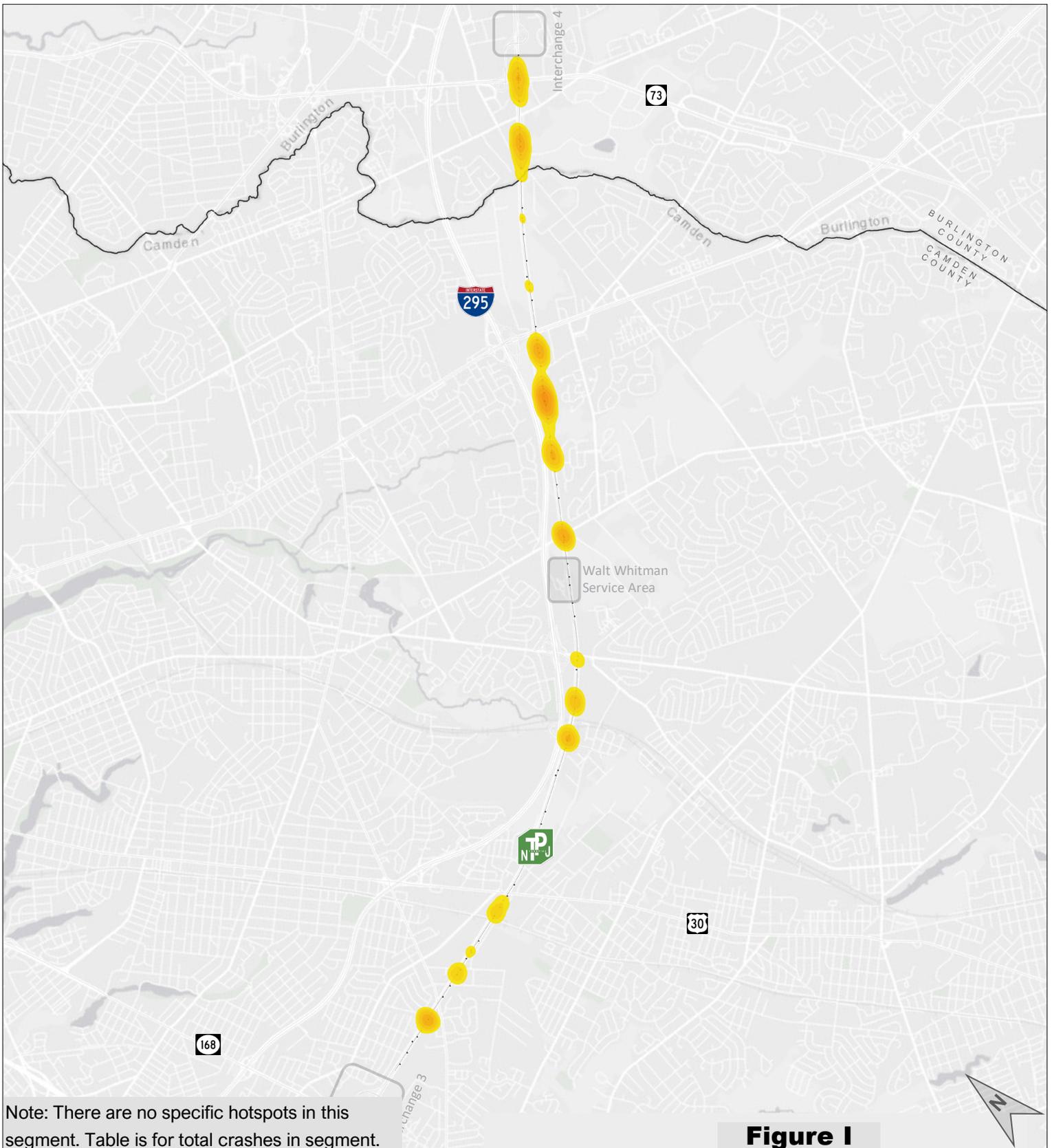
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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 26.0 – 26.5**

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SCALE: NONE  
DATE: August, 2021



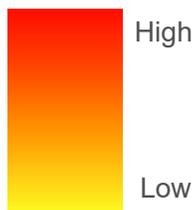
Note: There are no specific hotspots in this segment. Table is for total crashes in segment.

**Figure I**

Total Crashes within Hotspots

-

Crash Concentration



Total Crashes on the Map

**138**

NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
 NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
 MILEPOST 0.0 TO MILEPOST 36.5  
 OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 26.5 – 34.4**



SCALE: NONE  
 DATE: August, 2021

Table I-1: SN Roadway, MP 26.5 - 34.4

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	44.94%	3	21.43%	7	35.00%	51	36.96%
Right Angle	0.34%	0	0.00%	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	5	<b>35.71%</b>	5	<b>25.00%</b>	20	14.49%
Fixed Object	18.27%	3	<b>21.43%</b>	3	15.00%	20	14.49%
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	0	0.00%	4	<b>2.90%</b>
Backing	0.35%	0	0.00%	1	<b>5.00%</b>	1	<b>0.72%</b>
Non-fixed Object	4.55%	1	<b>7.14%</b>	2	<b>10.00%</b>	14	<b>10.14%</b>
Animal	3.82%	2	<b>14.29%</b>	2	<b>10.00%</b>	25	<b>18.12%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	1	<b>0.72%</b>
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	2	<b>1.45%</b>
Total	100.00%	14	100.00%	20	100.00%	138	100.00%
By Surface Condition							
Dry	74.44%	14	<b>100.00%</b>	16	<b>80.00%</b>	117	<b>84.78%</b>
Wet	21.03%	0	0.00%	2	10.00%	17	12.32%
Other	4.53%	0	0.00%	2	<b>10.00%</b>	4	2.90%
Total	100.00%	14	100.00%	20	100.00%	138	100.00%
By Lighting Conditions							
Daylight	68.97%	14	<b>100.00%</b>	18	<b>90.00%</b>	88	63.77%
Dusk	2.56%	0	0.00%	0	0.00%	8	<b>5.80%</b>
Night	26.42%	0	0.00%	2	10.00%	41	<b>29.71%</b>
Other	2.06%	0	0.00%	0	0.00%	1	0.72%
Total	100.00%	14	100.00%	20	100.00%	138	100.00%
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	2	<b>1.45%</b>
Suspected Serious Injury	0.49%	1	<b>7.14%</b>	3	<b>15.00%</b>	14	<b>10.14%</b>
Suspected Minor Injury	4.89%	3	<b>21.43%</b>	1	<b>5.00%</b>	11	<b>7.97%</b>
Possible Injury	15.12%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	79.22%	10	71.43%	16	<b>80.00%</b>	111	<b>80.43%</b>
Total	100.00%	14	100.00%	20	100.00%	138	100.00%
Vehicle Type							
Autos	-	10	71.43%	18	90.00%	106	76.81%
Heavy Vehicles	-	4	28.57%	2	10.00%	32	23.19%
Total	-	14	100.00%	20	100.00%	138	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

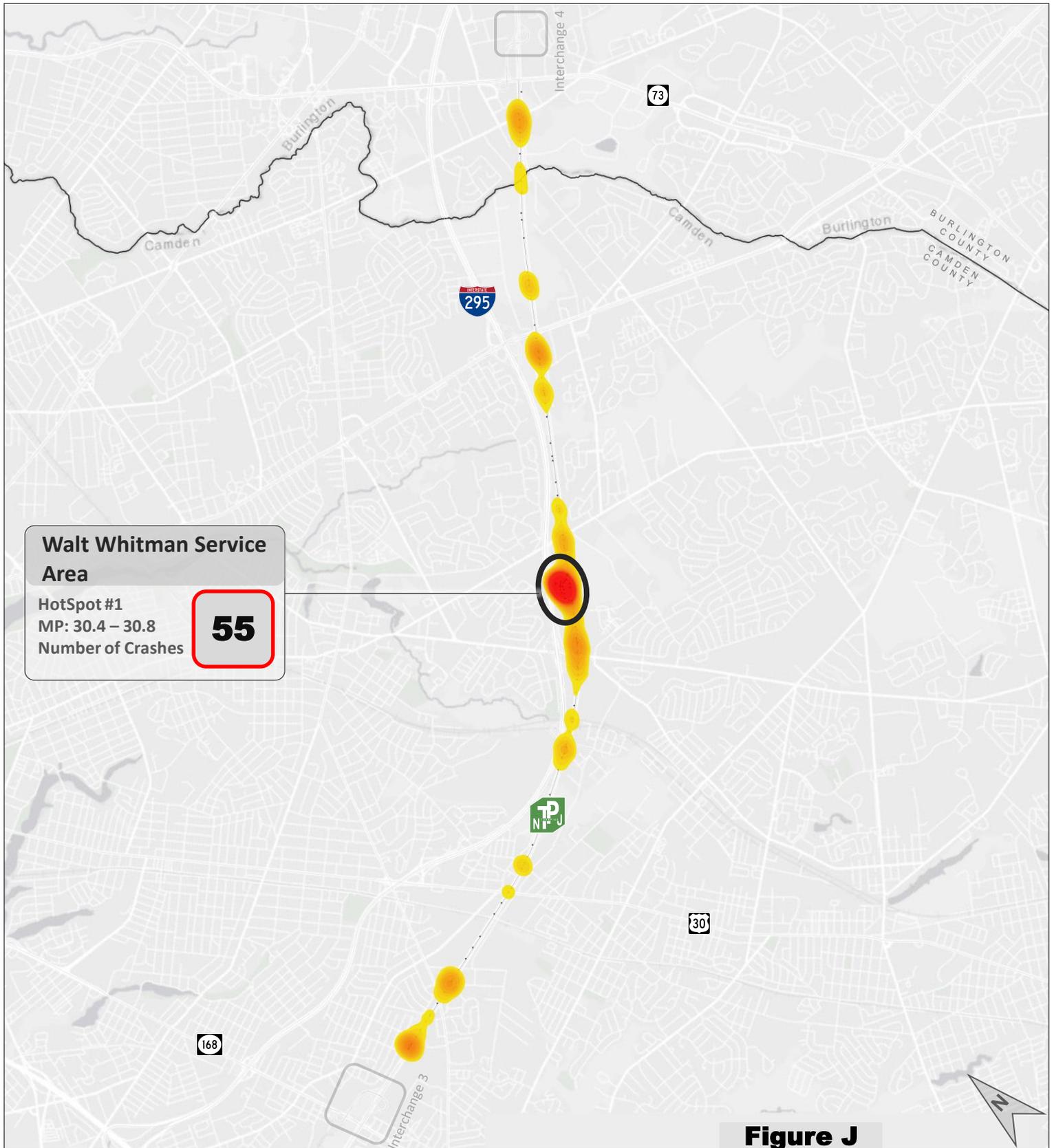
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**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 26.5 - 34.4**

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SCALE: NONE  
DATE: August, 2021

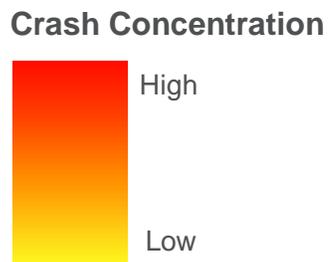


**Walt Whitman Service Area**  
 HotSpot #1  
 MP: 30.4 – 30.8  
 Number of Crashes **55**

**Figure J**

Total Crashes within Hotspots **55**

Total Crashes on the Map **219**



NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
 NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
 MILEPOST 0.0 TO MILEPOST 36.5  
 OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 26.5 – 34.4**



SCALE: NONE  
 DATE: August, 2021

Table J-1: Walt Whitman Service Area

Category	Crash Hotspot Location						
	Statewide Average (Int./ State)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	46.11%	2	25.00%	0	0.00%	7	12.73%
Right Angle	5.41%	0	0.00%	0	0.00%	1	1.82%
Same Direction - Sideswipe	21.99%	3	<b>37.50%</b>	4	<b>40.00%</b>	13	<b>23.64%</b>
Fixed Object	13.47%	1	12.50%	1	10.00%	6	10.91%
Struck Parked Vehicle	1.08%	0	0.00%	1	<b>10.00%</b>	4	<b>7.27%</b>
Left Turn/U Turn	1.10%	0	0.00%	0	0.00%	1	<b>1.82%</b>
Opposite Direction (Head On)	0.85%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.81%	0	0.00%	0	0.00%	1	<b>1.82%</b>
Backing	0.61%	2	<b>25.00%</b>	4	<b>40.00%</b>	16	<b>29.09%</b>
Non-fixed Object	2.75%	0	0.00%	0	0.00%	1	1.82%
Animal	4.01%	0	0.00%	0	0.00%	1	1.82%
Pedestrian	0.47%	0	0.00%	0	0.00%	3	<b>5.45%</b>
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.35%	0	0.00%	0	0.00%	1	<b>1.82%</b>
Total	100.00%	8	100.00%	10	100.00%	55	100.00%
By Surface Condition							
Dry	76.79%	7	<b>87.50%</b>	10	<b>100.00%</b>	50	<b>90.91%</b>
Wet	19.70%	1	12.50%	0	0.00%	5	9.09%
Other	3.51%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	8	100.00%	10	100.00%	55	100.00%
By Lighting Conditions							
Daylight	69.58%	8	<b>100.00%</b>	10	<b>100.00%</b>	43	<b>78.18%</b>
Dusk	2.60%	0	0.00%	0	0.00%	1	1.82%
Night	25.84%	0	0.00%	0	0.00%	11	20.00%
Other	1.98%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	8	100.00%	10	100.00%	55	100.00%
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.57%	0	0.00%	1	<b>10.00%</b>	2	<b>3.64%</b>
Suspected Minor Injury	4.99%	0	0.00%	1	<b>10.00%</b>	3	<b>5.45%</b>
Possible Injury	17.20%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	76.97%	8	<b>100.00%</b>	8	<b>80.00%</b>	50	<b>90.91%</b>
Total	100.00%	8	100.00%	10	100.00%	55	100.00%
Vehicle Type							
Autos	-	4	50.00%	6	60.00%	37	67.27%
Heavy Vehicles	-	4	50.00%	4	40.00%	18	32.73%
Total	-	8	100.00%	10	100.00%	55	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate and State Highways (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 26.5 - 34.4**

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SCALE: NONE  
DATE: August, 2021

Table J-2: NS Roadway, MP 26.5 - 34.4

Category	Statewide Average (Interstate)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	44.94%	2	16.67%	32	<b>71.11%</b>	83	<b>50.61%</b>
Right Angle	0.34%	0	0.00%	0	0.00%	1	<b>0.61%</b>
Same Direction - Sideswipe	24.27%	4	<b>33.33%</b>	9	20.00%	29	17.68%
Fixed Object	18.27%	2	16.67%	0	0.00%	12	7.32%
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	1	0.61%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	1	<b>2.22%</b>	5	<b>3.05%</b>
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	2	<b>16.67%</b>	1	2.22%	6	3.66%
Animal	3.82%	2	<b>16.67%</b>	0	0.00%	22	<b>13.41%</b>
Pedestrian	0.08%	0	0.00%	1	<b>2.22%</b>	2	<b>1.22%</b>
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	1	<b>2.22%</b>	3	<b>1.83%</b>
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>45</b>	<b>100.00%</b>	<b>164</b>	<b>100.00%</b>
By Surface Condition							
Dry	74.44%	10	<b>83.33%</b>	35	<b>77.78%</b>	141	<b>85.98%</b>
Wet	21.03%	1	8.33%	9	20.00%	18	10.98%
Other	4.53%	1	<b>8.33%</b>	1	2.22%	5	3.05%
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>45</b>	<b>100.00%</b>	<b>164</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	68.97%	12	<b>100.00%</b>	31	68.89%	100	60.98%
Dusk	2.56%	0	0.00%	6	<b>13.33%</b>	9	<b>5.49%</b>
Night	26.42%	0	0.00%	8	17.78%	51	<b>31.10%</b>
Other	2.06%	0	0.00%	0	0.00%	4	<b>2.44%</b>
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>45</b>	<b>100.00%</b>	<b>164</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	1	<b>8.33%</b>	3	<b>6.67%</b>	24	<b>14.63%</b>
Suspected Minor Injury	4.89%	1	<b>8.33%</b>	1	2.22%	9	<b>5.49%</b>
Possible Injury	15.12%	0	0.00%	1	2.22%	3	1.83%
No Apparent Injury	79.22%	10	<b>83.33%</b>	40	<b>88.89%</b>	128	78.05%
<b>Total</b>	<b>100.00%</b>	<b>12</b>	<b>100.00%</b>	<b>45</b>	<b>100.00%</b>	<b>164</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	8	66.67%	36	80.00%	121	73.78%
Heavy Vehicles	-	4	33.33%	9	20.00%	43	26.22%
<b>Total</b>	<b>-</b>	<b>12</b>	<b>100.00%</b>	<b>45</b>	<b>100.00%</b>	<b>164</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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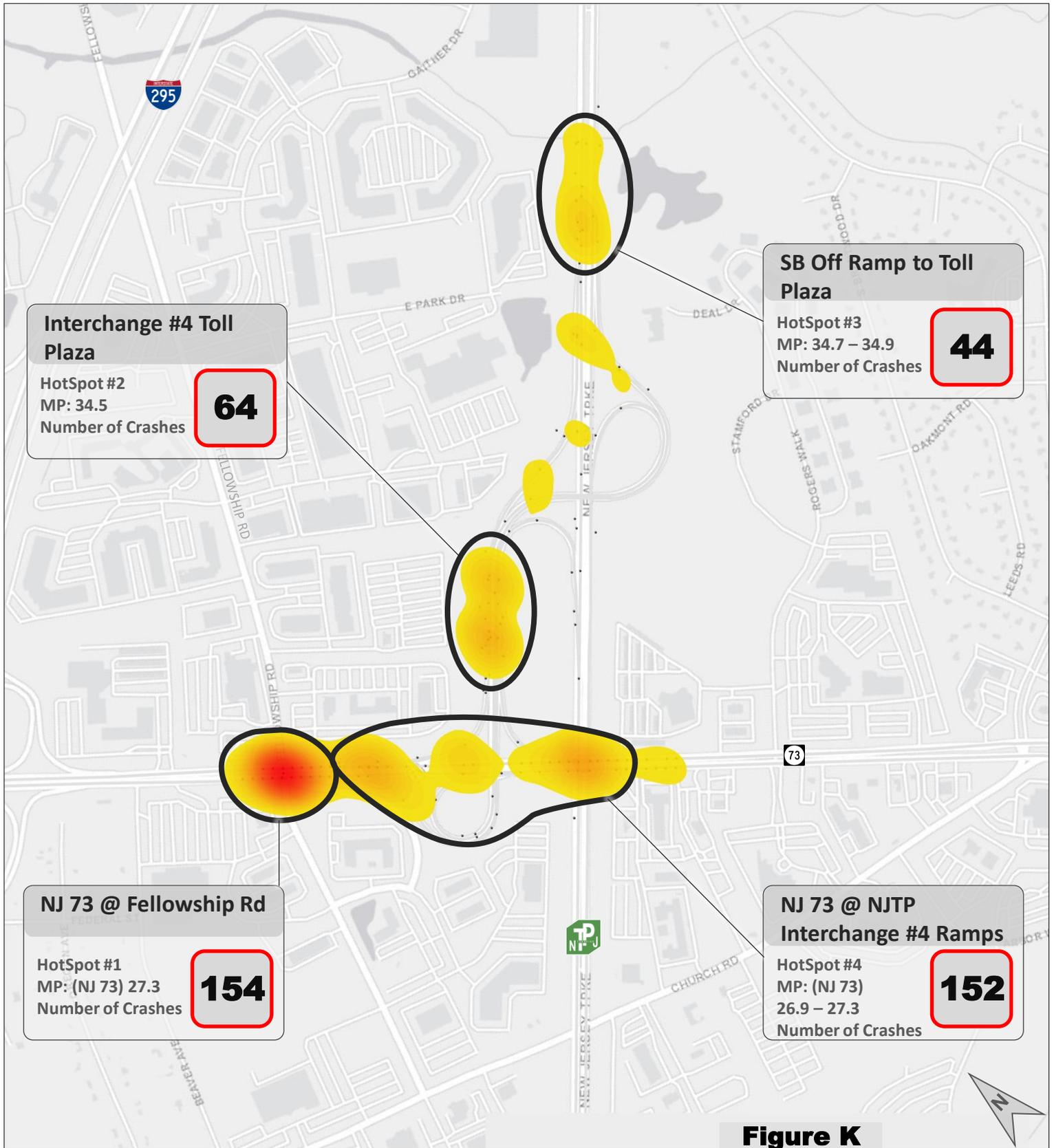
**Crash Hotspot Diagram (2017 – 2019)**  
**SN Roadway, M.P. 26.5 - 34.4**

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SCALE: NONE

DATE: August, 2021

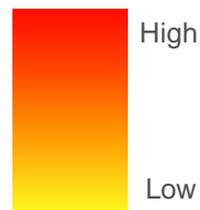


**Figure K**

Total Crashes within Hotspots **414**

Total Crashes on the Map **501**

Crash Concentration



NEW JERSEY TURNPIKE AUTHORITY  
**NEW JERSEY TURNPIKE**  
 NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
 MILEPOST 0.0 TO MILEPOST 36.5  
 OPS NO. T3839

**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 4 - SN/ NS Roadways, M.P. 34.3 – 35.0**



SCALE: NONE  
 DATE: August, 2021

Table K-1: NJ 73 @ Fellowship Rd

Category	Crash Hotspot Location						
	Statewide Average (State)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	32.48%	9	<b>60.00%</b>	18	<b>62.07%</b>	90	<b>58.44%</b>
Right Angle	27.46%	1	6.67%	3	10.34%	6	3.90%
Same Direction - Sideswipe	17.90%	4	<b>26.67%</b>	5	17.24%	48	<b>31.17%</b>
Fixed Object	6.07%	1	<b>6.67%</b>	0	0.00%	1	0.65%
Struck Parked Vehicle	0.56%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	6.22%	0	0.00%	3	<b>10.34%</b>	4	2.60%
Opposite Direction (Head On)	2.94%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.30%	0	0.00%	0	0.00%	0	0.00%
Backing	0.78%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	0.36%	0	0.00%	0	0.00%	1	<b>0.65%</b>
Animal	1.38%	0	0.00%	0	0.00%	0	0.00%
Pedestrian	1.70%	0	0.00%	0	0.00%	1	0.65%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	1	<b>0.65%</b>
Other	1.85%	0	0.00%	0	0.00%	2	1.30%
<b>Total</b>	<b>100.00%</b>	<b>15</b>	<b>100.00%</b>	<b>29</b>	<b>100.00%</b>	<b>154</b>	<b>100.00%</b>
By Surface Condition							
Dry	79.93%	13	<b>86.67%</b>	24	<b>82.76%</b>	127	<b>82.47%</b>
Wet	18.02%	2	13.33%	5	17.24%	26	16.88%
Other	2.05%	0	0.00%	0	0.00%	1	0.65%
<b>Total</b>	<b>100.00%</b>	<b>15</b>	<b>100.00%</b>	<b>29</b>	<b>100.00%</b>	<b>154</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	70.70%	15	<b>100.00%</b>	18	62.07%	102	66.23%
Dusk	2.67%	0	0.00%	4	<b>13.79%</b>	6	<b>3.90%</b>
Night	24.86%	0	0.00%	7	24.14%	45	<b>29.22%</b>
Other	1.77%	0	0.00%	0	0.00%	1	0.65%
<b>Total</b>	<b>100.00%</b>	<b>15</b>	<b>100.00%</b>	<b>29</b>	<b>100.00%</b>	<b>154</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.33%	0	0.00%	0	0.00%	1	<b>0.65%</b>
Suspected Serious Injury	0.76%	0	0.00%	0	0.00%	0	0.00%
Suspected Minor Injury	6.52%	0	0.00%	0	0.00%	4	2.60%
Possible Injury	21.82%	3	20.00%	5	17.24%	28	18.18%
No Apparent Injury	70.55%	12	<b>80.00%</b>	24	<b>82.76%</b>	121	<b>78.57%</b>
<b>Total</b>	<b>99.99%</b>	<b>15</b>	<b>100.00%</b>	<b>29</b>	<b>100.00%</b>	<b>154</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	15	100.00%	28	96.55%	151	98.05%
Heavy Vehicles	-	0	0.00%	1	3.45%	3	1.95%
<b>Total</b>	<b>-</b>	<b>15</b>	<b>100.00%</b>	<b>29</b>	<b>100.00%</b>	<b>154</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for State Highway at Intersection (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 4 - SN/ NS Roadways, M.P. 34.3 – 35.0**

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SCALE: NONE  
DATE: August, 2021

Table K-2: Interchange #4 Toll Plaza

Category	Statewide Average (Int./ State)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	46.11%	6	30.00%	1	20.00%	16	25.00%
Right Angle	5.41%	0	0.00%	0	0.00%	1	1.56%
Same Direction - Sideswipe	21.99%	12	<b>60.00%</b>	3	<b>60.00%</b>	35	<b>54.69%</b>
Fixed Object	13.47%	1	5.00%	0	0.00%	7	10.94%
Struck Parked Vehicle	1.08%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	1.10%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.85%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.81%	0	0.00%	0	0.00%	1	<b>1.56%</b>
Backing	0.61%	1	<b>5.00%</b>	1	<b>20.00%</b>	3	<b>4.69%</b>
Non-fixed Object	2.75%	0	0.00%	0	0.00%	0	0.00%
Animal	4.01%	0	0.00%	0	0.00%	1	1.56%
Pedestrian	0.47%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.35%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	20	100.00%	5	100.00%	64	100.00%
By Surface Condition							
Dry	76.79%	19	<b>95.00%</b>	4	<b>80.00%</b>	50	<b>78.13%</b>
Wet	19.70%	1	5.00%	1	<b>20.00%</b>	14	<b>21.88%</b>
Other	3.51%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	20	100.00%	5	100.00%	64	100.00%
By Lighting Conditions							
Daylight	69.58%	20	<b>100.00%</b>	4	<b>80.00%</b>	44	68.75%
Dusk	2.60%	0	0.00%	1	<b>20.00%</b>	4	<b>6.25%</b>
Night	25.84%	0	0.00%	0	0.00%	16	25.00%
Other	1.98%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	20	100.00%	5	100.00%	64	100.00%
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.57%	0	0.00%	0	0.00%	3	<b>4.69%</b>
Suspected Minor Injury	4.99%	1	<b>5.00%</b>	0	0.00%	3	4.69%
Possible Injury	17.20%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	76.97%	19	<b>95.00%</b>	5	<b>100.00%</b>	58	<b>90.63%</b>
Total	100.00%	20	100.00%	5	100.00%	64	100.00%
Vehicle Type							
Autos	-	9	45.00%	3	60.00%	44	68.75%
Heavy Vehicles	-	11	55.00%	2	40.00%	20	31.25%
Total	-	20	100.00%	5	100.00%	64	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate and State Highways (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 4 - SN/ NS Roadways, M.P. 34.3 – 35.0**

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SCALE: NONE  
DATE: August, 2021

Table K-3: SB Off Ramp to Interchange #4 Toll Plaza

Category	Statewide Average (Interstate)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	44.94%	3	<b>50.00%</b>	4	<b>66.67%</b>	20	<b>45.45%</b>
Right Angle	0.34%	0	0.00%	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	1	16.67%	1	16.67%	9	20.45%
Fixed Object	18.27%	2	<b>33.33%</b>	1	16.67%	12	<b>27.27%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	0	0.00%	0	0.00%
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	0.00%	0	0.00%	1	2.27%
Animal	3.82%	0	0.00%	0	0.00%	2	<b>4.55%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>44</b>	<b>100.00%</b>
By Surface Condition							
Dry	74.44%	3	50.00%	3	50.00%	25	56.82%
Wet	21.03%	3	<b>50.00%</b>	3	<b>50.00%</b>	17	<b>38.64%</b>
Other	4.53%	0	0.00%	0	0.00%	2	<b>4.55%</b>
<b>Total</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>44</b>	<b>100.00%</b>
By Lighting Conditions							
Daylight	68.97%	6	<b>100.00%</b>	5	<b>83.33%</b>	32	<b>72.73%</b>
Dusk	2.56%	0	0.00%	0	0.00%	2	<b>4.55%</b>
Night	26.42%	0	0.00%	1	16.67%	10	22.73%
Other	2.06%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>44</b>	<b>100.00%</b>
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	3	<b>50.00%</b>	0	0.00%	11	<b>25.00%</b>
Suspected Minor Injury	4.89%	0	0.00%	0	0.00%	2	4.55%
Possible Injury	15.12%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	79.22%	3	50.00%	6	<b>100.00%</b>	31	70.45%
<b>Total</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>44</b>	<b>100.00%</b>
Vehicle Type							
Autos	-	5	83.33%	4	66.67%	39	88.64%
Heavy Vehicles	-	1	16.67%	2	33.33%	5	11.36%
<b>Total</b>	<b>-</b>	<b>6</b>	<b>100.00%</b>	<b>6</b>	<b>100.00%</b>	<b>44</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 4 - SN/ NS Roadways, M.P. 34.3 – 35.0**

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SCALE: NONE  
DATE: August, 2021

Table K-4: NJ 73 @ NJTP Interchange #4 Ramps

Category	Statewide Average (State)	Crash Hotspot Location					
		Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		Number	% of Total	Number	% of Total	Number	% of Total
By Type							
Same Direction - Rear End	47.27%	11	<b>55.00%</b>	24	<b>82.76%</b>	101	<b>66.45%</b>
Right Angle	10.48%	0	0.00%	0	0.00%	1	0.66%
Same Direction - Sideswipe	19.71%	7	<b>35.00%</b>	3	10.34%	27	17.76%
Fixed Object	8.68%	2	<b>10.00%</b>	2	6.90%	18	<b>11.84%</b>
Struck Parked Vehicle	1.27%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	2.17%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	1.56%	0	0.00%	0	0.00%	0	0.00%
Overtaken	0.49%	0	0.00%	0	0.00%	3	<b>1.97%</b>
Backing	0.86%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	0.95%	0	0.00%	0	0.00%	1	0.66%
Animal	4.21%	0	0.00%	0	0.00%	1	0.66%
Pedestrian	0.86%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.49%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	20	100.00%	29	100.00%	152	100.00%
By Surface Condition							
Dry	79.15%	17	<b>85.00%</b>	26	<b>89.66%</b>	117	76.97%
Wet	18.37%	3	15.00%	3	10.34%	35	<b>23.03%</b>
Other	2.48%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	20	100.00%	29	100.00%	152	100.00%
By Lighting Conditions							
Daylight	70.19%	20	<b>100.00%</b>	22	<b>75.86%</b>	129	<b>84.87%</b>
Dusk	2.65%	0	0.00%	3	<b>10.34%</b>	4	2.63%
Night	25.27%	0	0.00%	4	13.79%	19	12.50%
Other	1.90%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	20	100.00%	29	100.00%	152	100.00%
By Severity							
Fatal Injury	0.27%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.65%	0	0.00%	1	<b>3.45%</b>	3	<b>1.97%</b>
Suspected Minor Injury	5.09%	0	0.00%	0	0.00%	8	<b>5.26%</b>
Possible Injury	19.28%	1	5.00%	9	<b>31.03%</b>	24	15.79%
No Apparent Injury	74.71%	19	<b>95.00%</b>	19	65.52%	117	<b>76.97%</b>
Total	100.00%	20	100.00%	29	100.00%	152	100.00%
Vehicle Type							
Autos	-	14	70.00%	28	96.55%	138	90.79%
Heavy Vehicles	-	6	30.00%	1	3.45%	14	9.21%
Total	-	20	100.00%	29	100.00%	152	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for State Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**Interchange 4 - SN/ NS Roadways, M.P. 34.3 – 35.0**

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SCALE: NONE  
DATE: August, 2021

Table K-5: SN Roadway, MP 34.3 - 35.0

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
<b>By Type</b>							
Same Direction - Rear End	44.94%	0	0.00%	0	0.00%	0	0.00%
Right Angle	0.34%	0	0.00%	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	0	0.00%	1	<b>100.00%</b>	6	<b>54.55%</b>
Fixed Object	18.27%	0	0.00%	0	0.00%	2	18.18%
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	1	<b>100.00%</b>	0	0.00%	1	<b>9.09%</b>
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	0.00%	0	0.00%	1	<b>9.09%</b>
Animal	3.82%	0	0.00%	0	0.00%	1	<b>9.09%</b>
Pedestrian	0.08%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>11</b>	<b>100.00%</b>
<b>By Surface Condition</b>							
Dry	74.44%	1	<b>100.00%</b>	1	<b>100.00%</b>	10	<b>90.91%</b>
Wet	21.03%	0	0.00%	0	0.00%	0	0.00%
Other	4.53%	0	0.00%	0	0.00%	1	<b>9.09%</b>
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>11</b>	<b>100.00%</b>
<b>By Lighting Conditions</b>							
Daylight	68.97%	1	<b>100.00%</b>	1	<b>100.00%</b>	7	63.64%
Dusk	2.56%	0	0.00%	0	0.00%	1	<b>9.09%</b>
Night	26.42%	0	0.00%	0	0.00%	3	<b>27.27%</b>
Other	2.06%	0	0.00%	0	0.00%	0	0.00%
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>11</b>	<b>100.00%</b>
<b>By Severity</b>							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	0	0.00%	0	0.00%	2	<b>18.18%</b>
Suspected Minor Injury	4.89%	1	<b>100.00%</b>	0	0.00%	1	<b>9.09%</b>
Possible Injury	15.12%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	79.22%	0	0.00%	1	<b>100.00%</b>	8	72.73%
<b>Total</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>11</b>	<b>100.00%</b>
<b>Vehicle Type</b>							
Autos	-	1	100.00%	0	0.00%	8	72.73%
Heavy Vehicles	-	0	0.00%	1	100.00%	3	27.27%
<b>Total</b>	<b>-</b>	<b>1</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>11</b>	<b>100.00%</b>

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 34.3 – 35.0**

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SCALE: NONE  
DATE: August, 2021

Table K-6: NS Roadway, MP 34.3 - 35.0

Category	Crash Hotspot Location						
	Statewide Average (Interstate)	Morning Peak Period (07:00 AM - 09:00 AM)		Evening Peak Period (04:00 PM - 06:00 PM)		All Day	
		% of Total	Number	% of Total	Number	% of Total	Number
By Type							
Same Direction - Rear End	44.94%	5	<b>45.45%</b>	6	<b>60.00%</b>	34	<b>47.89%</b>
Right Angle	0.34%	0	0.00%	0	0.00%	0	0.00%
Same Direction - Sideswipe	24.27%	3	<b>27.27%</b>	2	20.00%	13	18.31%
Fixed Object	18.27%	3	<b>27.27%</b>	1	10.00%	19	<b>26.76%</b>
Struck Parked Vehicle	0.88%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	0.03%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On)	0.14%	0	0.00%	0	0.00%	0	0.00%
Overtaken	1.13%	0	0.00%	0	0.00%	0	0.00%
Backing	0.35%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	4.55%	0	0.00%	1	<b>10.00%</b>	1	1.41%
Animal	3.82%	0	0.00%	0	0.00%	2	2.82%
Pedestrian	0.08%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Sideswipe)	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	1.20%	0	0.00%	0	0.00%	2	<b>2.82%</b>
Total	100.00%	11	100.00%	10	100.00%	71	100.00%
By Surface Condition							
Dry	74.44%	6	54.55%	6	60.00%	43	60.56%
Wet	21.03%	5	<b>45.45%</b>	4	<b>40.00%</b>	26	<b>36.62%</b>
Other	4.53%	0	0.00%	0	0.00%	2	2.82%
Total	100.00%	11	100.00%	10	100.00%	71	100.00%
By Lighting Conditions							
Daylight	68.97%	11	<b>100.00%</b>	8	<b>80.00%</b>	48	67.61%
Dusk	2.56%	0	0.00%	0	0.00%	3	<b>4.23%</b>
Night	26.42%	0	0.00%	2	20.00%	20	<b>28.17%</b>
Other	2.06%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	11	100.00%	10	100.00%	71	100.00%
By Severity							
Fatal Injury	0.28%	0	0.00%	0	0.00%	0	0.00%
Suspected Serious Injury	0.49%	5	<b>45.45%</b>	1	<b>10.00%</b>	18	<b>25.35%</b>
Suspected Minor Injury	4.89%	0	0.00%	0	0.00%	4	<b>5.63%</b>
Possible Injury	15.12%	0	0.00%	0	0.00%	0	0.00%
No Apparent Injury	79.22%	6	54.55%	9	<b>90.00%</b>	49	69.01%
Total	100.00%	11	100.00%	10	100.00%	71	100.00%
Vehicle Type							
Autos	-	6	54.55%	7	70.00%	58	81.69%
Heavy Vehicles	-	5	45.45%	3	30.00%	13	18.31%
Total	-	11	100.00%	10	100.00%	71	100.00%

Source: New Jersey Department of Transportation; New Jersey Turnpike Authority

Note: Statewide Average for Interstate Highway (2017-2019)

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM  
MILEPOST 0.0 TO MILEPOST 36.5  
OPS NO. T3839

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**Crash Hotspot Diagram (2017 – 2019)**  
**NS Roadway, M.P. 34.3 – 35.0**

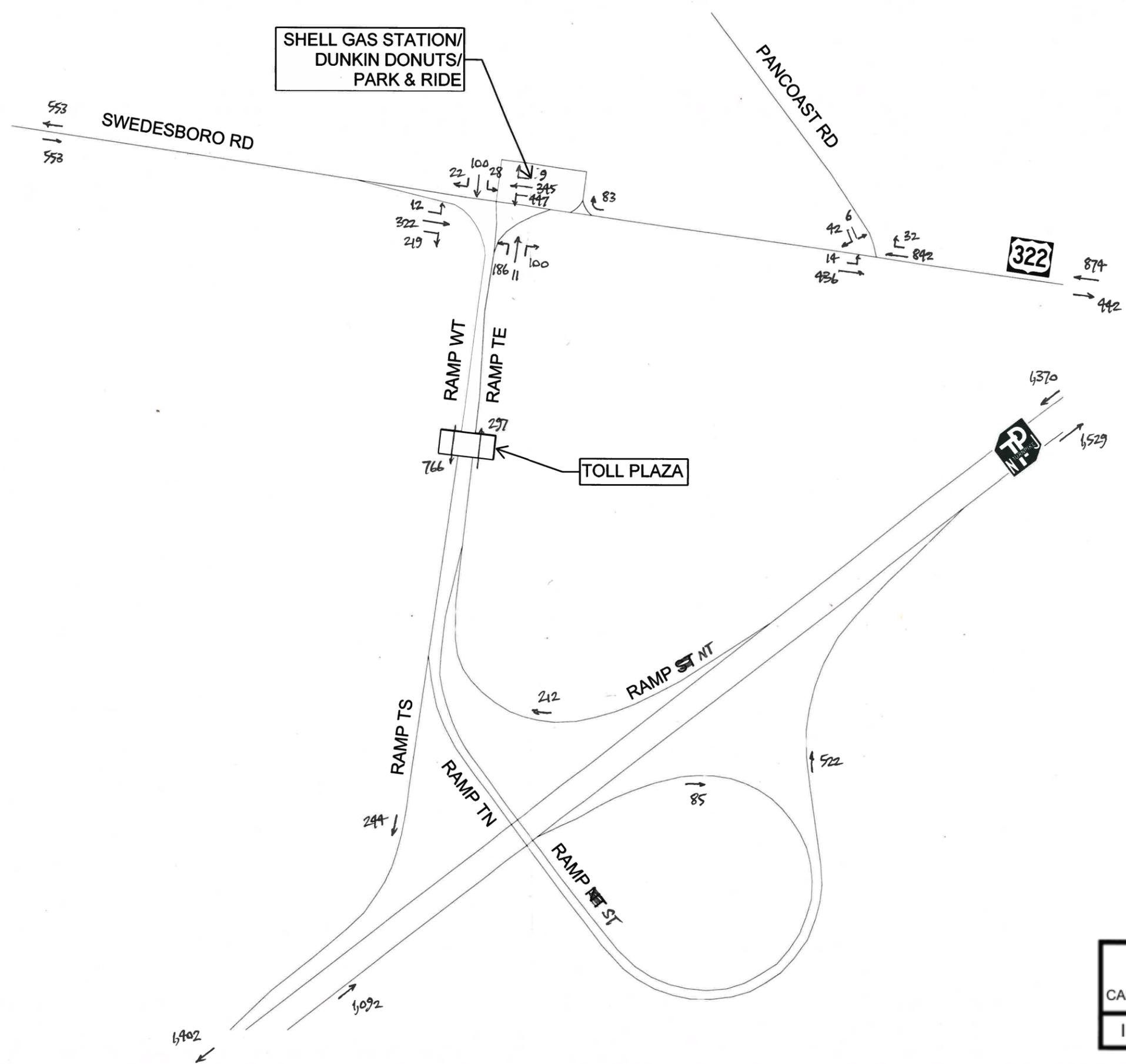
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SCALE: NONE  
DATE: August, 2021

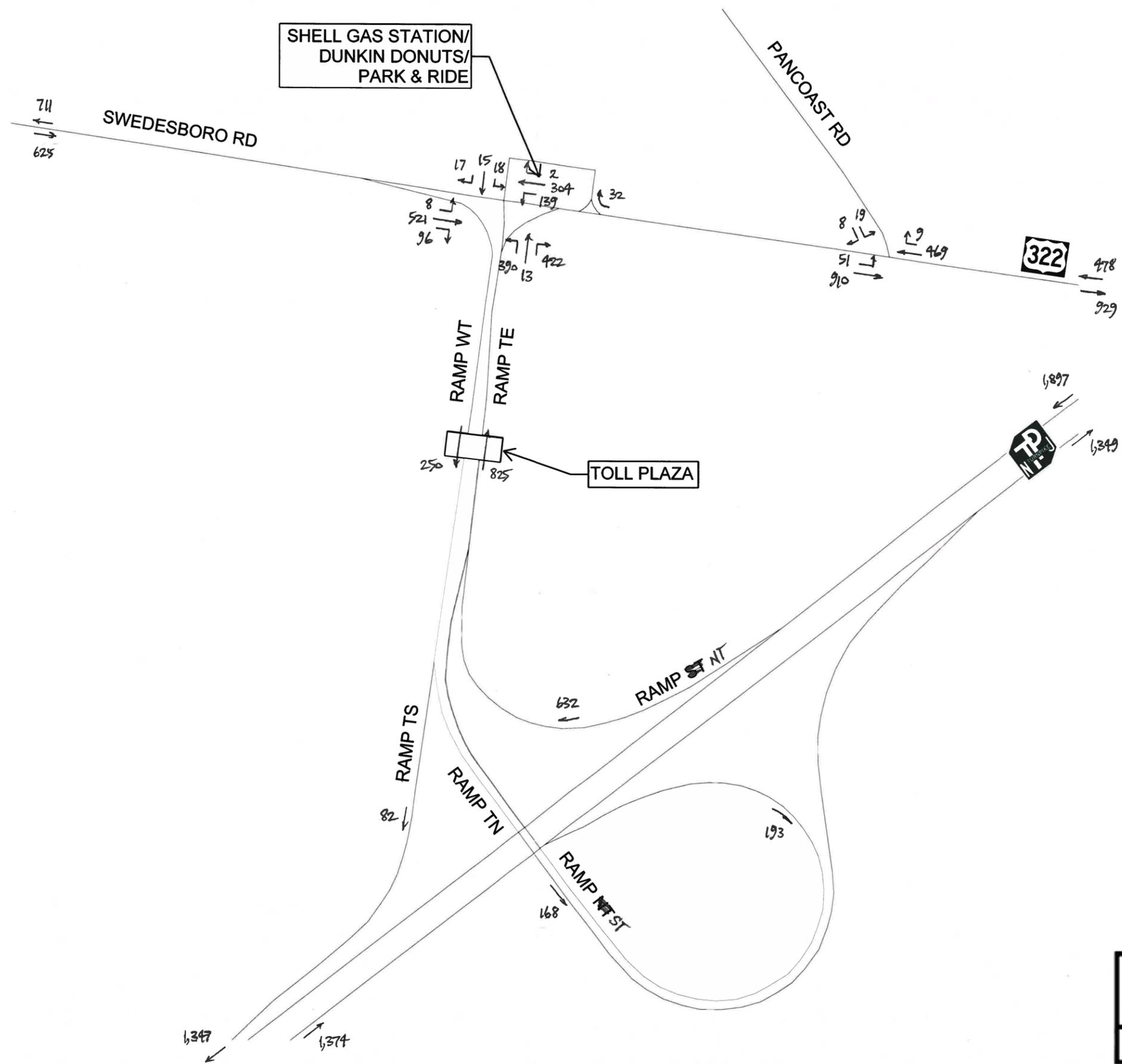
# **APPENDIX B:**

## **Base Year 2019 Traffic Flow Diagrams**



2019 A.M. Peak Hour  
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

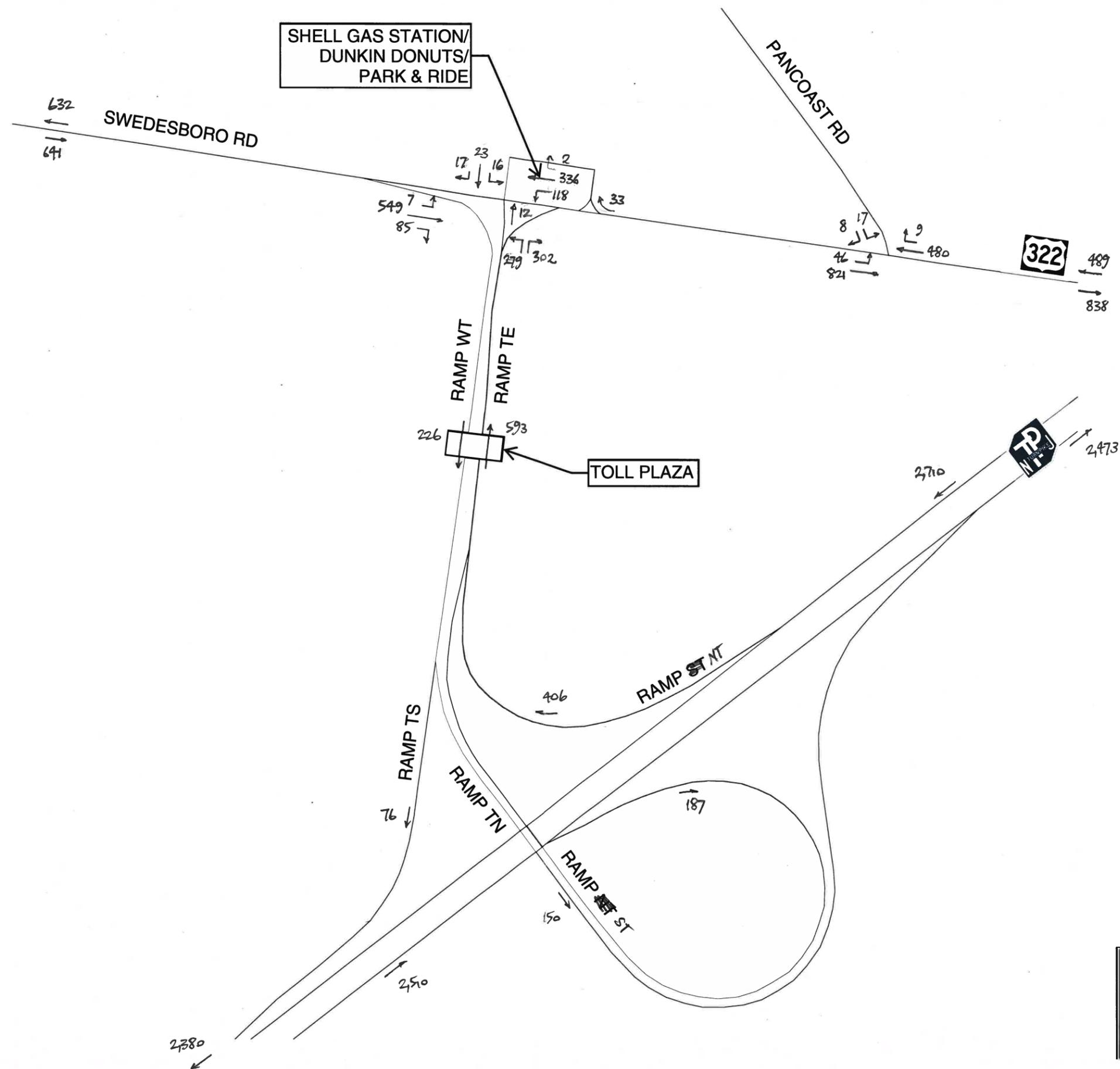
7/19/21



2019 P.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

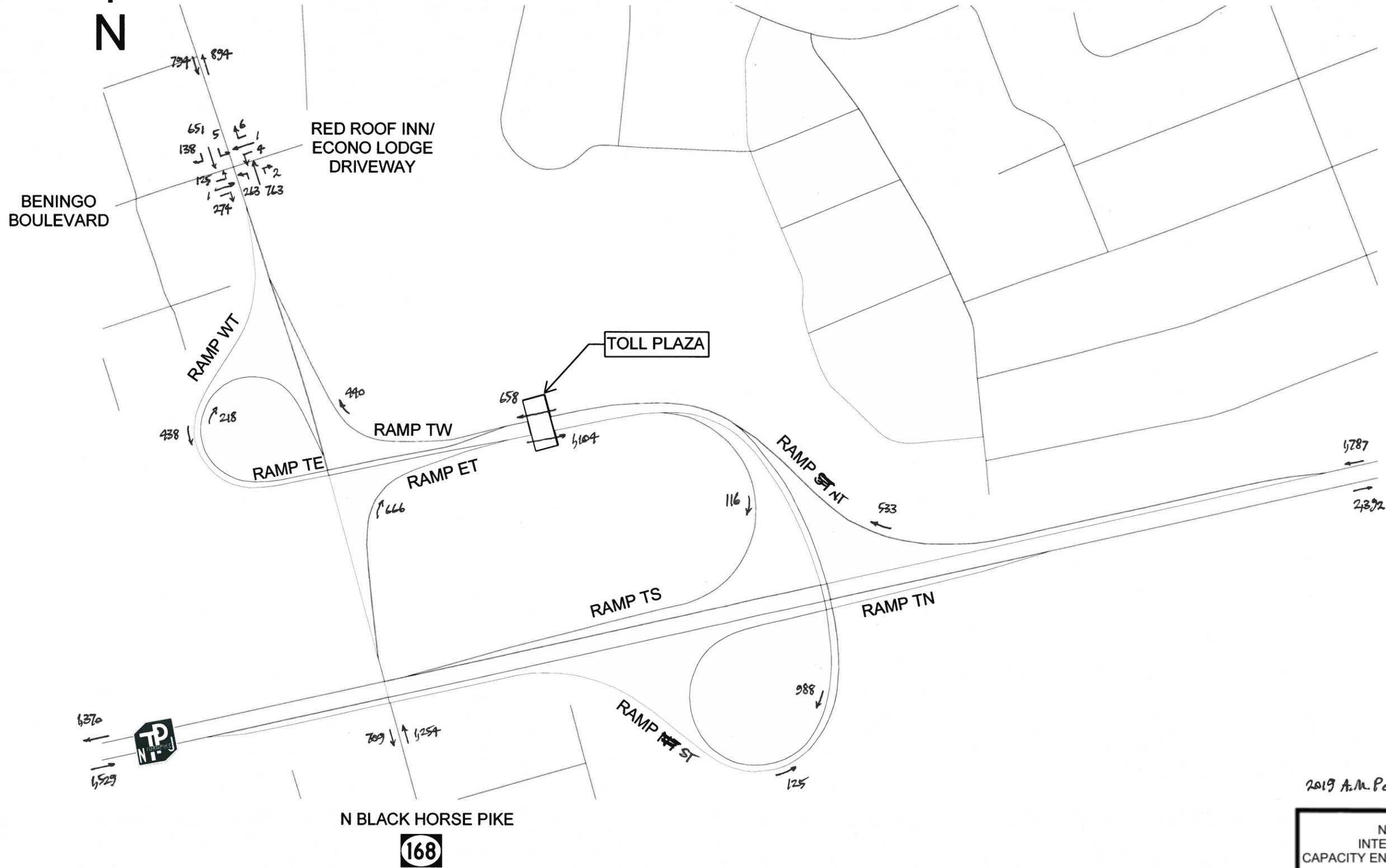
7/19/21



2019 Summer Friday Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

7/19/21



2019 A.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

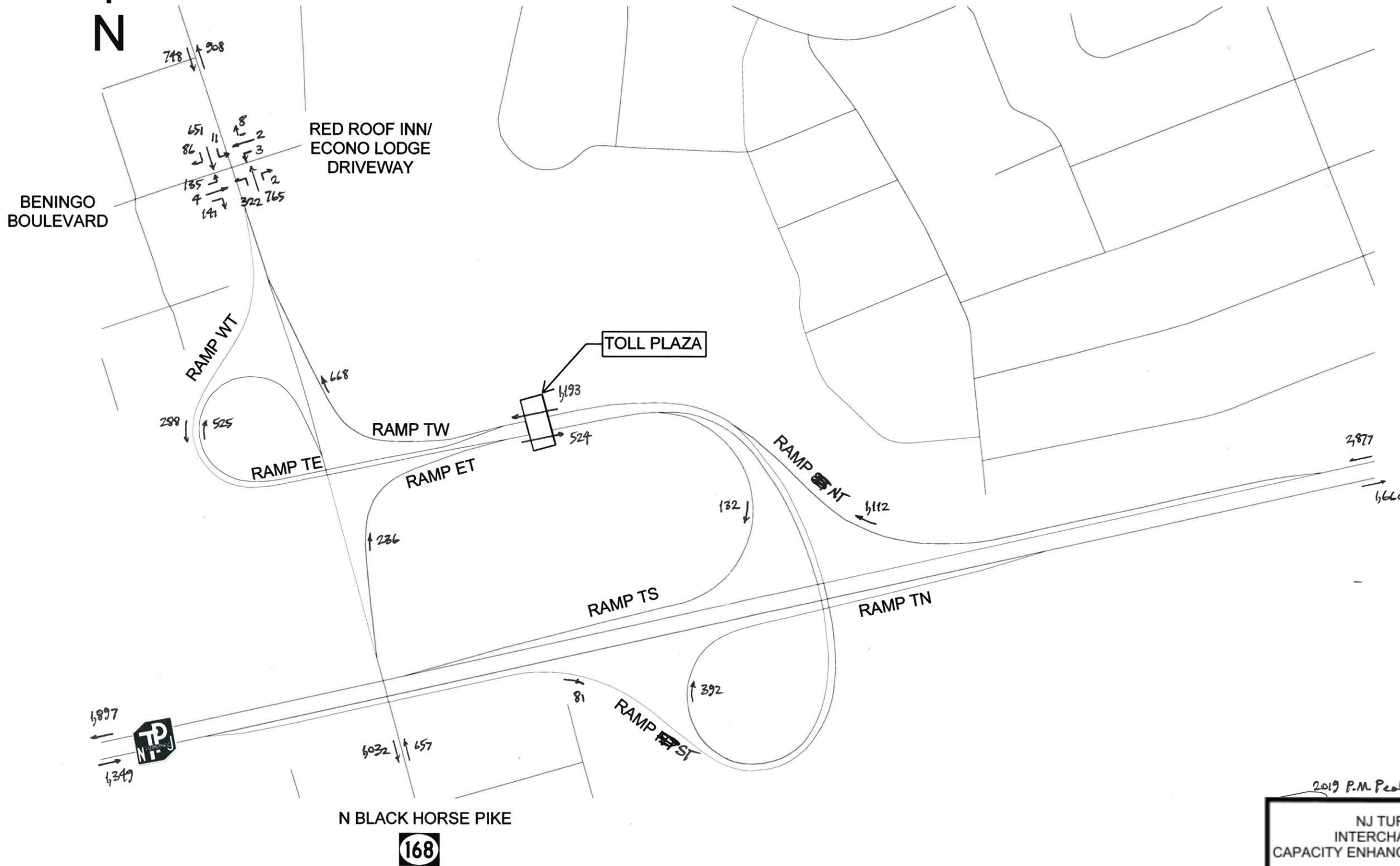
S BLACK HORSE PIKE  
(NJ-168)

2019 A.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM

INTERCHANGE 3 NETWORK

8/6/21



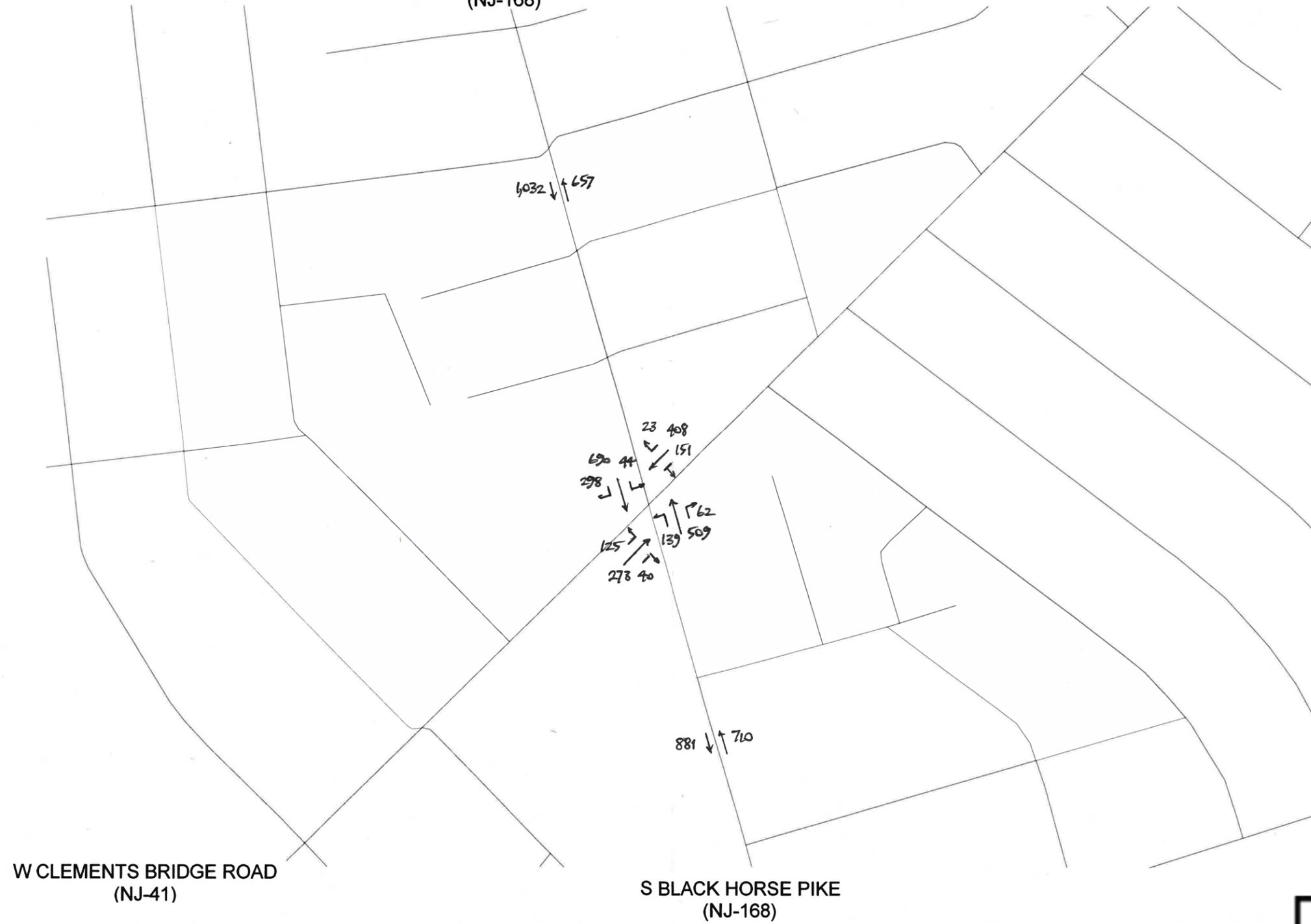
2019 P.M. Peak Hour  
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2019 P.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



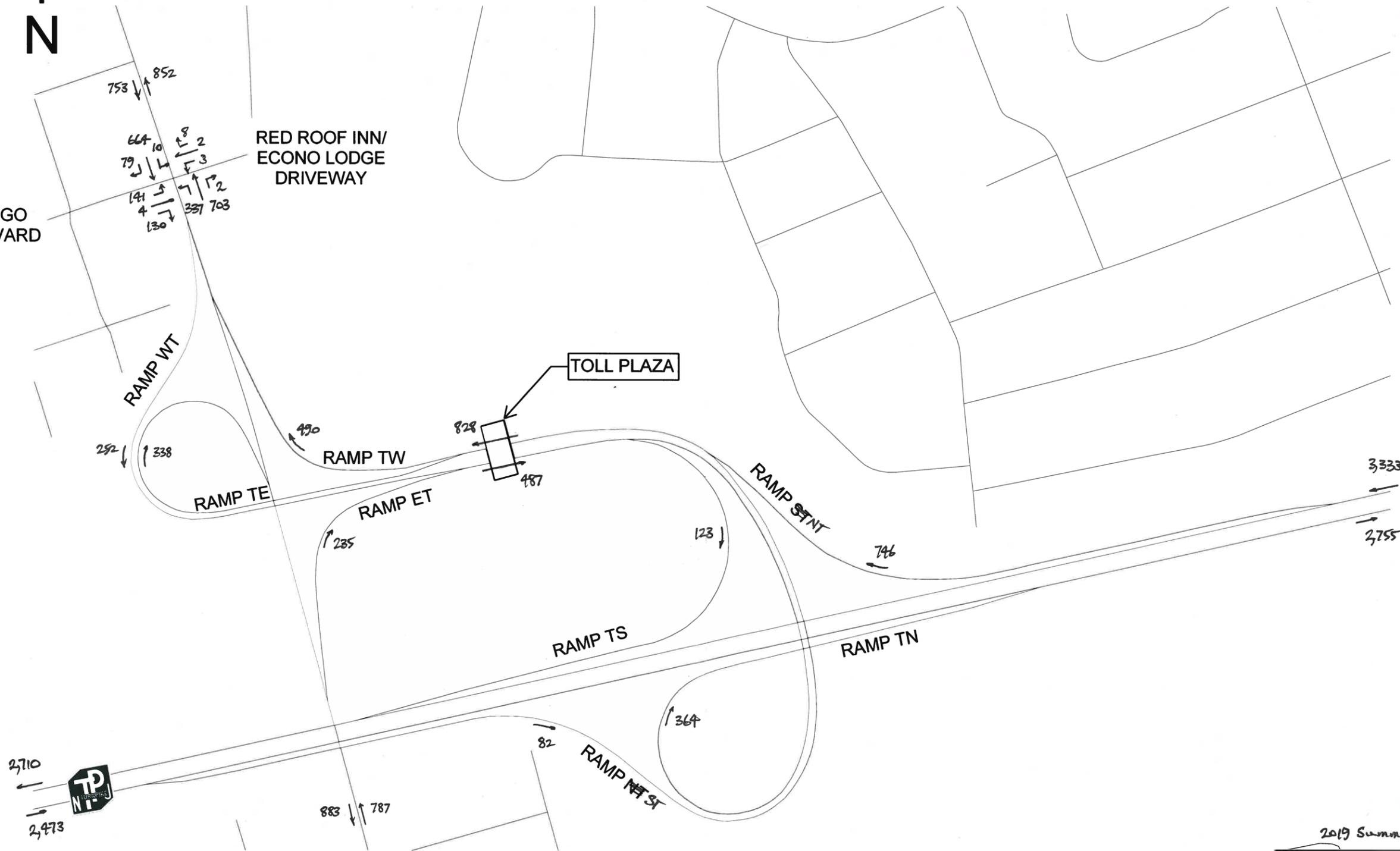
BENINGO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2019 Summer Friday Peak Hour

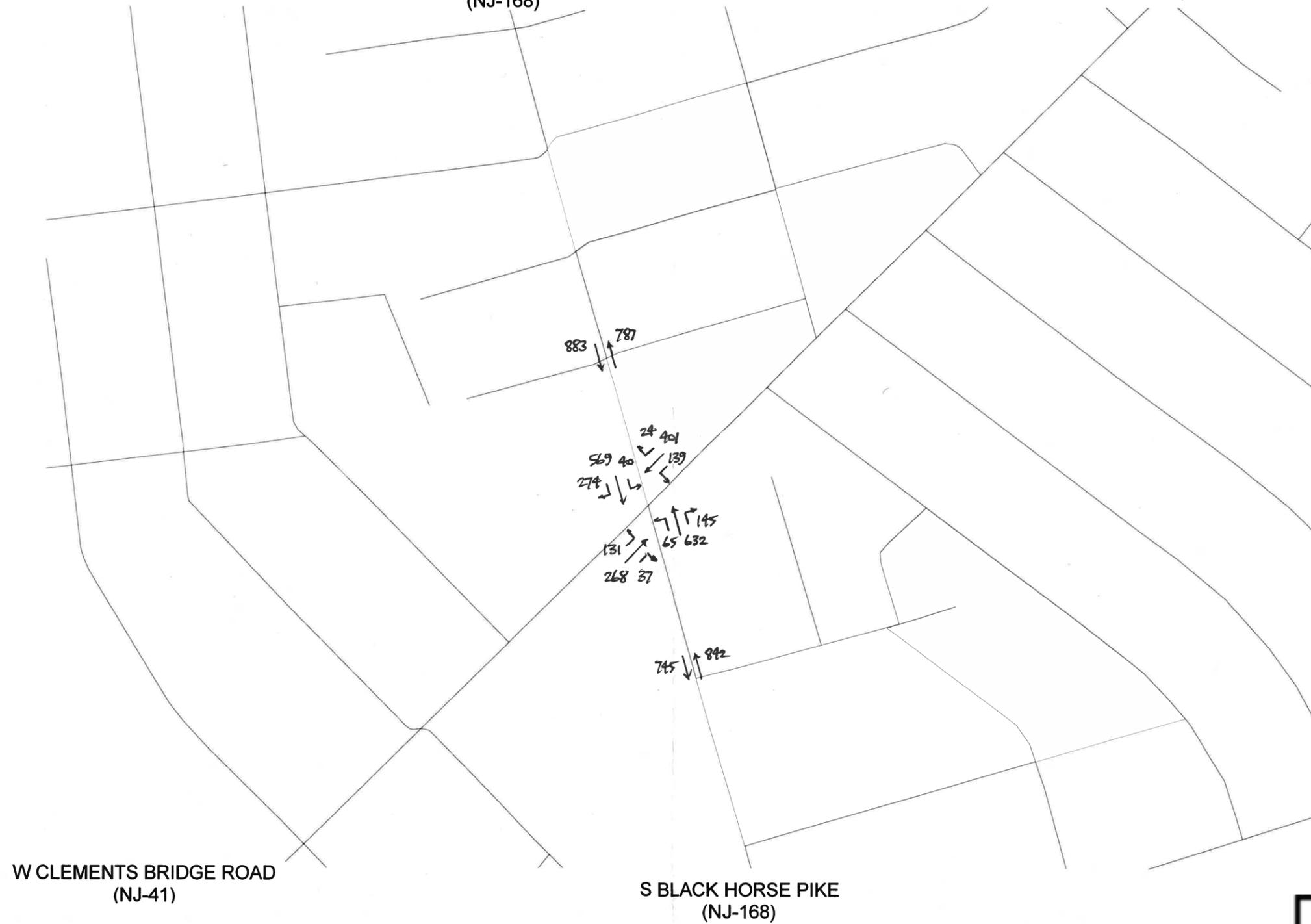
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2019 Summer Friday Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21

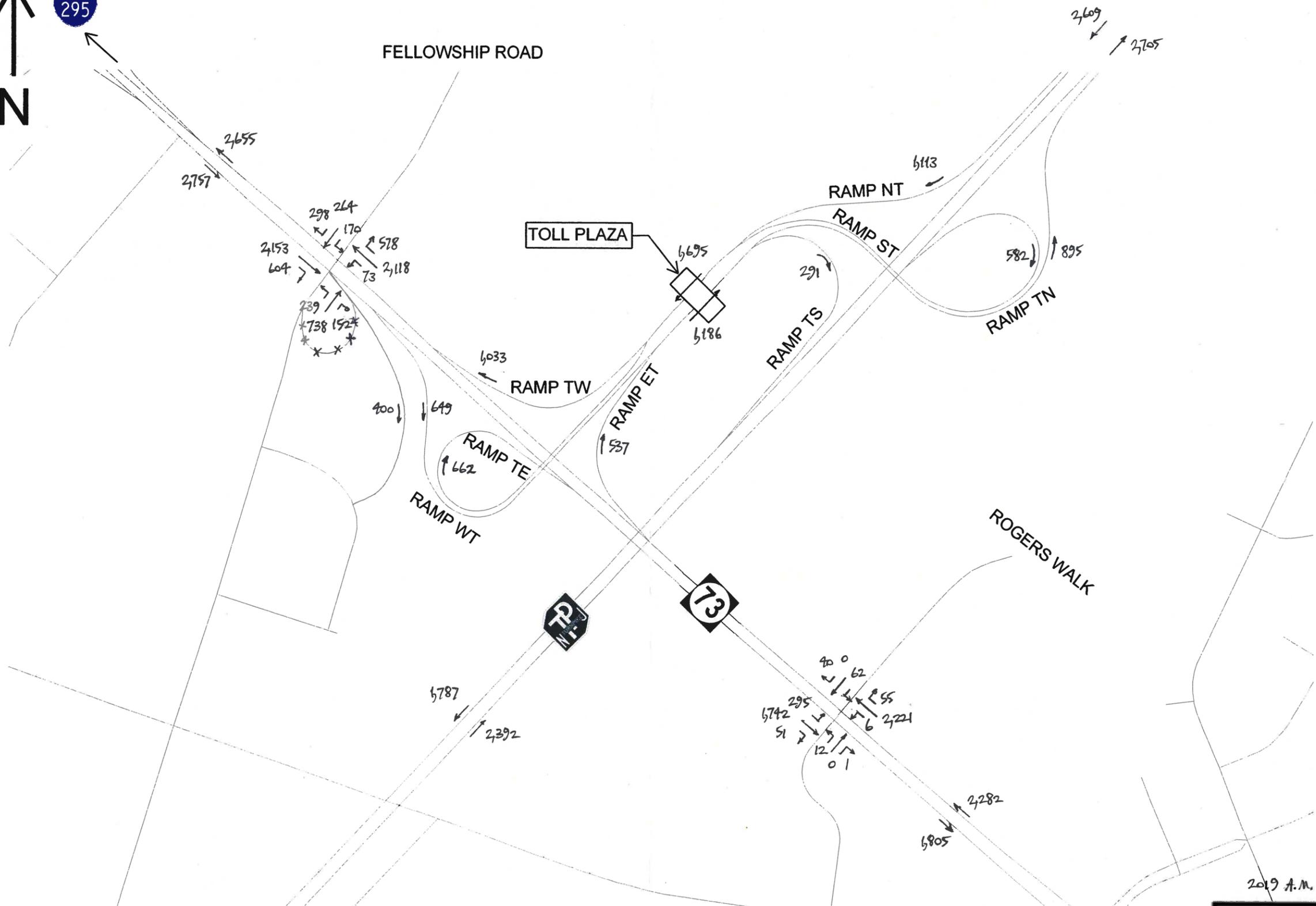


TO  
295

FELLOWSHIP ROAD

TOLL PLAZA

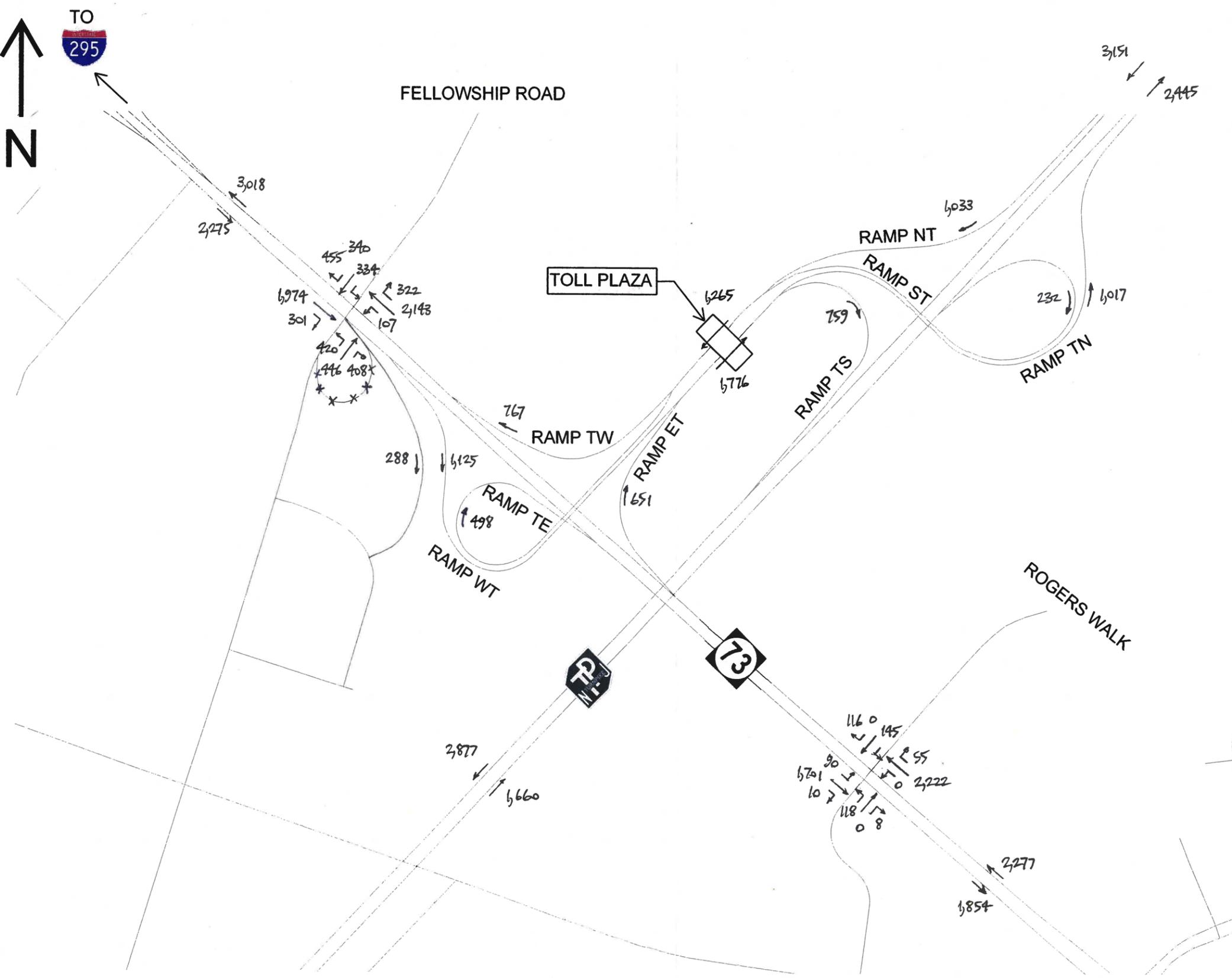
ROGERS WALK



2019 A.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 4 NETWORK

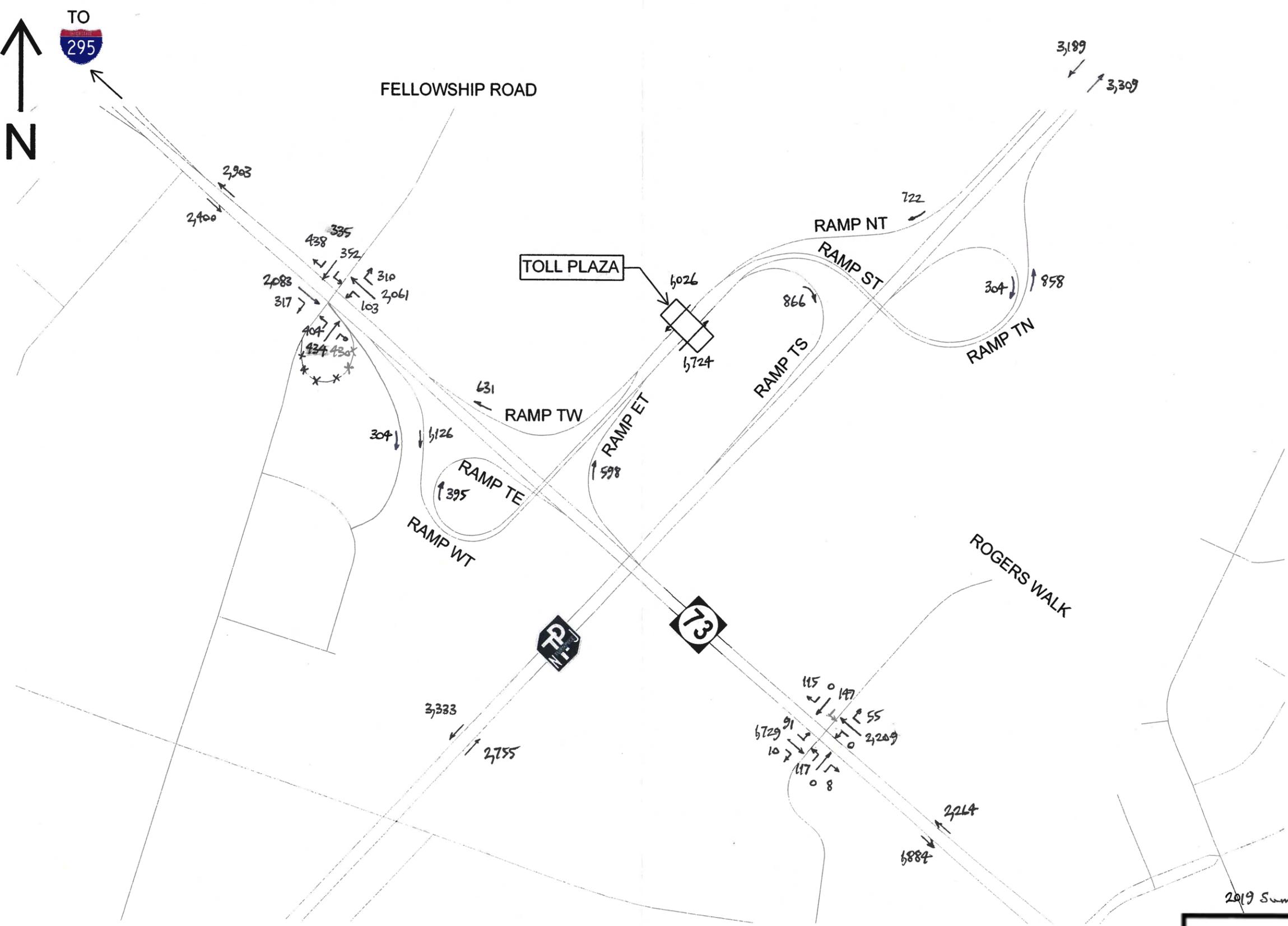
8/17/21



2019 P.M. Peak Hour

NJ TURNPIKE  
 INTERCHANGES 1-4  
 CAPACITY ENHANCEMENT PROGRAM  
 INTERCHANGE 4 NETWORK

8/17/21



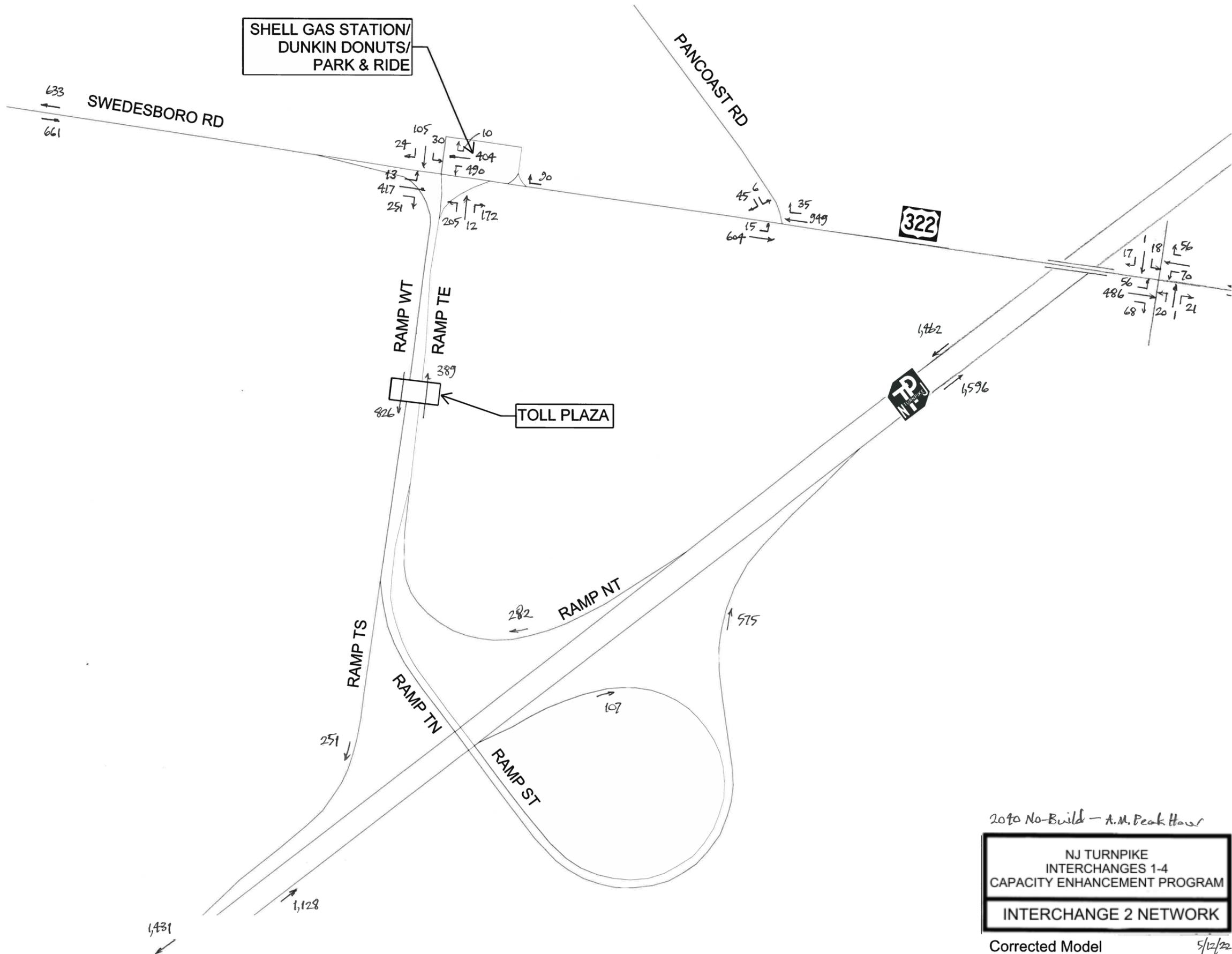
2019 Summer Friday Peak Hour

NJ TURNPIKE  
 INTERCHANGES 1-4  
 CAPACITY ENHANCEMENT PROGRAM  
 INTERCHANGE 4 NETWORK

8/17/21

# **APPENDIX C:**

## **Design Year 2040 No-Build Traffic Flow Diagrams**

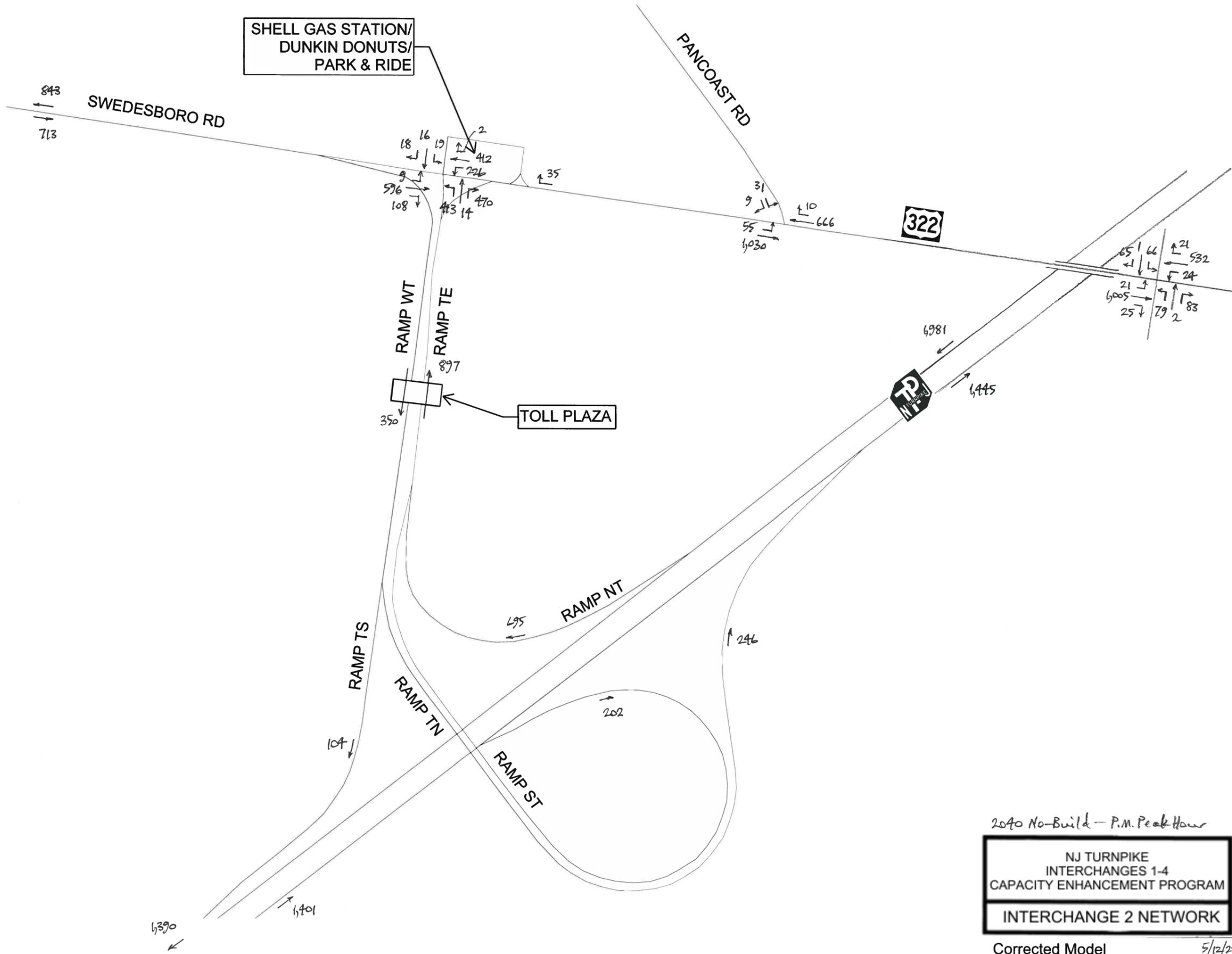


2020 No-Build - A.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

Corrected Model

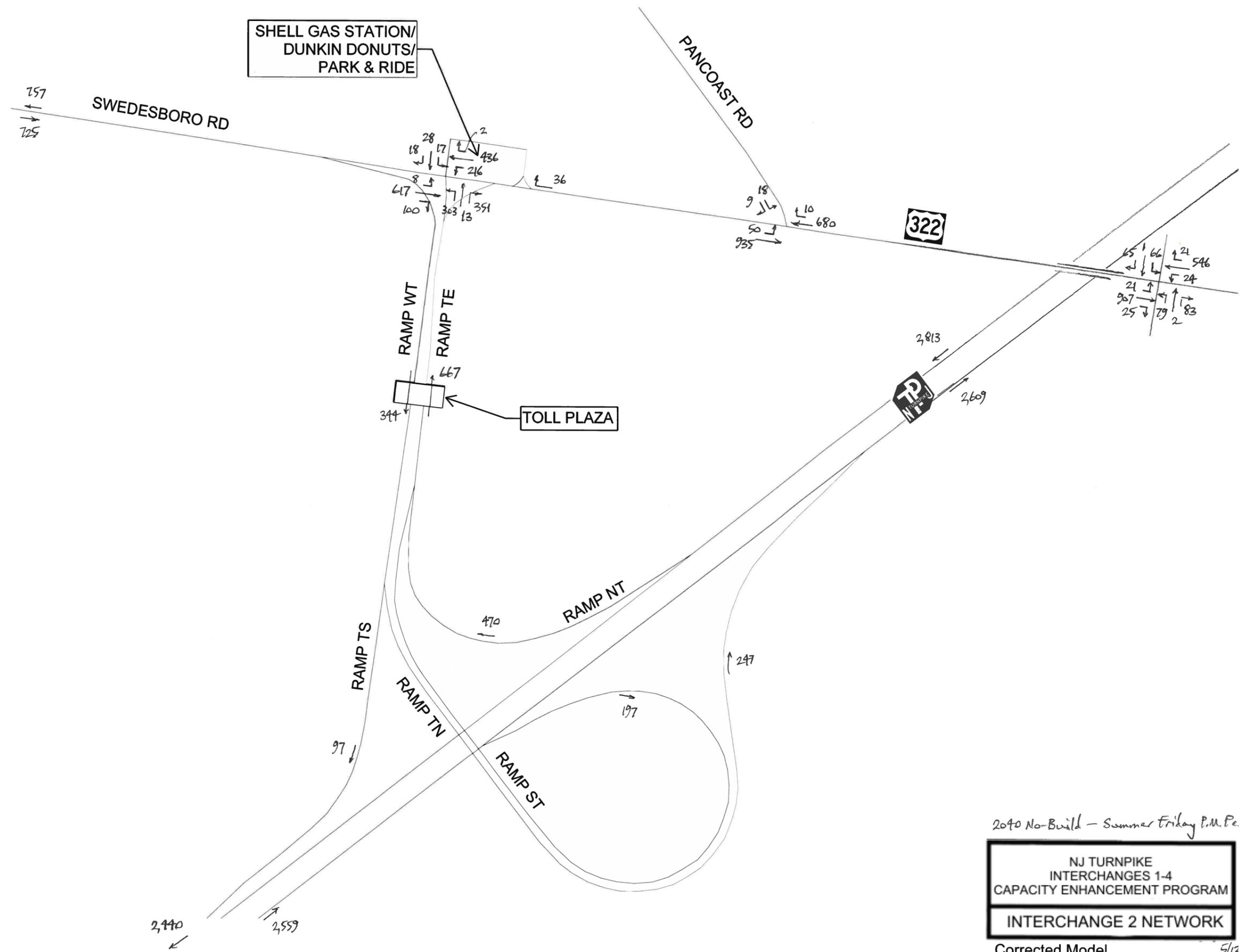
5/12/22



2040 No-Build - P.M. Peak Hour

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM
<b>INTERCHANGE 2 NETWORK</b>

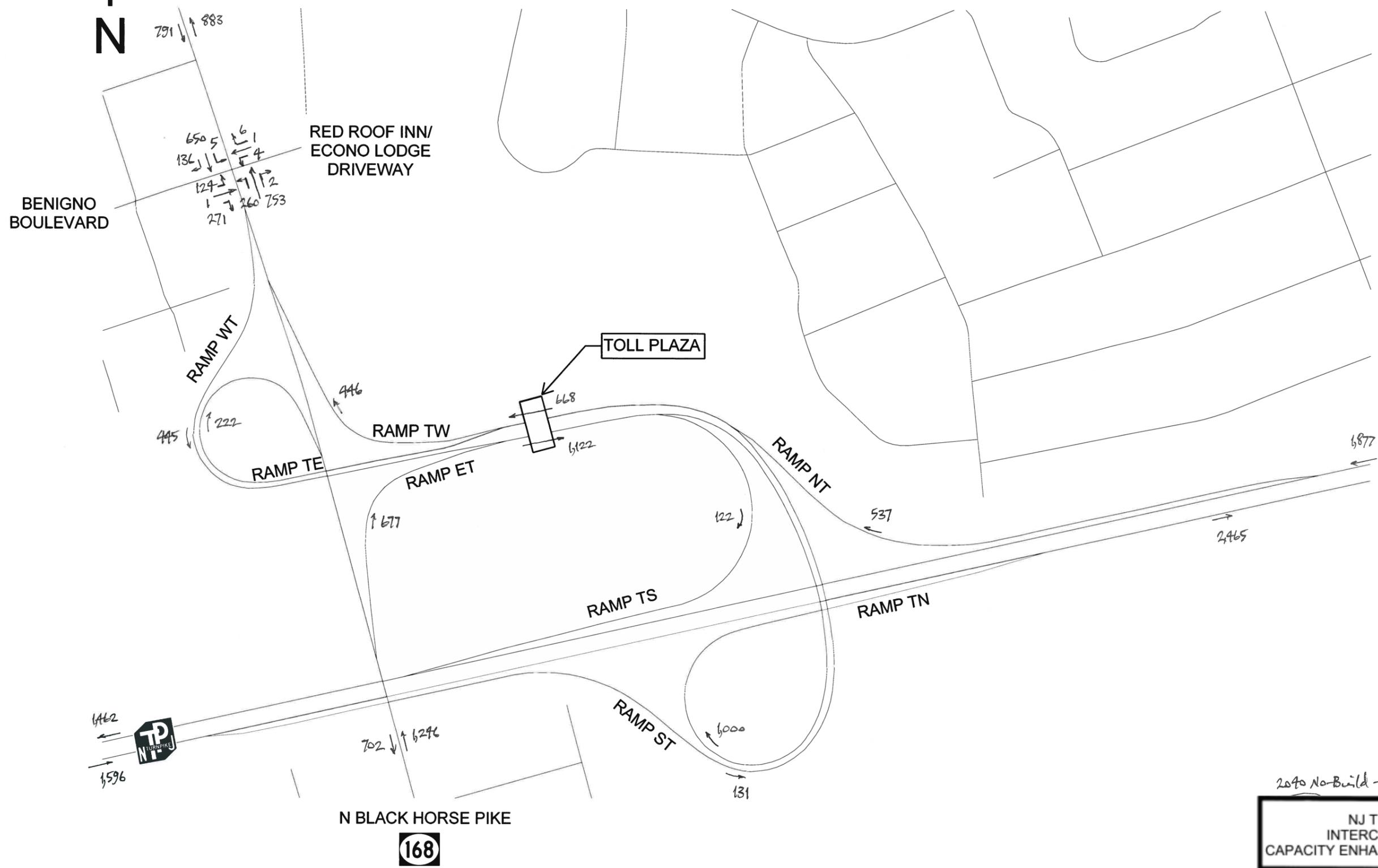
Corrected Model 5/12/22



2040 No-Build - Summer Friday P.M.P.

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

Corrected Model 5/12



2040 No-Build - A.M. Peak Hour

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM
<b>INTERCHANGE 3 NETWORK</b>

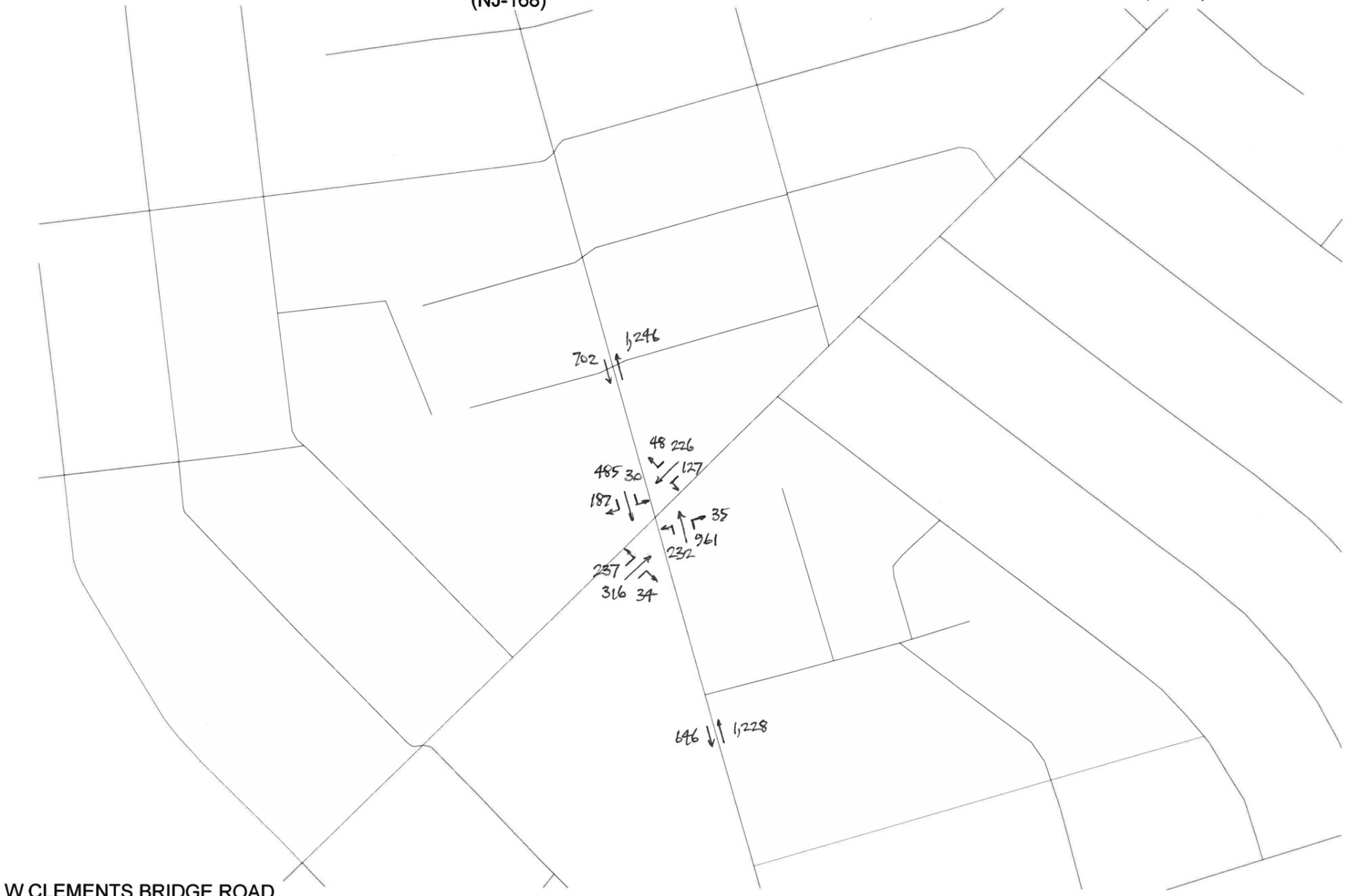
Corrected Model 5/12/22



TO  

N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2040 No-Build - A.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

Corrected Model

5/12/22



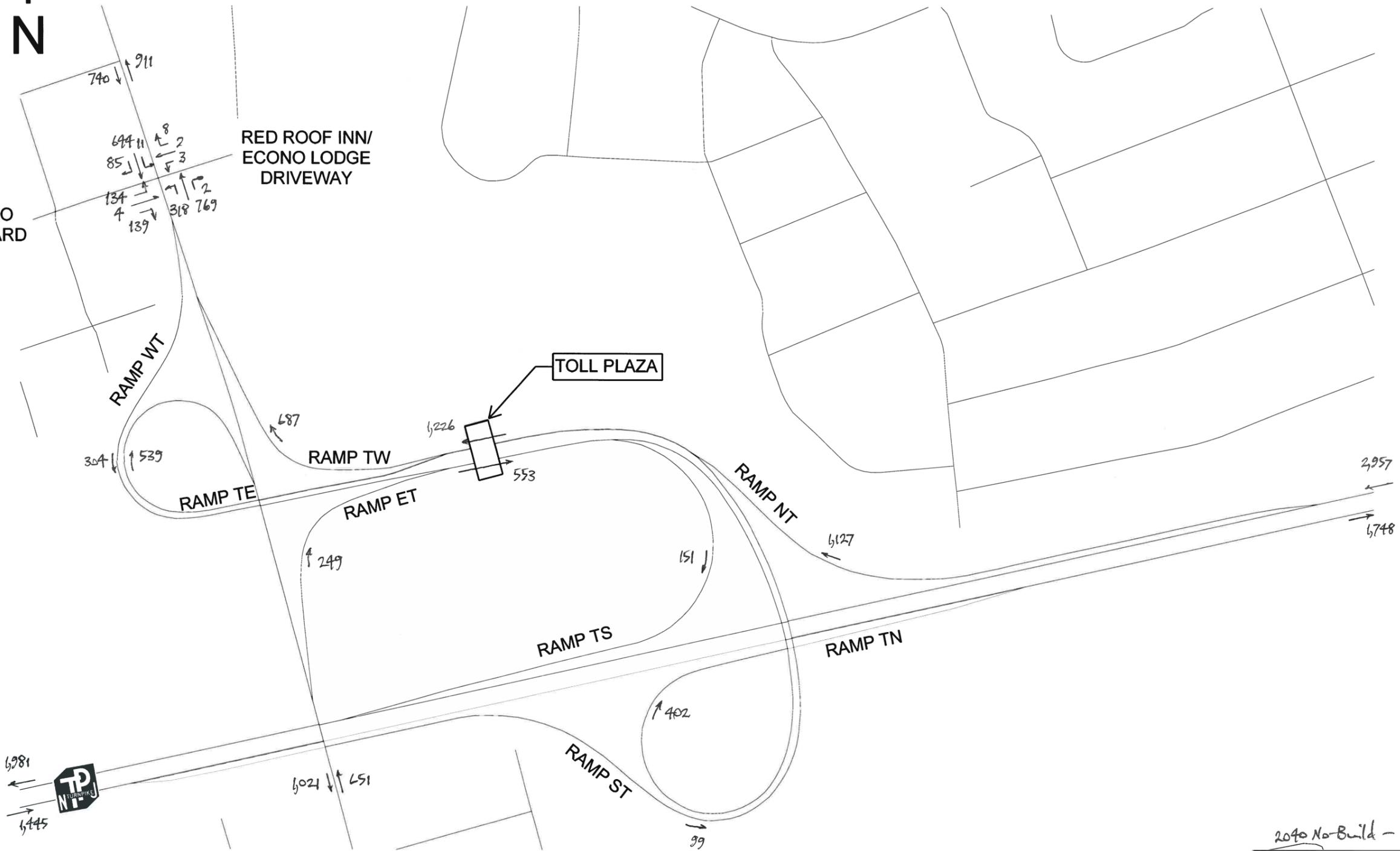
BENIGNO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2040 No-Build - P.M. Peak-Hour  
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

Corrected Model

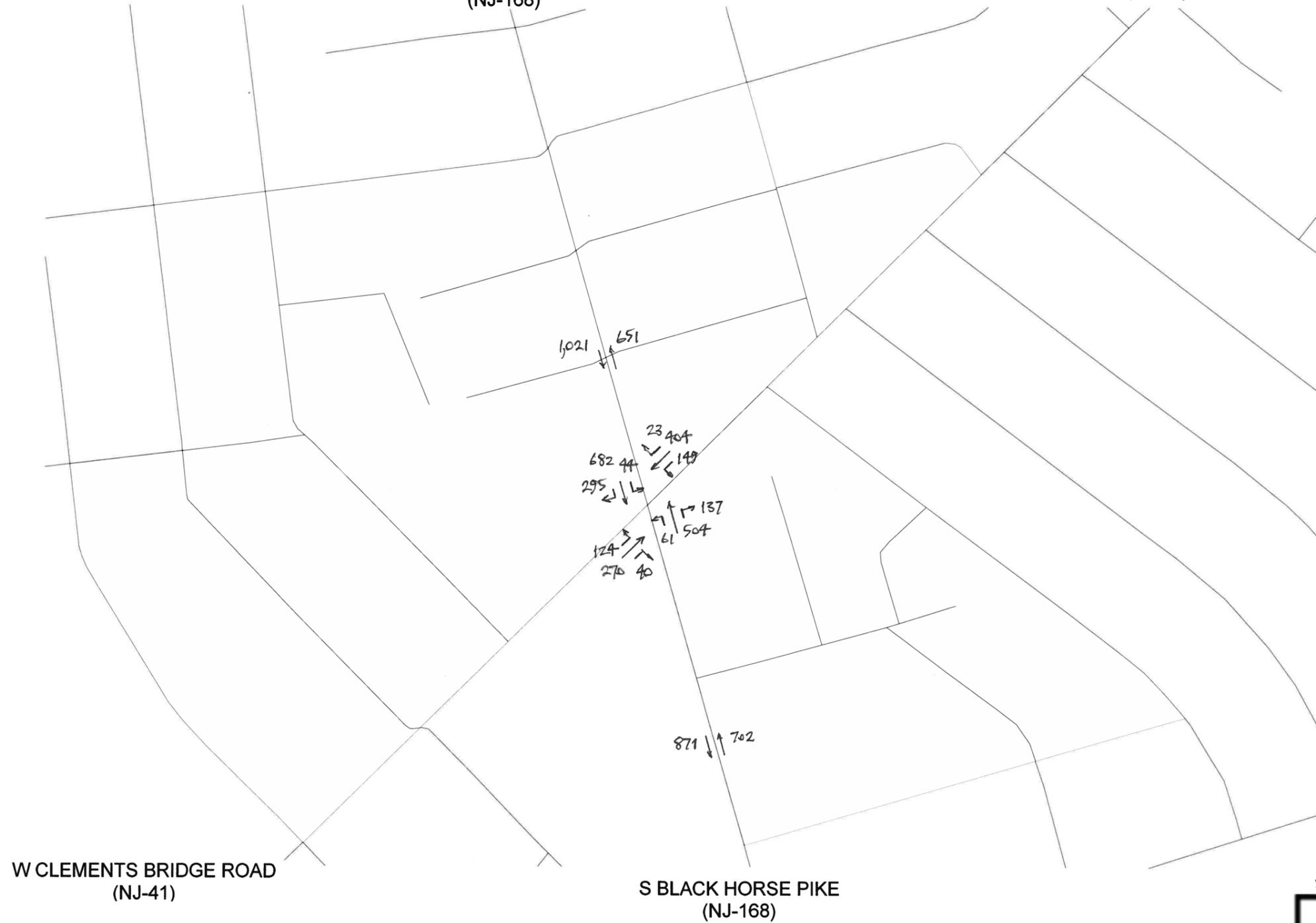
5/12/22



TO  

N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

*2040 No-Build - P.M. Peak Hour*

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
**INTERCHANGE 3 NETWORK**

Corrected Model



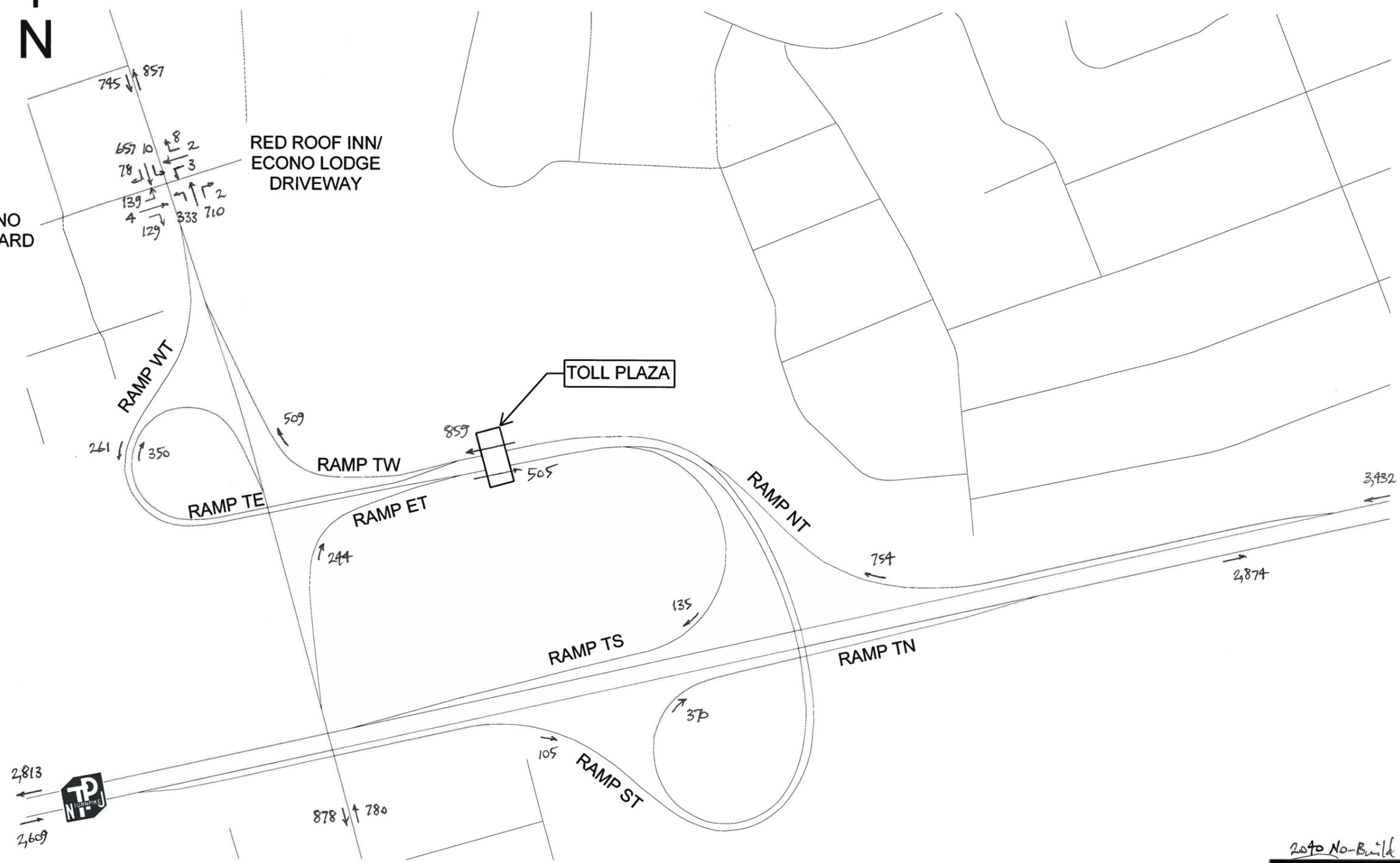
BENIGNO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2070 No-Build - Summer Friday P.M.

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

Corrected Model

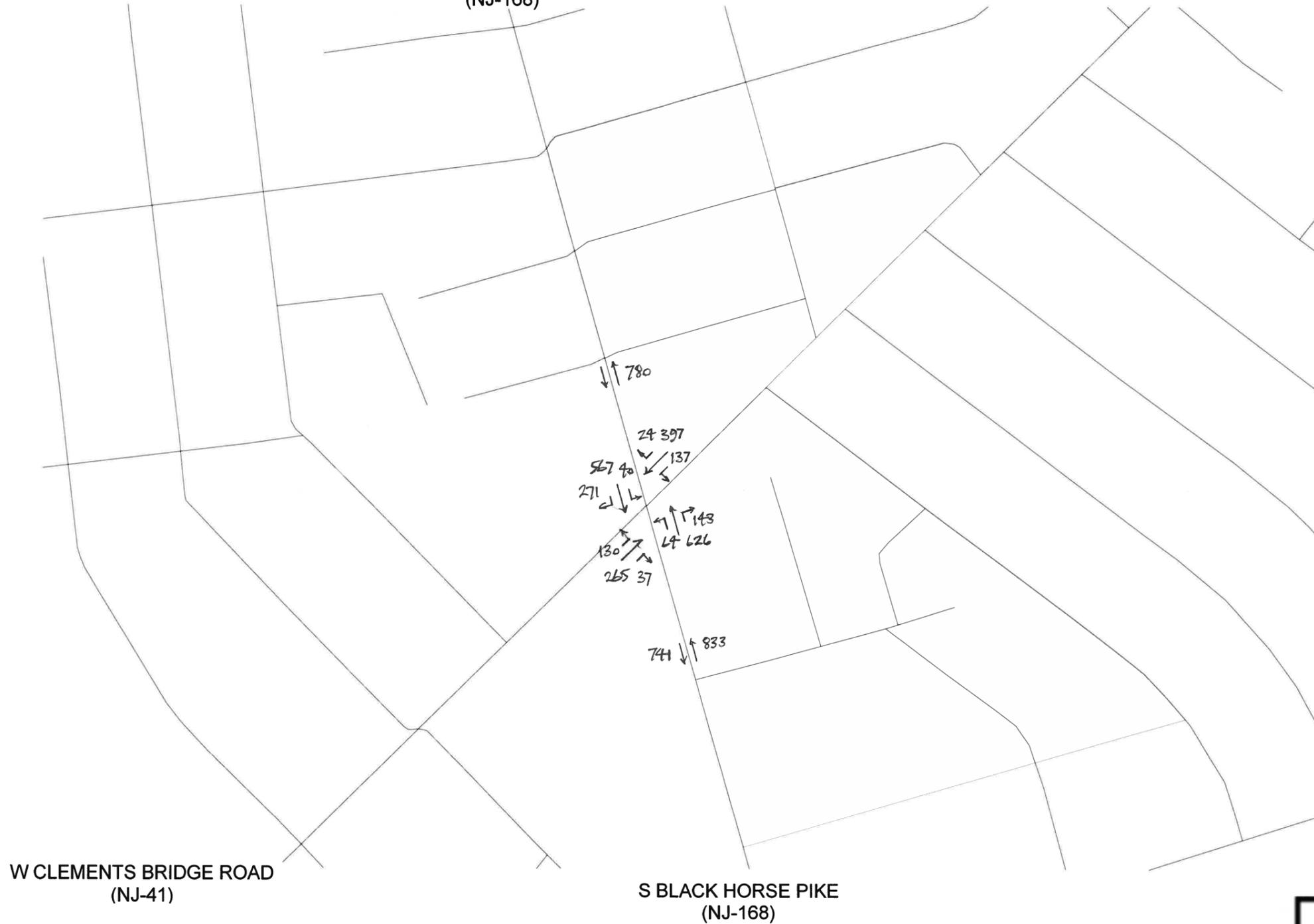
5/12/22



TO  

N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

*2040 No-Build - Summer Friday P.1*

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

Corrected Model



FELLOWSHIP ROAD

TOLL PLAZA

RAMP NT

RAMP ST

RAMP TS

RAMP TW

RAMP ET

RAMP TE

RAMP WT

ROGERS WALK



3,033  
3,919

328 370  
187  
2,369  
664  
716  
2,328

223  
812  
167  
440

658

6049

1,944

5,724

5,202

1,120

201

601

2,696  
2,765

440  
68  
325  
1,916  
56  
18  
01  
61  
2,482  
7

6,877

2,465

3,550

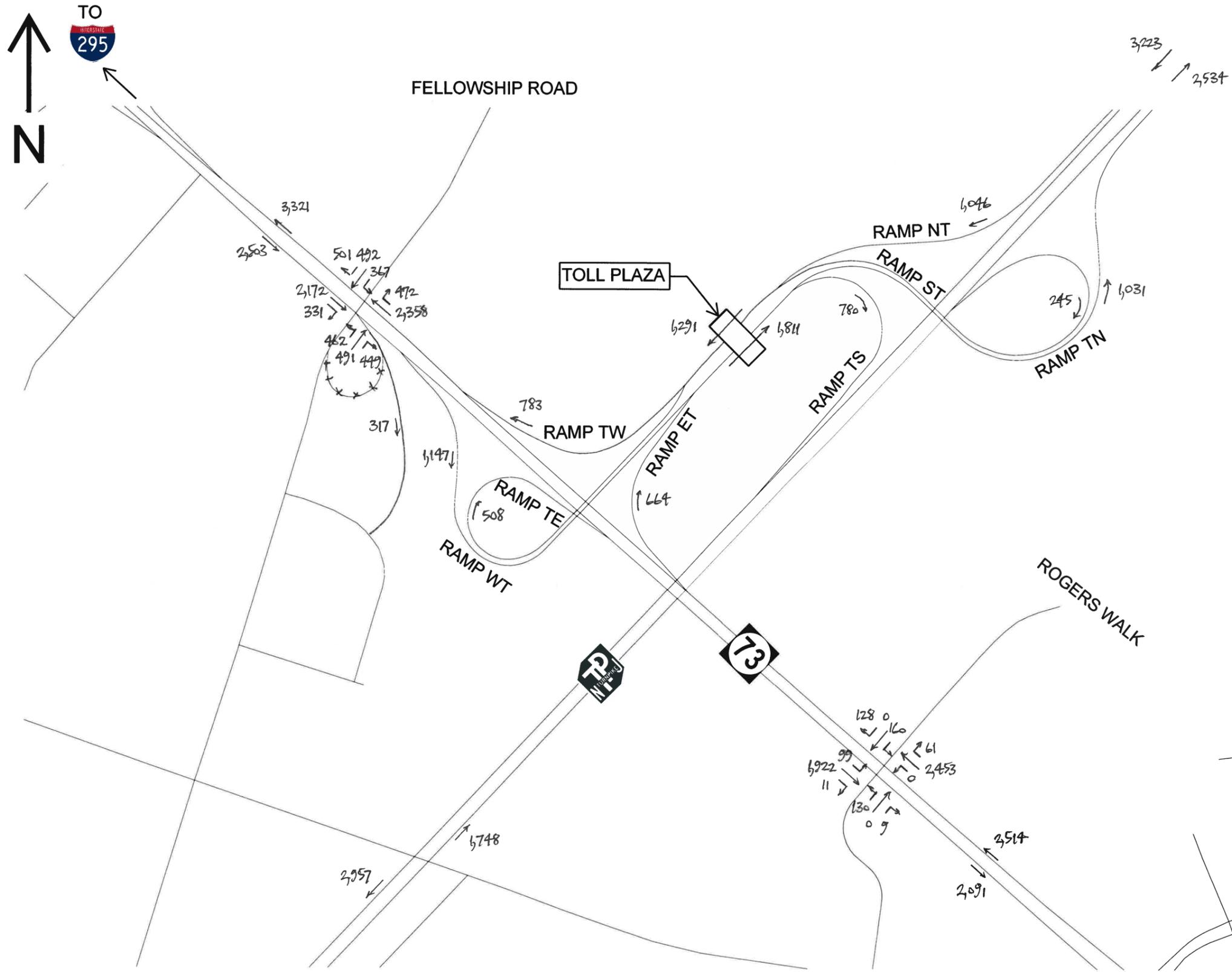
6,985

2040 No-Build - A.M. Peak Hour

NEW JERSEY TURNPIKE  
INTERCHANGE 1 TO 4  
WIDENING PROGRAM  
INTERCHANGE 4 NETWORK

Corrected Model

5/12/22



2040 No-Build - P.M. Peak Hour

**NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM**

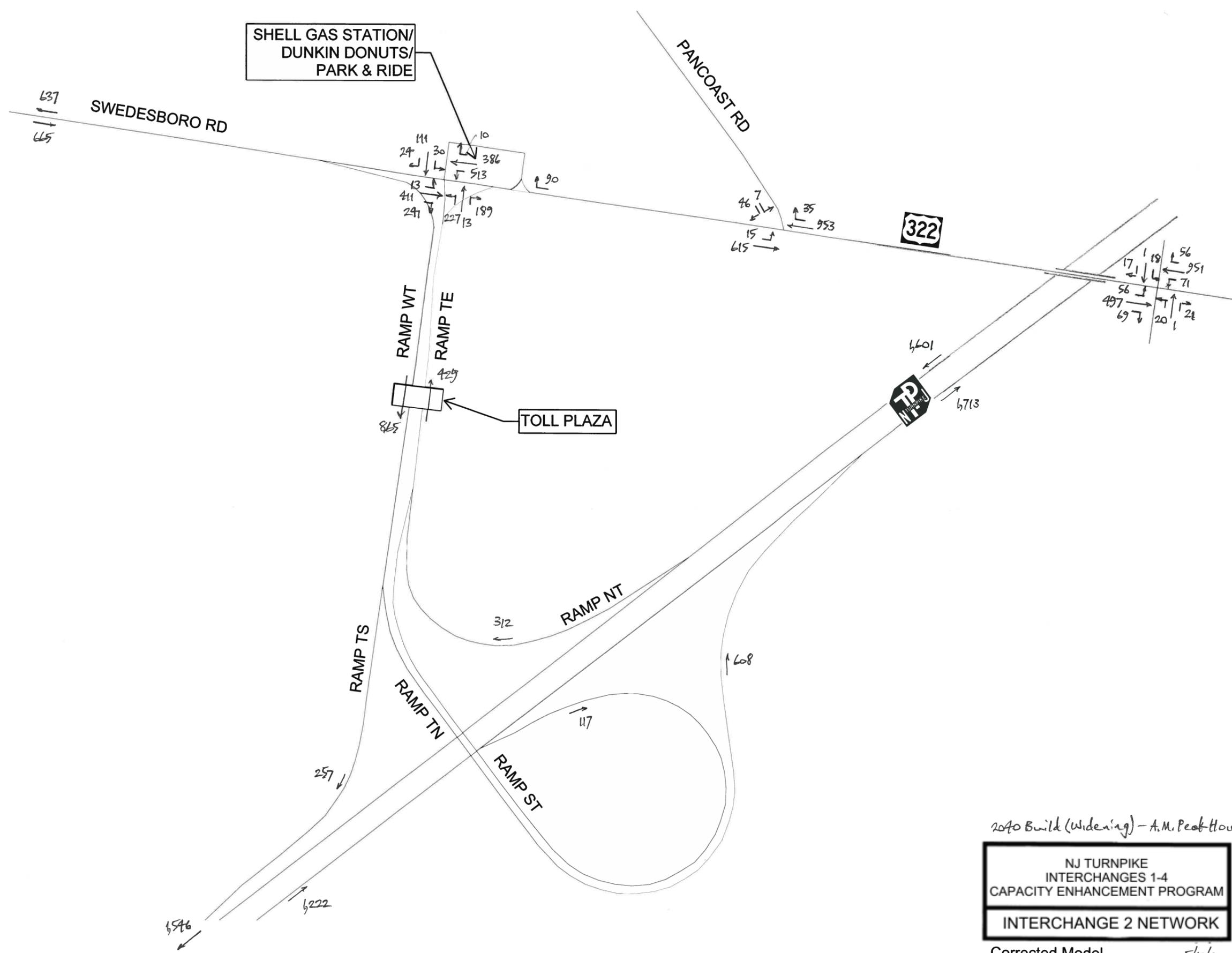
**INTERCHANGE 4 NETWORK**

Corrected Model 5/12/22



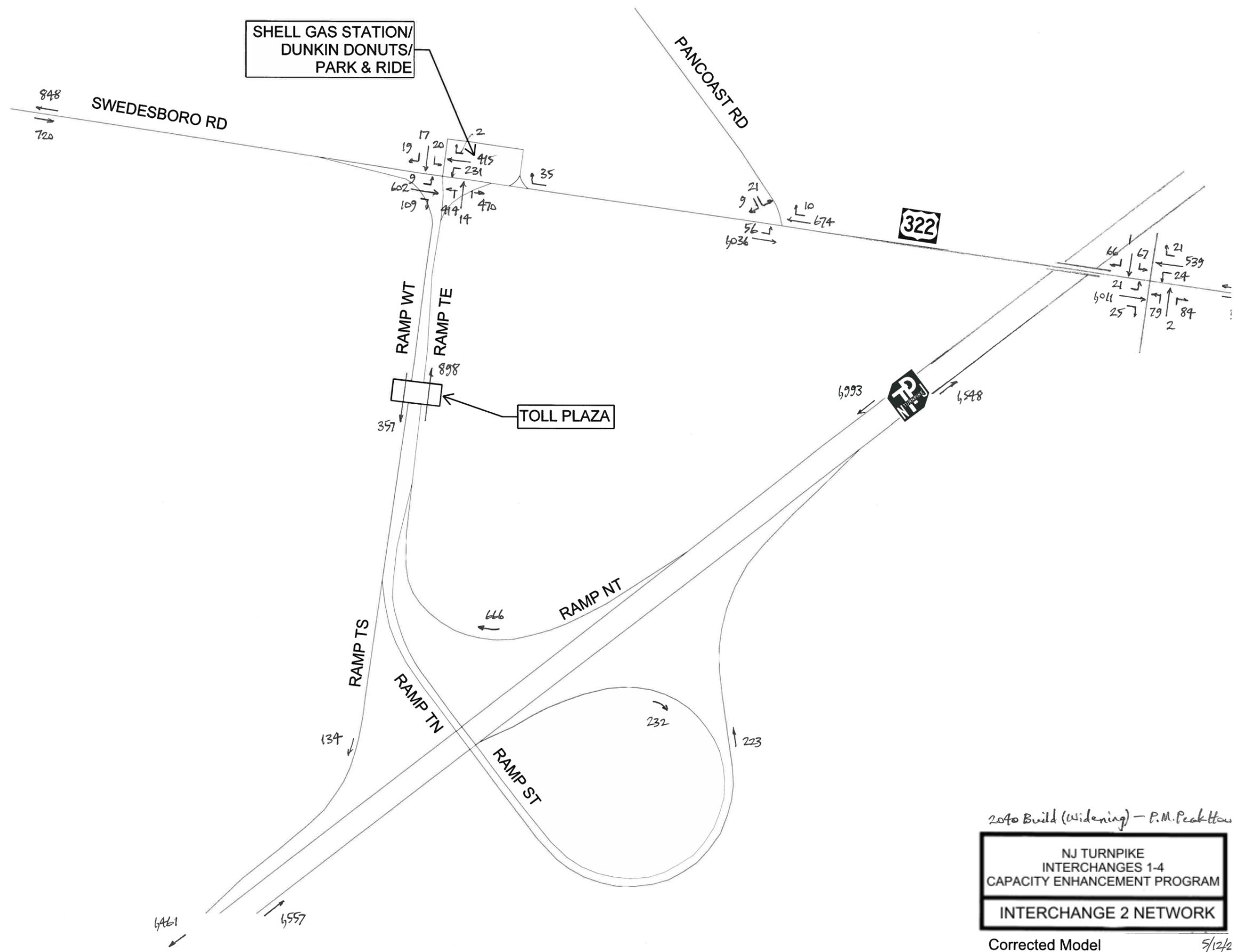
# **APPENDIX D:**

## **Design Year 2040 Build (Widening Only) Traffic Flow Diagrams**



2040 Build (Widening) - A.M. Peak-Hour

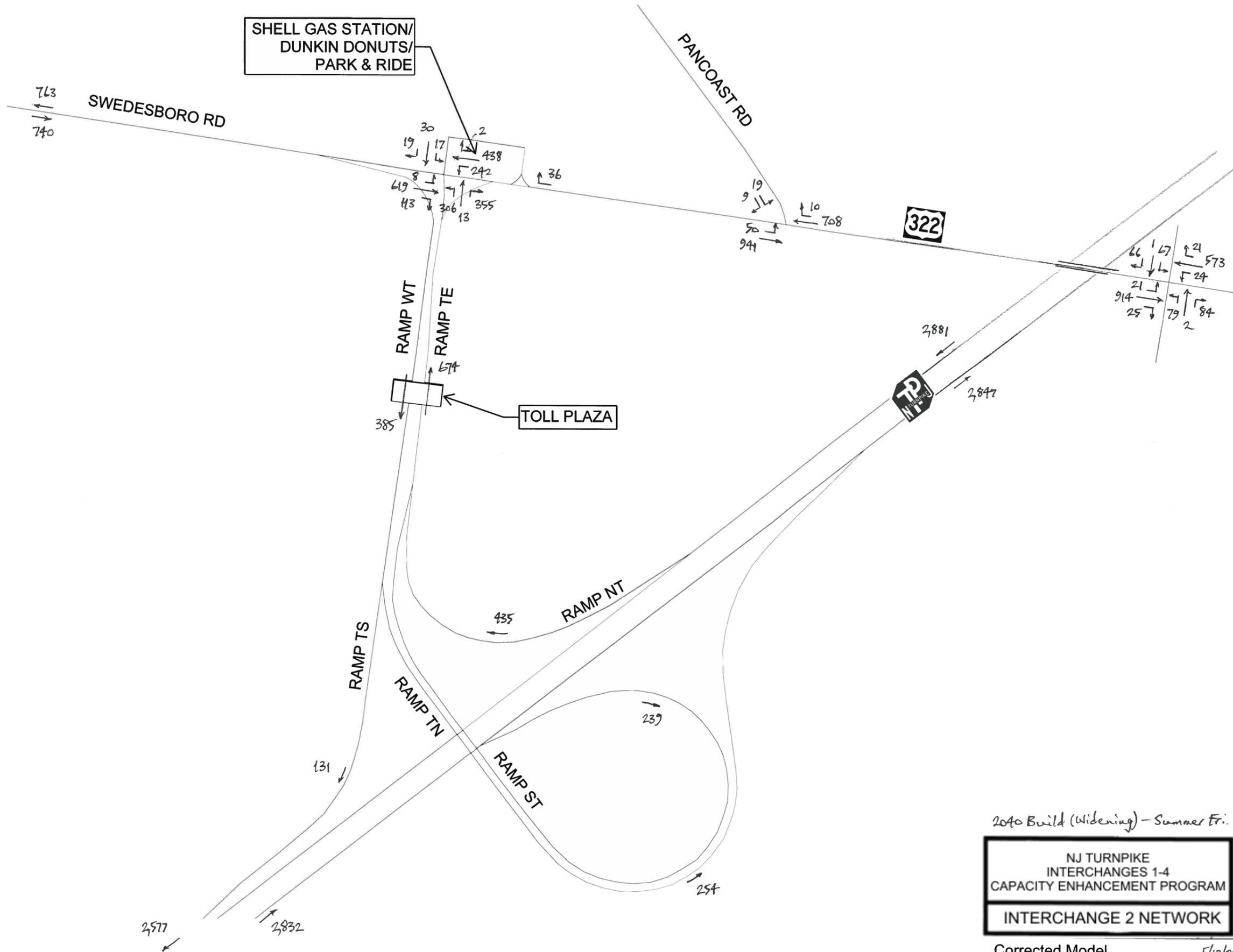
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK



2040 Build (Widening) - P.M. Peak Hour

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM
<b>INTERCHANGE 2 NETWORK</b>

Corrected Model 5/12/2



2040 Build (Widening) - Summer Fr. 1

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM
<b>INTERCHANGE 2 NETWORK</b>

Corrected Model 5/12/22

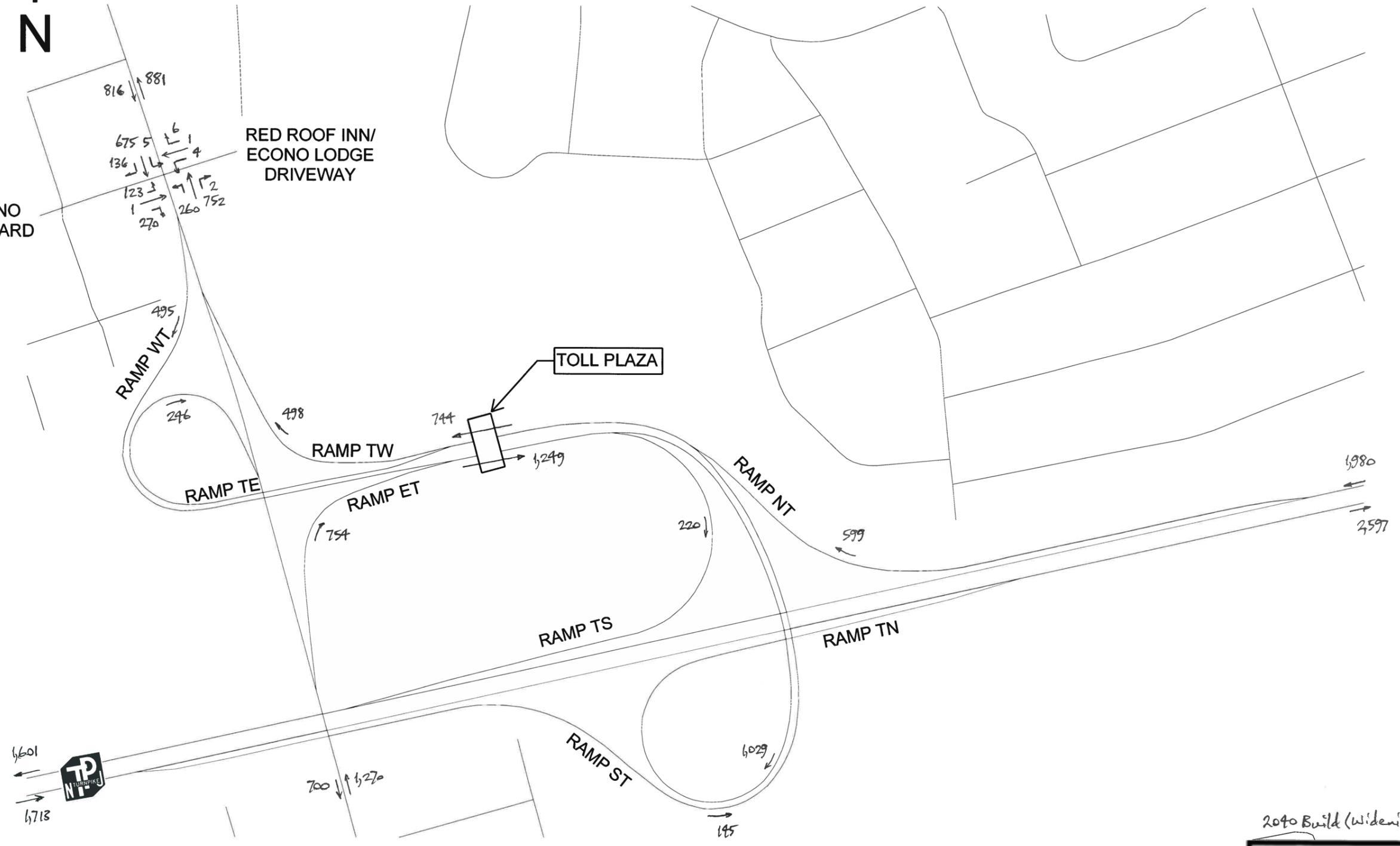


BENIGNO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE



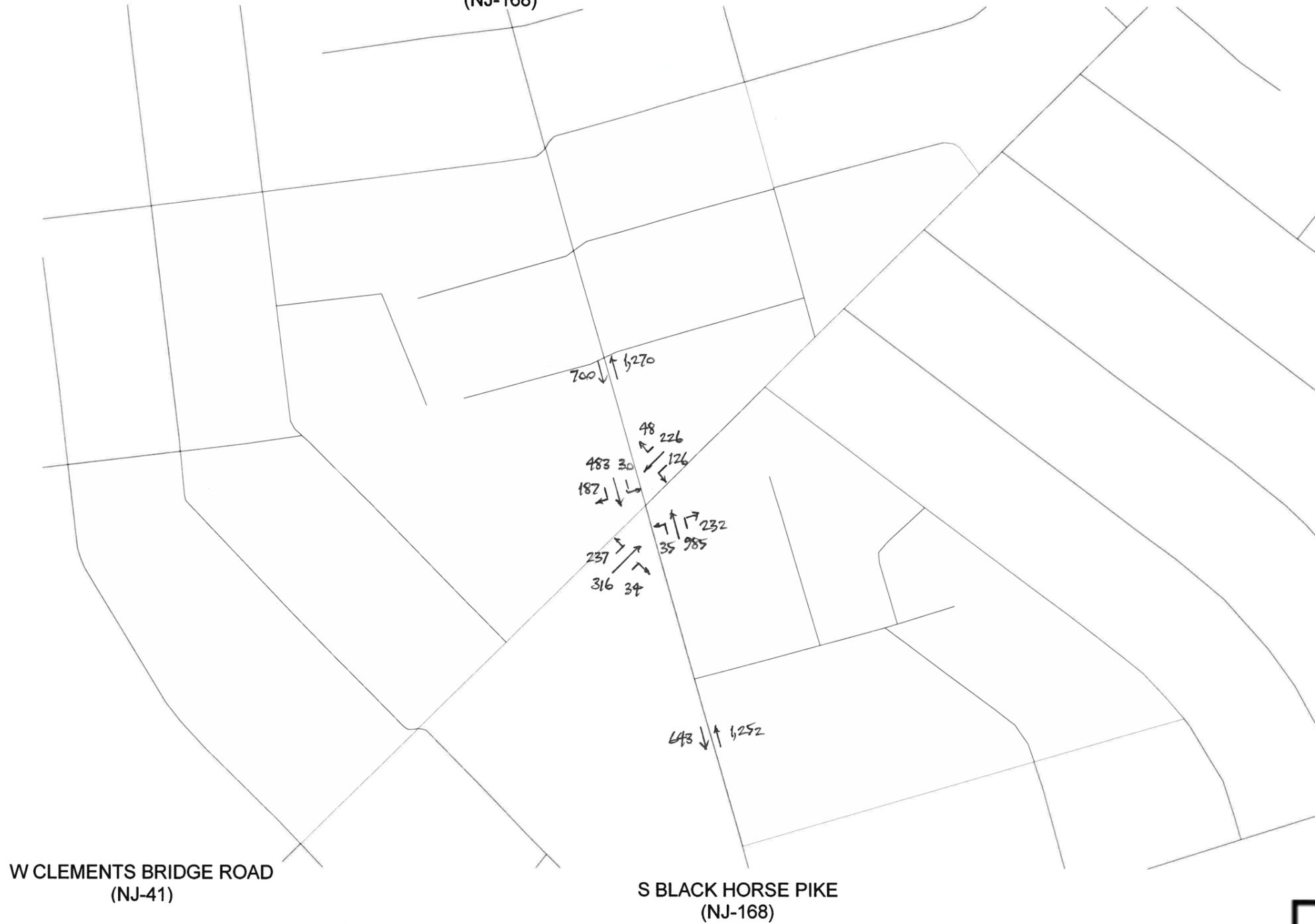
2040 Build (widening) - A.M. Peak Hour

NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM
<b>INTERCHANGE 3 NETWORK</b>
Corrected Model <span style="float: right;">9/12/22</span>



TO  
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2040 Build (Widening) - A.M. Peak H

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

Corrected Model



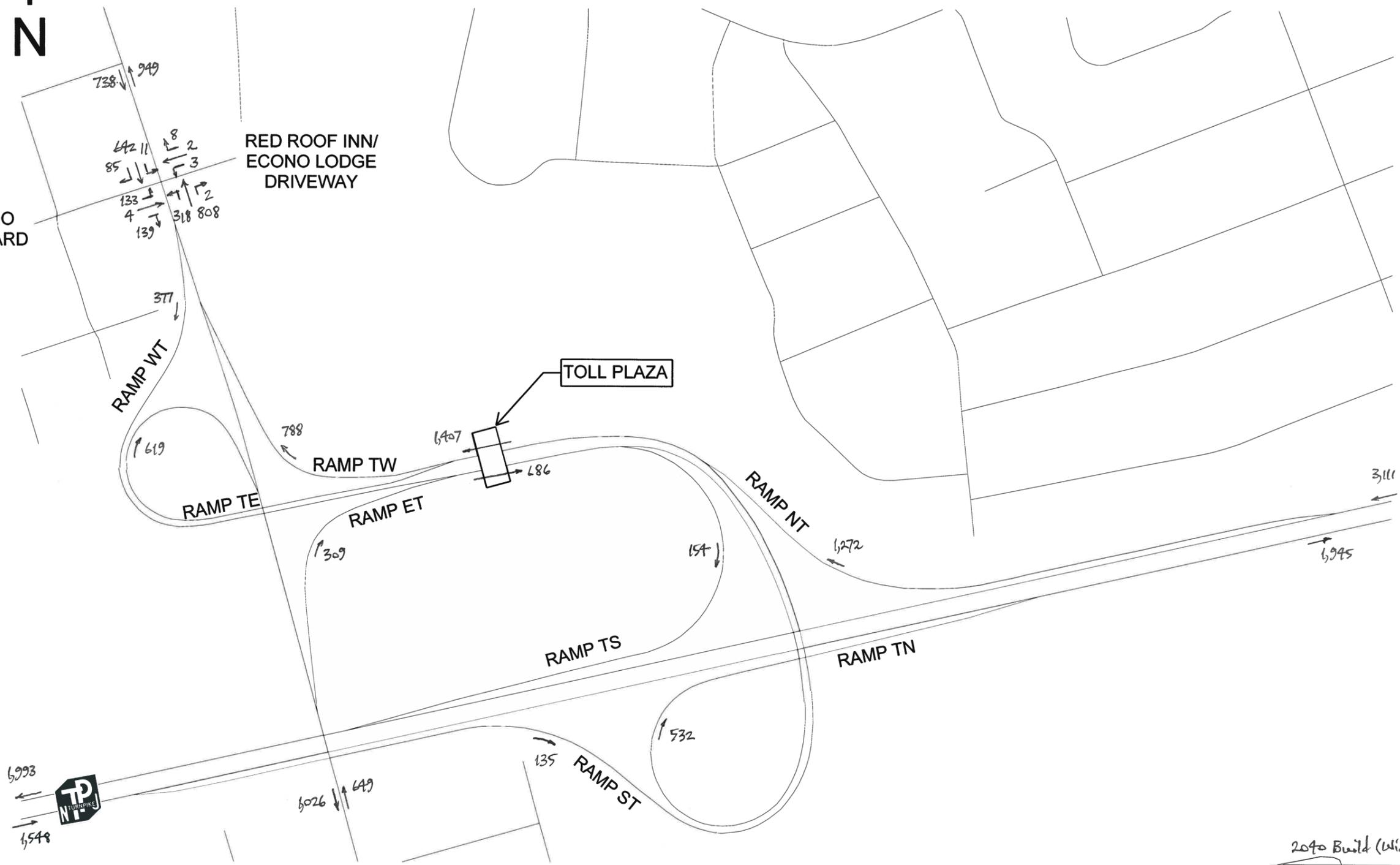
BENIGNO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2040 Build (Widening) - P.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

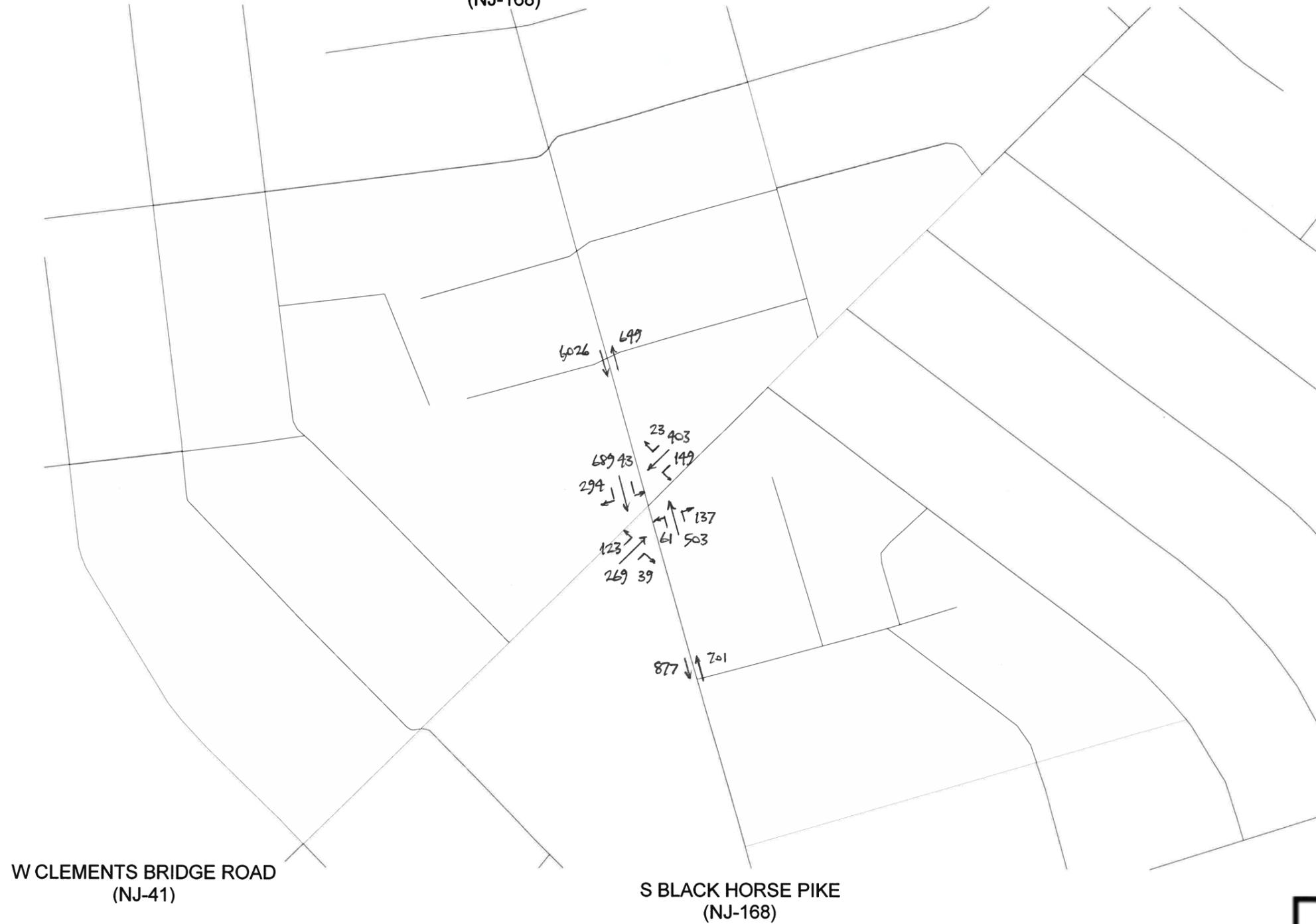
Corrected Model

5/12/22



TO  
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2040 Build (widening) - P.M. Peak Ho.

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

Corrected Model



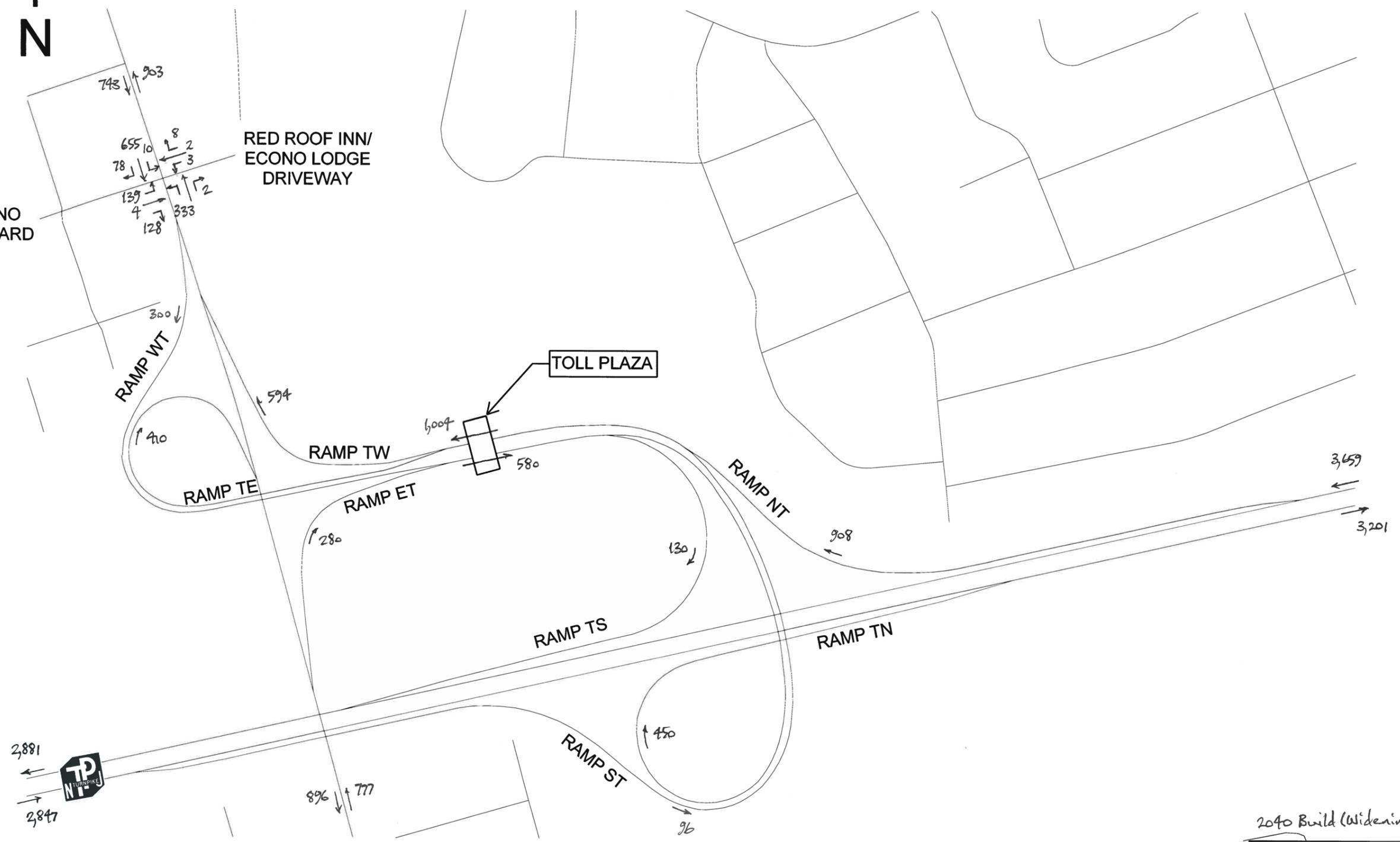
BENIGNO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2040 Build (Widening) - Summer Fri. 1

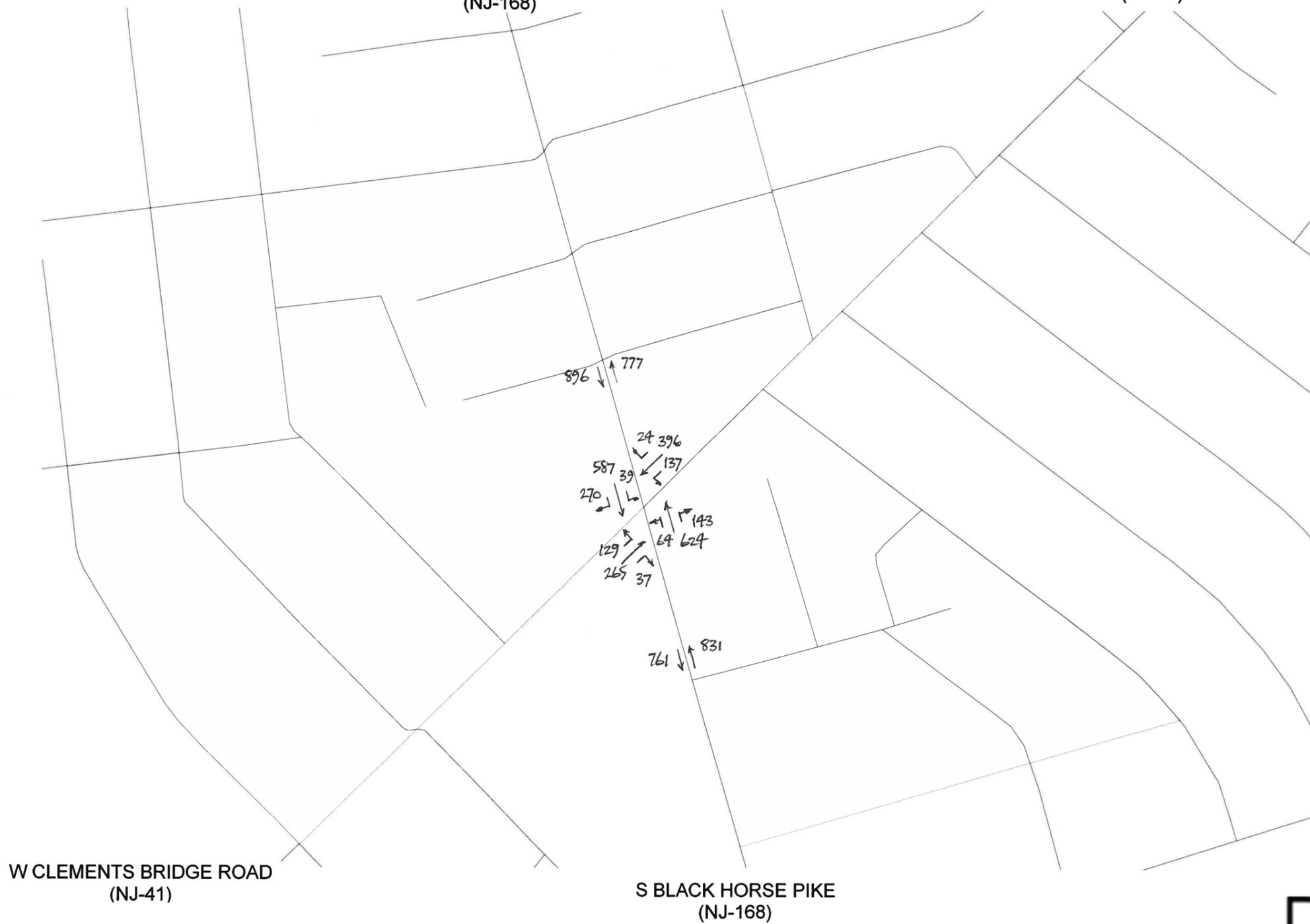
NJ TURNPIKE INTERCHANGES 1-4 CAPACITY ENHANCEMENT PROGRAM	
INTERCHANGE 3 NETWORK	
Corrected Model	5/12/22



TO  

N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



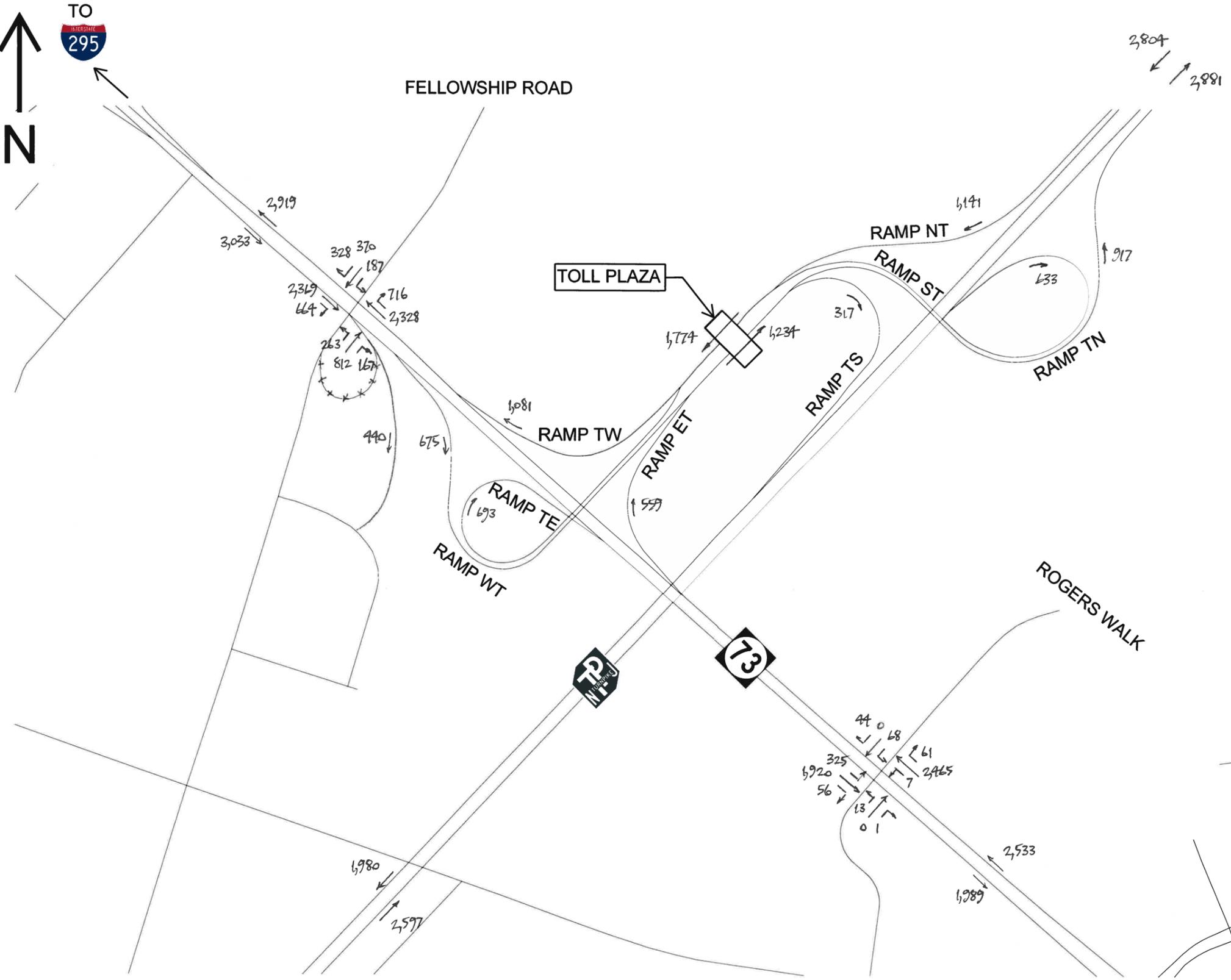
W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

*2040 Build (Widening) - Summer Fri*

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

Corrected Model

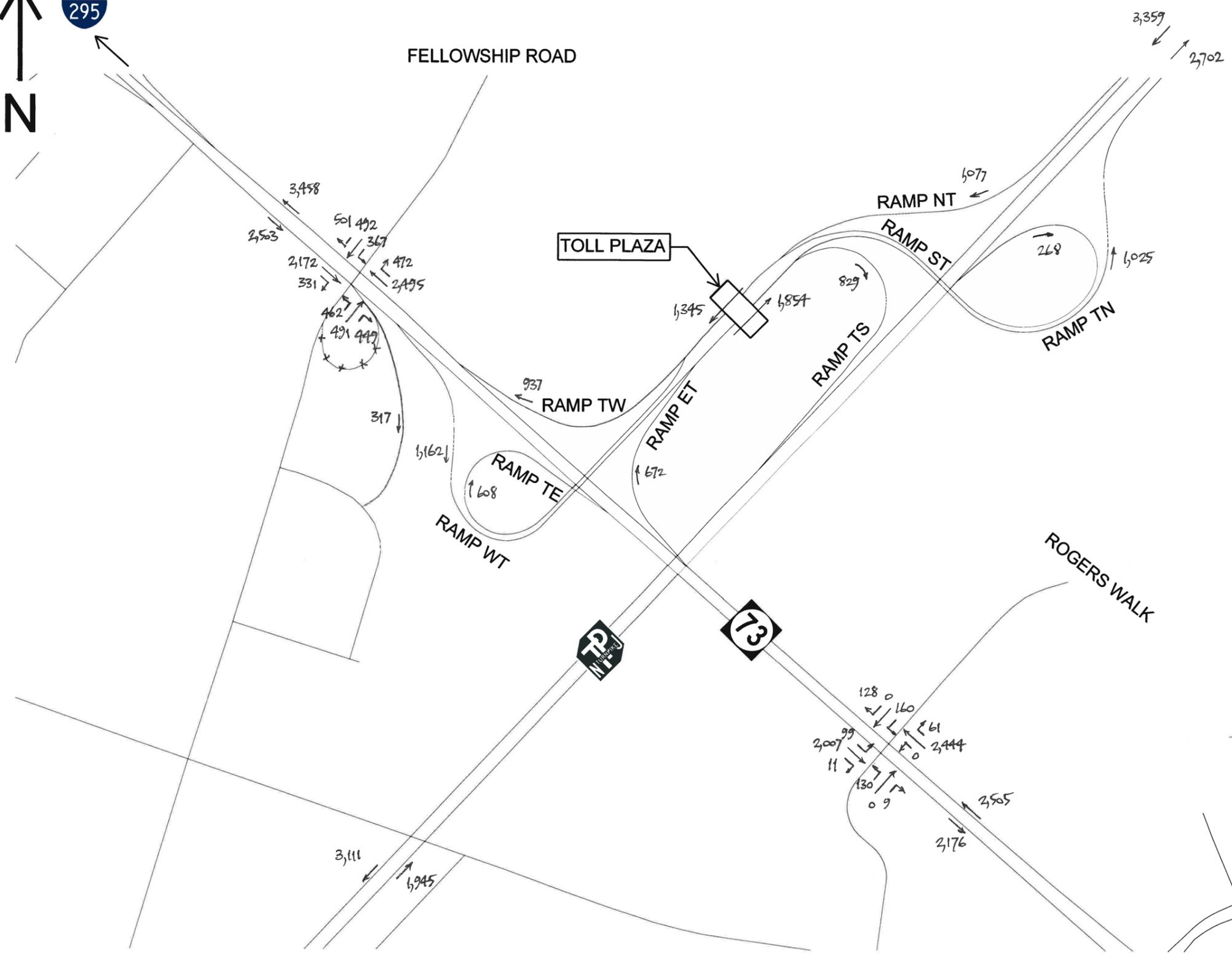


2040 Build (Widening) - A.M. Peak Hour

**NEW JERSEY TURNPIKE  
INTERCHANGE 1 TO 4  
WIDENING PROGRAM**  
**INTERCHANGE 4 NETWORK**

Corrected Model

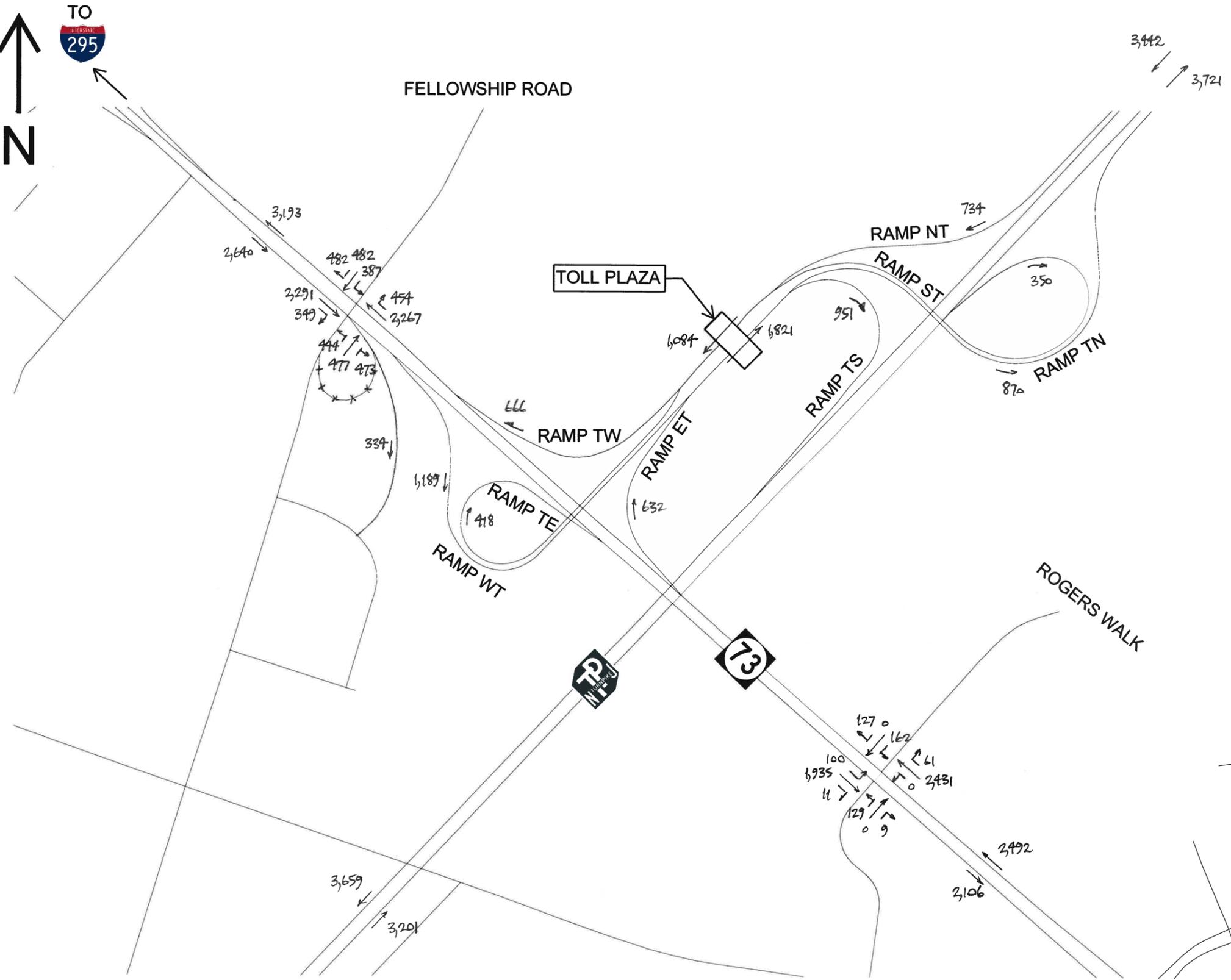
5/12/22



2040 Build (Widening) - P.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 4 NETWORK

Corrected Model 5/12/22



2040 Build (Widening) - Summer Fri. P.

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 4 NETWORK

Corrected Model 5/12/22

# **APPENDIX E:**

## **Local Roadway Crossing Traffic Volume Tables**

Table 1a.  
Traffic Volumes on Roadway Crossings of New Jersey Turnpike  
Salem County and Gloucester County

Milepost	Local Road Name	Route Number		Base Year		Construction Year		Design Year		Structure ADT	
				2019 Peak Hour Volumes		2028 Peak Hour Volumes		2040 Peak Hour Volumes		ADT	Year
				a.m.	p.m.	a.m.	p.m.	a.m.	p.m.		
<b>Salem County</b>											
0.22	Shell Road/Marginal Road	U.S. 130/N.J. 49	SB/EB	408	662	419	684	421	686	13,876	
			NB/WB	707	624	726	639	742	643		
0.72	Connector Ramp K	C.R. 551	SB	220	469	224	477	240	512	3,584	2019
0.78	Interstate 295	I-295	NB	1,403	1,974	1,426	2,007	1,421	1,990	14,330	
0.97	Hawks Bridge Road	N.J. 140	EB	260	292	266	300	285	315	13,022	2018
			WB	771	693	791	712	821	736		
3.22	Courses Landing Road	C.R. 628	EB	n/a	n/a	n/a	n/a	n/a	n/a	1,124	
			WB	n/a	n/a	n/a	n/a	n/a	n/a		
3.88	Harding Highway	N.J. 48	EB	106	174	107	177	112	184	3,932	2017
			WB	118	118	119	119	124	124		
5.08	Penns Grove - Auburn Road	C.R. 641	EB	n/a	n/a	n/a	n/a	n/a	n/a	1,612	
			WB	n/a	n/a	n/a	n/a	n/a	n/a		
7.02	Pointers - Auburn Road	C.R. 646	EB	55	52	56	53	57	54	1,143	2018
			WB	36	65	36	66	38	68		
7.20	Pedricktown - Woodstown Road	C.R. 602	EB	n/a	n/a	n/a	n/a	n/a	n/a	2,524	
			WB	n/a	n/a	n/a	n/a	n/a	n/a		
<b>Gloucester County</b>											
8.86	Oldmans Creek Road	C.R. 602	EB	100	213	101	217	105	225	4,398	2017
			WB	214	143	218	146	226	151		
9.30	Rainey Road	Local	EB	n/a	n/a	n/a	n/a	n/a	n/a	700	
			WB	n/a	n/a	n/a	n/a	n/a	n/a		
11.58	Monroeville Road	C.R. 694	NB	202	153	206	156	213	162	4,550	2019
			SB	131	189	133	192	138	200		
11.68	Franklinville Road	C.R. 538	EB	160	300	163	305	169	317	5,687	2017
			WB	219	226	223	230	231	238		
12.78	Back Creek Road	Local	EB	n/a	n/a	n/a	n/a	n/a	n/a	688	
			WB	n/a	n/a	n/a	n/a	n/a	n/a		
13.05	Interchange 2 Ramps	-	TN	522	168	543	216	595	226	3,965	
			ST	85	193	103	201	110	227		
13.38	Swedesboro Road	U.S. 322	EB	442	929	554	973	588	1,052	15,463	
			WB	874	478	907	608	970	648		
13.60	NJTP U-Turn Overpass	-	-	n/a	n/a	n/a	n/a	n/a	n/a	-	
14.08	Tomlin Station Road	C.R. 607	NB	179	112	182	113	189	118	2,771	2018
			SB	74	155	75	158	77	164		
15.22	Wolfert Station Road	C.R. 644	EB	164	148	167	151	173	157	2,736	2017
			WB	122	183	124	186	128	193		
16.12	Cedar Road	C.R. 673	EB	144	338	147	343	153	356	4,702	2019
			WB	329	196	334	199	347	207		
17.00	Cohawkin Road	C.R. 667	NB	404	443	410	450	426	468	7,565	2017
			SB	417	225	424	229	441	237		
18.22	Mantua Road	C.R. 678	EB	385	575	391	584	405	607	7,741	2017
			WB	533	444	542	452	562	469		
19.07	Ogden Station Road	C.R. 648	EB	105	231	106	235	111	243	3,503	2020
			WB	143	134	146	136	151	141		
19.61	Parkville Station Road	C.R. 656	EB	280	734	284	746	296	775	14,664	2019
			WB	622	486	632	494	656	513		
20.44	Mantua Turnpike	N.J. 45	NB	1,033	940	1,050	955	1,091	991	23,360	2018
			SB	500	1,026	508	1,043	528	1,082		
20.68	Elm Avenue	C.R. 652	EB	164	231	167	235	173	243	4,874	2019
			WB	217	255	221	259	229	269		
21.72	East Barber Avenue	C.R. 663	NB	539	670	548	680	568	706	17,198	2019
			SB	796	917	809	931	840	967		
22.43	Cooper Street	C.R. 534	EB	499	869	507	883	526	916	18,461	2019
			WB	824	881	837	895	869	930		
23.02	Delsea Drive	N.J. 47	NB	1,174	813	1,201	832	1,218	846	17,228	
			SB	645	1,125	662	1,150	673	1,170		
23.32	Turkey Hill Road	C.R. 646	EB	206	427	210	415	217	431	6,997	2017
			WB	363	319	368	310	382	322		
24.30	Westville - Almonesson Road	C.R. 621	NB	901	547	941	571	970	589	12,943	2019
			SB	236	945	246	986	254	1,017		

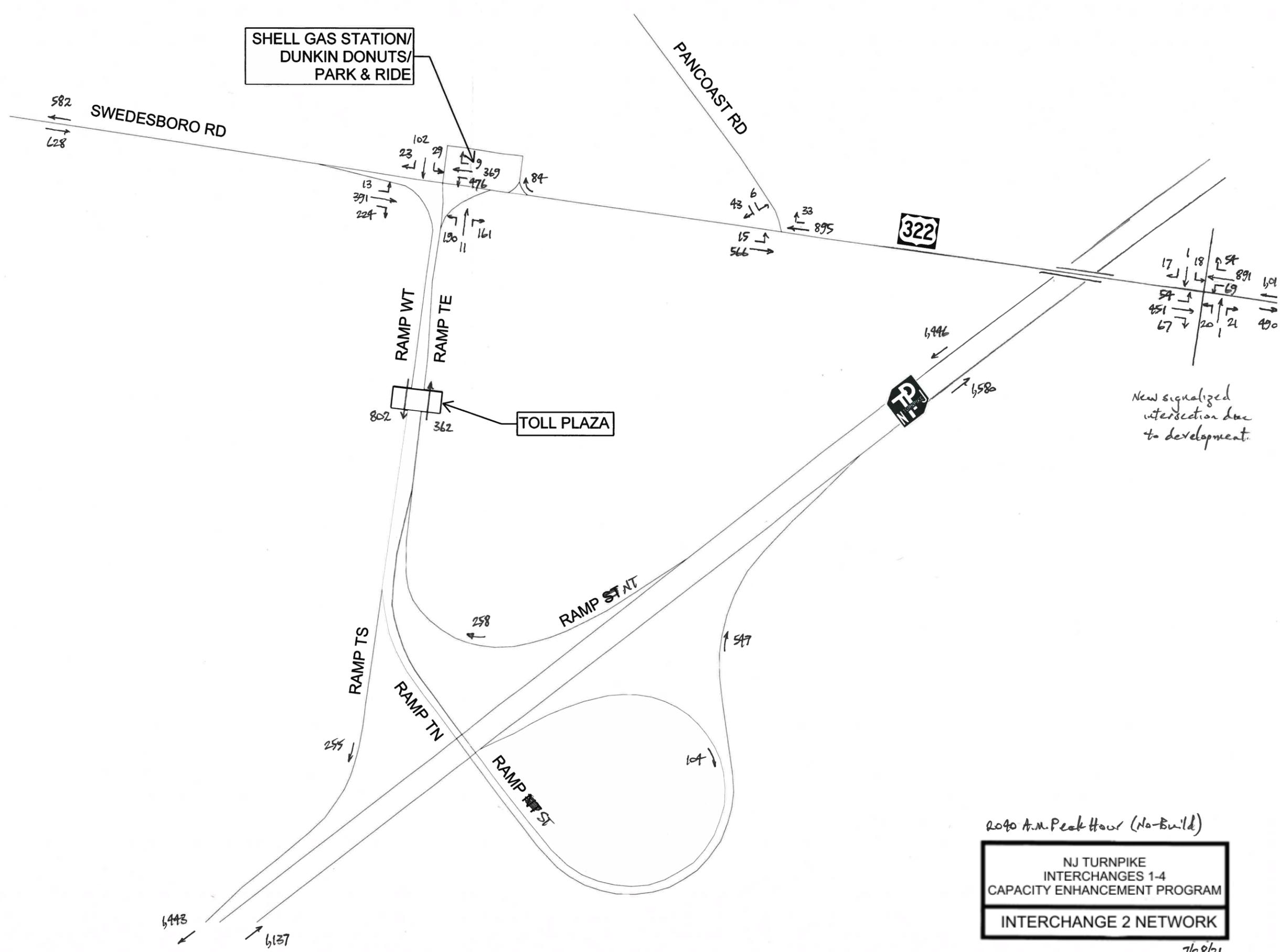
Notes: Figures in *italics* are Structure ADTs taken from Bridge Inspection Reports, for crossings where no other data was available. Year of ADT was not available. Bridge Inspection Report data was also used where recent (i.e. since 2017) data or data in proximity of the crossing was not available. Structure ADTs are provided for context where peak hour data was not available.

Table 1b.  
Traffic Volumes on Roadway Crossings of New Jersey Turnpike  
Camden County and Burlington County (south of M.P. 36.5)

Milepost	Local Road Name	Route Number		Base Year		Construction Year		Design Year		Structure ADT	
				2019 Peak Hour Volumes		2028 Peak Hour Volumes		2040 Peak Hour Volumes		ADT	Year
				a.m.	p.m.	a.m.	p.m.	a.m.	p.m.		
<b>Camden County</b>											
24.90	North - South Freeway	N.J. 42	NB	7,207	5,699	7,374	5,832	7,664	6,064	92,180	
			SB	4,957	9,828	5,070	10,055	5,272	10,456		
26.25	Interchange 3 Ramps	-	TN	988	392	1,004	398	1,067	412	9,172	
			ST	125	81	127	82	235	160		
27.22	Clements Bridge Road	N.J. 41	NB	719	489	731	497	759	516	12,633	2017
			SB	372	878	378	892	392	927		
27.51	Shreve Avenue	Local	EB	71	155	72	158	74	164	2,156	2020
			WB	202	141	206	144	213	149		
28.40	Warwick Road	C.R. 669	EB	621	799	631	812	655	843	18,935	2020
			WB	882	794	896	807	931	838		
30.06	Haddonfield - Berlin Road	C.R. 561	NB	1,582	1,198	1,608	1,217	1,669	1,264	28,864	
			SB	1,313	1,636	1,334	1,662	1,385	1,726		
30.98	Kresson Road	C.R. 671	EB	625	822	635	835	659	867	18,578	2017
			WB	748	803	760	816	790	847		
32.52	J.D. Rockefeller Mem. Highway	N.J. 70	EB	3,522	4,034	3,579	4,099	3,716	4,256	83,775	2017
			WB	4,104	3,896	4,170	3,958	4,330	4,110		
<b>Burlington County</b>											
34.18	Church Road	C.R. 616	EB	766	787	778	800	809	830	13,542	2017
			WB	601	679	610	689	634	716		
34.42	New Jersey Route 73	N.J. 73	NB	2,273	2,456	2,327	2,515	2,373	2,561	69,812	
			SB	2,088	1,801	2,138	1,849	2,197	1,883		
34.67	Interchange 4 Ramps	-	TN	895	1,017	910	1,033	940	1,080	15,262	
			ST	582	232	592	236	685	270		

Notes: Figures in *italics* are Structure ADTs taken from Bridge Inspection Reports, for crossings where no other data was available. Year of ADT was not available. Bridge Inspection Report data was also used where recent (i.e. since 2017) data or data in proximity of the crossing was not available. Structure ADTs are provided for context where peak hour data was not available.

**APPENDIX F:**  
**Design Year 2040 No-Build Traffic  
Flow Diagrams (Original Model  
Runs)**

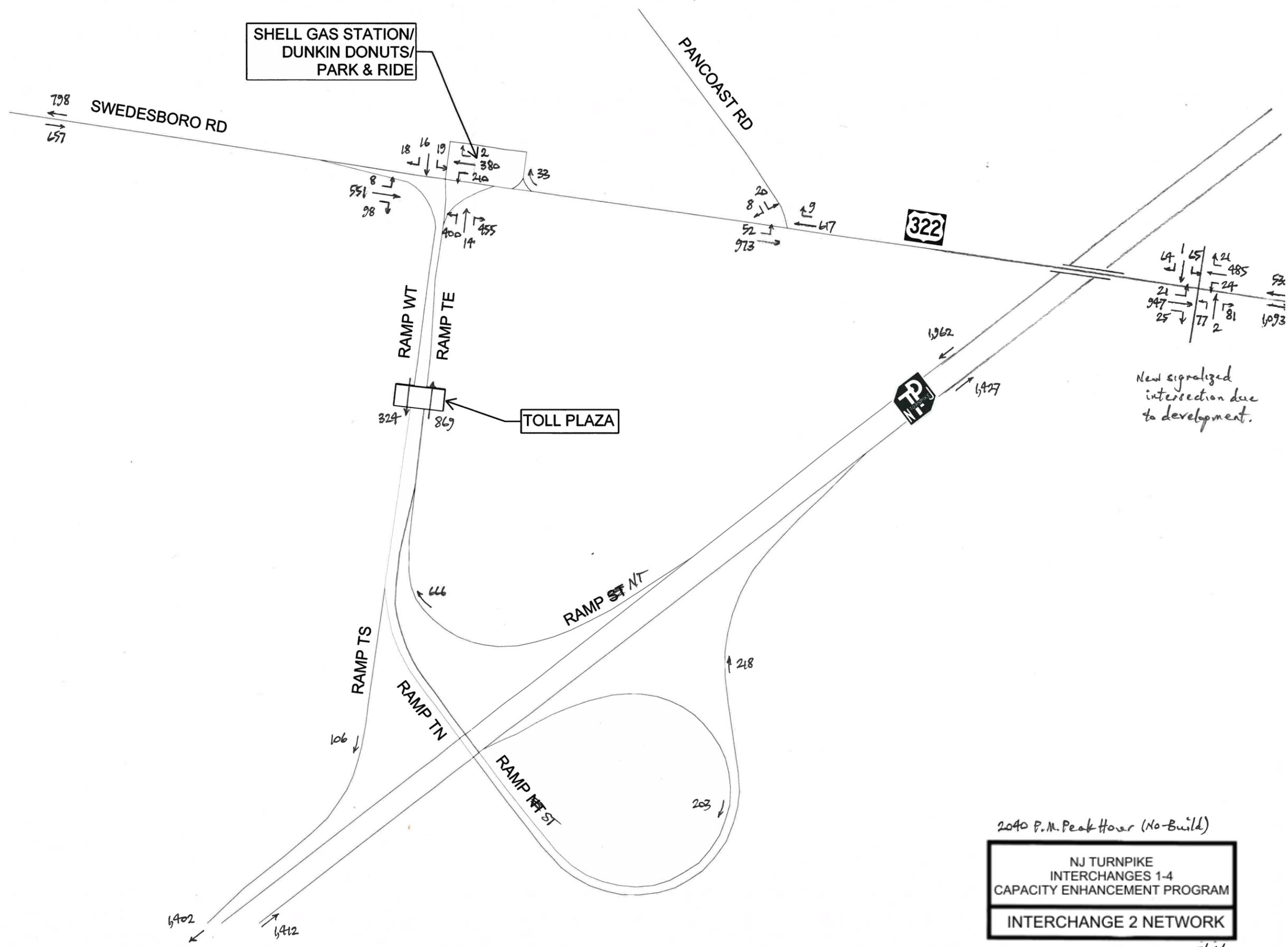


2040 A.M. Peak Hour (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM

INTERCHANGE 2 NETWORK

7/28/21

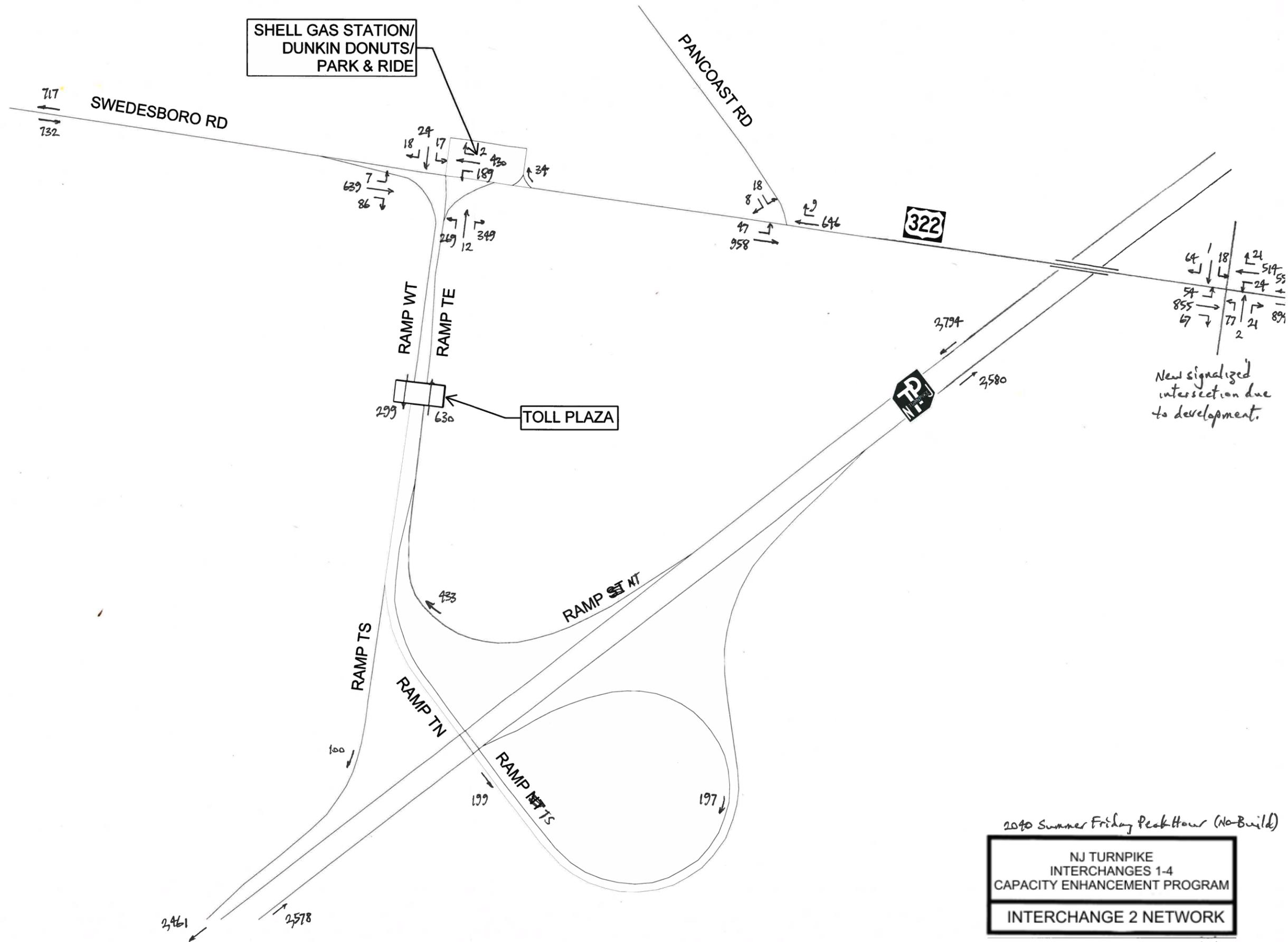


New signalized intersection due to development.

2040 P.M. Peak Hour (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

7/28/21



2040 Summer Friday Peak Hour (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

7/29/24



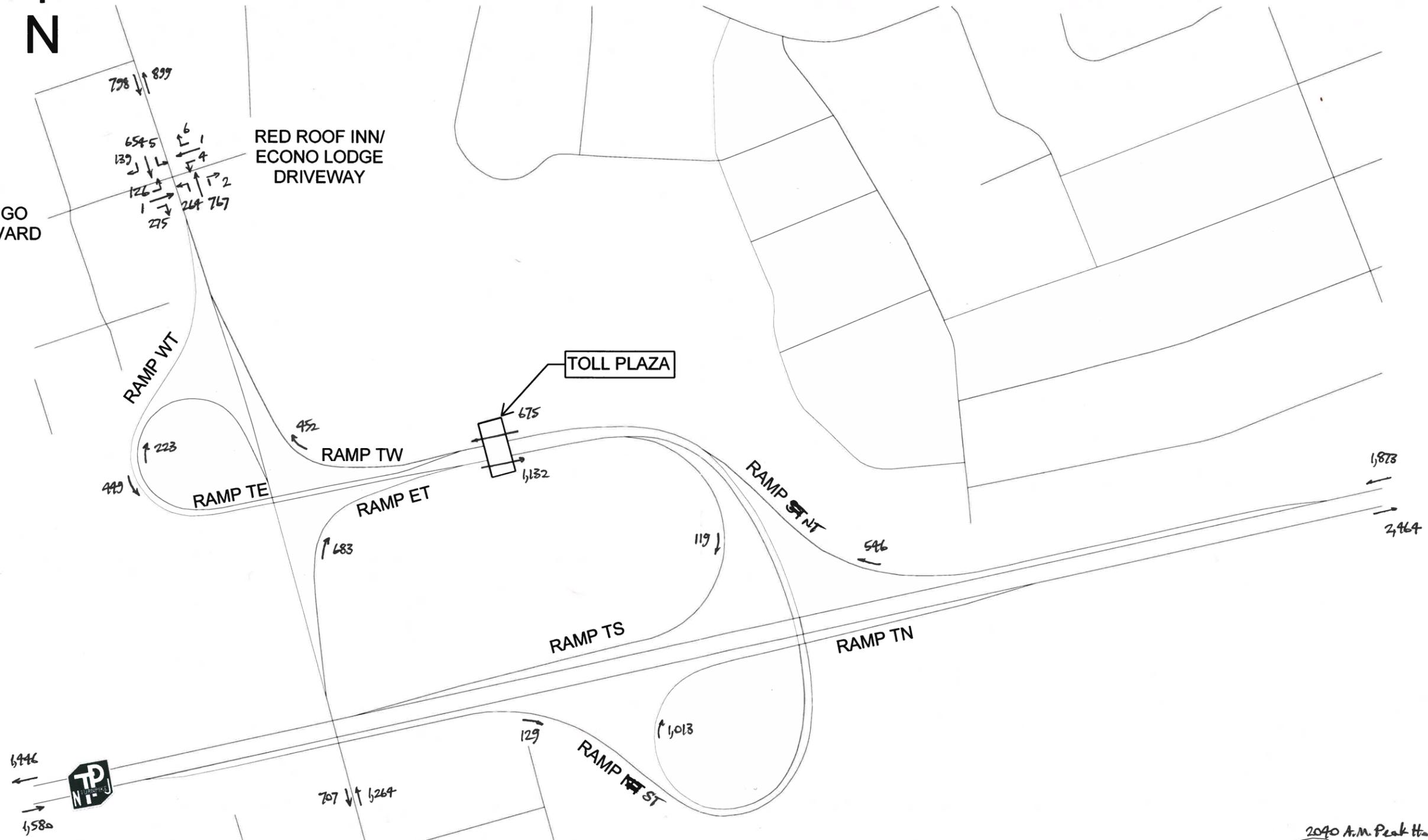
BENINGO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2040 A.M. Peak Hour (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/4/21



TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



2040 A.M. Peak Hour (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



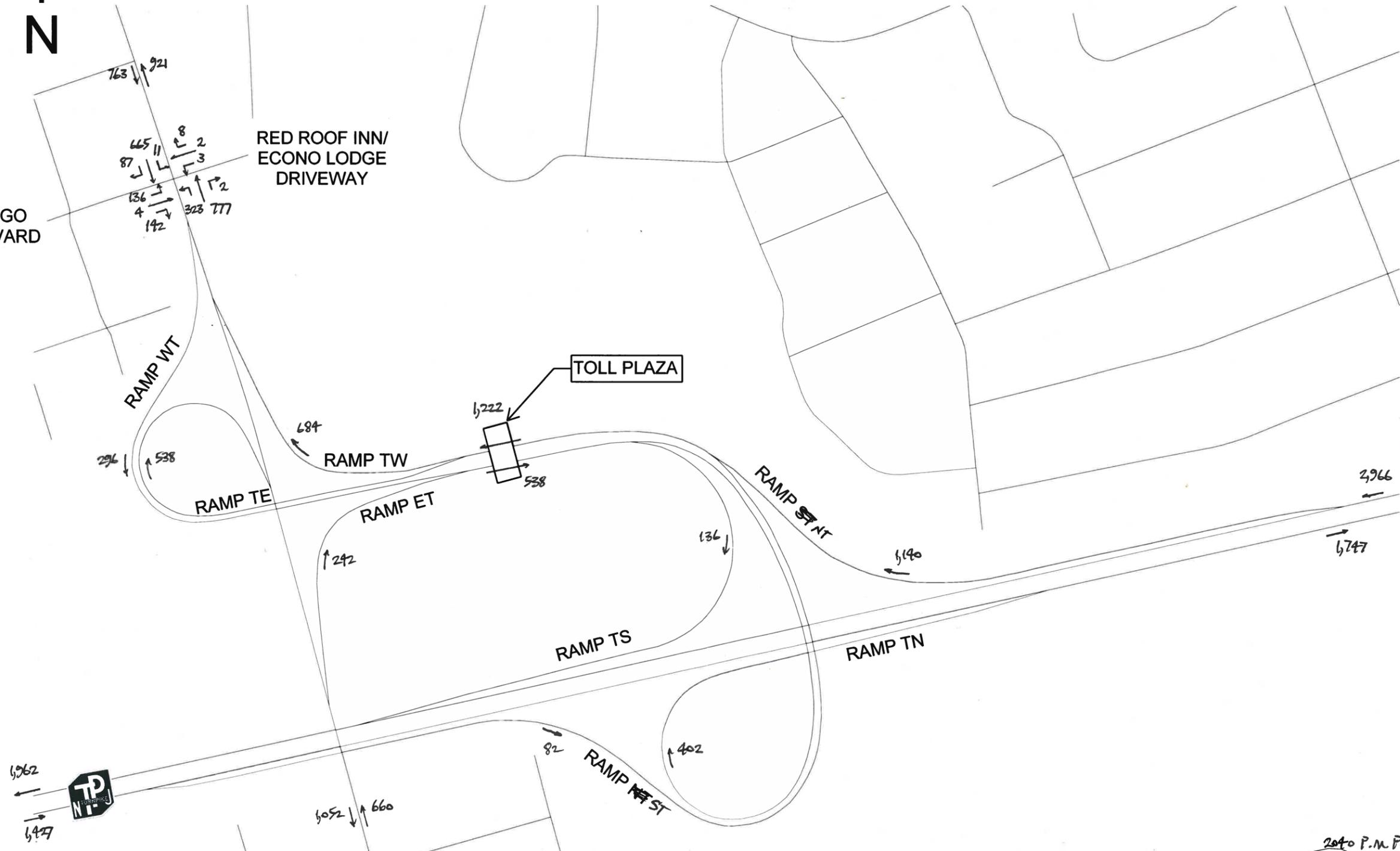
BENINGO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2010 P.M. Peak Hour (No-Build)

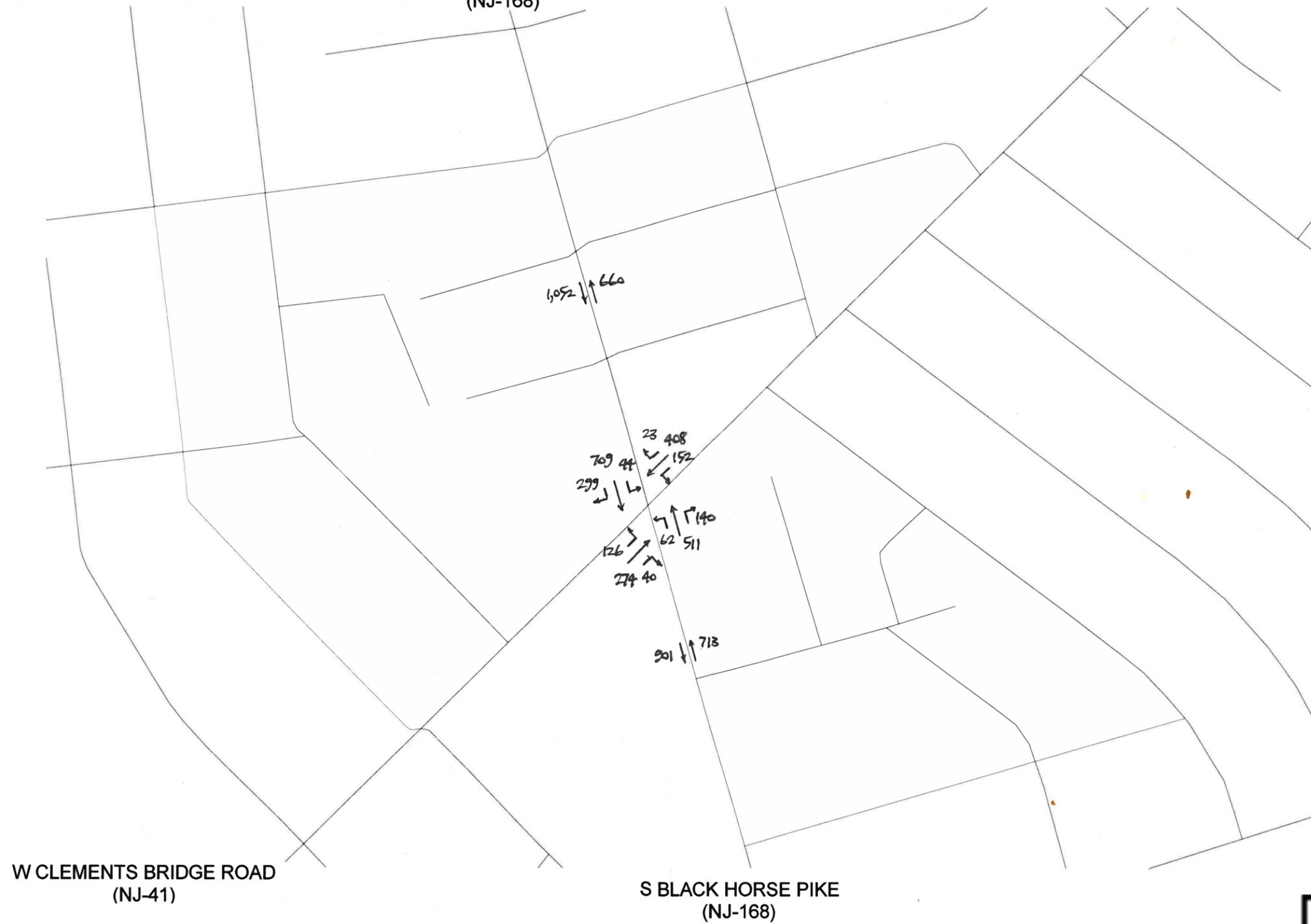
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



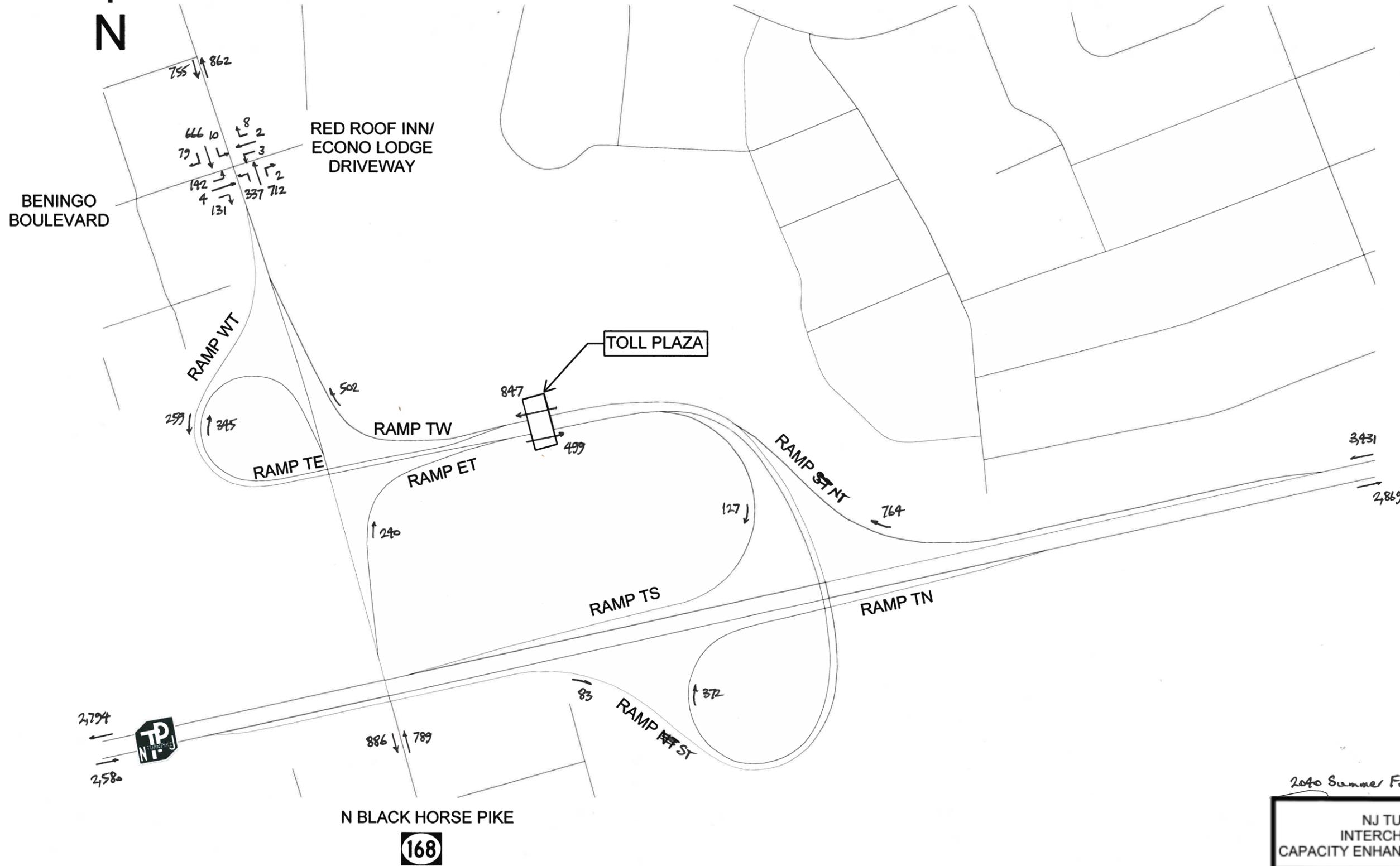
W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2040 P.M. Peak Hour (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/24



2040 Summer Friday Peak (do-Build)

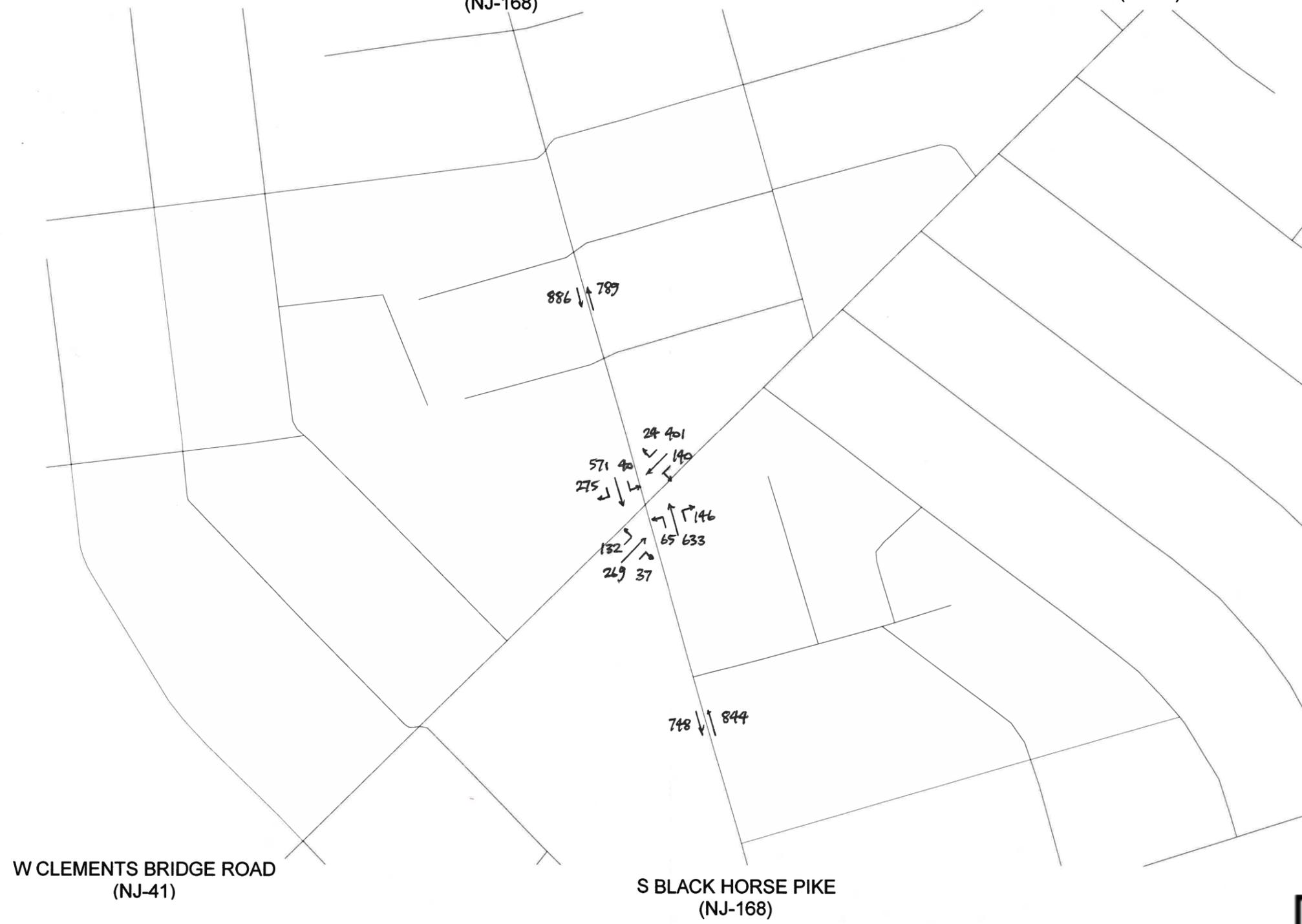
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



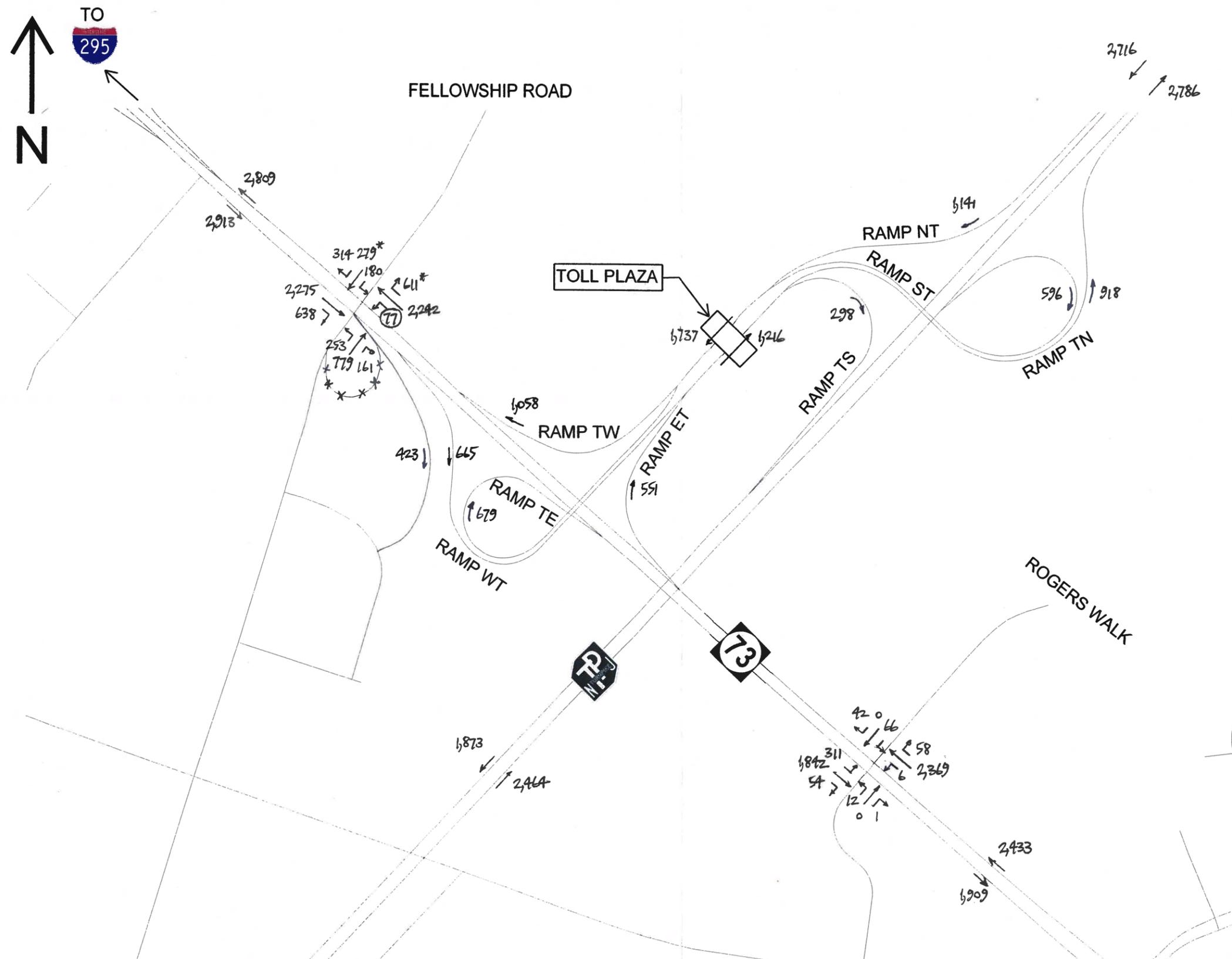
W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2090 Summer Friday Peak (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

8/6/21



2040 A.M. Peak Hour (No-Build)

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM

INTERCHANGE 4 NETWORK

8/17/21

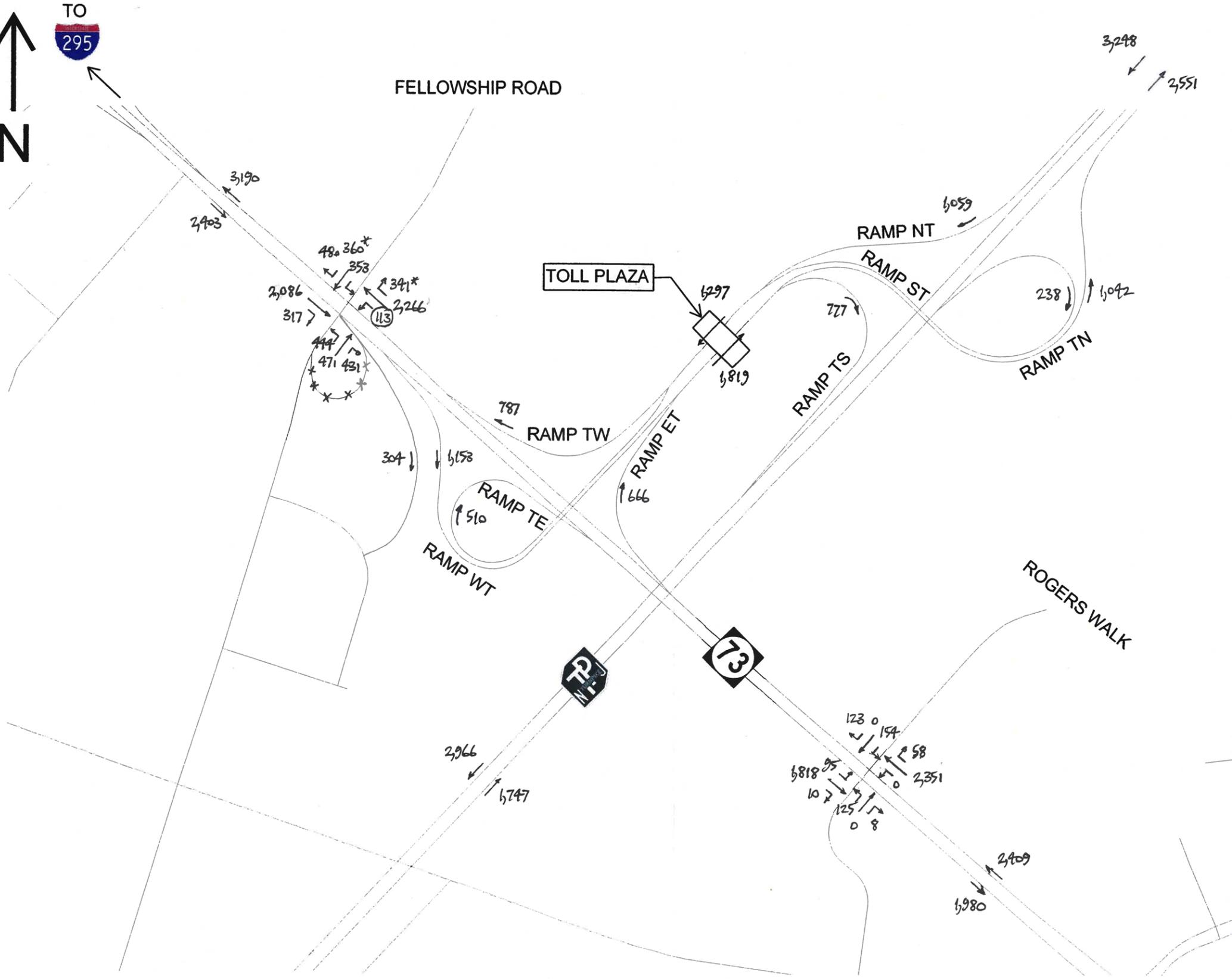


TO  
295

FELLOWSHIP ROAD

TOLL PLAZA

ROGERS WALK



2040 P.M. Peak Hour (No-Build)

NJ TURNPIKE  
 INTERCHANGES 1-4  
 CAPACITY ENHANCEMENT PROGRAM  
 INTERCHANGE 4 NETWORK

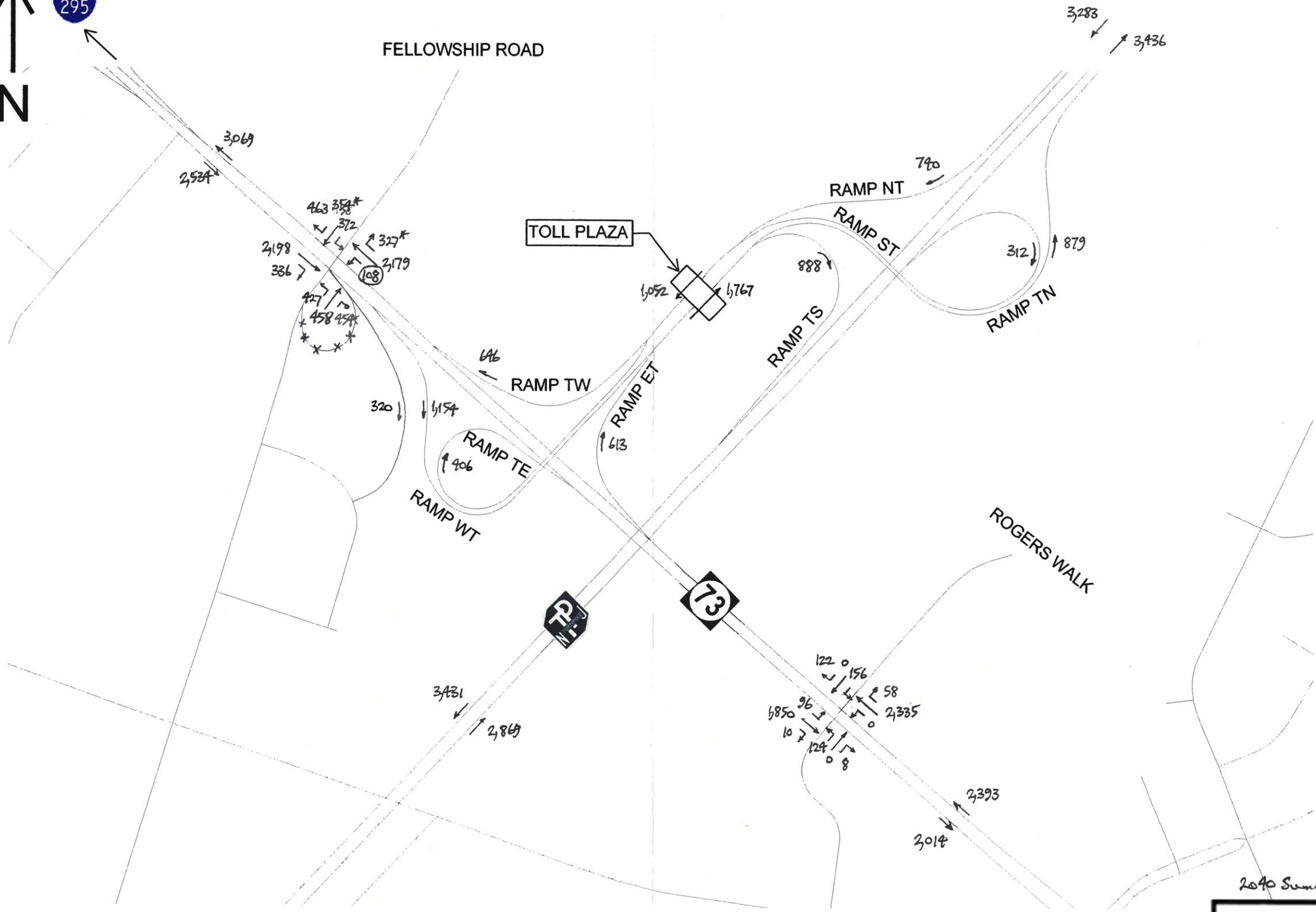
8/17/21



FELLOWSHIP ROAD

TOLL PLAZA

ROGERS WALK

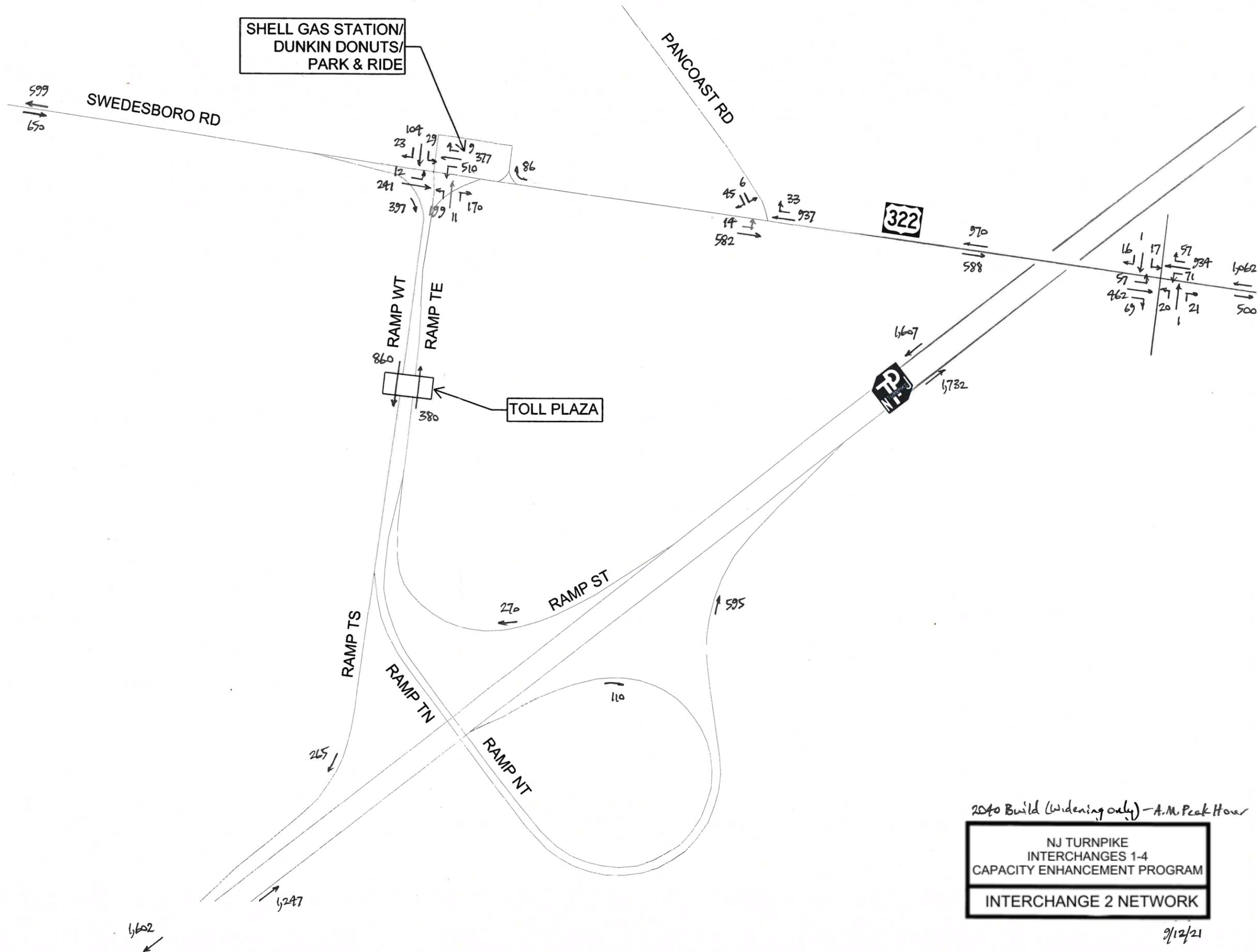


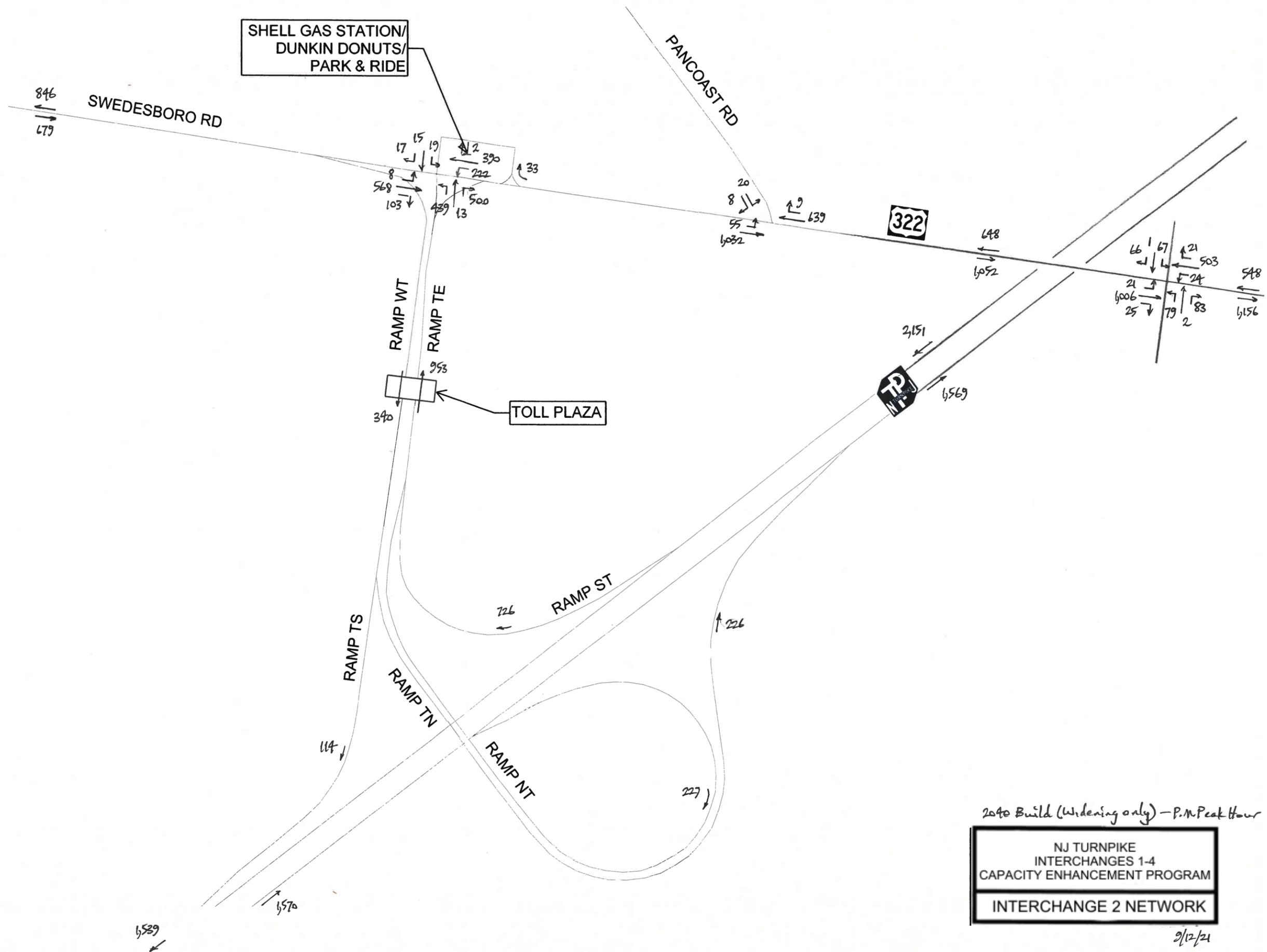
2040 Summer Friday Peak (No-Build)

NJ TURNPIKE  
 INTERCHANGES 1-4  
 CAPACITY ENHANCEMENT PROGRAM  
 INTERCHANGE 4 NETWORK

8/17/21

**APPENDIX G:**  
**Design Year 2040 Build (Widening  
Only) Traffic Flow Diagrams  
(Original Model Runs)**

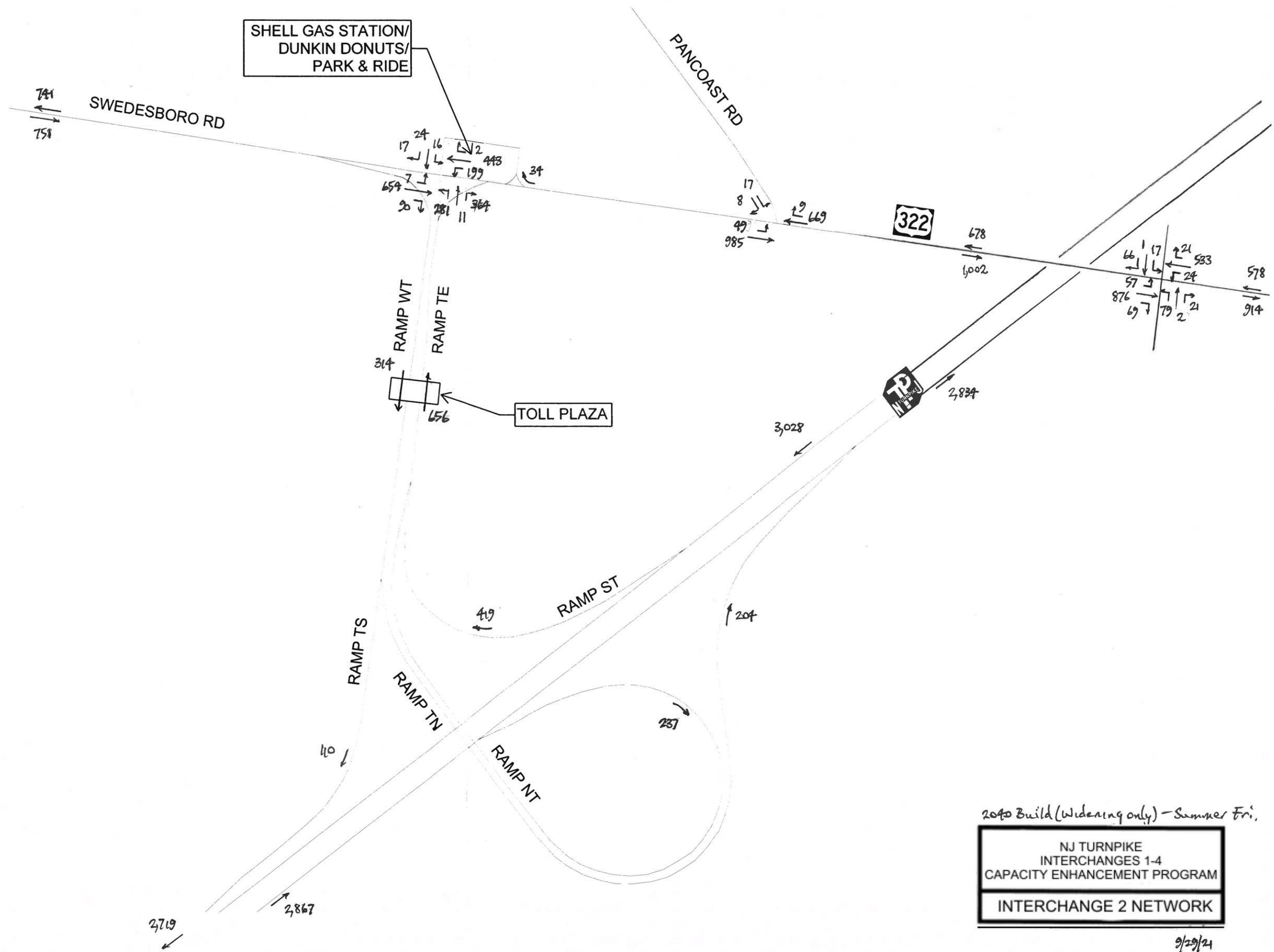




2040 Build (Widening only) - P.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

2/12/21



2040 Build (widening only) - Summer Fri.

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 2 NETWORK

9/29/21

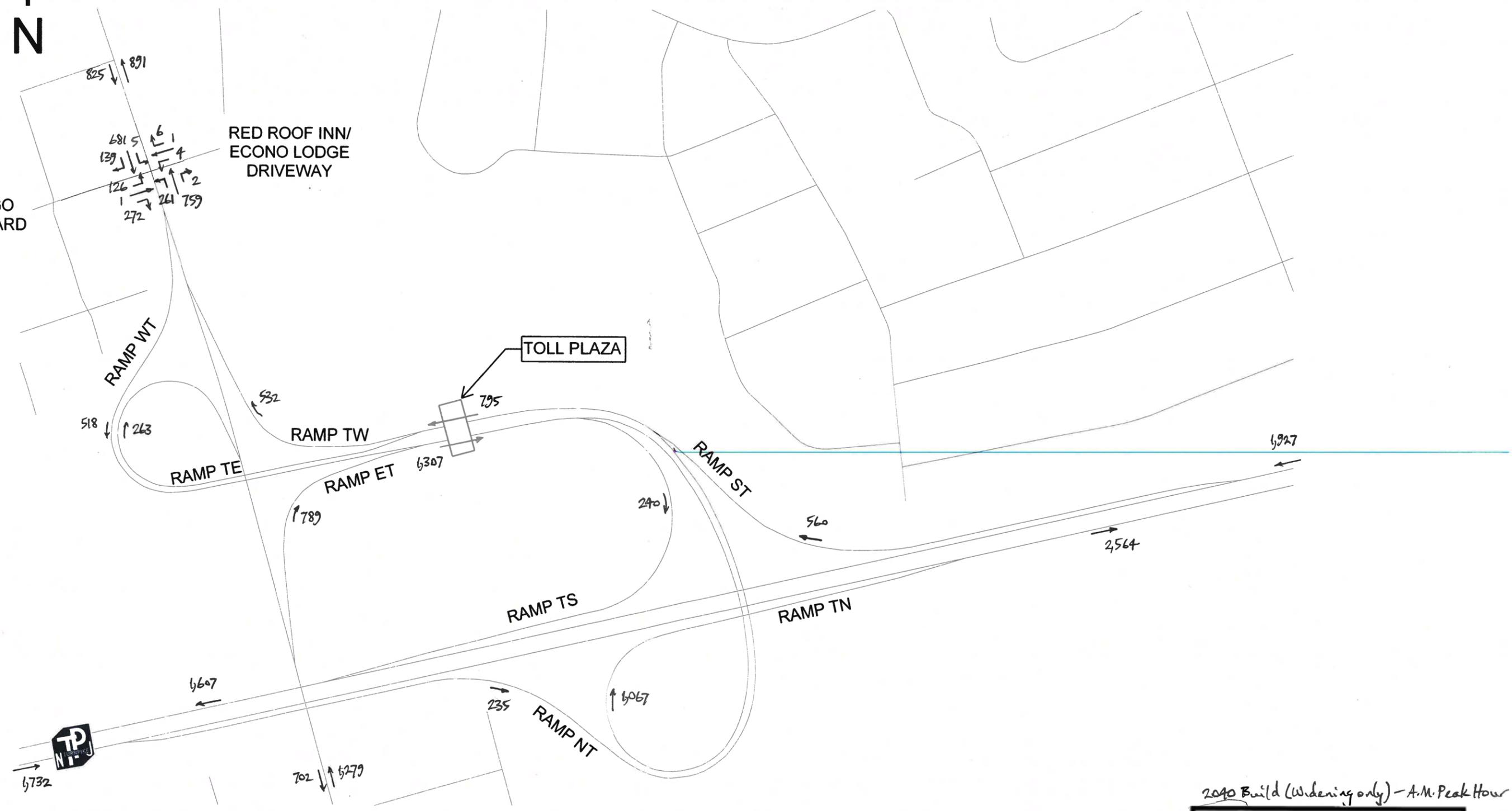


BENINGO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE



2040 Build (Widening only) - A.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

9/12/21

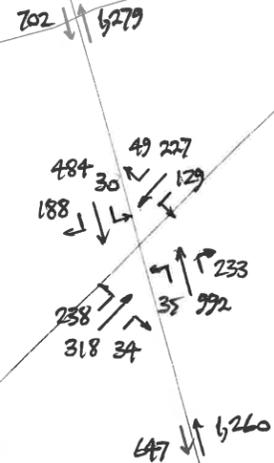


TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)

W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)



*2040 Build (widening only) - A.M. Peak Hour*

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

9/12/21

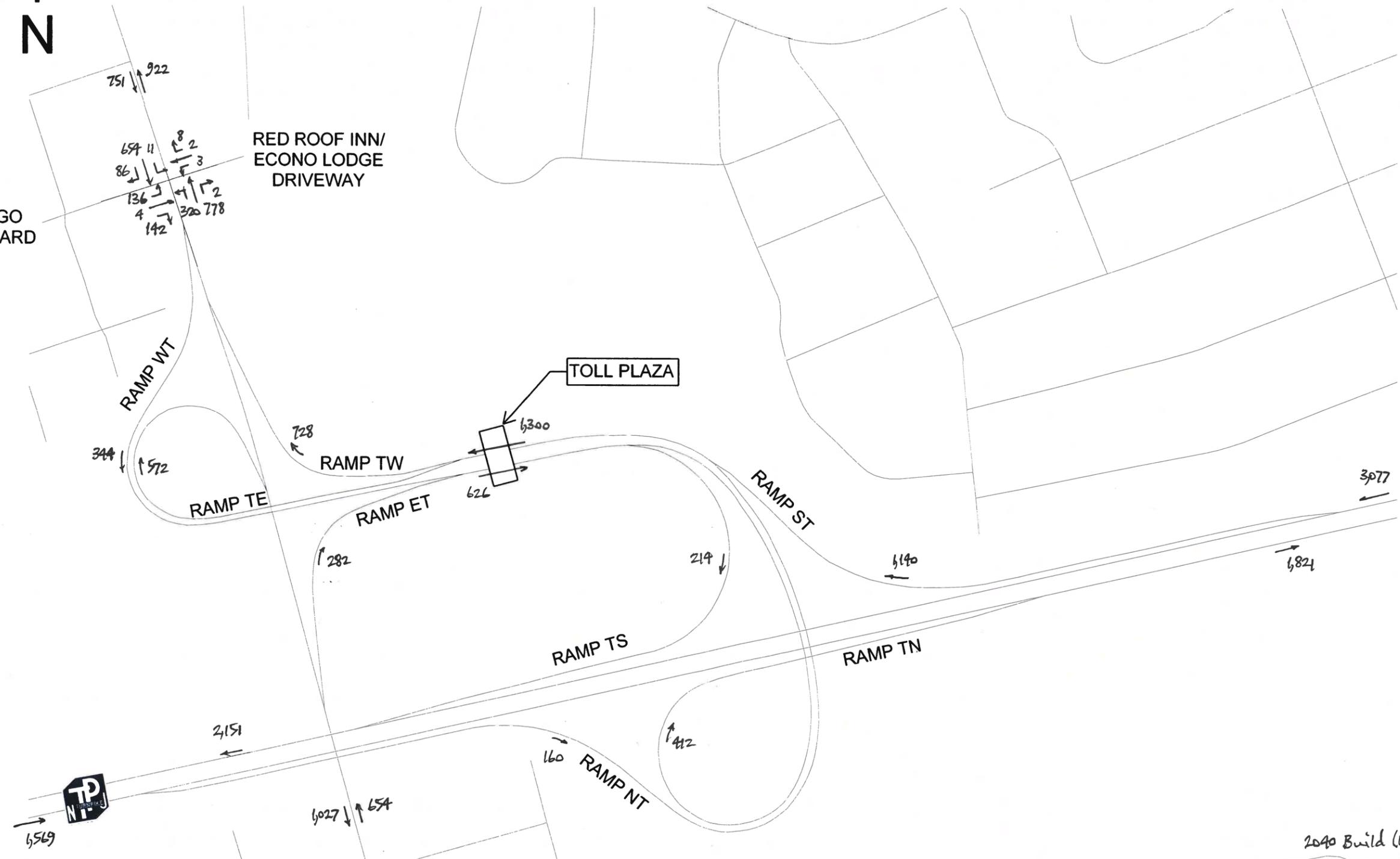


BENINGO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE



2040 Build (Widening only) - P.M. Peak Hours

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

9/17/21

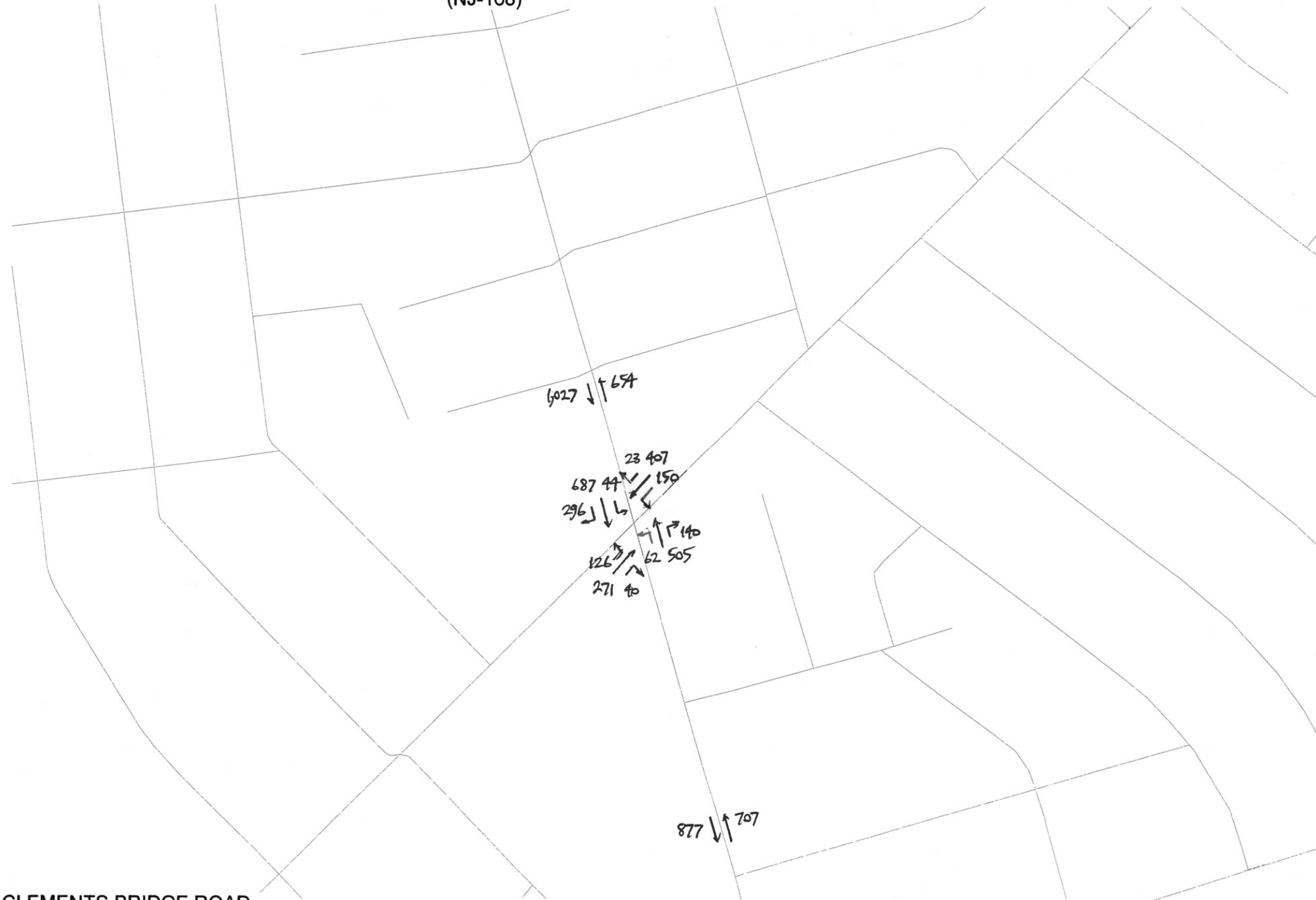


TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)

W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)



2040 Build (Widening only) - P.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

9/12/24



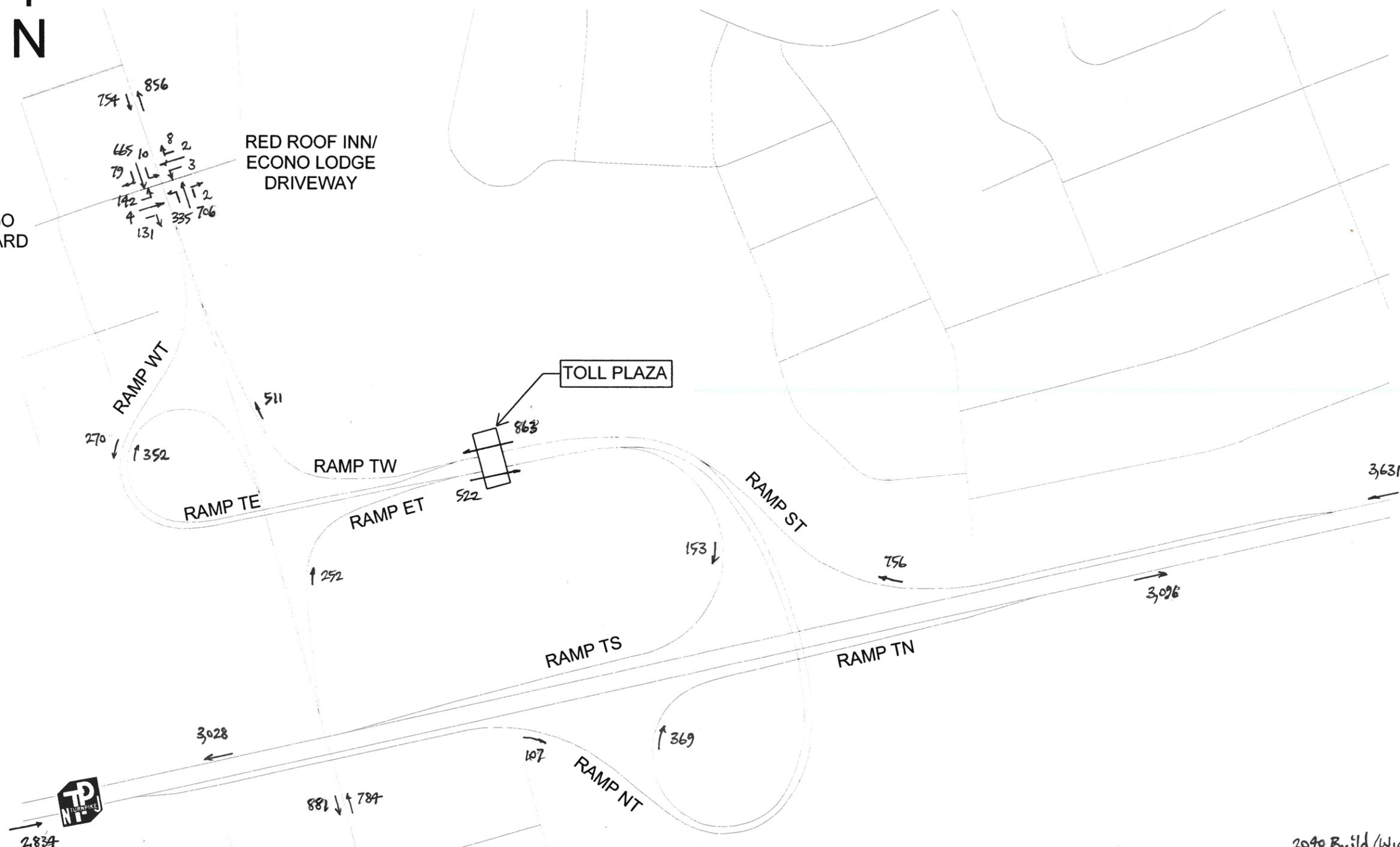
BENINGO BOULEVARD

RED ROOF INN/  
ECONO LODGE  
DRIVEWAY

TOLL PLAZA

N BLACK HORSE PIKE

168



2040 Build (Widening only) - Summer Fri.

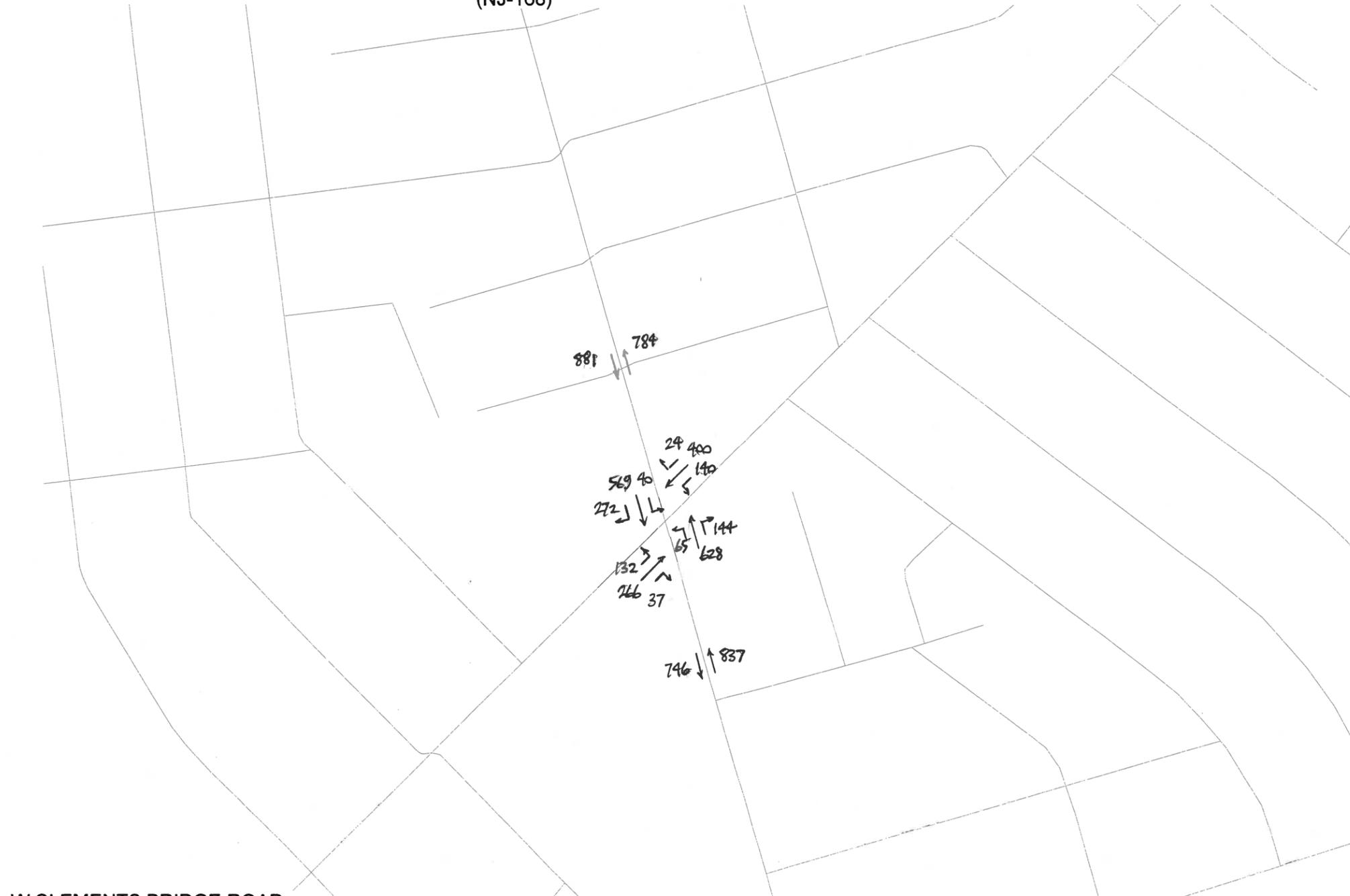
NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

9/29/21



TO    
N BLACK HORSE PIKE  
(NJ-168)

E CLEMENTS BRIDGE ROAD  
(NJ-41)



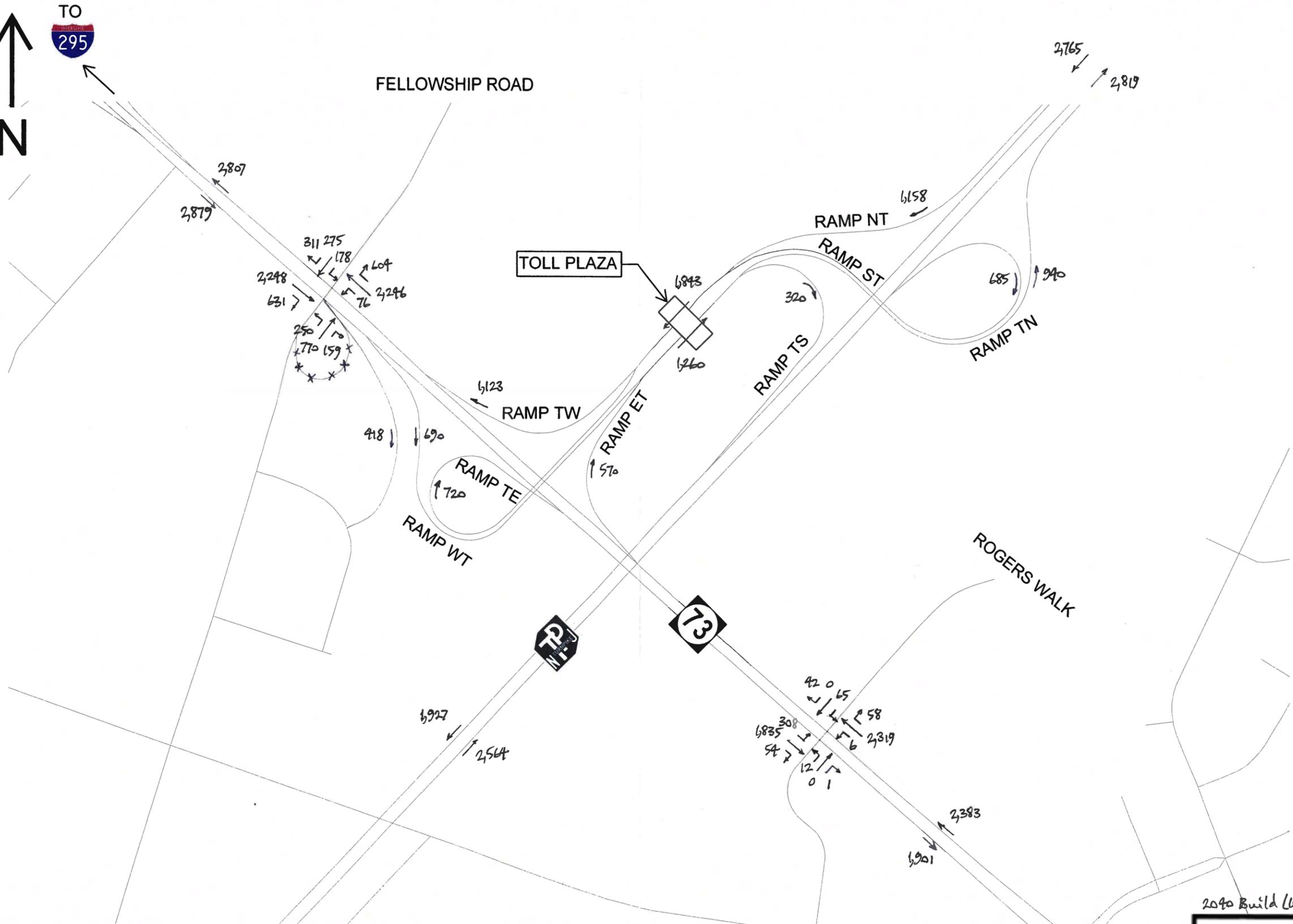
W CLEMENTS BRIDGE ROAD  
(NJ-41)

S BLACK HORSE PIKE  
(NJ-168)

2020 Build (widening only) - Summer Fri.

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 3 NETWORK

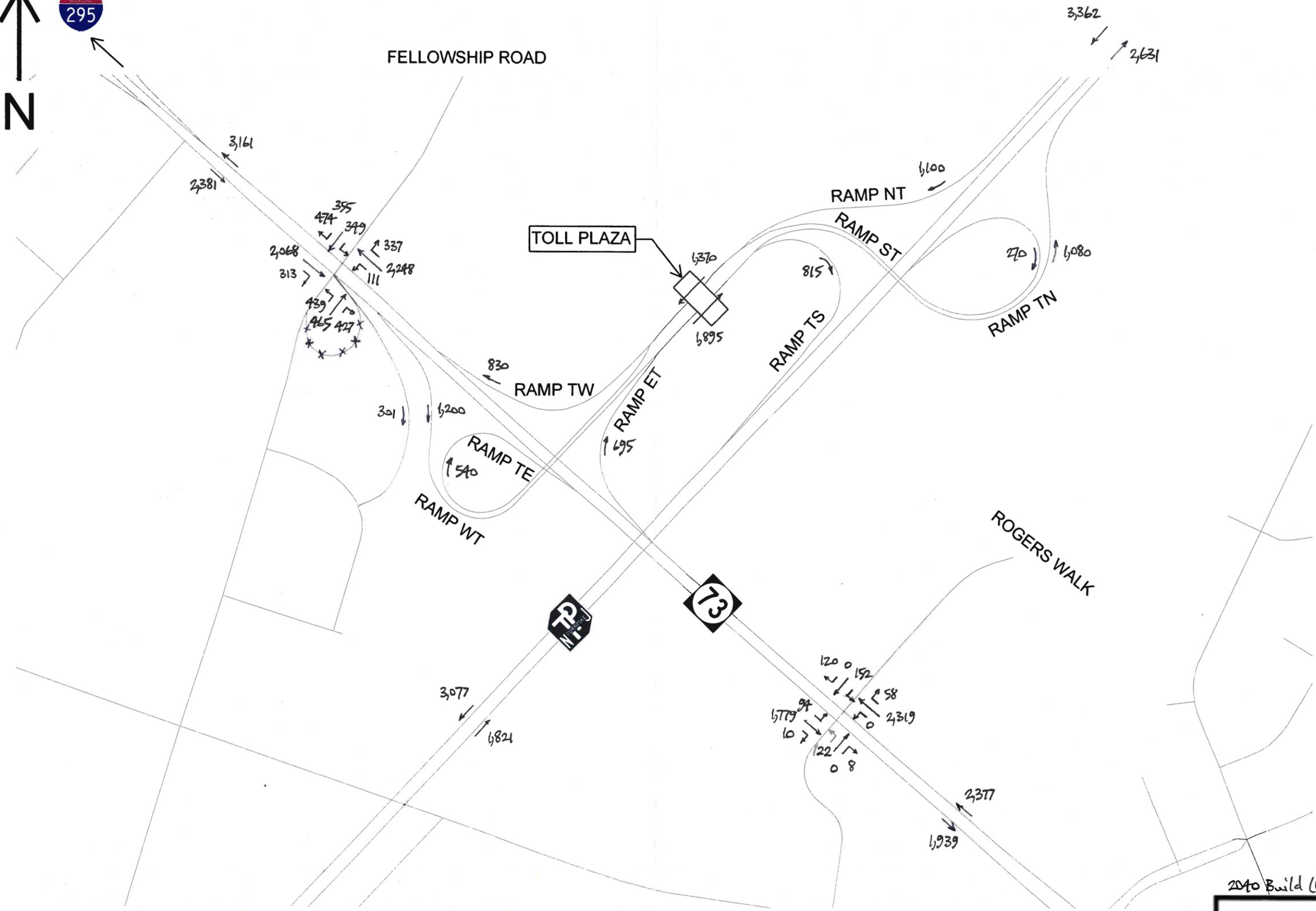
9/29/21



2040 Build (widening only) - A.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 4 NETWORK

9/12/21



2040 Build (Widening only) - P.M. Peak Hour

NJ TURNPIKE  
INTERCHANGES 1-4  
CAPACITY ENHANCEMENT PROGRAM  
INTERCHANGE 4 NETWORK

9/12/21

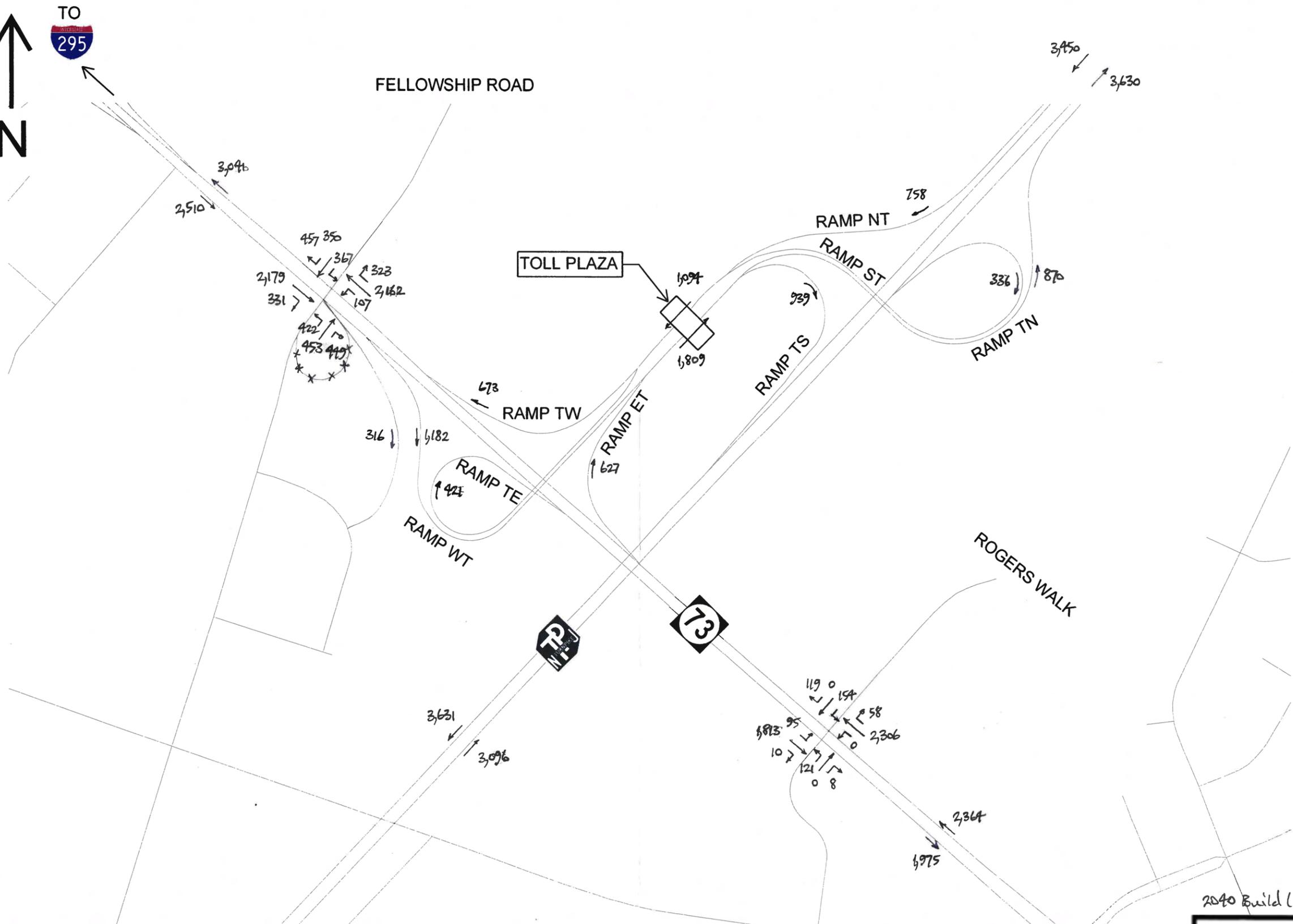


TO  
295

FELLOWSHIP ROAD

TOLL PLAZA

ROGERS WALK



2040 Build (Widening only) - Summer Fri.

NJ TURNPIKE  
 INTERCHANGES 1-4  
 CAPACITY ENHANCEMENT PROGRAM  
 INTERCHANGE 4 NETWORK

9/29/21

**TABLE:**  
**PRELIMINARY LIST OF PROPERTY ACQUISITIONS**

## Preliminary List of Property Acquisitions

Municipality	Block	Lot	Property Owner	Property Location	Property Type	Size (Acres)	Impact (Acres)	Impact (%)	2021 Taxes	Impact on Tax
<b>Carneys Point Township</b>	231	3	Crown Atlantic Co LLC	Penns Grove Auburn Rd (CR 641)	Commercial	5.05	0.01	0.20	\$23,139.73	\$46.28
<b>Carneys Point Township</b>	232	1	Hubbs, Edward	Penns Grove Auburn Rd (CR 641)	Residential	1.91	0.16	8.38	\$4,449.44	\$372.73
<b>Carneys Point Township</b>	238	1	Damon Enterprises C/O M Colsher	Penns Grove Auburn Rd (CR 641)	Farm	63.31	0.12	0.19	\$1,303.97	\$2.48
<b>Oldmans Township</b>	15.01	1	Williams, Lee C & Sara A	Auburn Road (CR 602)	Vacant	0.51	0.04	7.84	\$104.04	\$8.16
<b>Oldmans Township</b>	16	3	Sees, Donald E. & Printha K.	Auburn Road (CR 602)	Residential	4.15	0.03	0.72	\$4,942.09	\$35.58
<b>Oldmans Township</b>	19	1	Tighe, Ralph	Stumpy Lane	Farm	1.10	0.04	3.64	\$19.17	\$0.70
<b>Oldmans Township</b>	19	10	Catalano, Christina M.	Pointers Auburn Road (CR 646)	Farm	21.17	0.04	0.19	\$317.61	\$0.60
<b>Oldmans Township</b>	21	1	Byrnes, Edward L. & Barbara Lee	Auburn Road (CR 602)	Preserved Farmland	1.75	0.003	0.17	\$30.12	\$0.05
<b>Oldmans Township</b>	21	4	Maccarone, Venerando M.	Auburn Road (CR 602)	Farm	8.23	0.02	0.24	\$71.19	\$0.17
<b>Oldmans Township</b>	22	5	Sacchet, Peter R. & Angela	Stumpy Lane	Farm	1.00	0.08	8.00	\$12,961.69	\$1,036.94
<b>Oldmans Township</b>	22	11	Evans, Daniel J	Pointers Auburn Road (CR 646)	Farm	1.00	0.35	35.00	\$7,392.60	\$2,587.41
<b>Pilesgrove Township</b>	2.08	1	Williams, Lee C. & Sara A.	Auburn Road (CR 602)	Vacant	1.97	0.06	3.05	\$595.61	\$18.17
<b>Pilesgrove Township</b>	2.08	2	Builders General	Auburn Road (CR 602)	Farm	80.03	0.006	0.01	\$1,278.70	\$0.09
<b>Pilesgrove Township</b>	22	1.02	Maccarone, Venerando M.	Auburn Road (CR 602)	Residential	2.00	0.03	1.50	\$14,472.87	\$217.09
<b>Woolwich Township</b>	28	17	Swedesboro Woolwich Board of Education	Oldmans Creek Road (CR 602)	Institutional	67.57	0.40	0.59	\$ -	\$ -
<b>Woolwich Township</b>	28.51	1	Weatherby Equities 2.1 LLC	Rainey Road	Vacant	15.33	0.04	0.26	\$1065.16	\$2.78

## Preliminary List of Property Acquisitions

<b>Woolwich Township</b>	30	1.01	Gibbs, Tara L. & Williams J. Jr.	Oldmans Creek Road (CR 602)	Residential	1.51	0.15	9.93	\$9,290.94	\$922.59
<b>Woolwich Township</b>	31.02	4	Manning, Kirk A. & Susan M.	Rainey Road	Residential	1.5	0.02	1.33	\$13,541.28	\$180.10
<b>Woolwich Township</b>	46	1	Halleck, David H. & Lois R	Swedesboro-Monroeville Road (CR 694)	Residential	9.96	0.05	0.50	\$9,167.25	\$45.84
<b>Woolwich Township</b>	47.02	2	Terrance J & Lopez M Perry	Swedesboro-Monroeville Road (CR 694)	Residential	1.62	0.01	0.62	\$16,276.33	\$100.47
<b>Woolwich Township</b>	47.02	3	Scotts Glen Homeowners Association Inc.	Swedesboro-Monroeville Road (CR 694)	Vacant	1.94	0.18	9.28	\$ -	\$ -
<b>Woolwich Township</b>	47.02	5	Stepenosky, Jennifer L. & Nicholas C.	Franklinville Road (CR 538)	Residential	2.06	0.10	4.85	\$16,365.67	\$793.73
<b>Woolwich Township</b>	47.02	6	Modarelli, Christopher V. & Melissa	Franklinville Road (CR 538)	Residential	1.62	0.11	6.79	\$15,307.38	\$1,039.37
<b>Woolwich Township</b>	47.02	7	Abella, Alexandria & Thomas	Franklinville Road (CR 538)	Residential	1.61	0.05	3.11	\$13,888.31	\$431.93
<b>Woolwich Township</b>	51	1	Paoella, Lawrence Joseph Sr.	Swedesboro-Monroeville Road	Vacant	6.18	0.17	2.75	\$ -	\$ -
			Columbia Gas Transmission LLC	Franklinville Road (CR 538)			0.28	4.53	\$3,487.54	\$157.99
<b>Woolwich Township</b>	54	16	Cavellaro, John	Back Creek Road	Residential	2.87	2.87	100.00	\$3,659.34	\$3,659.34
<b>Woolwich Township</b>	54	16.01	Cameli, Joseph III & Mcconnell, Pat	Back Creek Road	Farm	14.85	0.30	2.02	\$6,325.68	\$127.79
<b>Woolwich Township</b>	55	10.02	Muhlbaier, Vernon E. & Anna	Back Creek Road	Residential	2.83	0.19	6.71	\$5,573.19	\$373.96
<b>Woolwich Township</b>	56	4	Cardillo, Constance I.	Back Creek Road	Residential	6.37	0.08	1.26	\$13,702.77	\$172.65
<b>Woolwich Township</b>	56	4.06	Pastic, Nicholas	Back Creek Road	Residential	1.47	0.02	1.36	\$8,150.19	\$110.84

## Preliminary List of Property Acquisitions

<b>Woolwich Township</b>	57	7	Cavallaro, Alfred L., <i>et al.</i>	Back Creek Road	Farm	6.93	0.0004	0.01	\$ 144.31	\$ 0.01
<b>Woolwich Township</b>	59	3	Putorti, Antonio	Interchange 2	Preserved Farmland	29.27	1.00	3.42	\$432.94	\$14.81
<b>Woolwich Township</b>	59	6.02	Seteward, Harry R., Estate of	Interchange 2	Farm <sup>(5)</sup>	7.00	0.45	6.43	\$161.49	\$10.38
<b>Harrison Township</b>	47	3	WH Development LLC	Tomlin Station Road	Farm	7.00	0.12	1.71	\$ 309.87 <sup>(1)</sup>	\$ 93.83
		4	Not Available			0.14	0.04	28.57		\$
<b>Harrison Township</b>	47	3.01	Hendry, Craig & Judith A	Tomlin Station Road	Residential	0.21	0.02	9.52	\$8,643.92	\$823.23
<b>East Greenwich Township</b>	1004	30	Leone, Samuel M.	East Wolfert Station Road (CR 664)	Preserved Farmland	30.01	0.11	0.37	\$569.08	\$2.11
<b>East Greenwich Township</b>	1004	30.01	Doyle, Michael B.	East Wolfert Station Road (CR 664)	Residential	0.79	0.03	3.80	\$5,010.30	\$190.39
<b>East Greenwich Township</b>	1005	3.01	Inna, O. & McCarty, Michael K	East Cohawkin Rd	Residential	1.96	0.008	0.41	\$7,446.20	\$30.53
<b>East Greenwich Township</b>	1005	3.02	Vag, Michael J.	East Cohawkin Rd.	Residential	2.03	0.13	6.40	\$7,286.62	\$466.34
<b>East Greenwich Township</b>	1005	4.01	Hutchison, Gerald K. & Joanne	Cedar Road (CR 673)	Residential	1.07	0.03	2.80	\$8,807.09	\$246.60
<b>East Greenwich Township</b>	1005	12	A G Land	Cedar Road (CR 673)	Preserved Farmland	189.04	0.07	0.04	\$3,995.60	\$1.60
<b>East Greenwich Township</b>	1202	8	Leone, Samuel M.	East Wolfert Station Road (CR 664)	Preserved Farmland	35.5	0.04	0.11	\$812.97	\$0.89
<b>East Greenwich Township</b>	1204	4	Lail, Thomas & Doris	Cedar Road (CR 673)	Farm	21.54	0.20	0.93	\$493.80	\$4.59

## Preliminary List of Property Acquisitions

<b>East Greenwich Township</b>	1301	1	Lail, Doris	Cedar Road (CR 673)	Farm	49.37	0.08	0.16	\$894.27	\$1.43
<b>East Greenwich Township</b>	1301	2.01	East Greenwich Township	East Cohawkin Road	Institutional	1.12	0.05	4.46	\$ -	\$ -
<b>East Greenwich Township</b>	1402.01	120	American Towers Inc.	Mantua Road (CR 678)	Commercial	6.20	0.02	0.32	\$5,838.33	\$18.68
<b>East Greenwich Township</b>	1402.01	121	New Jersey Turnpike Authority	Mantua Road (CR 678)	Institutional	16.96	0.006	0.04	\$ -	\$ -
<b>West Deptford Township</b>	375	4.01	Griffin, Calvin J. Jr.	Ogden Road (CR 646)	Residential	4.27	0.06	1.41	\$ 11,379.72 <sup>(4)</sup>	\$ 160.45 <sup>(4)</sup>
<b>West Deptford Township</b>	375	4.02	Bradley, Tiffany	Ogden Road (CR 646)	Residential	3.66	0.01	0.27	\$13,176.83	\$35.58
<b>West Deptford Township</b>	375	5.01	Hangsterfers Inc.	Ogden Road (CR 648)	Vacant	0.26	0.05	19.23	\$492.34	\$94.68
<b>West Deptford Township</b>	375.01	5.03	Hangsterfers Labor Inc.	Ogden Road (CR 646)	Vacant	5.22	0.03	0.57	\$ 24.50 <sup>(2)</sup>	\$0.14
<b>West Deptford Township</b>	375.01	5.08	Jones, William H. & Sharon J.	Ogden Road (CR 646)	Residential	6.79	0.11	1.62	\$26,914.37	\$436.01
<b>West Deptford Township</b>	376	3.01	Heather Ridge LLC	Parkville Station Road (CR 652)	Residential	35.77	0.20	0.56	\$752,180.00 <sup>(1)</sup>	\$5,265.26 <sup>(1)</sup>
		3.02					0.05	0.14		\$1,053.05
<b>Woodbury Heights Borough</b>	41	3.01	Wofford, Daniel & Gabriella	Elm Avenue (CR 652)	Residential	0.24	0.01	4.17	\$5,624.19	\$234.53

## Preliminary List of Property Acquisitions

<b>Deptford Township</b>	4	2	Pfeiffer, Jeff M.	Almonesson Road	Vacant	0.19	0.02	10.53	\$3.39 <sup>(2)</sup>	\$0.36
<b>Deptford Township</b>	4	16	Herskowitz LLC	Almonesson Road	Vacant	22.75	0.10	0.44	\$3.39 <sup>(1)</sup>	\$0.02
		19					0.02	0.09		\$ 0.00
<b>Deptford Township</b>	4	29	Herskowitz LLC	Almonesson Road	Vacant	22.27	0.11	0.49	\$3.39 <sup>(2)</sup>	\$0.02
<b>Deptford Township</b>	4.01	1	Deptford Township	Almonesson Road	Institutional	23.00	0.32	1.39	\$ -	\$ -
<b>Deptford Township</b>	5.04	76	Locust Grove Com Fac.	Turkey Hill Road (CR 646)	Vacant	0.34	0.14	41.17	\$ -	\$ -
<b>Deptford Township</b>	5.43	1	Trans Gas Pipe Corp.	Turkey Hill Road (CR 646)	Vacant	0.67	0.17	25.37	\$84.90	\$21.54
<b>Deptford Township</b>	83	2	Stonybrook Assoc	Cooper Street (CR 534)	Residential	21.81	0.15	0.69	\$470,777.29	\$3,248.36
<b>Deptford Township</b>	87	12	Tremarcke, Chris	Cooper Street (CR 534)	Vacant	3.89	0.08	2.06	\$1,304.07	\$26.86
<b>Deptford Township</b>	87	65	Timms, Daniel G. Jr. & Marilyn	Cooper Street (CR 534)	Vacant	0.45	0.45	100.00	\$227.53	\$227.53
<b>Deptford Township</b>	120	3	Devereux Foundation & Carol Long	Tanyard Road (CR 663)	Institutional	0.31	0.02	6.45	\$ -	\$ -
<b>Deptford Township</b>	120	4	Hanstein, Bonnie L/E R. Underwood	Tanyard Road (CR 663)	Residential	0.17	0.001	0.59	\$5,542.27	\$32.70
<b>Deptford Township</b>	120	9	Mazzioto, John	Tanyard Road (CR 663)	Residential	0.17	0.008	4.71	\$4,245.00	\$199.94
<b>Deptford Township</b>	121	11	Tash, Donald & Kathy	Tanyard Road (CR 663)	Residential	0.08	0.08	100.0	\$5,813.95 <sup>(1)</sup>	\$5,813.95
		12				0.15	0.15			
<b>Deptford Township</b>	150	1	Sargent, Kimberly J.	Delsea Drive	Residential	0.37	0.03	8.12	\$6,146.76	\$499.12
<b>Deptford Township</b>	156	1	New Jersey Turnpike Accounts Payable	Delsea Drive	Vacant	0.64	0.02	3.13	\$2037.60	\$63.78
<b>Deptford Township</b>	453	1	Marl Enterprises LLC	Delsea Drive	Vacant	3.10	0.14	4.52	\$264.89	\$11.97

## Preliminary List of Property Acquisitions

<b>Deptford Township</b>	456	7	Amsdell Storage Ventures XXV LLC	Delsea Drive	Commercial	5.54	0.06	1.08	\$130,881.84	\$1,413.52
<b>Deptford Township</b>	467	10	Kaiser, Kevin M. & Lisa A.	Tanyard Road (CR 663)	Residential	0.15	0.003	2.00	\$4,567.62	\$91.35
<b>Deptford Township</b>	467	11	Colborn, William	Tanyard Road (CR 663)	Residential	0.15	0.005	3.33	\$4,774.77	\$159.00
<b>Deptford Township</b>	467	12	Hippler, Helen M	Tanyard Road (CR 663)	Residential	0.16	0.006	3.75	\$3,973.32	\$149.00
<b>Deptford Township</b>	467	13	Maurer, Patricia	Tanyard Road (CR 663)	Residential	0.18	0.01	5.56	\$4,516.68	\$251.13
<b>Runnemede Borough</b>	135	32	HDDA RLD Runnemede LLC	Interchange 3	Commercial	4.5	0.98	21.78	\$179,192.44	\$39028.11
<b>Runnemede Borough</b>	135	30	Patricia L. Ricciardi	Interchange 3	Residential	1.03	1.03	100.00	\$4,650.38	\$4,650.387
<b>Barrington Borough</b>	11.01	1	Dromgoole Shirley & Dayton Ed, L/E	Shreve Avenue	Institutional	0.61	0.61	100.00	\$ -	\$ -
<b>Barrington Borough</b>	13	1.02	RRB Real Estate	Shreve Avenue	Industrial	1.09	0.08	7.34	\$2,862.14	\$210.08
<b>Barrington Borough</b>	13.03	3	Good News Outreach Inc.	Shreve Avenue	Institutional	2.14	0.15	7.01	\$ -	\$ -
<b>Lawnside Borough</b>	1001	22	Lawnside Borough	Warwick Road (CR 669)	Institutional	0.12	0.01	8.33	\$ -	\$ -
<b>Lawnside Borough</b>	1001	23	Wiley Jerry Payne	Warwick Road (CR 669)	Residential	0.34	0.34	100.00	\$4,939.37	\$4,939.37
<b>Lawnside Borough</b>	1004	1	Herring, Oscar L. & Trina D.	Warwick Road (CR 669)	Residential	0.16	0.16	100.00	\$8,454.86	\$8,454.86
<b>Lawnside Borough</b>	1004	67	Grace Temple Baptist Church	Warwick Road (CR 669)	Institutional	0.26	0.02	7.69	\$ -	\$ -
<b>Lawnside Borough</b>	1004	68	Herring, Oscar L. & Trina D.	Warwick Road (CR 669)	Vacant	0.1	0.1	100.00	\$194.57	\$194.57
<b>Lawnside Borough</b>	1004	69	Herring, Oscar L. & Trina D.	Warwick Road (CR 669)	Vacant	0.12	0.12	100.00	\$229.94	\$229.94
<b>Lawnside Borough</b>	1214	1	Andrews, Cecelia Y.	Warwick Road (CR 669)	Residential	0.20	0.01	5.00	\$4,634.26	\$231.71
<b>Lawnside Borough</b>	1214	22	Emanuel Church of God in Christ	Warwick Road (CR 669)	Institutional	0.10	0.01	10.00	\$ -	\$ -

## Preliminary List of Property Acquisitions

<b>Lawnside Borough</b>	1215	1	Lawnside Urban Ren c/o Conifer Real	Warwick Road (CR 669)	Residential	1.47	0.02	1.36	\$8,025.93	\$109.15
<b>Lawnside Borough</b>	1216	2	Lawnside Borough	Warwick Road (CR 669)	Institutional	0.87	0.07	8.05	\$ -	\$ -
<b>Lawnside Borough</b>	1301	9	Transcontinental Gas Pipeline Corp.	Gloucester Pike (CR 659)	Vacant	0.15	0.11	73.33	\$181.30	\$132.95
<b>Lawnside Borough</b>	1301	10	--	Gloucester Pike (CR 659)	Vacant	0.41	0.08	19.51	\$123.82	\$24.16
<b>Cherry Hill Township</b>	433.01	1	Maia Properties LLC	Haddonfield-Berlin Road (CR 561)	Commercial	0.57	0.09	15.79	\$24,044.74	\$3,796.66
<b>Cherry Hill Township</b>	433.01	2	Woodcrest Plaza Bar I LLC	Haddonfield-Berlin Road (CR 561)	Commercial	15.52	0.27	1.74	\$308,367.77	\$5,365.60
<b>Cherry Hill Township</b>	433.02	13	Maia Properties LLC	Haddonfield-Berlin Road (CR 561)	Vacant	0.59	0.005	0.85	\$3,279.20	\$27.87
<b>Cherry Hill Township</b>	436.02	5	Bre/Esa P Portfolio LLC Pt #455	East Marlton Pike (NJ 70)	Commercial	1.65	0.03	1.82	\$108,443.15	\$1,973.67
<b>Cherry Hill Township</b>	436.02	6	Township of Cherry Hill	East Marlton Pike (NJ 70)	Institutional	0.03	0.01	33.33	\$ -	\$ -
<b>Cherry Hill Township</b>	464.02	9	Grand Prix Cherry Hill LLC	East Marlton Pike (NJ 70)	Commercial	5.50	0.02	0.36	\$225,445	\$819.80
<b>Cherry Hill Township</b>	464.03	2	Grand Prix Cherry Hill LLC	East Marlton Pike (NJ 70)	Vacant	0.70	0.12	17.14	\$1,180.51	\$202.34
<b>Cherry Hill Township</b>	500.01	1	Cherry Hill Equities LLC	East Marlton Pike (NJ 70)	Commercial	0.87	0.03	3.45	\$32,578.85	\$123.97
<b>Cherry Hill Township</b>	500.02	2	Commerce Bank, N.A.	East Marlton Pike (NJ 70)	Commercial	3.96	0.04	1.01	\$254,138.00	\$2,566.79
<b>Cherry Hill Township</b>	502.01	1	High Place Church Inc.	East Marlton Pike (NJ 70)	Institutional	18.24	0.22	1.21	\$ -	\$ -

## Preliminary List of Property Acquisitions

<b>Cherry Hill Township</b>	502.01	2	More Cherry Hill Plaza LLC Rc Management	East Marlton Pike (NJ 70)	Commercial	2.22	0.06	2.70	\$165,558.61	\$4,470.08
<b>Cherry Hill Township</b>	502.01	3	Lahn Real Estate Inc.	East Marlton Pike (NJ 70)	Commercial	0.26	0.26	100.0	\$8,128.31	\$8,128.31
<b>Cherry Hill Township</b>	502.01	5	Lahn Real Estate Inc.	East Marlton Pike (NJ 70)	Commercial	1.44	0.03	2.08	\$45,252.96	\$941.26
<b>Cherry Hill Township</b>	502.01	23	Sergi, Joseph B &	East Marlton Pike (NJ 70)	Vacant	0.05	0.01	20.00	\$4.10	\$0.82
<b>Mount Laurel Township</b>	1300	13	Republic Services of NJ, Inc.	Church Road (CR 616)	Industrial	8.71	0.02	0.23	\$135,991.59	\$312.78
<b>Mount Laurel Township</b>	1302	2.01	Avida Holdings: Distribution One	Church Road (CR 616)	Commercial	1.94	0.09	4.64	\$31,846.15	\$1,477.66
<b>Mount Laurel Township</b>	1302	5	New Jersey Turnpike Authority	Church Road (CR 616)	Institutional	0.01	0.005	50.00	\$ -	\$ -
									<b>TOTAL</b>	<b>\$122,254.00</b>

**Source:** 2021 Municipal tax records

**Notes:** Parcels without tax information are tax exempt

- (1) One municipal tax bill was provided for multiple lots within the same block. The percentage of impact on taxes was calculated for each lot then combined to calculate impact to taxes.
- (2) Multiple parcels owned by the same property owner were grouped together in one municipal tax bill, which was used to determine the impact on tax value.
- (3) Year 2021 tax information was not available; 2020 tax information was used.
- (4) Years 2021 and 2020 tax information were not available; 2019 tax information was used.
- (5) These properties have been acquired by the forthcoming WH Development (Russo).

**TABLE:**  
**NEWLY IDENTIFIED HISTORIC ARCHITECTURAL RESOURCES**

## Newly Identified Historic Architectural Resources

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
New Jersey Turnpike Bridges	-	Multiple	Multiple	Recommended Not NR/SR Eligible
704 Fellowship Road	B-004	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
4100 Church Road	B-006	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
4101 Church Road	B-007	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
1104 Route 73	B-009	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
4009 Church Road	B-010	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
560 Fellowship Road	B-012	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
538 Fellowship Road	B-013	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
Camden Toll Plaza	B-014	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
109-113 West Park Drive	B-015	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
1111 Route 73	B-016	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
112 West Park Drive	B-017	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
100 Gather Drive	B-026	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
720 South Church Street	B-028	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
721 South Church Street	B-029	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
4000 Church Road	B-039	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
4106 Church Road	B-040	Mount Laurel Township	Burlington	Recommended Not NR/SR Eligible
200 Heller Place	C-023	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
201 Heller Place	C-024	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
191 Heller Place	C-025	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
171 Heller Place	C-026	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
151 Heller Place	C-027	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
Manor Court Residential Streetscape	C-046	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
1010 Rose Avenue	C-047	Runnemede Borough	Camden	Recommended Not NR/SR Eligible

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
1030 Rose Avenue	C-048	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
1025 North Black Horse Pike	C-049	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
East 11th Avenue Residential Streetscape	C-050	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
1050 Central Avenue	C-051	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
1002 Central Avenue	C-052	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
109 East 9th Avenue	C-053	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
Lenton Avenue Residential Streetscape	C-055	Barrington Borough	Camden	Recommended Not NR/SR Eligible
887 Clements Bridge Road	C-056	Barrington Borough	Camden	Recommended Not NR/SR Eligible
Cleveland Avenue	C-057	Barrington Borough	Camden	Recommended Not NR/SR Eligible
Grace Bible Church	C-058	Barrington Borough	Camden	Recommended Not NR/SR Eligible
Vaughn/Roberts/Lott Avenue Residential Streetscapes	C-059	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
150 Shreve Avenue	C-063	Barrington Borough	Camden	Recommended Not NR/SR Eligible
152 Shreve Avenue	C-064	Barrington Borough	Camden	Recommended Not NR/SR Eligible
160 Shreve Avenue	C-066	Barrington Borough	Camden	Recommended Not NR/SR Eligible
140 Shreve Avenue	C-072	Barrington Borough	Camden	Recommended Not NR/SR Eligible
141 Shreve Avenue	C-073	Barrington Borough	Camden	Recommended Not NR/SR Eligible
20 White Horse Pike	C-076	Lawnside Borough	Camden	Recommended Not NR/SR Eligible
192 West Oak Avenue	C-077	Lawnside Borough	Camden	Recommended Not NR/SR Eligible
190 West Oak Avenue	C-078	Lawnside Borough	Camden	Recommended Not NR/SR Eligible
184 West Oak Avenue	C-079	Lawnside Borough	Camden	Recommended Not NR/SR Eligible
301 East Oak Avenue	C-092	Lawnside Borough	Camden	Recommended Not NR/SR Eligible
1403 Haddonfield-Berlin Road	C-096	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1401 Haddonfield-Berlin Road	C-097	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1501 Burnt Mill Road	C-098	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
Walt Whitman Service Area	C-102	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
485 Browning Lane	C-103	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
499 Browning Lane	C-105	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
703 Kresson Road	C-107	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
N/A	C-110	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
New Jersey Department of Transportation Maintenance Yard, District 4	C-119	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1841 Old Cuthbert Road	C-122	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
7 Esterbrook Lane	C-127	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
6 Esterbrook Lane	C-128	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
9 North Olney Avenue	C-129	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
5 North Olney Avenue	C-130	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
3 North Olney Avenue	C-132	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
2096 Springdale Road	C-133	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
2098 Springdale Road	C-134	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
16 Laurel Hill Drive	C-146	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
18 Laurel Hill Drive	C-157	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
22 Laurel Hill Drive	C-158	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
14 Laurel Hill Drive	C-159	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
12 Laurel Hill Drive	C-160	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1728 Route 70 East	C-161	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1722 Route 70 East	C-162	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1731 Route 70 East	C-163	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1637-1641 Route 70 East	C-164	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
1500 Berlin Road	C-165	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible
Burnt Mill Road/Haddonfield-Berlin Road Residential Streetscapes	C-166	Cherry Hill Township	Camden	Recommended Not NR/SR Eligible

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
505 Center Street	C-169	Barrington Borough	Camden	Recommended Not NR/SR Eligible
204 Shreve Avenue	C-170	Barrington Borough	Camden	Recommended Not NR/SR Eligible
208 Shreve Avenue	C-171	Barrington Borough	Camden	Recommended Not NR/SR Eligible
168 Shreve Avenue	C-172	Barrington Borough	Camden	Recommended Not NR/SR Eligible
510 Center Street	C-173	Barrington Borough	Camden	Recommended Not NR/SR Eligible
516 Center Street	C-174	Barrington Borough	Camden	Recommended Not NR/SR Eligible
2 Clark Drive	C-175	Barrington Borough	Camden	Recommended Not NR/SR Eligible
8 Clark Drive	C-176	Barrington Borough	Camden	Recommended Not NR/SR Eligible
10 Clark Drive	C-177	Barrington Borough	Camden	Recommended Not NR/SR Eligible
402 Roberts Avenue	C-179	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
340 Roberts Avenue	C-180	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
122 South Bellmawr Avenue	C-181	Bellmawr Borough	Camden	Recommended Not NR/SR Eligible
Philadelphia & Atlantic City Railroad	C-216	Lawnside Borough	Camden	Recommended NR/SR Eligible
PRSL Grenloch Branch	C-217	Runnemede Borough	Camden	Recommended Not NR/SR Eligible
Lawnside Historic District	C-218	Lawnside Borough	Camden	Recommended NR/SR Eligible
183 Woodstown Road	G-040	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
31 Davidson Road	G-041	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
150 Franklinville Road	G-043	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
201 Back Creek Road	G-044	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
200 Back Creek Road	G-045	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
280 Back Creek Road	G-046	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
Swedesboro Interchange Building	G-047	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
New Jersey Turnpike Authority Facility, 1084 US 322	G-049	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
74 East Tomlin Station Road	G-051	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
92 Cedar Road	G-052	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
111 East Cohawkin Road	G-053	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
105 East Cohawkin Road	G-054	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
114 Mantua Road	G-056	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
126 Mantua Road	G-057	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
Mantua Road; Block 1404, Lot 1	G-058	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
Heather Ridge Apartments	G-059	West Deptford Township	Gloucester	Recommended Not NR/SR Eligible
209 Parkville Station Road	G-060	West Deptford Township	Gloucester	Recommended Not NR/SR Eligible
Holly Drive Residential Streetscape	G-061	West Deptford Township	Gloucester	Recommended Not NR/SR Eligible
Central Avenue Residential Streetscape	G-065	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
240 Elm Avenue	G-066	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
230 Elm Avenue	G-067	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
40 Elm Avenue	G-068	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
30 Elm Avenue	G-069	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
45 Elm Avenue	G-071	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
41 Elm Avenue	G-072	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
35 Elm Avenue	G-073	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
Ivy Drive Residential Streetscape	G-074	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
371 Glassboro Road	G-076	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
415 Glassboro Road	G-077	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
414 Glassboro Road	G-078	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
370 Glassboro Road	G-079	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
358 Glassboro Road	G-080	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
Woodbury Lake Road Residential Streetscape (1950s)	G-081	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
Lake Tract School	G-082	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
661 Iszard Road	G-083	Deptford Township	Gloucester	Recommended Not NR/SR Eligible

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
Tanyard Road/Hemlock Terrace Residential Streetscapes	G-084	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
669 Tanyard Road	G-085	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
636 Iszard Road	G-086	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
637 Tanyard Road	G-087	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
643 Tanyard Road	G-088	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
649 Tanyard Road	G-089	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
649 Tanyard Road	G-090	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
Community Fire Department No. 1	G-091	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
777 Maple Road	G-092	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
763 Maple Road	G-093	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
761 Maple Road	G-094	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
Stonybrook Apartment Complex	G-100	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
1012 Madison Drive	G-104	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
1018 Madison Drive	G-105	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
1024 Madison Drive	G-106	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
423 Arline Avenue	G-108	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
129 Turkey Hill Road	G-118	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
135 Turkey Hill Road	G-119	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
132 Turkey Hill Road	G-120	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
150 Turkey Hill Road	G-121	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
156 Turkey Hill Road	G-122	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
158 Turkey Hill Road	G-123	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
164 Turkey Hill Road	G-124	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
Turkey Hill Road (CR 646) over New Jersey Turnpike	G-144	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
364 Glassboro Road	G-150	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
237 Elm Avenue	G-151	Woodbury Heights Borough	Gloucester	Recommended Not NR/SR Eligible
Gates of Heaven Memorial Park	G-153	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
99 East Cohawkin Road	G-154	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
104 East Cohawkin Road	G-155	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
95 East Wolfert Station Road	G-156	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
107 Tomlin Station Road	G-157	Harrison Township	Gloucester	Recommended Not NR/SR Eligible
Woodbury Lake Road Residential Streetscape (1920s)	G-159	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
Green Cemetery	G-160	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
1310 Delsea Drive	G-161	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
229 Parkville Station Road	G-162	West Deptford Township	Gloucester	Recommended Not NR/SR Eligible
225 Parkville Station Road	G-163	West Deptford Township	Gloucester	Recommended Not NR/SR Eligible
221 Parkville Station Road	G-164	West Deptford Township	Gloucester	Recommended Not NR/SR Eligible
70 East Wolfert Station Road	G-165	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
98 East Wolfert Station Road	G-166	East Greenwich Township	Gloucester	Recommended Not NR/SR Eligible
202 Ogden Station Road	G-169	West Deptford Township	Gloucester	Recommended Not NR/SR Eligible
668 Tanyard Road	G-170	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
766 Maple Road	G-171	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
624 Ward Drive	G-172	Deptford Township	Gloucester	Recommended Not NR/SR Eligible
PRSL Salem Branch	G-174	Woolwich Township	Gloucester	Recommended Not NR/SR Eligible
772 Harding Highway	S-112	Carneys Point Township	Salem	Recommended Not NR/SR Eligible
965 Harding Highway	S-119	Carneys Point Township	Salem	Recommended Not NR/SR Eligible
John Fenwick Service Area	S-121	Oldmans Township	Salem	Recommended Not NR/SR Eligible
Clara Barton Service Area	S-122	Oldmans Township	Salem	Recommended Not NR/SR Eligible
263 Penns Grove-Auburn Road	S-135	Oldmans Township	Salem	Recommended Not NR/SR Eligible
52 Pointers-Auburn Road	S-144	Oldmans Township	Salem	Recommended Not NR/SR Eligible

Name/Address	AECOM ID	Municipality	County	AECOM Recommendation
495 Auburn Road	S-145	Pilesgrove Township	Salem	Recommended Not NR/SR Eligible
25 Pointers-Auburn Road	S-146	Oldmans Township	Salem	Recommended Not NR/SR Eligible

Source: AECOM 2022

## **AIR QUALITY MODELING DATA**

USEPA MOVES Model Sample Runspec  
January AM - CO and PM2.5

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## CAL3QHC CO Modeling Inputs and Outputs

NJ State Route 73 and Fellowship Road  
Input and Output – AM Peak Hour Sample

# Input

'NJ73_Fellowship Rd CO B AM'		60	175	0	0	45	0.3048	1	1
'R1'	363017.5	400289.6	6						
'R2'	363035.7	400346.3	6						
'R3'	363072.8	400397.0	6						
'R4'	363109.8	400447.7	6						
'R5'	363146.9	400498.4	6						
'R6'	363184.0	400549.1	6						
'R7'	363243.4	400619.7	6						
'R8'	363032.1	400490.6	6						
'R9'	362994.6	400440.2	6						
'R10'	362968.0	400404.4	6						
'R11'	362944.9	400373.3	6						
'R12'	363168.9	400677.5	6						
'R13'	363132.2	400626.5	6						
'R14'	363095.6	400575.4	6						
'R15'	363057.3	400522.1	6						
'R16'	362919.0	400367.6	6						
'R17'	362878.3	400396.0	6						
'R18'	362843.5	400425.2	6						
'R19'	362795.1	400465.4	6						
'R20'	362746.7	400505.5	6						
'R21'	362577.0	400454.8	6						
'R22'	362624.4	400413.5	6						
'R23'	362671.7	400372.1	6						
'R24'	362719.0	400330.7	6						
'R25'	362766.4	400289.3	6						
'R26'	362808.7	400252.3	6						
'R27'	362813.7	400191.8	6						
'R28'	362779.0	400139.6	6						
'R29'	362748.5	400084.7	6						
'R30'	362724.8	400025.0	6						
'R31'	362682.3	399904.2	6						
'R32'	362663.6	399844.3	6						
'R33'	362704.5	399962.9	6						
'R34'	362749.6	399822.4	6						
'R35'	362772.7	399880.8	6						
'R36'	362795.8	399939.1	6						
'R37'	362819.6	399997.2	6						
'R38'	362844.0	400055.0	6						
'R39'	362879.5	400106.5	6						
'R40'	362917.9	400157.6	6						
'R41'	362714.8	400537.8	6						
'R42'	362536.2	400492.2	6						
'R43'	362671.6	400569.5	6						
'R44'	363195.6	400721.2	6						
'R45'	363270.3	400666.0	6						
'NJ168_NJ41 CO B AM'		30	1	1	'c'				
1									
'A-NB-NJ73-1' 'AG'	363523.6962	399763.4828	363172.8411	400068.1874	2926	1.43	0	44	
1									
'A-NB-NJ73-2' 'AG'	363172.8411	400068.1874	362923.2017	400288.5561	2246	1.43	0	66	
1									
'A-NB-NJ73-3' 'AG'	363183.7914	400076.5228	362972.394	400280.9268	680	1.43	0	22	
1									
'A-SB-NJ73-1' 'AG'	362298.297	400760.6505	362615.8933	400472.7106	2879	1.21	0	44	
1									
'A-SB-NJ73-2' 'AG'	362615.8933	400472.7106	362899.6474	400244.6956	2248	1.21	0	88	
1									
'A-SB-NJ73-3' 'AG'	362601.6531	400457.8471	362855.4321	400233.306	631	1.21	0	22	



# Output

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221

PAGE 1

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

DATE : 11/ 3/22

TIME : 12:54:55

The MODE flag has been set to c for calculating CO averages.

## SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S ZO = 175. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

## LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* (FT)	(DEG)	LENGTH (G/MI)	BRG (FT)	TYPE (FT)	VPH (VEH)	EF	H	W	V/C	QUEUE
1. A-NB-NJ73-1	* 363523.7	399763.5	363172.9	400068.2	*	465.	311.	AG	2926.	1.4	0.0	44.0			
2. A-NB-NJ73-2	* 363172.9	400068.2	362923.2	400288.6	*	333.	311.	AG	2246.	1.4	0.0	66.0			
3. A-NB-NJ73-3	* 363183.8	400076.5	362972.4	400281.0	*	294.	314.	AG	680.	1.4	0.0	22.0			
4. A-SB-NJ73-1	* 362298.3	400760.7	362615.9	400472.7	*	429.	132.	AG	2879.	1.2	0.0	44.0			
5. A-SB-NJ73-2	* 362615.9	400472.7	362899.7	400244.7	*	364.	129.	AG	2248.	1.2	0.0	88.0			
6. A-SB-NJ73-3	* 362601.7	400457.9	362855.4	400233.3	*	339.	132.	AG	631.	1.2	0.0	22.0			
7. A-WB-FellowshipRd-1	* 363355.6	400939.4	363179.1	400630.0	*	356.	210.	AG	840.	1.3	0.0	40.0			
8. A-WB-FellowshipRd-2	* 363179.1	400630.0	362904.0	400282.0	*	444.	218.	AG	351.	1.3	0.0	20.0			
9. A-WB-FellowshipRd-3	* 363183.2	400618.3	362905.6	400271.2	*	444.	219.	AG	178.	1.3	0.0	40.0			
10. A-WB-FellowshipRd-4	* 363168.3	400632.5	362912.4	400315.2	*	408.	219.	AG	311.	1.3	0.0	20.0			
11. A-EB-FellowshipRd-1	* 362651.2	399563.0	362769.2	399993.1	*	446.	15.	AG	1179.	1.4	0.0	40.0			
12. A-EB-FellowshipRd-2	* 362769.2	399993.1	362913.0	400253.8	*	298.	29.	AG	770.	1.4	0.0	40.0			
13. A-EB-FellowshipRd-3	* 362745.0	399988.3	362892.3	400269.6	*	318.	28.	AG	250.	1.4	0.0	40.0			
14. A-EB-FellowshipRd-4	* 362781.5	399983.8	362921.8	400214.7	*	270.	31.	AG	159.	1.4	0.0	20.0			
15. D-SB-NJ73-1	* 362913.0	400253.8	363484.1	399750.4	*	761.	131.	AG	2585.	1.2	0.0	66.0			
16. D-NB-NJ73-1	* 362934.1	400296.8	362335.2	400803.9	*	785.	310.	AG	2807.	1.3	0.0	66.0			
17. D-EB-FellowshipRd-1	* 362927.2	400241.2	363236.9	400657.2	*	519.	37.	AG	1450.	2.0	0.0	40.0			
18. D-EB-FellowshipRd-2	* 363236.9	400657.2	363372.9	400919.4	*	295.	27.	AG	1450.	2.0	0.0	40.0			
19. D-WB-FellowshipRd-1	* 362891.2	400285.4	362739.0	400015.8	*	310.	209.	AG	982.	1.4	0.0	20.0			
20. D-WB-FellowshipRd-2	* 362739.0	400015.8	362611.4	399566.4	*	467.	196.	AG	982.	1.4	0.0	10.0			
21. Q-NB-NJ73-1	* 363172.9	400068.2	362223.1	400906.5	*	1267.	311.	AG	13.100.0	0.0	36.0	1.12	64.4		
22. Q-NB-NJ73-2	* 363183.8	400076.5	362784.3	400462.8	*	556.	314.	AG	4.100.0	0.0	12.0	1.02	28.2		
23. Q-SB-NJ73-1	* 362615.9	400472.7	362812.0	400315.1	*	252.	129.	AG	17.100.0	0.0	48.0	0.84	12.8		
24. Q-SB-NJ73-2	* 362601.7	400457.9	362853.7	400234.9	*	337.	132.	AG	4.100.0	0.0	12.0	0.95	17.1		
25. Q-WB-FellowshipRd-1	* 363179.1	400630.0	361784.0	398850.2	*	2261.	218.	AG	7.100.0	0.0	10.0	2.21	114.9		
26. Q-WB-FellowshipRd-2	* 363183.2	400618.3	363145.8	400571.6	*	60.	219.	AG	13.100.0	0.0	20.0	0.56	3.0		
27. Q-WB-FellowshipRd-3	* 363168.3	400632.5	362038.9	399198.6	*	1825.	218.	AG	7.100.0	0.0	10.0	1.96	92.7		
28. Q-EB-FellowshipRd-1	* 362769.2	399993.1	364040.5	402297.7	*	2632.	29.	AG	13.100.0	0.0	20.0	2.42	133.7		
29. Q-EB-FellowshipRd-2	* 362745.0	399988.3	362789.3	400072.7	*	95.	28.	AG	13.100.0	0.0	20.0	0.79	4.8		
30. Q-EB-FellowshipRd-3	* 362781.5	399983.8	362869.1	400127.5	*	168.	31.	AG	7.100.0	0.0	10.0	1.00	8.6		

PAGE 2

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

DATE : 11/ 3/22

TIME : 12:54:55

## ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION \* CYCLE RED CLEARANCE APPROACH SATURATION IDLE SIGNAL ARRIVAL  
\* LENGTH TIME LOST TIME VOL FLOW RATE EM FAC TYPE RATE

	*	(SEC)	(SEC)	(SEC)	(VPH)	(VPH)	(gm/hr)		
21. Q-NB-NJ73-1	*	144	78	4.0	2246	1600	2.90	1	3
22. Q-NB-NJ73-2	*	144	78	4.0	680	1600	2.90	1	3
23. Q-SB-NJ73-1	*	144	78	4.0	2248	1600	2.90	1	3
24. Q-SB-NJ73-2	*	144	78	4.0	631	1600	2.90	1	3
25. Q-WB-FellowshipRd-1	*	144	123	4.7	351	1600	2.90	1	3
26. Q-WB-FellowshipRd-2	*	144	123	4.7	178	1600	2.90	1	3
27. Q-WB-FellowshipRd-3	*	144	123	4.7	311	1600	2.90	1	3
28. Q-EB-FellowshipRd-1	*	144	123	4.7	770	1600	2.90	1	3
29. Q-EB-FellowshipRd-2	*	144	123	4.7	250	1600	2.90	1	3
30. Q-EB-FellowshipRd-3	*	144	123	4.7	159	1600	2.90	1	3

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT)			*
	*	X	Y	Z	*
1. R1	*	363017.5	400289.6	6.0	*
2. R2	*	363035.7	400346.3	6.0	*
3. R3	*	363072.8	400397.0	6.0	*
4. R4	*	363109.8	400447.7	6.0	*
5. R5	*	363146.9	400498.4	6.0	*
6. R6	*	363184.0	400549.1	6.0	*
7. R7	*	363243.4	400619.7	6.0	*
8. R8	*	363032.1	400490.6	6.0	*
9. R9	*	362994.6	400440.2	6.0	*
10. R10	*	362968.0	400404.4	6.0	*
11. R11	*	362944.9	400373.3	6.0	*
12. R12	*	363168.9	400677.5	6.0	*
13. R13	*	363132.2	400626.5	6.0	*
14. R14	*	363095.6	400575.4	6.0	*
15. R15	*	363057.3	400522.1	6.0	*
16. R16	*	362919.0	400367.6	6.0	*
17. R17	*	362878.3	400396.0	6.0	*
18. R18	*	362843.5	400425.2	6.0	*
19. R19	*	362795.1	400465.4	6.0	*
20. R20	*	362746.7	400505.5	6.0	*
21. R21	*	362577.0	400454.8	6.0	*
22. R22	*	362624.4	400413.5	6.0	*
23. R23	*	362671.7	400372.1	6.0	*
24. R24	*	362719.0	400330.7	6.0	*
25. R25	*	362766.4	400289.3	6.0	*
26. R26	*	362808.7	400252.3	6.0	*
27. R27	*	362813.7	400191.8	6.0	*
28. R28	*	362779.0	400139.6	6.0	*
29. R29	*	362748.5	400084.7	6.0	*
30. R30	*	362724.8	400025.0	6.0	*
31. R31	*	362682.3	399904.2	6.0	*
32. R32	*	362663.6	399844.3	6.0	*
33. R33	*	362704.5	399962.9	6.0	*
34. R34	*	362749.6	399822.4	6.0	*
35. R35	*	362772.7	399880.8	6.0	*

RECEPTOR	COORDINATES (FT)		
	X	Y	Z
36. R36	362795.8	399939.1	6.0
37. R37	362819.6	399997.2	6.0
38. R38	362844.0	400055.0	6.0
39. R39	362879.5	400106.5	6.0
40. R40	362917.9	400157.6	6.0
41. R41	362714.8	400537.8	6.0
42. R42	362536.2	400492.2	6.0
43. R43	362671.6	400569.5	6.0
44. R44	363195.6	400721.2	6.0
45. R45	363270.3	400666.0	6.0

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)

(DEGR)\* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19 REC20

0.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
1.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
2.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
3.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
4.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
5.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
6.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
7.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
8.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
9.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
11.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
12.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
13.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
14.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
15.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
16.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
17.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
18.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
19.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
21.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
22.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
23.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
24.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
25.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
26.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
27.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
28.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0













325. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
326. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
327. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
328. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
329. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
330. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
331. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
332. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
333. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
334. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
335. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
336. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
337. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
338. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
339. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
340. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
341. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
342. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
343. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
344. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
345. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
346. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
347. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
348. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
349. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
350. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
351. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
352. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
353. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0

PAGE 11

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19 REC20  
REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39 REC40  
REC41 REC42 REC43 REC44 REC45

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354. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
355. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
356. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
357. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
358. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0  
359. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0  
360. \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0

-----\*-----  
MAX \* 0.2 0.2 0.1 0.1 0.1 0.2 0.2 0.2 0.2 0.1 0.3 0.1 0.2 0.2 0.2 0.3 0.3 0.2 0.2 0.2  
DEGR. \* 144 261 0 0 0 227 349 58 54 35 148 0 201 184 61 155 139 144 287 286















344. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.1  
 345. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.1  
 346. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.1  
 347. \* 0.2 0.3 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.1

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39  
 REC40

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 348. \* 0.2 0.3 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.1  
 349. \* 0.2 0.3 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.1  
 350. \* 0.2 0.3 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.1  
 351. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 352. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 353. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 354. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 355. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 356. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 357. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 358. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 359. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 360. \* 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0  
 -----\*-----

MAX \* 0.3 0.3 0.3 0.2 0.2 0.2 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.2  
 DEGR. \* 102 88 327 0 0 0 0 25 22 34 0 0 0 0 204 211 0 0 0 0 11

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

MODEL RESULTS

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REMARKS : In search of the angle corresponding to  
 the maximum concentration, only the first  
 angle, of the angles with same maximum  
 concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC41 REC42 REC43 REC44 REC45

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 0. \* 0.0 0.2 0.0 0.0 0.1  
 1. \* 0.0 0.2 0.0 0.0 0.1  
 2. \* 0.0 0.2 0.0 0.1 0.1  
 3. \* 0.0 0.2 0.0 0.1 0.1  
 4. \* 0.0 0.2 0.0 0.1 0.1  
 5. \* 0.0 0.2 0.0 0.1 0.1  
 6. \* 0.0 0.2 0.0 0.1 0.1  
 7. \* 0.0 0.2 0.0 0.1 0.1  
 8. \* 0.0 0.2 0.0 0.1 0.1  
 9. \* 0.0 0.2 0.0 0.1 0.1  
 10. \* 0.0 0.2 0.0 0.1 0.1  
 11. \* 0.0 0.2 0.0 0.1 0.1

12. \* 0.0 0.2 0.0 0.1 0.1  
13. \* 0.0 0.2 0.0 0.1 0.1  
14. \* 0.0 0.2 0.0 0.1 0.1  
15. \* 0.0 0.2 0.0 0.1 0.1  
16. \* 0.0 0.2 0.0 0.1 0.1  
17. \* 0.0 0.2 0.0 0.1 0.1  
18. \* 0.0 0.2 0.0 0.1 0.1  
19. \* 0.0 0.2 0.0 0.1 0.1  
20. \* 0.0 0.2 0.0 0.1 0.1  
21. \* 0.0 0.2 0.0 0.1 0.1  
22. \* 0.0 0.2 0.0 0.1 0.1  
23. \* 0.0 0.2 0.0 0.1 0.1  
24. \* 0.0 0.2 0.0 0.1 0.1  
25. \* 0.0 0.2 0.0 0.1 0.1  
26. \* 0.0 0.2 0.0 0.1 0.1  
27. \* 0.0 0.2 0.0 0.0 0.1  
28. \* 0.0 0.2 0.0 0.0 0.1  
29. \* 0.0 0.2 0.0 0.0 0.1  
30. \* 0.0 0.2 0.0 0.0 0.1  
31. \* 0.0 0.2 0.0 0.0 0.1  
32. \* 0.0 0.2 0.0 0.0 0.1  
33. \* 0.0 0.2 0.0 0.0 0.1  
34. \* 0.0 0.2 0.0 0.0 0.1  
35. \* 0.0 0.2 0.0 0.0 0.0  
36. \* 0.0 0.2 0.0 0.0 0.0  
37. \* 0.0 0.2 0.0 0.0 0.0  
38. \* 0.0 0.2 0.0 0.0 0.0  
39. \* 0.0 0.2 0.0 0.0 0.0  
40. \* 0.0 0.2 0.0 0.0 0.0  
41. \* 0.0 0.2 0.0 0.0 0.0

PAGE 21

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)  
(DEGR)\* REC41 REC42 REC43 REC44 REC45

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42. \* 0.0 0.2 0.0 0.0 0.0  
43. \* 0.0 0.2 0.0 0.0 0.0  
44. \* 0.0 0.2 0.0 0.0 0.0  
45. \* 0.0 0.2 0.0 0.0 0.0  
46. \* 0.0 0.2 0.0 0.0 0.0  
47. \* 0.0 0.2 0.0 0.0 0.0  
48. \* 0.0 0.2 0.0 0.0 0.0  
49. \* 0.0 0.2 0.0 0.0 0.0  
50. \* 0.0 0.2 0.0 0.1 0.0  
51. \* 0.0 0.2 0.0 0.1 0.0  
52. \* 0.0 0.2 0.0 0.1 0.0  
53. \* 0.0 0.2 0.0 0.1 0.0  
54. \* 0.0 0.2 0.0 0.1 0.0  
55. \* 0.0 0.2 0.0 0.1 0.0  
56. \* 0.0 0.2 0.0 0.1 0.0  
57. \* 0.0 0.2 0.0 0.1 0.0  
58. \* 0.0 0.2 0.0 0.1 0.0  
59. \* 0.0 0.2 0.0 0.1 0.0  
60. \* 0.0 0.2 0.0 0.1 0.0  
61. \* 0.0 0.2 0.0 0.1 0.0  
62. \* 0.0 0.2 0.0 0.1 0.0

63. \* 0.0 0.2 0.0 0.1 0.0  
64. \* 0.0 0.2 0.0 0.1 0.0  
65. \* 0.0 0.2 0.0 0.1 0.0  
66. \* 0.0 0.2 0.0 0.1 0.0  
67. \* 0.0 0.2 0.0 0.1 0.0  
68. \* 0.0 0.2 0.0 0.1 0.0  
69. \* 0.0 0.2 0.0 0.1 0.0  
70. \* 0.0 0.2 0.0 0.1 0.0  
71. \* 0.0 0.2 0.0 0.1 0.0  
72. \* 0.0 0.2 0.0 0.1 0.0  
73. \* 0.0 0.2 0.0 0.1 0.0  
74. \* 0.0 0.2 0.0 0.1 0.0  
75. \* 0.0 0.2 0.0 0.1 0.0  
76. \* 0.0 0.2 0.0 0.1 0.0  
77. \* 0.0 0.2 0.0 0.1 0.0  
78. \* 0.0 0.2 0.0 0.1 0.0  
79. \* 0.0 0.2 0.0 0.1 0.0  
80. \* 0.0 0.2 0.0 0.1 0.0  
81. \* 0.0 0.2 0.0 0.1 0.0  
82. \* 0.0 0.2 0.0 0.1 0.0  
83. \* 0.0 0.2 0.0 0.1 0.0  
84. \* 0.0 0.2 0.0 0.1 0.0  
85. \* 0.0 0.2 0.0 0.1 0.0  
86. \* 0.0 0.2 0.0 0.1 0.0  
87. \* 0.0 0.2 0.0 0.1 0.0  
88. \* 0.0 0.2 0.0 0.1 0.0  
89. \* 0.0 0.2 0.0 0.1 0.0  
90. \* 0.0 0.2 0.0 0.1 0.0  
91. \* 0.0 0.2 0.0 0.1 0.0  
92. \* 0.0 0.2 0.0 0.1 0.0

PAGE 22

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC41 REC42 REC43 REC44 REC45

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93. \* 0.0 0.2 0.0 0.1 0.0  
94. \* 0.0 0.2 0.0 0.1 0.0  
95. \* 0.0 0.2 0.0 0.1 0.0  
96. \* 0.0 0.2 0.0 0.1 0.0  
97. \* 0.0 0.2 0.0 0.1 0.0  
98. \* 0.0 0.2 0.0 0.1 0.0  
99. \* 0.0 0.2 0.0 0.1 0.0  
100. \* 0.0 0.2 0.0 0.1 0.0  
101. \* 0.0 0.2 0.0 0.1 0.0  
102. \* 0.0 0.2 0.0 0.1 0.0  
103. \* 0.0 0.2 0.0 0.1 0.0  
104. \* 0.0 0.2 0.0 0.1 0.0  
105. \* 0.0 0.2 0.0 0.1 0.0  
106. \* 0.0 0.2 0.0 0.1 0.0  
107. \* 0.0 0.3 0.0 0.1 0.0  
108. \* 0.0 0.3 0.0 0.1 0.0  
109. \* 0.0 0.3 0.0 0.1 0.0  
110. \* 0.0 0.3 0.0 0.1 0.0  
111. \* 0.0 0.3 0.0 0.1 0.0  
112. \* 0.0 0.1 0.0 0.1 0.0  
113. \* 0.0 0.1 0.0 0.1 0.0

114. \* 0.0 0.1 0.0 0.1 0.0  
 115. \* 0.0 0.1 0.0 0.1 0.0  
 116. \* 0.0 0.1 0.0 0.1 0.0  
 117. \* 0.0 0.1 0.0 0.0 0.0  
 118. \* 0.0 0.1 0.0 0.0 0.0  
 119. \* 0.0 0.1 0.0 0.0 0.0  
 120. \* 0.0 0.1 0.0 0.0 0.0  
 121. \* 0.0 0.1 0.1 0.0 0.0  
 122. \* 0.0 0.1 0.1 0.0 0.0  
 123. \* 0.0 0.1 0.1 0.0 0.0  
 124. \* 0.0 0.1 0.1 0.0 0.0  
 125. \* 0.1 0.1 0.1 0.0 0.0  
 126. \* 0.1 0.1 0.1 0.0 0.0  
 127. \* 0.1 0.1 0.1 0.0 0.0  
 128. \* 0.1 0.1 0.1 0.0 0.0  
 129. \* 0.1 0.1 0.1 0.0 0.0  
 130. \* 0.1 0.1 0.1 0.0 0.0  
 131. \* 0.1 0.1 0.1 0.0 0.0  
 132. \* 0.1 0.0 0.1 0.0 0.0  
 133. \* 0.1 0.0 0.1 0.0 0.0  
 134. \* 0.1 0.0 0.1 0.0 0.0  
 135. \* 0.1 0.0 0.1 0.0 0.0  
 136. \* 0.1 0.0 0.1 0.0 0.0  
 137. \* 0.1 0.0 0.1 0.0 0.0  
 138. \* 0.1 0.0 0.1 0.0 0.0  
 139. \* 0.1 0.0 0.1 0.0 0.0  
 140. \* 0.1 0.0 0.1 0.0 0.0  
 141. \* 0.1 0.0 0.1 0.0 0.0  
 142. \* 0.1 0.0 0.1 0.0 0.0  
 143. \* 0.1 0.0 0.2 0.0 0.0

PAGE 23

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
 ANGLE \* (PPM)  
 (DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
 144. \* 0.1 0.0 0.2 0.0 0.0  
 145. \* 0.1 0.0 0.2 0.0 0.0  
 146. \* 0.1 0.0 0.2 0.0 0.0  
 147. \* 0.1 0.0 0.2 0.0 0.0  
 148. \* 0.1 0.0 0.2 0.0 0.0  
 149. \* 0.1 0.0 0.2 0.0 0.0  
 150. \* 0.1 0.0 0.2 0.0 0.0  
 151. \* 0.1 0.0 0.1 0.0 0.0  
 152. \* 0.1 0.0 0.1 0.0 0.0  
 153. \* 0.1 0.0 0.1 0.0 0.0  
 154. \* 0.1 0.0 0.1 0.0 0.0  
 155. \* 0.1 0.0 0.1 0.0 0.0  
 156. \* 0.1 0.0 0.1 0.0 0.0  
 157. \* 0.1 0.0 0.1 0.0 0.0  
 158. \* 0.1 0.0 0.1 0.0 0.0  
 159. \* 0.1 0.0 0.1 0.0 0.0  
 160. \* 0.1 0.0 0.1 0.0 0.0  
 161. \* 0.1 0.0 0.1 0.0 0.0  
 162. \* 0.1 0.0 0.1 0.0 0.0  
 163. \* 0.1 0.0 0.1 0.0 0.0  
 164. \* 0.1 0.0 0.1 0.0 0.0

165. \* 0.1 0.0 0.1 0.0 0.0  
166. \* 0.1 0.0 0.1 0.0 0.0  
167. \* 0.1 0.0 0.1 0.0 0.0  
168. \* 0.1 0.0 0.1 0.0 0.0  
169. \* 0.1 0.0 0.1 0.0 0.0  
170. \* 0.1 0.0 0.1 0.0 0.0  
171. \* 0.1 0.0 0.1 0.0 0.0  
172. \* 0.1 0.0 0.1 0.0 0.0  
173. \* 0.1 0.0 0.1 0.1 0.0  
174. \* 0.1 0.0 0.1 0.1 0.0  
175. \* 0.1 0.0 0.1 0.1 0.0  
176. \* 0.1 0.0 0.1 0.1 0.0  
177. \* 0.1 0.0 0.1 0.1 0.0  
178. \* 0.1 0.0 0.1 0.1 0.0  
179. \* 0.1 0.0 0.1 0.1 0.0  
180. \* 0.1 0.0 0.1 0.1 0.0  
181. \* 0.1 0.0 0.1 0.1 0.0  
182. \* 0.1 0.0 0.1 0.1 0.0  
183. \* 0.1 0.0 0.1 0.1 0.0  
184. \* 0.1 0.0 0.1 0.1 0.0  
185. \* 0.1 0.0 0.1 0.1 0.0  
186. \* 0.1 0.0 0.1 0.1 0.0  
187. \* 0.1 0.0 0.1 0.1 0.0  
188. \* 0.1 0.0 0.1 0.1 0.0  
189. \* 0.1 0.0 0.1 0.1 0.0  
190. \* 0.1 0.0 0.1 0.1 0.0  
191. \* 0.1 0.0 0.1 0.1 0.0  
192. \* 0.1 0.0 0.1 0.1 0.0  
193. \* 0.1 0.0 0.1 0.1 0.0  
194. \* 0.1 0.0 0.1 0.1 0.0

PAGE 24

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)  
(DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
195. \* 0.1 0.0 0.1 0.1 0.0  
196. \* 0.1 0.0 0.1 0.1 0.0  
197. \* 0.1 0.0 0.1 0.1 0.0  
198. \* 0.1 0.0 0.1 0.1 0.0  
199. \* 0.1 0.0 0.1 0.1 0.0  
200. \* 0.1 0.0 0.1 0.1 0.0  
201. \* 0.1 0.0 0.1 0.1 0.0  
202. \* 0.1 0.0 0.1 0.1 0.0  
203. \* 0.1 0.0 0.1 0.1 0.0  
204. \* 0.1 0.0 0.1 0.1 0.0  
205. \* 0.1 0.0 0.1 0.0 0.0  
206. \* 0.1 0.0 0.1 0.0 0.1  
207. \* 0.1 0.0 0.1 0.0 0.1  
208. \* 0.1 0.0 0.1 0.0 0.1  
209. \* 0.1 0.0 0.1 0.0 0.1  
210. \* 0.1 0.0 0.1 0.0 0.1  
211. \* 0.1 0.0 0.1 0.0 0.1  
212. \* 0.1 0.0 0.1 0.0 0.1  
213. \* 0.1 0.0 0.1 0.0 0.1  
214. \* 0.1 0.0 0.1 0.0 0.1  
215. \* 0.1 0.0 0.1 0.1 0.1

216. \* 0.1 0.0 0.1 0.1 0.1  
 217. \* 0.1 0.0 0.1 0.1 0.1  
 218. \* 0.1 0.0 0.1 0.1 0.1  
 219. \* 0.1 0.0 0.1 0.1 0.1  
 220. \* 0.1 0.0 0.1 0.1 0.1  
 221. \* 0.1 0.0 0.1 0.1 0.1  
 222. \* 0.1 0.0 0.1 0.1 0.1  
 223. \* 0.1 0.0 0.1 0.1 0.1  
 224. \* 0.1 0.0 0.1 0.1 0.1  
 225. \* 0.1 0.0 0.1 0.1 0.1  
 226. \* 0.1 0.0 0.1 0.1 0.1  
 227. \* 0.1 0.0 0.1 0.1 0.1  
 228. \* 0.1 0.0 0.1 0.1 0.1  
 229. \* 0.1 0.0 0.1 0.1 0.1  
 230. \* 0.1 0.0 0.1 0.1 0.1  
 231. \* 0.1 0.0 0.1 0.1 0.1  
 232. \* 0.1 0.0 0.1 0.1 0.1  
 233. \* 0.1 0.0 0.1 0.1 0.1  
 234. \* 0.1 0.0 0.1 0.1 0.1  
 235. \* 0.1 0.0 0.1 0.1 0.1  
 236. \* 0.1 0.0 0.1 0.0 0.1  
 237. \* 0.1 0.0 0.1 0.0 0.1  
 238. \* 0.1 0.0 0.1 0.0 0.1  
 239. \* 0.1 0.0 0.1 0.0 0.1  
 240. \* 0.1 0.0 0.1 0.0 0.1  
 241. \* 0.1 0.0 0.1 0.0 0.1  
 242. \* 0.1 0.0 0.1 0.0 0.1  
 243. \* 0.1 0.0 0.1 0.0 0.1  
 244. \* 0.1 0.0 0.1 0.0 0.1  
 245. \* 0.1 0.0 0.1 0.0 0.1

PAGE 25

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
 ANGLE \* (PPM)  
 (DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
 246. \* 0.1 0.0 0.1 0.0 0.1  
 247. \* 0.1 0.0 0.1 0.0 0.1  
 248. \* 0.1 0.0 0.1 0.0 0.1  
 249. \* 0.1 0.0 0.1 0.0 0.1  
 250. \* 0.1 0.0 0.1 0.0 0.1  
 251. \* 0.1 0.0 0.1 0.0 0.1  
 252. \* 0.1 0.0 0.1 0.0 0.2  
 253. \* 0.1 0.0 0.1 0.0 0.2  
 254. \* 0.1 0.0 0.1 0.0 0.2  
 255. \* 0.1 0.0 0.1 0.0 0.2  
 256. \* 0.1 0.0 0.1 0.0 0.2  
 257. \* 0.1 0.0 0.1 0.0 0.2  
 258. \* 0.1 0.0 0.1 0.0 0.1  
 259. \* 0.1 0.0 0.1 0.0 0.1  
 260. \* 0.1 0.0 0.1 0.0 0.1  
 261. \* 0.1 0.0 0.1 0.0 0.1  
 262. \* 0.1 0.0 0.1 0.0 0.1  
 263. \* 0.1 0.0 0.1 0.0 0.1  
 264. \* 0.1 0.0 0.1 0.0 0.1  
 265. \* 0.1 0.0 0.2 0.0 0.1  
 266. \* 0.1 0.0 0.2 0.0 0.1

267. \* 0.1 0.0 0.2 0.0 0.1  
268. \* 0.1 0.0 0.2 0.0 0.1  
269. \* 0.1 0.0 0.2 0.0 0.1  
270. \* 0.1 0.0 0.2 0.0 0.1  
271. \* 0.1 0.0 0.2 0.0 0.1  
272. \* 0.1 0.0 0.2 0.0 0.1  
273. \* 0.1 0.0 0.2 0.0 0.1  
274. \* 0.2 0.0 0.2 0.0 0.1  
275. \* 0.2 0.0 0.2 0.0 0.1  
276. \* 0.2 0.0 0.2 0.0 0.1  
277. \* 0.2 0.0 0.2 0.0 0.1  
278. \* 0.2 0.0 0.2 0.0 0.1  
279. \* 0.2 0.0 0.2 0.0 0.1  
280. \* 0.2 0.0 0.2 0.0 0.1  
281. \* 0.2 0.0 0.2 0.0 0.1  
282. \* 0.1 0.0 0.2 0.0 0.1  
283. \* 0.1 0.0 0.1 0.0 0.1  
284. \* 0.1 0.0 0.1 0.0 0.1  
285. \* 0.1 0.0 0.1 0.0 0.1  
286. \* 0.1 0.0 0.1 0.0 0.1  
287. \* 0.1 0.0 0.1 0.0 0.1  
288. \* 0.1 0.0 0.1 0.0 0.1  
289. \* 0.1 0.0 0.2 0.0 0.1  
290. \* 0.1 0.0 0.2 0.0 0.1  
291. \* 0.1 0.0 0.2 0.0 0.1  
292. \* 0.1 0.0 0.2 0.0 0.1  
293. \* 0.1 0.0 0.2 0.0 0.1  
294. \* 0.1 0.0 0.2 0.0 0.1  
295. \* 0.1 0.0 0.2 0.0 0.1  
296. \* 0.1 0.0 0.2 0.0 0.1

PAGE 26

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)  
(DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
297. \* 0.1 0.0 0.2 0.0 0.1  
298. \* 0.1 0.0 0.2 0.0 0.1  
299. \* 0.1 0.0 0.2 0.0 0.1  
300. \* 0.1 0.0 0.1 0.0 0.1  
301. \* 0.1 0.0 0.1 0.0 0.1  
302. \* 0.1 0.0 0.1 0.0 0.1  
303. \* 0.1 0.0 0.1 0.0 0.1  
304. \* 0.1 0.0 0.1 0.0 0.1  
305. \* 0.1 0.0 0.1 0.0 0.1  
306. \* 0.1 0.0 0.1 0.0 0.1  
307. \* 0.1 0.0 0.1 0.0 0.1  
308. \* 0.1 0.0 0.1 0.0 0.1  
309. \* 0.1 0.0 0.1 0.0 0.1  
310. \* 0.1 0.1 0.1 0.0 0.1  
311. \* 0.1 0.1 0.1 0.0 0.1  
312. \* 0.1 0.1 0.1 0.0 0.1  
313. \* 0.1 0.1 0.1 0.0 0.1  
314. \* 0.1 0.1 0.1 0.0 0.1  
315. \* 0.1 0.1 0.1 0.0 0.1  
316. \* 0.1 0.1 0.1 0.0 0.1  
317. \* 0.1 0.1 0.1 0.0 0.1

318. \* 0.0 0.1 0.1 0.0 0.1  
 319. \* 0.0 0.1 0.1 0.0 0.1  
 320. \* 0.0 0.1 0.1 0.0 0.1  
 321. \* 0.0 0.1 0.0 0.0 0.1  
 322. \* 0.0 0.1 0.0 0.0 0.1  
 323. \* 0.0 0.1 0.0 0.0 0.1  
 324. \* 0.0 0.1 0.0 0.0 0.1  
 325. \* 0.0 0.1 0.0 0.0 0.1  
 326. \* 0.0 0.1 0.0 0.0 0.1  
 327. \* 0.0 0.1 0.0 0.0 0.1  
 328. \* 0.0 0.1 0.0 0.0 0.1  
 329. \* 0.0 0.1 0.0 0.0 0.1  
 330. \* 0.0 0.1 0.0 0.0 0.1  
 331. \* 0.0 0.1 0.0 0.0 0.1  
 332. \* 0.0 0.1 0.0 0.0 0.1  
 333. \* 0.0 0.2 0.0 0.0 0.1  
 334. \* 0.0 0.2 0.0 0.0 0.1  
 335. \* 0.0 0.2 0.0 0.0 0.1  
 336. \* 0.0 0.2 0.0 0.0 0.1  
 337. \* 0.0 0.2 0.0 0.0 0.1  
 338. \* 0.0 0.2 0.0 0.0 0.1  
 339. \* 0.0 0.2 0.0 0.0 0.1  
 340. \* 0.0 0.2 0.0 0.0 0.1  
 341. \* 0.0 0.2 0.0 0.0 0.1  
 342. \* 0.0 0.2 0.0 0.0 0.1  
 343. \* 0.0 0.2 0.0 0.0 0.1  
 344. \* 0.0 0.2 0.0 0.0 0.1  
 345. \* 0.0 0.2 0.0 0.0 0.1  
 346. \* 0.0 0.2 0.0 0.0 0.1  
 347. \* 0.0 0.2 0.0 0.0 0.1

PAGE 27

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
 ANGLE \* (PPM)  
 (DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
 348. \* 0.0 0.2 0.0 0.0 0.1  
 349. \* 0.0 0.2 0.0 0.0 0.1  
 350. \* 0.0 0.2 0.0 0.0 0.1  
 351. \* 0.0 0.2 0.0 0.0 0.1  
 352. \* 0.0 0.2 0.0 0.0 0.1  
 353. \* 0.0 0.2 0.0 0.0 0.1  
 354. \* 0.0 0.2 0.0 0.0 0.1  
 355. \* 0.0 0.2 0.0 0.0 0.1  
 356. \* 0.0 0.2 0.0 0.0 0.1  
 357. \* 0.0 0.2 0.0 0.0 0.1  
 358. \* 0.0 0.2 0.0 0.0 0.1  
 359. \* 0.0 0.2 0.0 0.0 0.1  
 360. \* 0.0 0.2 0.0 0.0 0.1  
 -----\*-----

MAX \* 0.2 0.3 0.2 0.1 0.2  
 DEGR. \* 274 107 143 2 252

THE HIGHEST CONCENTRATION OF 0.30 PPM OCCURRED AT RECEPTOR REC22.



```

1 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
2 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
3 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
4 * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
5 * 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
6 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
7 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
8 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
9 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
10 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
11 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0
12 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
13 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
14 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
15 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
16 * 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
17 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
18 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
19 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
20 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
21 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
22 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
23 * 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
24 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
25 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
26 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
27 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
28 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
29 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
30 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

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PAGE 30

JOB: NJ73\_Fellowship Rd CO B AM

RUN: NJ168\_NJ41 CO B AM

DATE : 11/ 3/22

TIME : 12:54:55

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

\* CO/LINK (PPM)

\* ANGLE (DEGREES)

\* REC41 REC42 REC43 REC44 REC45

LINK # \* 274 107 143 2 252

```

-----*-----
1 * 0.0 0.0 0.0 0.0 0.0
2 * 0.0 0.0 0.0 0.0 0.0
3 * 0.0 0.0 0.0 0.0 0.0
4 * 0.1 0.1 0.0 0.0 0.0
5 * 0.0 0.1 0.0 0.0 0.0
6 * 0.0 0.0 0.0 0.0 0.0
7 * 0.0 0.0 0.0 0.0 0.0
8 * 0.0 0.0 0.0 0.0 0.0
9 * 0.0 0.0 0.0 0.0 0.0
10 * 0.0 0.0 0.0 0.0 0.0
11 * 0.0 0.0 0.0 0.0 0.0
12 * 0.0 0.0 0.0 0.0 0.0
13 * 0.0 0.0 0.0 0.0 0.0
14 * 0.0 0.0 0.0 0.0 0.0
15 * 0.0 0.0 0.0 0.0 0.0

```

16 \* 0.1 0.1 0.2 0.0 0.0  
17 \* 0.0 0.0 0.0 0.0 0.1  
18 \* 0.0 0.0 0.0 0.0 0.1  
19 \* 0.0 0.0 0.0 0.0 0.0  
20 \* 0.0 0.0 0.0 0.0 0.0  
21 \* 0.0 0.0 0.0 0.0 0.0  
22 \* 0.0 0.0 0.0 0.0 0.0  
23 \* 0.0 0.0 0.0 0.0 0.0  
24 \* 0.0 0.0 0.0 0.0 0.0  
25 \* 0.0 0.0 0.0 0.0 0.0  
26 \* 0.0 0.0 0.0 0.0 0.0  
27 \* 0.0 0.0 0.0 0.0 0.0  
28 \* 0.0 0.0 0.0 0.1 0.0  
29 \* 0.0 0.0 0.0 0.0 0.0  
30 \* 0.0 0.0 0.0 0.0 0.0

NJ State Route 168 and NJ State Route 41  
Input and Output – AM Peak Hour Sample

# Input

'NJ168_NJ41 CO B AM'	60	175	0	0	45	0.3048	1	1
'R1'	331391.8	370368.9	6					
'R2'	331361.6	370469.9	6					
'R3'	331262.3	370384.5	6					
'R4'	331300.8	370285.4	6					
'R5'	331408.2	370424.9	6					
'R6'	331465.3	370483.8	6					
'R7'	331522.4	370542.7	6					
'R8'	331579.4	370601.6	6					
'R9'	331636.5	370660.5	6					
'R10'	331607.8	370680.2	6					
'R11'	331548.2	370623.8	6					
'R12'	331488.7	370567.4	6					
'R13'	331429.2	370511.0	6					
'R14'	331379.9	370464.2	6					
'R15'	331328.7	370477.4	6					
'R16'	331306.7	370556.4	6					
'R17'	331284.7	370635.4	6					
'R18'	331262.8	370714.4	6					
'R19'	331240.8	370793.4	6					
'R20'	331188.9	370777.1	6					
'R21'	331210.9	370698.1	6					
'R22'	331232.8	370619.1	6					
'R23'	331254.8	370540.0	6					
'R24'	331276.7	370461.0	6					
'R25'	331183.9	370259.1	6					
'R26'	331125.4	370201.7	6					
'R27'	331066.8	370144.4	6					
'R28'	331008.2	370087.0	6					
'R29'	331242.5	370316.5	6					
'R30'	331035.6	370060.2	6					
'R31'	331094.1	370117.7	6					
'R32'	331152.6	370175.1	6					
'R33'	331211.1	370232.6	6					
'R34'	331269.5	370290.1	6					
'R35'	331333.2	370252.4	6					
'R36'	331356.1	370173.7	6					
'R37'	331379.0	370095.0	6					
'R38'	331401.9	370016.2	6					
'R39'	331414.6	369972.5	6					
'R40'	331475.3	369968.6	6					
'R41'	331453.5	370047.6	6					
'R42'	331431.7	370126.7	6					
'R43'	331409.8	370205.7	6					
'R44'	331388.0	370284.7	6					
'R45'	331377.1	370324.1	6					
'NJ168_NJ41 CO B AM'	18	1	1	'c'				
1								
'A-WB-NJ41-1' 'AG'	332061.5496	371111.3926	331342.1486	370398.502	405	1.36	0	21.918
1								
'A-SB-NJ168-1' 'AG'	331033.7718	371360.5245	331260.7132	370586.1923	702	1.48	0	21.6808
1								
'A-SB-NJ168-2' 'AG'	331260.7132	370586.1923	331320.6256	370357.6351	672	1.48	0	20.4917
1								
'A-SB-NJ168-3' 'AG'	331271.048	370583.3864	331325.7355	370393.2822	30	1.48	0	20.41206
1								
'A-EB-NJ41-1' 'AG'	330600.9091	369653.6989	331335.9465	370372.6202	590	1.38	0	21.947
1								
'A-NB-NJ168-1' 'AG'	331620.4403	369385.4697	331425.1278	370089.8968	1260	1.57	0	21.5224

1  
 'A-NB-NJ168-2' 'AG' 331425.1278 370089.8968 331347.0028 370369.8447 1225 1.57 0 20.605  
 1  
 'A-NB-NJ168-3' 'AG' 331412.541 370093.2605 331336.2606 370358.1802 35 1.57 0 20.605  
 1  
 'D-EB-NJ41-1' 'AG' 331335.9465 370372.6202 332074.8788 371106.1271 581 1.37 0 21.97  
 1  
 'D-NB-NJ168-1' 'AG' 331335.7404 370394.7122 331067.6848 371348.1844 1155 2.60 0 22.0625  
 1  
 'D-WB-NJ41-1' 'AG' 331321.6779 370383.7747 330592.5112 369663.6358 450 1.79 0 21.94  
 1  
 'D-SB-NJ168-1' 'AG' 331325.5904 370362.4912 331608.3098 369381.9952 771 1.47 0 22.1252  
 2  
 'Q-WB-NJ41-1' 'AG' 331605.6338 370659.6027 331399.6426 370455.4757 0 10.00 1.00  
 120 45 4 405 2.90 1600 1 3  
 2  
 'Q-SB-NJ168-1' 'AG' 331260.7132 370586.1923 331292.9489 370463.2175 0 11.00 1.00  
 120 45 4 672 2.90 1600 1 3  
 2  
 'Q-SB-NJ168-1' 'AG' 331271.048 370583.3864 331304.4694 370467.2072 0 11.00 1.00  
 120 45 4 30 2.90 1600 1 3  
 2  
 'Q-EB-NJ41-1' 'AG' 331124.1993 370165.5157 331268.9983 370307.1398 0 10.00 1.00  
 120 45 4 590 2.90 1600 1 3  
 2  
 'Q-NB-NJ168-1' 'AG' 331425.1278 370089.8968 331368.1781 370293.9667 0 11.00 1.00  
 120 45 4 1260 2.90 1600 1 3  
 2  
 'Q-NB-NJ168-1' 'AG' 331412.541 370093.2605 331354.8993 370293.4485 0 11.00 1.00  
 120 45 4 1225 2.90 1600 1 3  
 1 0 4 1000 0 'Y' 1 0 360

# Output

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221

PAGE 1

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

DATE : 10/28/22

TIME : 12:26:12

The MODE flag has been set to c for calculating CO averages.

## SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S ZO = 175. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

## LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* (FT) (DEG)	LENGTH (G/MI)	BRG (FT)	TYPE (FT)	VPH (VEH)	EF	H	W	V/C	QUEUE
1. A-WB-NJ41-1	* 332061.6	371111.4	331342.2	370398.5	* 1013. 225. AG	405.	1.4	0.0	21.9					
2. A-SB-NJ168-1	* 331033.8	371360.5	331260.7	370586.2	* 807. 164. AG	702.	1.5	0.0	21.7					
3. A-SB-NJ168-2	* 331260.7	370586.2	331320.6	370357.6	* 236. 165. AG	672.	1.5	0.0	20.5					
4. A-SB-NJ168-3	* 331271.1	370583.4	331325.8	370393.3	* 198. 164. AG	30.	1.5	0.0	20.4					
5. A-EB-NJ41-1	* 330600.9	369653.7	331335.9	370372.6	* 1028. 46. AG	590.	1.4	0.0	21.9					
6. A-NB-NJ168-1	* 331620.5	369385.5	331425.1	370089.9	* 731. 345. AG	1260.	1.6	0.0	21.5					
7. A-NB-NJ168-2	* 331425.1	370089.9	331347.0	370369.8	* 291. 344. AG	1225.	1.6	0.0	20.6					
8. A-NB-NJ168-3	* 331412.5	370093.3	331336.3	370358.2	* 276. 344. AG	35.	1.6	0.0	20.6					
9. D-EB-NJ41-1	* 331335.9	370372.6	332074.9	371106.1	* 1041. 45. AG	581.	1.4	0.0	22.0					
10. D-NB-NJ168-1	* 331335.8	370394.7	331067.7	371348.2	* 990. 344. AG	1155.	2.6	0.0	22.1					
11. D-WB-NJ41-1	* 331321.7	370383.8	330592.5	369663.6	* 1025. 225. AG	450.	1.8	0.0	21.9					
12. D-SB-NJ168-1	* 331325.6	370362.5	331608.3	369382.0	* 1020. 164. AG	771.	1.5	0.0	22.1					
13. Q-WB-NJ41-1	* 331605.6	370659.6	331534.8	370589.5	* 100. 225. AG	3. 100.0	0.0	10.0	0.44	5.1				
14. Q-SB-NJ168-1	* 331260.7	370586.2	331302.6	370426.2	* 165. 165. AG	3. 100.0	0.0	11.0	0.73	8.4				
15. Q-SB-NJ168-1	* 331271.1	370583.4	331273.1	370576.3	* 7. 164. AG	3. 100.0	0.0	11.0	0.03	0.4				
16. Q-EB-NJ41-1	* 331124.2	370165.5	331228.0	370267.0	* 145. 46. AG	3. 100.0	0.0	10.0	0.64	7.4				
17. Q-NB-NJ168-1	* 331425.1	370089.9	330385.0	373816.4	* 3869. 344. AG	3. 100.0	0.0	11.0	1.37	196.5				
18. Q-NB-NJ168-1	* 331412.5	370093.3	330441.6	373466.5	* 3510. 344. AG	3. 100.0	0.0	11.0	1.33	178.3				

PAGE 2

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

DATE : 10/28/22

TIME : 12:26:12

## ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE	RED	CLEARANCE	APPROACH	SATURATION	IDLE	SIGNAL	ARRIVAL	
	* LENGTH	TIME	LOST TIME	VOL	FLOW RATE	EM	FAC	TYPE	RATE
	* (SEC)	(SEC)	(SEC)	(VPH)	(VPH)	(gm/hr)			
13. Q-WB-NJ41-1	* 120	45	4.0	405	1600	2.90	1	3	
14. Q-SB-NJ168-1	* 120	45	4.0	672	1600	2.90	1	3	
15. Q-SB-NJ168-1	* 120	45	4.0	30	1600	2.90	1	3	
16. Q-EB-NJ41-1	* 120	45	4.0	590	1600	2.90	1	3	
17. Q-NB-NJ168-1	* 120	45	4.0	1260	1600	2.90	1	3	
18. Q-NB-NJ168-1	* 120	45	4.0	1225	1600	2.90	1	3	

## RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT)			*
	X	Y	Z	
1. R1	331391.8	370368.9	6.0	*
2. R2	331361.6	370469.9	6.0	*
3. R3	331262.3	370384.5	6.0	*
4. R4	331300.8	370285.4	6.0	*
5. R5	331408.2	370424.9	6.0	*
6. R6	331465.3	370483.8	6.0	*
7. R7	331522.4	370542.7	6.0	*
8. R8	331579.4	370601.6	6.0	*
9. R9	331636.5	370660.5	6.0	*
10. R10	331607.8	370680.2	6.0	*
11. R11	331548.2	370623.8	6.0	*
12. R12	331488.7	370567.4	6.0	*
13. R13	331429.2	370511.0	6.0	*
14. R14	331379.9	370464.2	6.0	*
15. R15	331328.7	370477.4	6.0	*
16. R16	331306.7	370556.4	6.0	*
17. R17	331284.7	370635.4	6.0	*
18. R18	331262.8	370714.4	6.0	*
19. R19	331240.8	370793.4	6.0	*
20. R20	331188.9	370777.1	6.0	*
21. R21	331210.9	370698.1	6.0	*
22. R22	331232.8	370619.1	6.0	*
23. R23	331254.8	370540.0	6.0	*
24. R24	331276.7	370461.0	6.0	*
25. R25	331183.9	370259.1	6.0	*
26. R26	331125.4	370201.7	6.0	*
27. R27	331066.8	370144.4	6.0	*
28. R28	331008.2	370087.0	6.0	*
29. R29	331242.5	370316.5	6.0	*
30. R30	331035.6	370060.2	6.0	*
31. R31	331094.1	370117.7	6.0	*
32. R32	331152.6	370175.1	6.0	*
33. R33	331211.1	370232.6	6.0	*
34. R34	331269.5	370290.1	6.0	*
35. R35	331333.2	370252.4	6.0	*
36. R36	331356.1	370173.7	6.0	*
37. R37	331379.0	370095.0	6.0	*
38. R38	331401.9	370016.2	6.0	*
39. R39	331414.6	369972.5	6.0	*

DATE : 10/28/22

TIME : 12:26:12

RECEPTOR LOCATIONS

```

-----
*          COORDINATES (FT)          *
RECEPTOR * X      Y      Z      *
-----*-----*
40. R40     * 331475.3 369968.6 6.0 *
41. R41     * 331453.5 370047.6 6.0 *
42. R42     * 331431.7 370126.7 6.0 *
43. R43     * 331409.8 370205.7 6.0 *
44. R44     * 331388.0 370284.7 6.0 *
45. R45     * 331377.1 370324.1 6.0 *

```

MODEL RESULTS

```

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REMARKS : In search of the angle corresponding to
           the maximum concentration, only the first
           angle, of the angles with same maximum
           concentrations, is indicated as maximum.

```

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19 REC20

```

-----*-----*
0. * 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
1. * 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
2. * 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
3. * 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
4. * 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
5. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
6. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
7. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
8. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
9. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
10. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
11. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
12. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
13. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
14. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
15. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
16. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
17. * 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
18. * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
19. * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
20. * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
21. * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
22. * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
23. * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
24. * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
25. * 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1

```













321. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.1 0.1 0.1 0.0  
 322. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.1 0.1 0.0  
 323. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.1 0.0  
 324. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.1 0.0  
 325. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 326. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 327. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 328. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 329. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 330. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 331. \* 0.1 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 332. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 333. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 334. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 335. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.0  
 336. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.1 0.0  
 337. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.1 0.0  
 338. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.1 0.1 0.0  
 339. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.2 0.2 0.1 0.1 0.0  
 340. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.2 0.1 0.1 0.1 0.0  
 341. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.1 0.1 0.1 0.1 0.0  
 342. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.0  
 343. \* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.0  
 344. \* 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.0  
 345. \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1  
 346. \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1  
 347. \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1  
 348. \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2  
 349. \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2  
 350. \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2  
 351. \* 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2  
 352. \* 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2  
 353. \* 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19 REC20  
 REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39 REC40  
 REC41 REC42 REC43 REC44 REC45

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 354. \* 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2  
 355. \* 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.2  
 356. \* 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.2  
 357. \* 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.2  
 358. \* 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.2  
 359. \* 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2  
 360. \* 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2

-----\*-----  
 MAX \* 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.2  
 DEGR. \* 308 214 0 0 317 27 25 23 22 0 0 0 0 295 321 321 322 178 176 0















WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39 REC40

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348. * 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
349. * 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
350. * 0.2 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
351. * 0.2 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
352. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
353. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
354. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
355. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0
356. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
357. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
358. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
359. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
360. * 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
-----*-----
MAX * 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.1 0.1 0.1 0.1
DEGR. * 0 0 0 0 45 43 43 43 201 237 233 232 231 229 348 0 143 141 140 157

```

MODEL RESULTS

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REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC41 REC42 REC43 REC44 REC45

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-----*-----
0. * 0.0 0.0 0.0 0.0 0.0
1. * 0.0 0.0 0.0 0.0 0.0
2. * 0.0 0.0 0.0 0.0 0.0
3. * 0.0 0.0 0.0 0.0 0.0
4. * 0.0 0.0 0.0 0.0 0.0
5. * 0.0 0.0 0.0 0.0 0.0
6. * 0.0 0.0 0.0 0.0 0.0
7. * 0.0 0.0 0.0 0.0 0.0
8. * 0.0 0.0 0.0 0.0 0.0
9. * 0.0 0.0 0.0 0.0 0.0
10. * 0.0 0.0 0.0 0.0 0.0
11. * 0.0 0.0 0.0 0.0 0.0
12. * 0.0 0.0 0.0 0.0 0.0
13. * 0.0 0.0 0.0 0.0 0.0
14. * 0.0 0.0 0.0 0.0 0.0
15. * 0.0 0.0 0.0 0.0 0.0
16. * 0.0 0.0 0.0 0.0 0.0

```

17. \* 0.0 0.0 0.0 0.0 0.0  
18. \* 0.0 0.0 0.0 0.0 0.0  
19. \* 0.0 0.0 0.0 0.0 0.0  
20. \* 0.0 0.0 0.0 0.0 0.0  
21. \* 0.0 0.0 0.0 0.0 0.0  
22. \* 0.0 0.0 0.0 0.0 0.0  
23. \* 0.0 0.0 0.0 0.0 0.0  
24. \* 0.0 0.0 0.0 0.0 0.0  
25. \* 0.0 0.0 0.0 0.0 0.0  
26. \* 0.0 0.0 0.0 0.0 0.0  
27. \* 0.0 0.0 0.0 0.0 0.0  
28. \* 0.0 0.0 0.0 0.0 0.0  
29. \* 0.0 0.0 0.0 0.0 0.0  
30. \* 0.0 0.0 0.0 0.0 0.0  
31. \* 0.0 0.0 0.0 0.0 0.0  
32. \* 0.0 0.0 0.0 0.0 0.0  
33. \* 0.0 0.0 0.0 0.0 0.0  
34. \* 0.0 0.0 0.0 0.0 0.0  
35. \* 0.0 0.0 0.0 0.0 0.0  
36. \* 0.0 0.0 0.0 0.0 0.0  
37. \* 0.0 0.0 0.0 0.0 0.0  
38. \* 0.0 0.0 0.0 0.0 0.0  
39. \* 0.0 0.0 0.0 0.0 0.0  
40. \* 0.0 0.0 0.0 0.0 0.0  
41. \* 0.0 0.0 0.0 0.0 0.0

PAGE 21

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)  
(DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
42. \* 0.0 0.0 0.0 0.0 0.0  
43. \* 0.0 0.0 0.0 0.0 0.0  
44. \* 0.0 0.0 0.0 0.0 0.0  
45. \* 0.0 0.0 0.0 0.0 0.0  
46. \* 0.0 0.0 0.0 0.0 0.0  
47. \* 0.0 0.0 0.0 0.0 0.0  
48. \* 0.0 0.0 0.0 0.0 0.0  
49. \* 0.0 0.0 0.0 0.0 0.0  
50. \* 0.0 0.0 0.0 0.0 0.0  
51. \* 0.0 0.0 0.0 0.0 0.0  
52. \* 0.0 0.0 0.0 0.0 0.0  
53. \* 0.0 0.0 0.0 0.0 0.0  
54. \* 0.0 0.0 0.0 0.0 0.0  
55. \* 0.0 0.0 0.0 0.0 0.0  
56. \* 0.0 0.0 0.0 0.0 0.0  
57. \* 0.0 0.0 0.0 0.0 0.0  
58. \* 0.0 0.0 0.0 0.0 0.0  
59. \* 0.0 0.0 0.0 0.0 0.0  
60. \* 0.0 0.0 0.0 0.0 0.0  
61. \* 0.0 0.0 0.0 0.0 0.0  
62. \* 0.0 0.0 0.0 0.0 0.0  
63. \* 0.0 0.0 0.0 0.0 0.0  
64. \* 0.0 0.0 0.0 0.0 0.0  
65. \* 0.0 0.0 0.0 0.0 0.0  
66. \* 0.0 0.0 0.0 0.0 0.0  
67. \* 0.0 0.0 0.0 0.0 0.0

68. \* 0.0 0.0 0.0 0.0 0.0  
69. \* 0.0 0.0 0.0 0.0 0.0  
70. \* 0.0 0.0 0.0 0.0 0.0  
71. \* 0.0 0.0 0.0 0.0 0.0  
72. \* 0.0 0.0 0.0 0.0 0.0  
73. \* 0.0 0.0 0.0 0.0 0.0  
74. \* 0.0 0.0 0.0 0.0 0.0  
75. \* 0.0 0.0 0.0 0.0 0.0  
76. \* 0.0 0.0 0.0 0.0 0.0  
77. \* 0.0 0.0 0.0 0.0 0.0  
78. \* 0.0 0.0 0.0 0.0 0.0  
79. \* 0.0 0.0 0.0 0.0 0.0  
80. \* 0.0 0.0 0.0 0.0 0.0  
81. \* 0.0 0.0 0.0 0.0 0.0  
82. \* 0.0 0.0 0.0 0.0 0.0  
83. \* 0.0 0.0 0.0 0.0 0.0  
84. \* 0.0 0.0 0.0 0.0 0.0  
85. \* 0.0 0.0 0.0 0.0 0.0  
86. \* 0.0 0.0 0.0 0.0 0.0  
87. \* 0.0 0.0 0.0 0.0 0.0  
88. \* 0.0 0.0 0.0 0.0 0.0  
89. \* 0.0 0.0 0.0 0.0 0.0  
90. \* 0.0 0.0 0.0 0.0 0.0  
91. \* 0.0 0.0 0.0 0.0 0.0  
92. \* 0.0 0.0 0.0 0.0 0.0

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)  
(DEGR)\* REC41 REC42 REC43 REC44 REC45

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93. \* 0.0 0.0 0.0 0.0 0.0  
94. \* 0.0 0.0 0.0 0.0 0.0  
95. \* 0.0 0.0 0.0 0.0 0.0  
96. \* 0.0 0.0 0.0 0.0 0.0  
97. \* 0.0 0.0 0.0 0.0 0.0  
98. \* 0.0 0.0 0.0 0.0 0.0  
99. \* 0.0 0.0 0.0 0.0 0.0  
100. \* 0.0 0.0 0.0 0.0 0.0  
101. \* 0.0 0.0 0.0 0.0 0.0  
102. \* 0.0 0.0 0.0 0.0 0.0  
103. \* 0.0 0.0 0.0 0.0 0.0  
104. \* 0.0 0.0 0.0 0.0 0.0  
105. \* 0.0 0.0 0.0 0.0 0.0  
106. \* 0.0 0.0 0.0 0.0 0.0  
107. \* 0.0 0.0 0.0 0.0 0.0  
108. \* 0.0 0.0 0.0 0.0 0.0  
109. \* 0.0 0.0 0.0 0.0 0.0  
110. \* 0.0 0.0 0.0 0.0 0.0  
111. \* 0.0 0.0 0.0 0.0 0.0  
112. \* 0.0 0.0 0.0 0.0 0.0  
113. \* 0.0 0.0 0.0 0.0 0.0  
114. \* 0.0 0.0 0.0 0.0 0.0  
115. \* 0.0 0.0 0.0 0.0 0.0  
116. \* 0.0 0.0 0.0 0.0 0.0  
117. \* 0.0 0.0 0.0 0.0 0.0  
118. \* 0.0 0.0 0.0 0.0 0.0

119. \* 0.0 0.0 0.0 0.0 0.0  
120. \* 0.0 0.0 0.0 0.0 0.0  
121. \* 0.0 0.0 0.0 0.0 0.0  
122. \* 0.0 0.0 0.0 0.0 0.0  
123. \* 0.0 0.0 0.0 0.0 0.0  
124. \* 0.0 0.0 0.0 0.0 0.0  
125. \* 0.0 0.0 0.0 0.0 0.0  
126. \* 0.0 0.0 0.0 0.0 0.0  
127. \* 0.0 0.0 0.0 0.0 0.0  
128. \* 0.0 0.0 0.0 0.0 0.0  
129. \* 0.0 0.0 0.0 0.0 0.0  
130. \* 0.0 0.0 0.0 0.0 0.0  
131. \* 0.0 0.0 0.0 0.0 0.0  
132. \* 0.0 0.0 0.0 0.0 0.0  
133. \* 0.0 0.0 0.0 0.0 0.0  
134. \* 0.0 0.0 0.0 0.0 0.0  
135. \* 0.0 0.0 0.0 0.0 0.0  
136. \* 0.0 0.0 0.0 0.0 0.0  
137. \* 0.0 0.0 0.0 0.0 0.0  
138. \* 0.0 0.0 0.0 0.0 0.0  
139. \* 0.0 0.0 0.0 0.0 0.0  
140. \* 0.0 0.0 0.0 0.0 0.0  
141. \* 0.0 0.0 0.0 0.0 0.0  
142. \* 0.0 0.0 0.0 0.0 0.0  
143. \* 0.0 0.0 0.0 0.0 0.0

PAGE 23

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)  
(DEGR)\* REC41 REC42 REC43 REC44 REC45

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144. \* 0.0 0.0 0.0 0.0 0.0  
145. \* 0.0 0.0 0.0 0.0 0.0  
146. \* 0.0 0.0 0.0 0.0 0.0  
147. \* 0.0 0.0 0.0 0.0 0.0  
148. \* 0.0 0.0 0.0 0.0 0.0  
149. \* 0.0 0.0 0.0 0.0 0.0  
150. \* 0.0 0.0 0.0 0.0 0.0  
151. \* 0.0 0.0 0.0 0.0 0.0  
152. \* 0.0 0.0 0.0 0.0 0.0  
153. \* 0.0 0.0 0.0 0.0 0.0  
154. \* 0.0 0.0 0.0 0.0 0.0  
155. \* 0.0 0.0 0.0 0.0 0.0  
156. \* 0.0 0.0 0.0 0.0 0.0  
157. \* 0.1 0.0 0.0 0.0 0.0  
158. \* 0.1 0.0 0.0 0.0 0.0  
159. \* 0.1 0.1 0.0 0.0 0.0  
160. \* 0.1 0.1 0.0 0.0 0.0  
161. \* 0.1 0.1 0.0 0.0 0.0  
162. \* 0.1 0.1 0.0 0.0 0.0  
163. \* 0.1 0.1 0.0 0.0 0.1  
164. \* 0.1 0.1 0.0 0.1 0.1  
165. \* 0.1 0.1 0.0 0.1 0.1  
166. \* 0.1 0.1 0.0 0.1 0.1  
167. \* 0.1 0.1 0.0 0.1 0.1  
168. \* 0.1 0.1 0.1 0.1 0.1  
169. \* 0.1 0.1 0.1 0.1 0.1

170. \* 0.1 0.1 0.1 0.1 0.1  
171. \* 0.1 0.1 0.1 0.1 0.1  
172. \* 0.1 0.1 0.1 0.1 0.1  
173. \* 0.1 0.1 0.1 0.1 0.1  
174. \* 0.1 0.1 0.1 0.1 0.1  
175. \* 0.1 0.1 0.1 0.1 0.1  
176. \* 0.1 0.1 0.1 0.1 0.1  
177. \* 0.1 0.1 0.1 0.1 0.1  
178. \* 0.1 0.1 0.1 0.1 0.1  
179. \* 0.1 0.1 0.1 0.1 0.1  
180. \* 0.1 0.1 0.1 0.1 0.1  
181. \* 0.1 0.1 0.1 0.1 0.1  
182. \* 0.1 0.1 0.1 0.1 0.1  
183. \* 0.1 0.1 0.1 0.1 0.1  
184. \* 0.1 0.1 0.1 0.1 0.1  
185. \* 0.1 0.1 0.1 0.1 0.1  
186. \* 0.1 0.1 0.1 0.1 0.1  
187. \* 0.1 0.1 0.1 0.1 0.1  
188. \* 0.1 0.0 0.1 0.1 0.1  
189. \* 0.1 0.0 0.1 0.1 0.1  
190. \* 0.1 0.0 0.1 0.1 0.1  
191. \* 0.1 0.0 0.1 0.1 0.1  
192. \* 0.1 0.1 0.1 0.1 0.1  
193. \* 0.1 0.1 0.1 0.1 0.1  
194. \* 0.1 0.1 0.1 0.1 0.1

PAGE 24

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
ANGLE \* (PPM)  
(DEGR)\* REC41 REC42 REC43 REC44 REC45

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195. \* 0.1 0.1 0.1 0.1 0.1  
196. \* 0.1 0.1 0.1 0.1 0.1  
197. \* 0.1 0.1 0.1 0.1 0.1  
198. \* 0.1 0.1 0.1 0.1 0.1  
199. \* 0.1 0.1 0.1 0.1 0.1  
200. \* 0.1 0.1 0.1 0.1 0.1  
201. \* 0.1 0.1 0.1 0.1 0.1  
202. \* 0.1 0.1 0.1 0.1 0.1  
203. \* 0.1 0.1 0.1 0.1 0.1  
204. \* 0.1 0.1 0.1 0.1 0.1  
205. \* 0.1 0.1 0.1 0.1 0.1  
206. \* 0.1 0.1 0.1 0.1 0.1  
207. \* 0.1 0.1 0.1 0.1 0.1  
208. \* 0.1 0.1 0.1 0.1 0.1  
209. \* 0.1 0.1 0.1 0.1 0.1  
210. \* 0.1 0.1 0.1 0.1 0.1  
211. \* 0.1 0.1 0.1 0.1 0.1  
212. \* 0.1 0.1 0.1 0.1 0.1  
213. \* 0.1 0.1 0.1 0.1 0.1  
214. \* 0.1 0.1 0.1 0.1 0.1  
215. \* 0.1 0.1 0.1 0.1 0.1  
216. \* 0.1 0.1 0.1 0.1 0.1  
217. \* 0.1 0.1 0.1 0.1 0.1  
218. \* 0.1 0.1 0.1 0.1 0.1  
219. \* 0.1 0.1 0.1 0.1 0.1  
220. \* 0.1 0.1 0.1 0.1 0.1  
221. \* 0.1 0.1 0.1 0.1 0.1

222. \* 0.1 0.1 0.1 0.1 0.1  
223. \* 0.1 0.1 0.1 0.1 0.1  
224. \* 0.1 0.1 0.1 0.1 0.1  
225. \* 0.1 0.1 0.1 0.1 0.1  
226. \* 0.1 0.1 0.1 0.1 0.1  
227. \* 0.1 0.1 0.1 0.1 0.1  
228. \* 0.1 0.1 0.1 0.1 0.1  
229. \* 0.1 0.1 0.1 0.1 0.1  
230. \* 0.1 0.1 0.1 0.1 0.1  
231. \* 0.1 0.1 0.1 0.1 0.1  
232. \* 0.1 0.1 0.1 0.1 0.1  
233. \* 0.1 0.1 0.1 0.1 0.1  
234. \* 0.1 0.1 0.1 0.1 0.1  
235. \* 0.1 0.1 0.1 0.1 0.1  
236. \* 0.1 0.1 0.1 0.1 0.1  
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238. \* 0.1 0.1 0.1 0.1 0.1  
239. \* 0.1 0.1 0.1 0.1 0.1  
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241. \* 0.1 0.1 0.1 0.1 0.1  
242. \* 0.1 0.1 0.1 0.1 0.1  
243. \* 0.1 0.1 0.1 0.1 0.1  
244. \* 0.1 0.1 0.1 0.1 0.1  
245. \* 0.1 0.1 0.1 0.1 0.1

PAGE 25

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC41 REC42 REC43 REC44 REC45

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246. \* 0.1 0.1 0.1 0.1 0.1  
247. \* 0.1 0.1 0.1 0.1 0.1  
248. \* 0.1 0.1 0.1 0.1 0.1  
249. \* 0.1 0.1 0.1 0.1 0.1  
250. \* 0.1 0.1 0.1 0.1 0.1  
251. \* 0.1 0.1 0.1 0.1 0.1  
252. \* 0.1 0.1 0.1 0.1 0.1  
253. \* 0.1 0.1 0.1 0.1 0.1  
254. \* 0.1 0.1 0.1 0.1 0.1  
255. \* 0.1 0.1 0.1 0.1 0.1  
256. \* 0.1 0.1 0.1 0.1 0.1  
257. \* 0.1 0.1 0.1 0.1 0.1  
258. \* 0.1 0.1 0.1 0.1 0.1  
259. \* 0.1 0.1 0.1 0.1 0.1  
260. \* 0.1 0.1 0.1 0.1 0.1  
261. \* 0.1 0.1 0.1 0.1 0.1  
262. \* 0.1 0.1 0.1 0.1 0.1  
263. \* 0.1 0.1 0.1 0.1 0.1  
264. \* 0.1 0.1 0.1 0.1 0.1  
265. \* 0.1 0.1 0.1 0.1 0.1  
266. \* 0.1 0.1 0.1 0.1 0.1  
267. \* 0.1 0.1 0.1 0.1 0.1  
268. \* 0.1 0.1 0.1 0.1 0.1  
269. \* 0.1 0.1 0.1 0.1 0.1  
270. \* 0.1 0.1 0.1 0.1 0.1  
271. \* 0.1 0.1 0.1 0.1 0.1  
272. \* 0.1 0.1 0.1 0.1 0.1

273. \* 0.1 0.1 0.1 0.1 0.1  
274. \* 0.1 0.1 0.1 0.1 0.1  
275. \* 0.1 0.1 0.1 0.1 0.1  
276. \* 0.1 0.1 0.1 0.1 0.1  
277. \* 0.1 0.1 0.1 0.1 0.1  
278. \* 0.1 0.1 0.1 0.1 0.1  
279. \* 0.1 0.1 0.1 0.1 0.1  
280. \* 0.1 0.1 0.1 0.1 0.1  
281. \* 0.1 0.1 0.1 0.1 0.1  
282. \* 0.1 0.1 0.1 0.1 0.1  
283. \* 0.1 0.1 0.1 0.1 0.1  
284. \* 0.1 0.1 0.1 0.1 0.1  
285. \* 0.1 0.1 0.1 0.1 0.1  
286. \* 0.1 0.1 0.1 0.1 0.1  
287. \* 0.1 0.1 0.1 0.1 0.1  
288. \* 0.1 0.1 0.1 0.1 0.1  
289. \* 0.1 0.1 0.1 0.1 0.1  
290. \* 0.1 0.1 0.1 0.1 0.1  
291. \* 0.1 0.1 0.1 0.1 0.1  
292. \* 0.1 0.1 0.1 0.1 0.1  
293. \* 0.1 0.1 0.1 0.1 0.1  
294. \* 0.1 0.1 0.1 0.1 0.1  
295. \* 0.1 0.1 0.1 0.1 0.1  
296. \* 0.1 0.1 0.1 0.1 0.1

PAGE 26

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION

ANGLE \* (PPM)

(DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
297. \* 0.1 0.1 0.1 0.1 0.1  
298. \* 0.1 0.1 0.1 0.1 0.1  
299. \* 0.1 0.1 0.1 0.1 0.1  
300. \* 0.1 0.1 0.1 0.1 0.1  
301. \* 0.1 0.1 0.1 0.1 0.1  
302. \* 0.1 0.1 0.1 0.1 0.1  
303. \* 0.1 0.1 0.1 0.1 0.1  
304. \* 0.1 0.1 0.1 0.1 0.1  
305. \* 0.1 0.1 0.1 0.1 0.1  
306. \* 0.1 0.1 0.1 0.1 0.1  
307. \* 0.1 0.1 0.1 0.1 0.1  
308. \* 0.1 0.1 0.1 0.1 0.1  
309. \* 0.1 0.1 0.1 0.1 0.1  
310. \* 0.1 0.1 0.1 0.1 0.1  
311. \* 0.1 0.1 0.1 0.1 0.1  
312. \* 0.1 0.1 0.1 0.1 0.1  
313. \* 0.1 0.1 0.1 0.1 0.1  
314. \* 0.1 0.1 0.1 0.1 0.1  
315. \* 0.1 0.1 0.1 0.1 0.1  
316. \* 0.1 0.1 0.1 0.1 0.1  
317. \* 0.1 0.1 0.1 0.1 0.1  
318. \* 0.1 0.1 0.1 0.1 0.1  
319. \* 0.1 0.1 0.1 0.1 0.1  
320. \* 0.1 0.1 0.1 0.1 0.1  
321. \* 0.1 0.1 0.1 0.1 0.1  
322. \* 0.1 0.1 0.1 0.1 0.1  
323. \* 0.1 0.1 0.1 0.1 0.1

324. \* 0.1 0.1 0.1 0.1 0.1  
 325. \* 0.1 0.1 0.1 0.1 0.1  
 326. \* 0.1 0.1 0.1 0.1 0.2  
 327. \* 0.1 0.1 0.1 0.1 0.2  
 328. \* 0.1 0.1 0.1 0.1 0.1  
 329. \* 0.1 0.1 0.1 0.1 0.1  
 330. \* 0.1 0.1 0.1 0.1 0.1  
 331. \* 0.0 0.1 0.1 0.1 0.1  
 332. \* 0.0 0.1 0.1 0.1 0.1  
 333. \* 0.1 0.1 0.1 0.2 0.1  
 334. \* 0.1 0.1 0.1 0.2 0.1  
 335. \* 0.1 0.1 0.1 0.2 0.1  
 336. \* 0.1 0.1 0.1 0.2 0.1  
 337. \* 0.1 0.1 0.1 0.2 0.1  
 338. \* 0.1 0.1 0.1 0.2 0.1  
 339. \* 0.1 0.1 0.1 0.1 0.1  
 340. \* 0.0 0.1 0.1 0.1 0.1  
 341. \* 0.0 0.1 0.1 0.1 0.1  
 342. \* 0.0 0.1 0.1 0.1 0.1  
 343. \* 0.0 0.1 0.1 0.1 0.1  
 344. \* 0.0 0.1 0.1 0.1 0.1  
 345. \* 0.0 0.1 0.0 0.1 0.1  
 346. \* 0.0 0.1 0.0 0.1 0.1  
 347. \* 0.0 0.1 0.0 0.1 0.1

PAGE 27

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

WIND ANGLE RANGE: 0.-360.

WIND \* CONCENTRATION  
 ANGLE \* (PPM)  
 (DEGR)\* REC41 REC42 REC43 REC44 REC45

-----\*-----  
 348. \* 0.0 0.0 0.0 0.1 0.1  
 349. \* 0.0 0.0 0.0 0.0 0.1  
 350. \* 0.0 0.0 0.0 0.0 0.1  
 351. \* 0.0 0.0 0.0 0.0 0.1  
 352. \* 0.0 0.0 0.0 0.0 0.0  
 353. \* 0.0 0.0 0.0 0.0 0.0  
 354. \* 0.0 0.0 0.0 0.0 0.0  
 355. \* 0.0 0.0 0.0 0.0 0.0  
 356. \* 0.0 0.0 0.0 0.0 0.0  
 357. \* 0.0 0.0 0.0 0.0 0.0  
 358. \* 0.0 0.0 0.0 0.0 0.0  
 359. \* 0.0 0.0 0.0 0.0 0.0  
 360. \* 0.0 0.0 0.0 0.0 0.0

-----\*-----  
 MAX \* 0.1 0.1 0.1 0.2 0.2  
 DEGR. \* 157 159 168 333 326

THE HIGHEST CONCENTRATION OF 0.20 PPM OCCURRED AT RECEPTOR REC20.



12 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 13 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 14 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 15 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 16 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 17 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 18 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

JOB: NJ168\_NJ41 CO B AM

RUN: NJ168\_NJ41 CO B AM

DATE : 10/28/22

TIME : 12:26:12

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

\* CO/LINK (PPM)  
 \* ANGLE (DEGREES)  
 \* REC41 REC42 REC43 REC44 REC45

LINK # \* 157 159 168 333 326

-----\*-----  
 1 \* 0.0 0.0 0.0 0.0 0.0  
 2 \* 0.0 0.0 0.0 0.0 0.0  
 3 \* 0.0 0.0 0.0 0.0 0.0  
 4 \* 0.0 0.0 0.0 0.0 0.0  
 5 \* 0.0 0.0 0.0 0.0 0.0  
 6 \* 0.1 0.1 0.0 0.0 0.0  
 7 \* 0.0 0.0 0.1 0.1 0.1  
 8 \* 0.0 0.0 0.0 0.0 0.0  
 9 \* 0.0 0.0 0.0 0.0 0.0  
 10 \* 0.0 0.0 0.0 0.1 0.1  
 11 \* 0.0 0.0 0.0 0.0 0.0  
 12 \* 0.0 0.0 0.0 0.0 0.0  
 13 \* 0.0 0.0 0.0 0.0 0.0  
 14 \* 0.0 0.0 0.0 0.0 0.0  
 15 \* 0.0 0.0 0.0 0.0 0.0  
 16 \* 0.0 0.0 0.0 0.0 0.0  
 17 \* 0.0 0.0 0.0 0.0 0.0  
 18 \* 0.0 0.0 0.0 0.0 0.0

## AERMOD Input and Output Files

### PM<sub>2.5</sub>

- Intersection: NJ State Route 73 and Fellowship Road
  - 24-hour NAAQS
    - Input File
    - Last Page of Output File
  - Annual NAAQS
    - Input File
    - Last Page of Output File
- Intersection: NJ State Route 168 and NJ State Route 41
  - 24-hour NAAQS
    - Input File
    - Last Page of Output File
  - Annual NAAQS
    - Input File
    - Last Page of Output File

NJ State Route 73 and Fellowship Road

24-hour PM<sub>2.5</sub> NAAQS

Input File

CO STARTING  
TITLEONE NJ73\_Fellow - PM25  
MODELOPT DFAULT CONC  
AVERTIME 24  
POLLUTID PM25  
FLAGPOLE 1.8  
RUNORNOT RUN  
CO FINISHED

SO STARTING

** Source	ID	Type	UTMX (m)	UTMY (m)	EI. (m)
LOCATION 1		AREA	503429.209	4420084.014	21.660
LOCATION 2		AREA	503352.669	4420150.726	21.440
LOCATION 3		AREA	503367.720	4420149.410	21.420
LOCATION 4		AREA	503161.400	4420293.880	20.530
LOCATION 5		AREA	503258.530	4420206.546	20.960
LOCATION 6		AREA	503253.966	4420202.146	20.990
LOCATION 7		AREA	503429.704	4420258.096	17.990
LOCATION 8		AREA	503349.232	4420149.262	21.420
LOCATION 9		AREA	503348.060	4420147.200	21.420
LOCATION 10		AREA	503348.650	4420161.310	21.410
LOCATION 11		AREA	503269.672	4419931.348	17.320
LOCATION 12		AREA	503305.950	4420062.360	21.070
LOCATION 13		AREA	503298.310	4420061.180	20.960
LOCATION 14		AREA	503309.770	4420060.010	21.040
LOCATION 15		AREA	503351.810	4420143.780	21.450
LOCATION 16		AREA	503175.040	4420309.600	20.490
LOCATION 17		AREA	503353.450	4420138.650	21.470
LOCATION 18		AREA	503446.893	4420265.653	17.560
LOCATION 19		AREA	503296.280	4420070.000	21.020
LOCATION 20		AREA	503258.050	4419931.570	17.090
LOCATION 21		AREA	503370.959	4420139.477	21.570

LOCATI ON 22	AREA	503376.639	4420145.854	21.480
LOCATI ON 23	AREA	503261.200	4420209.630	21.020
LOCATI ON 24	AREA	503256.290	4420204.880	20.940
LOCATI ON 25	AREA	503362.120	4420171.238	20.890
LOCATI ON 26	AREA	503364.368	4420168.326	20.900
LOCATI ON 27	AREA	503358.656	4420173.643	21.010
LOCATI ON 28	AREA	503305.660	4420062.458	21.070
LOCATI ON 29	AREA	503298.300	4420061.330	20.970
LOCATI ON 30	AREA	503309.780	4420060.020	21.040

\*\*

\*\*Area Source

**	SRCID	QS(g/sec*m2)	Hs(m)	X Len(m)	Y Len(m))	Ini t	Vert(m)
**	-----	-----	-----	-----	-----	-----	-----
	SRCPARAM 1	1.0	1.470	142.151	3.600	40.520	1.360
	SRCPARAM 2	1.0	1.470	101.349	3.600	41.200	1.360
	SRCPARAM 3	1.0	1.470	89.515	3.600	44.070	1.360
	SRCPARAM 4	1.0	1.470	131.534	3.600	42.101	1.360
	SRCPARAM 5	1.0	1.470	111.230	3.600	38.500	1.360
	SRCPARAM 6	1.0	1.470	105.381	3.600	41.381	1.360
	SRCPARAM 7	1.0	1.470	3.600	108.851	29.490	1.360
	SRCPARAM 8	1.0	1.470	135.429	3.600	-51.800	1.360
	SRCPARAM 9	1.0	1.470	3.600	135.576	37.875	1.360
	SRCPARAM 10	1.0	1.470	3.600	124.500	38.580	1.360
	SRCPARAM 11	1.0	1.470	3.600	135.790	15.380	1.360
	SRCPARAM 12	1.0	1.470	3.600	91.324	28.440	1.360
	SRCPARAM 13	1.0	1.470	3.600	97.250	27.260	1.360
	SRCPARAM 14	1.0	1.470	3.600	82.339	30.470	1.360
	SRCPARAM 15	1.0	1.470	3.600	232.763	131.320	1.360
	SRCPARAM 16	1.0	1.470	3.600	240.194	129.920	1.360
	SRCPARAM 17	1.0	1.470	3.600	158.300	36.400	1.360
	SRCPARAM 18	1.0	1.470	3.600	91.430	27.130	1.360
	SRCPARAM 19	1.0	1.470	3.600	94.601	29.270	1.360

SRCPARAM 20	1.0	1.470	3.600	144.320	15.440	1.360
SRCPARAM 21	1.0	1.470	3.600	80.504	131.080	1.360
SRCPARAM 22	1.0	1.470	3.600	80.350	134.300	1.360
SRCPARAM 23	1.0	1.470	3.600	91.934	128.560	1.360
SRCPARAM 24	1.0	1.470	3.600	93.005	131.370	1.360
SRCPARAM 25	1.0	1.470	3.600	110.223	38.040	1.360
SRCPARAM 26	1.0	1.470	3.600	108.652	37.950	1.360
SRCPARAM 27	1.0	1.470	3.600	108.500	38.580	1.360
SRCPARAM 28	1.0	1.470	3.600	67.759	28.840	1.360
SRCPARAM 29	1.0	1.470	3.600	70.888	27.480	1.360
SRCPARAM 30	1.0	1.470	3.600	63.996	30.620	1.360

EMI SFACT 1 SEASHR	1.805E-07	1.805E-07	1.805E-07	1.805E-07	1.805E-07	1.805E-07	9.654E-07	9.654E-07	9.654E-07	7.001E-07	7.001E-07	7.001E-07
EMI SFACT 1 SEASHR	7.001E-07	7.001E-07	7.001E-07	7.001E-07	6.340E-07	6.340E-07	6.340E-07	1.805E-07	1.805E-07	1.805E-07	1.805E-07	1.805E-07
EMI SFACT 1 SEASHR	1.820E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07	9.706E-07	9.706E-07	9.706E-07	7.045E-07	7.045E-07	7.045E-07
EMI SFACT 1 SEASHR	7.045E-07	7.045E-07	7.045E-07	7.045E-07	6.381E-07	6.381E-07	6.381E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07
EMI SFACT 1 SEASHR	1.856E-07	1.856E-07	1.856E-07	1.856E-07	1.856E-07	1.856E-07	9.826E-07	9.826E-07	9.826E-07	7.146E-07	7.146E-07	7.146E-07
EMI SFACT 1 SEASHR	7.146E-07	7.146E-07	7.146E-07	7.146E-07	6.476E-07	6.476E-07	6.476E-07	1.856E-07	1.856E-07	1.856E-07	1.856E-07	1.856E-07
EMI SFACT 1 SEASHR	1.820E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07	9.706E-07	9.706E-07	9.706E-07	7.045E-07	7.045E-07	7.045E-07
EMI SFACT 1 SEASHR	7.045E-07	7.045E-07	7.045E-07	7.045E-07	6.381E-07	6.381E-07	6.381E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07	1.820E-07
EMI SFACT 2 SEASHR	1.458E-07	1.458E-07	1.458E-07	1.458E-07	1.458E-07	1.458E-07	7.486E-07	7.486E-07	7.486E-07	5.654E-07	5.654E-07	5.654E-07
EMI SFACT 2 SEASHR	5.654E-07	5.654E-07	5.654E-07	5.654E-07	5.340E-07	5.340E-07	5.340E-07	1.458E-07	1.458E-07	1.458E-07	1.458E-07	1.458E-07
EMI SFACT 2 SEASHR	1.470E-07	1.470E-07	1.470E-07	1.470E-07	1.470E-07	1.470E-07	7.526E-07	7.526E-07	7.526E-07	1.470E-07	1.470E-07	1.470E-07

5.689E-07 5.689E-07 5.689E-07  
EMI SFACT 2 SEASHR 5.689E-07 5.689E-07 5.689E-07 5.689E-07 5.375E-07 5.375E-07 5.375E-07 1.470E-07 1.470E-07  
1.470E-07 1.470E-07 1.470E-07  
EMI SFACT 2 SEASHR 1.499E-07 1.499E-07 1.499E-07 1.499E-07 1.499E-07 1.499E-07 7.619E-07 7.619E-07 7.619E-07  
5.771E-07 5.771E-07 5.771E-07  
EMI SFACT 2 SEASHR 5.771E-07 5.771E-07 5.771E-07 5.771E-07 5.455E-07 5.455E-07 5.455E-07 1.499E-07 1.499E-07  
1.499E-07 1.499E-07 1.499E-07  
EMI SFACT 2 SEASHR 1.470E-07 1.470E-07 1.470E-07 1.470E-07 1.470E-07 1.470E-07 7.526E-07 7.526E-07 7.526E-07  
5.689E-07 5.689E-07 5.689E-07  
EMI SFACT 2 SEASHR 5.689E-07 5.689E-07 5.689E-07 5.689E-07 5.375E-07 5.375E-07 5.375E-07 1.470E-07 1.470E-07  
1.470E-07 1.470E-07 1.470E-07  
EMI SFACT 3 SEASHR 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 2.265E-07 2.265E-07 2.265E-07  
1.248E-07 1.248E-07 1.248E-07  
EMI SFACT 3 SEASHR 1.248E-07 1.248E-07 1.248E-07 1.248E-07 7.431E-08 7.431E-08 7.431E-08 3.219E-08 3.219E-08  
3.219E-08 3.219E-08 3.219E-08  
EMI SFACT 3 SEASHR 3.246E-08 3.246E-08 3.246E-08 3.246E-08 3.246E-08 3.246E-08 2.277E-07 2.277E-07 2.277E-07  
1.256E-07 1.256E-07 1.256E-07  
EMI SFACT 3 SEASHR 1.256E-07 1.256E-07 1.256E-07 1.256E-07 7.479E-08 7.479E-08 7.479E-08 3.246E-08 3.246E-08  
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EMI SFACT 3 SEASHR 3.309E-08 3.309E-08 3.309E-08 3.309E-08 3.309E-08 3.309E-08 2.305E-07 2.305E-07 2.305E-07  
1.274E-07 1.274E-07 1.274E-07  
EMI SFACT 3 SEASHR 1.274E-07 1.274E-07 1.274E-07 1.274E-07 7.591E-08 7.591E-08 7.591E-08 3.309E-08 3.309E-08  
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EMI SFACT 3 SEASHR 3.246E-08 3.246E-08 3.246E-08 3.246E-08 3.246E-08 3.246E-08 2.277E-07 2.277E-07 2.277E-07  
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EMI SFACT 3 SEASHR 1.256E-07 1.256E-07 1.256E-07 1.256E-07 7.479E-08 7.479E-08 7.479E-08 3.246E-08 3.246E-08  
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EMI SFACT 4 SEASHR 1.709E-07 1.709E-07 1.709E-07 1.709E-07 1.709E-07 1.709E-07 5.938E-07 5.938E-07 5.938E-07  
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EMI SFACT 4 SEASHR 5.590E-07 5.590E-07 5.590E-07 5.590E-07 6.838E-07 6.838E-07 6.838E-07 1.709E-07 1.709E-07  
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EMI SFACT 4 SEASHR 1.723E-07 1.723E-07 1.723E-07 1.723E-07 1.723E-07 1.723E-07 5.981E-07 5.981E-07 5.981E-07  
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EMI SFACT 4 SEASHR 5.629E-07 5.629E-07 5.629E-07 5.629E-07 6.876E-07 6.876E-07 6.876E-07 1.723E-07 1.723E-07  
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EMI SFACT 4 SEASHR 1.756E-07 1.756E-07 1.756E-07 1.756E-07 1.756E-07 1.756E-07 6.079E-07 6.079E-07 6.079E-07  
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EMI SFACT 4 SEASHR 5.720E-07 5.720E-07 5.720E-07 5.720E-07 6.966E-07 6.966E-07 6.966E-07 1.756E-07 1.756E-07  
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EMI SFACT 4 SEASHR 1.723E-07 1.723E-07 1.723E-07 1.723E-07 1.723E-07 1.723E-07 5.981E-07 5.981E-07 5.981E-07  
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EMI SFACT 4 SEASHR 5.629E-07 5.629E-07 5.629E-07 5.629E-07 6.876E-07 6.876E-07 6.876E-07 1.723E-07 1.723E-07  
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EMI SFACT 5 SEASHR 1.408E-07 1.408E-07 1.408E-07 1.408E-07 1.408E-07 1.408E-07 4.655E-07 4.655E-07 4.655E-07  
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EMI SFACT 5 SEASHR 4.605E-07 4.605E-07 4.605E-07 4.605E-07 5.962E-07 5.962E-07 5.962E-07 1.408E-07 1.408E-07  
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EMI SFACT 5 SEASHR 1.419E-07 1.419E-07 1.419E-07 1.419E-07 1.419E-07 1.419E-07 4.688E-07 4.688E-07 4.688E-07  
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EMI SFACT 5 SEASHR 4.637E-07 4.637E-07 4.637E-07 4.637E-07 5.996E-07 5.996E-07 5.996E-07 1.419E-07 1.419E-07  
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EMI SFACT 5 SEASHR 1.447E-07 1.447E-07 1.447E-07 1.447E-07 1.447E-07 1.447E-07 4.765E-07 4.765E-07 4.765E-07  
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EMI SFACT 5 SEASHR 4.712E-07 4.712E-07 4.712E-07 4.712E-07 6.074E-07 6.074E-07 6.074E-07 1.447E-07 1.447E-07  
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EMI SFACT 5 SEASHR 4.637E-07 4.637E-07 4.637E-07 4.637E-07 5.996E-07 5.996E-07 5.996E-07 1.419E-07 1.419E-07  
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EMI SFACT 6 SEASHR 3.000E-08 3.000E-08 3.000E-08 3.000E-08 3.000E-08 3.000E-08 1.273E-07 1.273E-07 1.273E-07  
9.813E-08 9.813E-08 9.813E-08  
EMI SFACT 6 SEASHR 9.813E-08 9.813E-08 9.813E-08 9.813E-08 8.792E-08 8.792E-08 8.792E-08 3.000E-08 3.000E-08  
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EMI SFACT 6 SEASHR 3.025E-08 3.025E-08 3.025E-08 3.025E-08 3.025E-08 3.025E-08 1.282E-07 1.282E-07 1.282E-07  
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EMI SFACT 6 SEASHR 9.882E-08 9.882E-08 9.882E-08 9.882E-08 8.842E-08 8.842E-08 8.842E-08 3.025E-08 3.025E-08

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EMI SFACT 7 SEASHR 3.975E-08 3.975E-08 3.975E-08 3.975E-08 3.975E-08 3.975E-08 6.837E-08 6.837E-08 6.837E-08  
1.009E-07 1.009E-07 1.009E-07  
EMI SFACT 7 SEASHR 1.009E-07 1.009E-07 1.009E-07 1.009E-07 1.440E-07 1.440E-07 1.440E-07 3.975E-08 3.975E-08  
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EMI SFACT 7 SEASHR 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 6.878E-08 6.878E-08 6.878E-08  
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EMI SFACT 7 SEASHR 1.014E-07 1.014E-07 1.014E-07 1.014E-07 1.448E-07 1.448E-07 1.448E-07 4.000E-08 4.000E-08  
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EMI SFACT 7 SEASHR 4.056E-08 4.056E-08 4.056E-08 4.056E-08 4.056E-08 4.056E-08 6.975E-08 6.975E-08 6.975E-08  
1.028E-07 1.028E-07 1.028E-07  
EMI SFACT 7 SEASHR 1.028E-07 1.028E-07 1.028E-07 1.028E-07 1.466E-07 1.466E-07 1.466E-07 4.056E-08 4.056E-08  
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EMI SFACT 7 SEASHR 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 6.878E-08 6.878E-08 6.878E-08  
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EMI SFACT 8 SEASHR 1.507E-08 1.507E-08 1.507E-08 1.507E-08 1.507E-08 1.507E-08 2.823E-08 2.823E-08 2.823E-08  
3.825E-08 3.825E-08 3.825E-08  
EMI SFACT 8 SEASHR 3.825E-08 3.825E-08 3.825E-08 3.825E-08 5.143E-08 5.143E-08 5.143E-08 1.507E-08 1.507E-08  
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EMI SFACT 8 SEASHR 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 2.840E-08 2.840E-08 2.840E-08  
3.846E-08 3.846E-08 3.846E-08  
EMI SFACT 8 SEASHR 3.846E-08 3.846E-08 3.846E-08 3.846E-08 5.171E-08 5.171E-08 5.171E-08 1.517E-08 1.517E-08  
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EMI SFACT 8 SEASHR 1.538E-08 1.538E-08 1.538E-08 1.538E-08 1.538E-08 1.538E-08 1.538E-08 2.880E-08 2.880E-08 2.880E-08  
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EMI SFACT 8 SEASHR 3.897E-08 3.897E-08 3.897E-08 3.897E-08 5.237E-08 5.237E-08 5.237E-08 1.538E-08 1.538E-08  
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EMI SFACT 8 SEASHR 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 2.840E-08 2.840E-08 2.840E-08  
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EMI SFACT 8 SEASHR 3.846E-08 3.846E-08 3.846E-08 3.846E-08 5.171E-08 5.171E-08 5.171E-08 1.517E-08 1.517E-08  
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EMI SFACT 9 SEASHR 9.837E-09 9.837E-09 9.837E-09 9.837E-09 9.837E-09 9.837E-09 9.837E-09 1.448E-08 1.448E-08 1.448E-08  
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EMI SFACT 9 SEASHR 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 1.457E-08 1.457E-08 1.457E-08  
2.510E-08 2.510E-08 2.510E-08  
EMI SFACT 9 SEASHR 2.510E-08 2.510E-08 2.510E-08 2.510E-08 3.918E-08 3.918E-08 3.918E-08 9.897E-09 9.897E-09  
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EMI SFACT 9 SEASHR 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.478E-08 1.478E-08 1.478E-08  
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EMI SFACT 9 SEASHR 2.543E-08 2.543E-08 2.543E-08 2.543E-08 3.968E-08 3.968E-08 3.968E-08 1.004E-08 1.004E-08  
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EMI SFACT 9 SEASHR 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 1.457E-08 1.457E-08 1.457E-08  
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EMI SFACT 9 SEASHR 2.510E-08 2.510E-08 2.510E-08 2.510E-08 3.918E-08 3.918E-08 3.918E-08 9.897E-09 9.897E-09  
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EMI SFACT 10 SEASHR 1.471E-08 1.471E-08 1.471E-08 1.471E-08 1.471E-08 1.471E-08 1.471E-08 2.540E-08 2.540E-08 2.540E-08  
3.732E-08 3.732E-08 3.732E-08  
EMI SFACT 10 SEASHR 3.732E-08 3.732E-08 3.732E-08 3.732E-08 5.313E-08 5.313E-08 5.313E-08 1.471E-08 1.471E-08  
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EMI SFACT 10 SEASHR 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 2.555E-08 2.555E-08 2.555E-08  
3.753E-08 3.753E-08 3.753E-08  
EMI SFACT 10 SEASHR 3.753E-08 3.753E-08 3.753E-08 3.753E-08 5.342E-08 5.342E-08 5.342E-08 1.480E-08 1.480E-08  
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EMI SFACT 10 SEASHR 1.501E-08 1.501E-08 1.501E-08 1.501E-08 1.501E-08 1.501E-08 1.501E-08 2.592E-08 2.592E-08 2.592E-08

3.802E-08 3.802E-08 3.802E-08  
EMI SFACT 10 SEASHR 3.802E-08 3.802E-08 3.802E-08 3.802E-08 5.409E-08 5.409E-08 5.409E-08 1.501E-08 1.501E-08  
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EMI SFACT 10 SEASHR 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 2.555E-08 2.555E-08 2.555E-08  
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EMI SFACT 10 SEASHR 3.753E-08 3.753E-08 3.753E-08 3.753E-08 5.342E-08 5.342E-08 5.342E-08 1.480E-08 1.480E-08  
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EMI SFACT 11 SEASHR 5.485E-08 5.485E-08 5.485E-08 5.485E-08 5.485E-08 1.212E-07 1.212E-07 1.212E-07  
1.345E-07 1.345E-07 1.345E-07  
EMI SFACT 11 SEASHR 1.345E-07 1.345E-07 1.345E-07 1.345E-07 1.252E-07 1.252E-07 1.252E-07 5.485E-08 5.485E-08  
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EMI SFACT 11 SEASHR 5.515E-08 5.515E-08 5.515E-08 5.515E-08 5.515E-08 5.515E-08 1.219E-07 1.219E-07 1.219E-07  
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EMI SFACT 11 SEASHR 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.258E-07 1.258E-07 1.258E-07 5.515E-08 5.515E-08  
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EMI SFACT 11 SEASHR 5.587E-08 5.587E-08 5.587E-08 5.587E-08 5.587E-08 5.587E-08 1.234E-07 1.234E-07 1.234E-07  
1.369E-07 1.369E-07 1.369E-07  
EMI SFACT 11 SEASHR 1.369E-07 1.369E-07 1.369E-07 1.369E-07 1.274E-07 1.274E-07 1.274E-07 5.587E-08 5.587E-08  
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EMI SFACT 11 SEASHR 5.515E-08 5.515E-08 5.515E-08 5.515E-08 5.515E-08 5.515E-08 1.219E-07 1.219E-07 1.219E-07  
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EMI SFACT 11 SEASHR 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.258E-07 1.258E-07 1.258E-07 5.515E-08 5.515E-08  
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EMI SFACT 12 SEASHR 2.675E-08 2.675E-08 2.675E-08 2.675E-08 2.675E-08 2.675E-08 7.848E-08 7.848E-08 7.848E-08  
6.557E-08 6.557E-08 6.557E-08  
EMI SFACT 12 SEASHR 6.557E-08 6.557E-08 6.557E-08 6.557E-08 4.334E-08 4.334E-08 4.334E-08 2.675E-08 2.675E-08  
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EMI SFACT 12 SEASHR 2.690E-08 2.690E-08 2.690E-08 2.690E-08 2.690E-08 2.690E-08 7.890E-08 7.890E-08 7.890E-08  
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EMI SFACT 12 SEASHR 6.592E-08 6.592E-08 6.592E-08 6.592E-08 4.357E-08 4.357E-08 4.357E-08 2.690E-08 2.690E-08  
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EMI SFACT 12 SEASHR 2.724E-08 2.724E-08 2.724E-08 2.724E-08 2.724E-08 2.724E-08 7.987E-08 7.987E-08 7.987E-08  
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EMI SFACT 12 SEASHR 6.674E-08 6.674E-08 6.674E-08 6.674E-08 4.411E-08 4.411E-08 4.411E-08 2.724E-08 2.724E-08  
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EMI SFACT 12 SEASHR 6.592E-08 6.592E-08 6.592E-08 6.592E-08 4.357E-08 4.357E-08 4.357E-08 2.690E-08 2.690E-08  
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EMI SFACT 13 SEASHR 1.533E-08 1.533E-08 1.533E-08 1.533E-08 1.533E-08 1.533E-08 2.617E-08 2.617E-08 2.617E-08  
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EMI SFACT 13 SEASHR 3.758E-08 3.758E-08 3.758E-08 3.758E-08 4.203E-08 4.203E-08 4.203E-08 1.533E-08 1.533E-08  
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EMI SFACT 13 SEASHR 1.541E-08 1.541E-08 1.541E-08 1.541E-08 1.541E-08 1.541E-08 2.631E-08 2.631E-08 2.631E-08  
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EMI SFACT 13 SEASHR 3.778E-08 3.778E-08 3.778E-08 3.778E-08 4.225E-08 4.225E-08 4.225E-08 1.541E-08 1.541E-08  
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EMI SFACT 13 SEASHR 1.561E-08 1.561E-08 1.561E-08 1.561E-08 1.561E-08 1.561E-08 2.664E-08 2.664E-08 2.664E-08  
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EMI SFACT 13 SEASHR 3.778E-08 3.778E-08 3.778E-08 3.778E-08 4.225E-08 4.225E-08 4.225E-08 1.541E-08 1.541E-08  
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EMI SFACT 14 SEASHR 1.282E-08 1.282E-08 1.282E-08 1.282E-08 1.282E-08 1.282E-08 1.636E-08 1.636E-08 1.636E-08  
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EMI SFACT 14 SEASHR 3.142E-08 3.142E-08 3.142E-08 3.142E-08 4.019E-08 4.019E-08 4.019E-08 1.282E-08 1.282E-08  
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EMI SFACT 14 SEASHR 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.645E-08 1.645E-08 1.645E-08  
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EMI SFACT 14 SEASHR 1.305E-08 1.305E-08 1.305E-08 1.305E-08 1.305E-08 1.305E-08 1.666E-08 1.666E-08 1.666E-08  
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EMI SFACT 14 SEASHR 3.198E-08 3.198E-08 3.198E-08 3.198E-08 4.090E-08 4.090E-08 4.090E-08 1.305E-08 1.305E-08

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EMI SFACT 14 SEASHR 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.645E-08 1.645E-08 1.645E-08  
3.159E-08 3.159E-08 3.159E-08  
EMI SFACT 14 SEASHR 3.159E-08 3.159E-08 3.159E-08 3.159E-08 4.040E-08 4.040E-08 4.040E-08 1.289E-08 1.289E-08  
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EMI SFACT 15 SEASHR 1.802E-07 1.802E-07 1.802E-07 1.802E-07 1.802E-07 1.802E-07 5.015E-07 5.015E-07 5.015E-07  
5.682E-07 5.682E-07 5.682E-07  
EMI SFACT 15 SEASHR 5.682E-07 5.682E-07 5.682E-07 5.682E-07 8.549E-07 8.549E-07 8.549E-07 1.802E-07 1.802E-07  
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EMI SFACT 15 SEASHR 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 5.053E-07 5.053E-07 5.053E-07  
5.722E-07 5.722E-07 5.722E-07  
EMI SFACT 15 SEASHR 5.722E-07 5.722E-07 5.722E-07 5.722E-07 8.597E-07 8.597E-07 8.597E-07 1.816E-07 1.816E-07  
1.816E-07 1.816E-07 1.816E-07  
EMI SFACT 15 SEASHR 1.851E-07 1.851E-07 1.851E-07 1.851E-07 1.851E-07 1.851E-07 5.140E-07 5.140E-07 5.140E-07  
5.816E-07 5.816E-07 5.816E-07  
EMI SFACT 15 SEASHR 5.816E-07 5.816E-07 5.816E-07 5.816E-07 8.707E-07 8.707E-07 8.707E-07 1.851E-07 1.851E-07  
1.851E-07 1.851E-07 1.851E-07  
EMI SFACT 15 SEASHR 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 5.053E-07 5.053E-07 5.053E-07  
5.722E-07 5.722E-07 5.722E-07  
EMI SFACT 15 SEASHR 5.722E-07 5.722E-07 5.722E-07 5.722E-07 8.597E-07 8.597E-07 8.597E-07 1.816E-07 1.816E-07  
1.816E-07 1.816E-07 1.816E-07  
EMI SFACT 16 SEASHR 1.925E-07 1.925E-07 1.925E-07 1.925E-07 1.925E-07 1.925E-07 7.371E-07 7.371E-07 7.371E-07  
6.674E-07 6.674E-07 6.674E-07  
EMI SFACT 16 SEASHR 6.674E-07 6.674E-07 6.674E-07 6.674E-07 7.519E-07 7.519E-07 7.519E-07 1.925E-07 1.925E-07  
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EMI SFACT 16 SEASHR 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 7.415E-07 7.415E-07 7.415E-07  
6.719E-07 6.719E-07 6.719E-07  
EMI SFACT 16 SEASHR 6.719E-07 6.719E-07 6.719E-07 6.719E-07 7.567E-07 7.567E-07 7.567E-07 1.941E-07 1.941E-07  
1.941E-07 1.941E-07 1.941E-07  
EMI SFACT 16 SEASHR 1.979E-07 1.979E-07 1.979E-07 1.979E-07 1.979E-07 1.979E-07 7.518E-07 7.518E-07 7.518E-07  
6.823E-07 6.823E-07 6.823E-07  
EMI SFACT 16 SEASHR 6.823E-07 6.823E-07 6.823E-07 6.823E-07 7.678E-07 7.678E-07 7.678E-07 1.979E-07 1.979E-07  
1.979E-07 1.979E-07 1.979E-07

EMI SFACT 16 SEASHR 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 7.415E-07 7.415E-07 7.415E-07  
6.719E-07 6.719E-07 6.719E-07  
EMI SFACT 16 SEASHR 6.719E-07 6.719E-07 6.719E-07 6.719E-07 6.719E-07 6.719E-07 7.567E-07 7.567E-07 7.567E-07 1.941E-07 1.941E-07  
1.941E-07 1.941E-07 1.941E-07  
EMI SFACT 17 SEASHR 4.550E-08 4.550E-08 4.550E-08 4.550E-08 4.550E-08 4.550E-08 2.223E-07 2.223E-07 2.223E-07  
1.547E-07 1.547E-07 1.547E-07  
EMI SFACT 17 SEASHR 1.547E-07 1.547E-07 1.547E-07 1.547E-07 1.547E-07 9.261E-08 9.261E-08 9.261E-08 4.550E-08 4.550E-08  
4.550E-08 4.550E-08 4.550E-08  
EMI SFACT 17 SEASHR 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 2.234E-07 2.234E-07 2.234E-07  
1.555E-07 1.555E-07 1.555E-07  
EMI SFACT 17 SEASHR 1.555E-07 1.555E-07 1.555E-07 1.555E-07 1.555E-07 9.312E-08 9.312E-08 9.312E-08 4.578E-08 4.578E-08  
4.578E-08 4.578E-08 4.578E-08  
EMI SFACT 17 SEASHR 4.641E-08 4.641E-08 4.641E-08 4.641E-08 4.641E-08 4.641E-08 2.259E-07 2.259E-07 2.259E-07  
1.575E-07 1.575E-07 1.575E-07  
EMI SFACT 17 SEASHR 1.575E-07 1.575E-07 1.575E-07 1.575E-07 1.575E-07 9.429E-08 9.429E-08 9.429E-08 4.641E-08 4.641E-08  
4.641E-08 4.641E-08 4.641E-08  
EMI SFACT 17 SEASHR 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 2.234E-07 2.234E-07 2.234E-07  
1.555E-07 1.555E-07 1.555E-07  
EMI SFACT 17 SEASHR 1.555E-07 1.555E-07 1.555E-07 1.555E-07 1.555E-07 9.312E-08 9.312E-08 9.312E-08 4.578E-08 4.578E-08  
4.578E-08 4.578E-08 4.578E-08  
EMI SFACT 18 SEASHR 4.494E-08 4.494E-08 4.494E-08 4.494E-08 4.494E-08 4.494E-08 2.196E-07 2.196E-07 2.196E-07  
1.528E-07 1.528E-07 1.528E-07  
EMI SFACT 18 SEASHR 1.528E-07 1.528E-07 1.528E-07 1.528E-07 1.528E-07 9.146E-08 9.146E-08 9.146E-08 4.494E-08 4.494E-08  
4.494E-08 4.494E-08 4.494E-08  
EMI SFACT 18 SEASHR 4.521E-08 4.521E-08 4.521E-08 4.521E-08 4.521E-08 4.521E-08 2.206E-07 2.206E-07 2.206E-07  
1.536E-07 1.536E-07 1.536E-07  
EMI SFACT 18 SEASHR 1.536E-07 1.536E-07 1.536E-07 1.536E-07 1.536E-07 9.196E-08 9.196E-08 9.196E-08 4.521E-08 4.521E-08  
4.521E-08 4.521E-08 4.521E-08  
EMI SFACT 18 SEASHR 4.583E-08 4.583E-08 4.583E-08 4.583E-08 4.583E-08 4.583E-08 2.231E-07 2.231E-07 2.231E-07  
1.555E-07 1.555E-07 1.555E-07  
EMI SFACT 18 SEASHR 1.555E-07 1.555E-07 1.555E-07 1.555E-07 1.555E-07 9.312E-08 9.312E-08 9.312E-08 4.583E-08 4.583E-08  
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EMI SFACT 18 SEASHR 4.521E-08 4.521E-08 4.521E-08 4.521E-08 4.521E-08 4.521E-08 2.206E-07 2.206E-07 2.206E-07

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EMI SFACT 18 SEASHR 1.536E-07 1.536E-07 1.536E-07 9.196E-08 9.196E-08 9.196E-08 4.521E-08 4.521E-08  
4.521E-08 4.521E-08 4.521E-08  
EMI SFACT 19 SEASHR 3.186E-08 3.186E-08 3.186E-08 3.186E-08 3.186E-08 3.186E-08 1.002E-07 1.002E-07 1.002E-07  
8.669E-08 8.669E-08 8.669E-08  
EMI SFACT 19 SEASHR 8.669E-08 8.669E-08 8.669E-08 8.669E-08 6.045E-08 6.045E-08 6.045E-08 3.186E-08 3.186E-08  
3.186E-08 3.186E-08 3.186E-08  
EMI SFACT 19 SEASHR 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 1.008E-07 1.008E-07 1.008E-07  
8.717E-08 8.717E-08 8.717E-08  
EMI SFACT 19 SEASHR 8.717E-08 8.717E-08 8.717E-08 8.717E-08 6.080E-08 6.080E-08 6.080E-08 3.205E-08 3.205E-08  
3.205E-08 3.205E-08 3.205E-08  
EMI SFACT 19 SEASHR 3.251E-08 3.251E-08 3.251E-08 3.251E-08 3.251E-08 3.251E-08 1.020E-07 1.020E-07 1.020E-07  
8.828E-08 8.828E-08 8.828E-08  
EMI SFACT 19 SEASHR 8.828E-08 8.828E-08 8.828E-08 8.828E-08 6.162E-08 6.162E-08 6.162E-08 3.251E-08 3.251E-08  
3.251E-08 3.251E-08 3.251E-08  
EMI SFACT 19 SEASHR 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 1.008E-07 1.008E-07 1.008E-07  
8.717E-08 8.717E-08 8.717E-08  
EMI SFACT 19 SEASHR 8.717E-08 8.717E-08 8.717E-08 8.717E-08 6.080E-08 6.080E-08 6.080E-08 3.205E-08 3.205E-08  
3.205E-08 3.205E-08 3.205E-08  
EMI SFACT 20 SEASHR 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 1.013E-07 1.013E-07 1.013E-07  
8.759E-08 8.759E-08 8.759E-08  
EMI SFACT 20 SEASHR 8.759E-08 8.759E-08 8.759E-08 8.759E-08 6.107E-08 6.107E-08 6.107E-08 3.219E-08 3.219E-08  
3.219E-08 3.219E-08 3.219E-08  
EMI SFACT 20 SEASHR 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 1.018E-07 1.018E-07 1.018E-07  
8.807E-08 8.807E-08 8.807E-08  
EMI SFACT 20 SEASHR 8.807E-08 8.807E-08 8.807E-08 8.807E-08 6.143E-08 6.143E-08 6.143E-08 3.238E-08 3.238E-08  
3.238E-08 3.238E-08 3.238E-08  
EMI SFACT 20 SEASHR 3.284E-08 3.284E-08 3.284E-08 3.284E-08 3.284E-08 3.284E-08 1.031E-07 1.031E-07 1.031E-07  
8.919E-08 8.919E-08 8.919E-08  
EMI SFACT 20 SEASHR 8.919E-08 8.919E-08 8.919E-08 8.919E-08 6.225E-08 6.225E-08 6.225E-08 3.284E-08 3.284E-08  
3.284E-08 3.284E-08 3.284E-08  
EMI SFACT 20 SEASHR 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 1.018E-07 1.018E-07 1.018E-07  
8.807E-08 8.807E-08 8.807E-08

EMI SFACT	20	SEASHR	8.807E-08	8.807E-08	8.807E-08	8.807E-08	6.143E-08	6.143E-08	6.143E-08	3.238E-08	3.238E-08
3.238E-08	3.238E-08	3.238E-08									
EMI SFACT	21	SEASHR	1.216E-05	1.216E-05	1.216E-05	1.216E-05	1.216E-05	1.216E-05	1.545E-05	1.545E-05	1.545E-05
1.979E-05	1.979E-05	1.979E-05									
EMI SFACT	21	SEASHR	1.979E-05	1.979E-05	1.979E-05	1.979E-05	1.546E-05	1.546E-05	1.546E-05	1.216E-05	1.216E-05
1.216E-05	1.216E-05	1.216E-05									
EMI SFACT	21	SEASHR	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.596E-05	1.596E-05	1.596E-05
2.043E-05	2.043E-05	2.043E-05									
EMI SFACT	21	SEASHR	2.043E-05	2.043E-05	2.043E-05	2.043E-05	1.597E-05	1.597E-05	1.597E-05	1.256E-05	1.256E-05
1.256E-05	1.256E-05	1.256E-05									
EMI SFACT	21	SEASHR	1.349E-05	1.349E-05	1.349E-05	1.349E-05	1.349E-05	1.349E-05	1.713E-05	1.713E-05	1.713E-05
2.194E-05	2.194E-05	2.194E-05									
EMI SFACT	21	SEASHR	2.194E-05	2.194E-05	2.194E-05	2.194E-05	1.715E-05	1.715E-05	1.715E-05	1.349E-05	1.349E-05
1.349E-05	1.349E-05	1.349E-05									
EMI SFACT	21	SEASHR	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.596E-05	1.596E-05	1.596E-05
2.043E-05	2.043E-05	2.043E-05									
EMI SFACT	21	SEASHR	2.043E-05	2.043E-05	2.043E-05	2.043E-05	1.597E-05	1.597E-05	1.597E-05	1.256E-05	1.256E-05
1.256E-05	1.256E-05	1.256E-05									
EMI SFACT	22	SEASHR	2.693E-06	2.693E-06	2.693E-06	2.693E-06	2.693E-06	2.693E-06	4.686E-06	4.686E-06	4.686E-06
4.380E-06	4.380E-06	4.380E-06									
EMI SFACT	22	SEASHR	4.380E-06	4.380E-06	4.380E-06	4.380E-06	2.157E-06	2.157E-06	2.157E-06	2.693E-06	2.693E-06
2.693E-06	2.693E-06	2.693E-06									
EMI SFACT	22	SEASHR	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	4.839E-06	4.839E-06	4.839E-06
4.523E-06	4.523E-06	4.523E-06									
EMI SFACT	22	SEASHR	4.523E-06	4.523E-06	4.523E-06	4.523E-06	2.227E-06	2.227E-06	2.227E-06	2.781E-06	2.781E-06
2.781E-06	2.781E-06	2.781E-06									
EMI SFACT	22	SEASHR	2.986E-06	2.986E-06	2.986E-06	2.986E-06	2.986E-06	2.986E-06	5.197E-06	5.197E-06	5.197E-06
4.857E-06	4.857E-06	4.857E-06									
EMI SFACT	22	SEASHR	4.857E-06	4.857E-06	4.857E-06	4.857E-06	2.392E-06	2.392E-06	2.392E-06	2.986E-06	2.986E-06
2.986E-06	2.986E-06	2.986E-06									
EMI SFACT	22	SEASHR	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	4.839E-06	4.839E-06	4.839E-06
4.523E-06	4.523E-06	4.523E-06									
EMI SFACT	22	SEASHR	4.523E-06	4.523E-06	4.523E-06	4.523E-06	2.227E-06	2.227E-06	2.227E-06	2.781E-06	2.781E-06

2.781E-06 2.781E-06 2.781E-06  
EMI SFACT 23 SEASHR 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.354E-05 1.354E-05 1.354E-05  
1.664E-05 1.664E-05 1.664E-05  
EMI SFACT 23 SEASHR 1.664E-05 1.664E-05 1.664E-05 1.664E-05 1.245E-05 1.245E-05 1.245E-05 1.023E-05 1.023E-05  
1.023E-05 1.023E-05 1.023E-05  
EMI SFACT 23 SEASHR 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.398E-05 1.398E-05 1.398E-05  
1.718E-05 1.718E-05 1.718E-05  
EMI SFACT 23 SEASHR 1.718E-05 1.718E-05 1.718E-05 1.718E-05 1.286E-05 1.286E-05 1.286E-05 1.056E-05 1.056E-05  
1.056E-05 1.056E-05 1.056E-05  
EMI SFACT 23 SEASHR 1.134E-05 1.134E-05 1.134E-05 1.134E-05 1.134E-05 1.134E-05 1.501E-05 1.501E-05 1.501E-05  
1.845E-05 1.845E-05 1.845E-05  
EMI SFACT 23 SEASHR 1.845E-05 1.845E-05 1.845E-05 1.845E-05 1.381E-05 1.381E-05 1.381E-05 1.134E-05 1.134E-05  
1.134E-05 1.134E-05 1.134E-05  
EMI SFACT 23 SEASHR 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.398E-05 1.398E-05 1.398E-05  
1.718E-05 1.718E-05 1.718E-05  
EMI SFACT 23 SEASHR 1.718E-05 1.718E-05 1.718E-05 1.718E-05 1.286E-05 1.286E-05 1.286E-05 1.056E-05 1.056E-05  
1.056E-05 1.056E-05 1.056E-05  
EMI SFACT 24 SEASHR 2.212E-06 2.212E-06 2.212E-06 2.212E-06 2.212E-06 2.212E-06 3.757E-06 3.757E-06 3.757E-06  
3.598E-06 3.598E-06 3.598E-06  
EMI SFACT 24 SEASHR 3.598E-06 3.598E-06 3.598E-06 3.598E-06 1.864E-06 1.864E-06 1.864E-06 2.212E-06 2.212E-06  
2.212E-06 2.212E-06 2.212E-06  
EMI SFACT 24 SEASHR 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 3.880E-06 3.880E-06 3.880E-06  
3.716E-06 3.716E-06 3.716E-06  
EMI SFACT 24 SEASHR 3.716E-06 3.716E-06 3.716E-06 3.716E-06 1.925E-06 1.925E-06 1.925E-06 2.284E-06 2.284E-06  
2.284E-06 2.284E-06 2.284E-06  
EMI SFACT 24 SEASHR 2.453E-06 2.453E-06 2.453E-06 2.453E-06 2.453E-06 2.453E-06 4.167E-06 4.167E-06 4.167E-06  
3.990E-06 3.990E-06 3.990E-06  
EMI SFACT 24 SEASHR 3.990E-06 3.990E-06 3.990E-06 3.990E-06 2.067E-06 2.067E-06 2.067E-06 2.453E-06 2.453E-06  
2.453E-06 2.453E-06 2.453E-06  
EMI SFACT 24 SEASHR 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 3.880E-06 3.880E-06 3.880E-06  
3.716E-06 3.716E-06 3.716E-06  
EMI SFACT 24 SEASHR 3.716E-06 3.716E-06 3.716E-06 3.716E-06 1.925E-06 1.925E-06 1.925E-06 2.284E-06 2.284E-06  
2.284E-06 2.284E-06 2.284E-06

EMI SFACT	25	SEASHR	2.025E-06	2.781E-06	2.781E-06	2.781E-06						
			3.806E-06	3.806E-06	3.806E-06							
EMI SFACT	25	SEASHR	3.806E-06	3.806E-06	3.806E-06	3.806E-06	3.752E-06	3.752E-06	3.752E-06	2.025E-06	2.025E-06	
			2.025E-06	2.025E-06	2.025E-06							
EMI SFACT	25	SEASHR	2.091E-06	2.872E-06	2.872E-06	2.872E-06						
			3.931E-06	3.931E-06	3.931E-06							
EMI SFACT	25	SEASHR	3.931E-06	3.931E-06	3.931E-06	3.931E-06	3.875E-06	3.875E-06	3.875E-06	2.091E-06	2.091E-06	
			2.091E-06	2.091E-06	2.091E-06							
EMI SFACT	25	SEASHR	2.245E-06	2.245E-06	2.245E-06	2.245E-06	2.245E-06	2.245E-06	3.084E-06	3.084E-06	3.084E-06	
			4.221E-06	4.221E-06	4.221E-06							
EMI SFACT	25	SEASHR	4.221E-06	4.221E-06	4.221E-06	4.221E-06	4.161E-06	4.161E-06	4.161E-06	2.245E-06	2.245E-06	
			2.245E-06	2.245E-06	2.245E-06							
EMI SFACT	25	SEASHR	2.091E-06	2.872E-06	2.872E-06	2.872E-06						
			3.931E-06	3.931E-06	3.931E-06							
EMI SFACT	25	SEASHR	3.931E-06	3.931E-06	3.931E-06	3.931E-06	3.875E-06	3.875E-06	3.875E-06	2.091E-06	2.091E-06	
			2.091E-06	2.091E-06	2.091E-06							
EMI SFACT	26	SEASHR	1.325E-06	1.325E-06	1.325E-06	1.325E-06	1.325E-06	1.325E-06	1.431E-06	1.431E-06	1.431E-06	
			2.491E-06	2.491E-06	2.491E-06							
EMI SFACT	26	SEASHR	2.491E-06	2.491E-06	2.491E-06	2.491E-06	2.851E-06	2.851E-06	2.851E-06	1.325E-06	1.325E-06	
			1.325E-06	1.325E-06	1.325E-06							
EMI SFACT	26	SEASHR	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.478E-06	1.478E-06	1.478E-06	
			2.572E-06	2.572E-06	2.572E-06							
EMI SFACT	26	SEASHR	2.572E-06	2.572E-06	2.572E-06	2.572E-06	2.944E-06	2.944E-06	2.944E-06	1.368E-06	1.368E-06	
			1.368E-06	1.368E-06	1.368E-06							
EMI SFACT	26	SEASHR	1.470E-06	1.470E-06	1.470E-06	1.470E-06	1.470E-06	1.470E-06	1.587E-06	1.587E-06	1.587E-06	
			2.762E-06	2.762E-06	2.762E-06							
EMI SFACT	26	SEASHR	2.762E-06	2.762E-06	2.762E-06	2.762E-06	3.162E-06	3.162E-06	3.162E-06	1.470E-06	1.470E-06	
			1.470E-06	1.470E-06	1.470E-06							
EMI SFACT	26	SEASHR	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.478E-06	1.478E-06	1.478E-06	
			2.572E-06	2.572E-06	2.572E-06							
EMI SFACT	26	SEASHR	2.572E-06	2.572E-06	2.572E-06	2.572E-06	2.944E-06	2.944E-06	2.944E-06	1.368E-06	1.368E-06	
			1.368E-06	1.368E-06	1.368E-06							
EMI SFACT	27	SEASHR	1.976E-06	1.976E-06	1.976E-06	1.976E-06	1.976E-06	1.976E-06	2.503E-06	2.503E-06	2.503E-06	

3.715E-06 3.715E-06 3.715E-06  
EMI SFACT 27 SEASHR 3.715E-06 3.715E-06 3.715E-06 3.715E-06 3.877E-06 3.877E-06 3.877E-06 1.976E-06 1.976E-06  
1.976E-06 1.976E-06 1.976E-06  
EMI SFACT 27 SEASHR 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.585E-06 2.585E-06 2.585E-06  
3.837E-06 3.837E-06 3.837E-06  
EMI SFACT 27 SEASHR 3.837E-06 3.837E-06 3.837E-06 3.837E-06 4.004E-06 4.004E-06 4.004E-06 2.041E-06 2.041E-06  
2.041E-06 2.041E-06 2.041E-06  
EMI SFACT 27 SEASHR 2.192E-06 2.192E-06 2.192E-06 2.192E-06 2.192E-06 2.776E-06 2.776E-06 2.776E-06  
4.120E-06 4.120E-06 4.120E-06  
EMI SFACT 27 SEASHR 4.120E-06 4.120E-06 4.120E-06 4.120E-06 4.299E-06 4.299E-06 4.299E-06 2.192E-06 2.192E-06  
2.192E-06 2.192E-06 2.192E-06  
EMI SFACT 27 SEASHR 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.585E-06 2.585E-06 2.585E-06  
3.837E-06 3.837E-06 3.837E-06  
EMI SFACT 27 SEASHR 3.837E-06 3.837E-06 3.837E-06 3.837E-06 4.004E-06 4.004E-06 4.004E-06 2.041E-06 2.041E-06  
2.041E-06 2.041E-06 2.041E-06  
EMI SFACT 28 SEASHR 4.979E-06 4.979E-06 4.979E-06 4.979E-06 4.979E-06 9.924E-06 9.924E-06 9.924E-06  
9.360E-06 9.360E-06 9.360E-06  
EMI SFACT 28 SEASHR 9.360E-06 9.360E-06 9.360E-06 9.360E-06 6.091E-06 6.091E-06 6.091E-06 4.979E-06 4.979E-06  
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EMI SFACT 28 SEASHR 5.142E-06 5.142E-06 5.142E-06 5.142E-06 5.142E-06 1.025E-05 1.025E-05 1.025E-05  
9.667E-06 9.667E-06 9.667E-06  
EMI SFACT 28 SEASHR 9.667E-06 9.667E-06 9.667E-06 9.667E-06 6.290E-06 6.290E-06 6.290E-06 5.142E-06 5.142E-06  
5.142E-06 5.142E-06 5.142E-06  
EMI SFACT 28 SEASHR 5.522E-06 5.522E-06 5.522E-06 5.522E-06 5.522E-06 1.101E-05 1.101E-05 1.101E-05  
1.038E-05 1.038E-05 1.038E-05  
EMI SFACT 28 SEASHR 1.038E-05 1.038E-05 1.038E-05 1.038E-05 6.755E-06 6.755E-06 6.755E-06 5.522E-06 5.522E-06  
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EMI SFACT 28 SEASHR 5.142E-06 5.142E-06 5.142E-06 5.142E-06 5.142E-06 1.025E-05 1.025E-05 1.025E-05  
9.667E-06 9.667E-06 9.667E-06  
EMI SFACT 28 SEASHR 9.667E-06 9.667E-06 9.667E-06 9.667E-06 6.290E-06 6.290E-06 6.290E-06 5.142E-06 5.142E-06  
5.142E-06 5.142E-06 5.142E-06  
EMI SFACT 29 SEASHR 2.655E-06 2.655E-06 2.655E-06 2.655E-06 2.655E-06 3.079E-06 3.079E-06 3.079E-06  
4.991E-06 4.991E-06 4.991E-06

EMI SFACT 29 SEASHR 4.991E-06 4.991E-06 4.991E-06 4.991E-06 5.496E-06 5.496E-06 5.496E-06 2.655E-06 2.655E-06  
2.655E-06 2.655E-06 2.655E-06  
EMI SFACT 29 SEASHR 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 3.180E-06 3.180E-06 3.180E-06  
5.154E-06 5.154E-06 5.154E-06  
EMI SFACT 29 SEASHR 5.154E-06 5.154E-06 5.154E-06 5.154E-06 5.676E-06 5.676E-06 5.676E-06 2.742E-06 2.742E-06  
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EMI SFACT 29 SEASHR 2.944E-06 2.944E-06 2.944E-06 2.944E-06 2.944E-06 2.944E-06 3.415E-06 3.415E-06 3.415E-06  
5.535E-06 5.535E-06 5.535E-06  
EMI SFACT 29 SEASHR 5.535E-06 5.535E-06 5.535E-06 5.535E-06 6.095E-06 6.095E-06 6.095E-06 2.944E-06 2.944E-06  
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EMI SFACT 29 SEASHR 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 3.180E-06 3.180E-06 3.180E-06  
5.154E-06 5.154E-06 5.154E-06  
EMI SFACT 29 SEASHR 5.154E-06 5.154E-06 5.154E-06 5.154E-06 5.676E-06 5.676E-06 5.676E-06 2.742E-06 2.742E-06  
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EMI SFACT 30 SEASHR 2.501E-06 2.501E-06 2.501E-06 2.501E-06 2.501E-06 2.501E-06 2.169E-06 2.169E-06 2.169E-06  
4.702E-06 4.702E-06 4.702E-06  
EMI SFACT 30 SEASHR 4.702E-06 4.702E-06 4.702E-06 4.702E-06 5.921E-06 5.921E-06 5.921E-06 2.501E-06 2.501E-06  
2.501E-06 2.501E-06 2.501E-06  
EMI SFACT 30 SEASHR 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.240E-06 2.240E-06 2.240E-06  
4.856E-06 4.856E-06 4.856E-06  
EMI SFACT 30 SEASHR 4.856E-06 4.856E-06 4.856E-06 4.856E-06 6.115E-06 6.115E-06 6.115E-06 2.583E-06 2.583E-06  
2.583E-06 2.583E-06 2.583E-06  
EMI SFACT 30 SEASHR 2.774E-06 2.774E-06 2.774E-06 2.774E-06 2.774E-06 2.774E-06 2.406E-06 2.406E-06 2.406E-06  
5.214E-06 5.214E-06 5.214E-06  
EMI SFACT 30 SEASHR 5.214E-06 5.214E-06 5.214E-06 5.214E-06 6.566E-06 6.566E-06 6.566E-06 2.774E-06 2.774E-06  
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EMI SFACT 30 SEASHR 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.240E-06 2.240E-06 2.240E-06  
4.856E-06 4.856E-06 4.856E-06  
EMI SFACT 30 SEASHR 4.856E-06 4.856E-06 4.856E-06 4.856E-06 6.115E-06 6.115E-06 6.115E-06 2.583E-06 2.583E-06  
2.583E-06 2.583E-06 2.583E-06

SRCGROUP 1 1  
SRCGROUP 2 2

SRCGROUP 3 3  
SRCGROUP 4 4  
SRCGROUP 5 5  
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SRCGROUP 26 26  
SRCGROUP 27 27  
SRCGROUP 28 28  
SRCGROUP 29 29  
SRCGROUP 30 30  
SRCGROUP ALL

SO FINISHED

RE STARTING

INCLUDED NJ73\_FELLOW.ROU  
RE FINISHED

ME STARTING  
SURFFILE KPHL\_2016-2020.SFC  
PROFFILE KPHL\_2016-2020.PFL  
SURFDATA 13739 2016 Philadelphia  
UAIRDATA 93734 2016 Sterling  
PROFBASE 9 METERS  
ME FINISHED

OU STARTING  
RECTABLE ALLAVE 1ST 8TH  
PLOTFILE 24 ALL 1ST PM25\_24HR\_1ST\_ALL.PLT 31  
PLOTFILE 24 ALL 8TH PM25\_24HR\_8TH\_ALL.PLT 32  
OU FINISHED

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\*\* Project Parameters

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\*\* PROJCTN CoordinateSystemUTM  
\*\* DESCPTN UTM: Universal Transverse Mercator  
\*\* DATUM North American Datum 1983  
\*\* DTMRGN CONUS  
\*\* UNITS m  
\*\* ZONE 18  
\*\* ZONEINX 0  
\*\*

Output File

\*\* CONC OF PM25 IN MICROGRAMS/M\*\*3 \*\*

File: C:\Users\KuberaK\AECOM\NJ1-4 - General\1. MODEL ARCHIVE\AERMOD\NJ73\_Fe ll ow\24hr\NJ73\_Fe ll ow\_PM25\_24hr. out 11/11/2022, 5: 38: 20 PM

	5TH HIGHEST VALUE IS	0.29785	AT (	503336.36,	4419988.70,	19.43,	19.43,	1.80)	DC
	6TH HIGHEST VALUE IS	0.26758	AT (	503248.49,	4419994.34,	18.44,	18.44,	1.80)	DC
	7TH HIGHEST VALUE IS	0.26033	AT (	503376.45,	4419988.54,	19.25,	19.25,	1.80)	DC
	8TH HIGHEST VALUE IS	0.25835	AT (	503219.51,	4420012.44,	18.35,	18.35,	1.80)	DC
	9TH HIGHEST VALUE IS	0.25672	AT (	503383.37,	4420229.06,	19.01,	20.96,	1.80)	DC
	10TH HIGHEST VALUE IS	0.24055	AT (	503199.23,	4420052.44,	18.73,	18.73,	1.80)	DC
ALL	1ST HIGHEST VALUE IS	7.24790	AT (	503383.37,	4420229.06,	19.01,	20.96,	1.80)	DC
	2ND HIGHEST VALUE IS	6.77314	AT (	503396.80,	4420246.15,	18.90,	18.90,	1.80)	DC
	3RD HIGHEST VALUE IS	5.80900	AT (	503407.79,	4420262.43,	18.87,	18.87,	1.80)	DC
	4TH HIGHEST VALUE IS	5.41828	AT (	503368.72,	4420240.86,	18.88,	21.67,	1.80)	DC
	5TH HIGHEST VALUE IS	5.07866	AT (	503419.99,	4420279.12,	18.85,	18.85,	1.80)	DC
	6TH HIGHEST VALUE IS	4.44282	AT (	503380.11,	4420263.24,	18.59,	18.59,	1.80)	DC
	7TH HIGHEST VALUE IS	4.16911	AT (	503459.16,	4420165.57,	18.63,	18.63,	1.80)	DC
	8TH HIGHEST VALUE IS	4.02176	AT (	503390.29,	4420277.08,	18.76,	18.76,	1.80)	DC
	9TH HIGHEST VALUE IS	3.97953	AT (	503432.61,	4420296.21,	17.95,	17.95,	1.80)	DC
	10TH HIGHEST VALUE IS	3.70957	AT (	503253.56,	4420034.33,	18.76,	18.76,	1.80)	DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

NJ State Route 73 and Fellowship Road

Annual PM<sub>2.5</sub> NAAQS

Input File

CO STARTING  
TITLEONE NJ73\_Fellow - PM25  
MODELOPT DFAULT CONC  
AVERTIME ANNUAL  
POLLUTID PM25  
FLAGPOLE 1.8  
RUNORNOT RUN  
CO FINISHED

SO STARTING

** Source	ID	Type	UTMX (m)	UTMY (m)	EI. (m)
LOCATION 1		AREA	503429.209	4420084.014	21.660
LOCATION 2		AREA	503352.669	4420150.726	21.440
LOCATION 3		AREA	503367.720	4420149.410	21.420
LOCATION 4		AREA	503161.400	4420293.880	20.530
LOCATION 5		AREA	503258.530	4420206.546	20.960
LOCATION 6		AREA	503253.966	4420202.146	20.990
LOCATION 7		AREA	503429.704	4420258.096	17.990
LOCATION 8		AREA	503349.232	4420149.262	21.420
LOCATION 9		AREA	503348.060	4420147.200	21.420
LOCATION 10		AREA	503348.650	4420161.310	21.410
LOCATION 11		AREA	503269.672	4419931.348	17.320
LOCATION 12		AREA	503305.950	4420062.360	21.070
LOCATION 13		AREA	503298.310	4420061.180	20.960
LOCATION 14		AREA	503309.770	4420060.010	21.040
LOCATION 15		AREA	503351.810	4420143.780	21.450
LOCATION 16		AREA	503175.040	4420309.600	20.490
LOCATION 17		AREA	503353.450	4420138.650	21.470
LOCATION 18		AREA	503446.893	4420265.653	17.560
LOCATION 19		AREA	503296.280	4420070.000	21.020
LOCATION 20		AREA	503258.050	4419931.570	17.090
LOCATION 21		AREA	503370.959	4420139.477	21.570

LOCATI ON 22	AREA	503376.639	4420145.854	21.480
LOCATI ON 23	AREA	503261.200	4420209.630	21.020
LOCATI ON 24	AREA	503256.290	4420204.880	20.940
LOCATI ON 25	AREA	503362.120	4420171.238	20.890
LOCATI ON 26	AREA	503364.368	4420168.326	20.900
LOCATI ON 27	AREA	503358.656	4420173.643	21.010
LOCATI ON 28	AREA	503305.660	4420062.458	21.070
LOCATI ON 29	AREA	503298.300	4420061.330	20.970
LOCATI ON 30	AREA	503309.780	4420060.020	21.040

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\*\*Area Source

**	SRCID	QS(g/sec*m2)	Hs(m)	X Len(m)	Y Len(m))	Ini t	Vert(m)
**	-----	-----	-----	-----	-----	-----	-----
	SRCPARAM 1	1.0	1.470	142.151	3.600	40.520	1.360
	SRCPARAM 2	1.0	1.470	101.349	3.600	41.200	1.360
	SRCPARAM 3	1.0	1.470	89.515	3.600	44.070	1.360
	SRCPARAM 4	1.0	1.470	131.534	3.600	42.101	1.360
	SRCPARAM 5	1.0	1.470	111.230	3.600	38.500	1.360
	SRCPARAM 6	1.0	1.470	105.381	3.600	41.381	1.360
	SRCPARAM 7	1.0	1.470	3.600	108.851	29.490	1.360
	SRCPARAM 8	1.0	1.470	135.429	3.600	-51.800	1.360
	SRCPARAM 9	1.0	1.470	3.600	135.576	37.875	1.360
	SRCPARAM 10	1.0	1.470	3.600	124.500	38.580	1.360
	SRCPARAM 11	1.0	1.470	3.600	135.790	15.380	1.360
	SRCPARAM 12	1.0	1.470	3.600	91.324	28.440	1.360
	SRCPARAM 13	1.0	1.470	3.600	97.250	27.260	1.360
	SRCPARAM 14	1.0	1.470	3.600	82.339	30.470	1.360
	SRCPARAM 15	1.0	1.470	3.600	232.763	131.320	1.360
	SRCPARAM 16	1.0	1.470	3.600	240.194	129.920	1.360
	SRCPARAM 17	1.0	1.470	3.600	158.300	36.400	1.360
	SRCPARAM 18	1.0	1.470	3.600	91.430	27.130	1.360
	SRCPARAM 19	1.0	1.470	3.600	94.601	29.270	1.360

SRCPARAM 20	1.0	1.470	3.600	144.320	15.440	1.360
SRCPARAM 21	1.0	1.470	3.600	80.504	131.080	1.360
SRCPARAM 22	1.0	1.470	3.600	80.350	134.300	1.360
SRCPARAM 23	1.0	1.470	3.600	91.934	128.560	1.360
SRCPARAM 24	1.0	1.470	3.600	93.005	131.370	1.360
SRCPARAM 25	1.0	1.470	3.600	110.223	38.040	1.360
SRCPARAM 26	1.0	1.470	3.600	108.652	37.950	1.360
SRCPARAM 27	1.0	1.470	3.600	108.500	38.580	1.360
SRCPARAM 28	1.0	1.470	3.600	67.759	28.840	1.360
SRCPARAM 29	1.0	1.470	3.600	70.888	27.480	1.360
SRCPARAM 30	1.0	1.470	3.600	63.996	30.620	1.360

EMI SFACT 1 SEASHR 1.805E-07 1.805E-07 1.805E-07 1.805E-07 1.805E-07 1.805E-07 1.805E-07 9.654E-07 9.654E-07 9.654E-07  
7.001E-07 7.001E-07 7.001E-07  
EMI SFACT 1 SEASHR 7.001E-07 7.001E-07 7.001E-07 7.001E-07 6.340E-07 6.340E-07 6.340E-07 1.805E-07 1.805E-07  
1.805E-07 1.805E-07 1.805E-07  
EMI SFACT 1 SEASHR 1.820E-07 1.820E-07 1.820E-07 1.820E-07 1.820E-07 1.820E-07 9.706E-07 9.706E-07 9.706E-07  
7.045E-07 7.045E-07 7.045E-07  
EMI SFACT 1 SEASHR 7.045E-07 7.045E-07 7.045E-07 7.045E-07 6.381E-07 6.381E-07 6.381E-07 1.820E-07 1.820E-07  
1.820E-07 1.820E-07 1.820E-07  
EMI SFACT 1 SEASHR 1.856E-07 1.856E-07 1.856E-07 1.856E-07 1.856E-07 1.856E-07 9.826E-07 9.826E-07 9.826E-07  
7.146E-07 7.146E-07 7.146E-07  
EMI SFACT 1 SEASHR 7.146E-07 7.146E-07 7.146E-07 7.146E-07 6.476E-07 6.476E-07 6.476E-07 1.856E-07 1.856E-07  
1.856E-07 1.856E-07 1.856E-07  
EMI SFACT 1 SEASHR 1.820E-07 1.820E-07 1.820E-07 1.820E-07 1.820E-07 1.820E-07 9.706E-07 9.706E-07 9.706E-07  
7.045E-07 7.045E-07 7.045E-07  
EMI SFACT 1 SEASHR 7.045E-07 7.045E-07 7.045E-07 7.045E-07 6.381E-07 6.381E-07 6.381E-07 1.820E-07 1.820E-07  
1.820E-07 1.820E-07 1.820E-07  
EMI SFACT 2 SEASHR 1.458E-07 1.458E-07 1.458E-07 1.458E-07 1.458E-07 1.458E-07 7.486E-07 7.486E-07 7.486E-07  
5.654E-07 5.654E-07 5.654E-07  
EMI SFACT 2 SEASHR 5.654E-07 5.654E-07 5.654E-07 5.654E-07 5.340E-07 5.340E-07 5.340E-07 1.458E-07 1.458E-07  
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EMI SFACT 2 SEASHR 1.470E-07 1.470E-07 1.470E-07 1.470E-07 1.470E-07 1.470E-07 7.526E-07 7.526E-07 7.526E-07

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EMI SFACT 2 SEASHR 5.689E-07 5.689E-07 5.689E-07 5.689E-07 5.375E-07 5.375E-07 5.375E-07 1.470E-07 1.470E-07  
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EMI SFACT 2 SEASHR 1.499E-07 1.499E-07 1.499E-07 1.499E-07 1.499E-07 1.499E-07 7.619E-07 7.619E-07 7.619E-07  
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EMI SFACT 2 SEASHR 5.771E-07 5.771E-07 5.771E-07 5.771E-07 5.455E-07 5.455E-07 5.455E-07 1.499E-07 1.499E-07  
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EMI SFACT 2 SEASHR 1.470E-07 1.470E-07 1.470E-07 1.470E-07 1.470E-07 1.470E-07 7.526E-07 7.526E-07 7.526E-07  
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EMI SFACT 2 SEASHR 5.689E-07 5.689E-07 5.689E-07 5.689E-07 5.375E-07 5.375E-07 5.375E-07 1.470E-07 1.470E-07  
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EMI SFACT 3 SEASHR 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 2.265E-07 2.265E-07 2.265E-07  
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EMI SFACT 3 SEASHR 1.248E-07 1.248E-07 1.248E-07 1.248E-07 7.431E-08 7.431E-08 7.431E-08 3.219E-08 3.219E-08  
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EMI SFACT 3 SEASHR 3.246E-08 3.246E-08 3.246E-08 3.246E-08 3.246E-08 3.246E-08 2.277E-07 2.277E-07 2.277E-07  
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EMI SFACT 3 SEASHR 1.256E-07 1.256E-07 1.256E-07 1.256E-07 7.479E-08 7.479E-08 7.479E-08 3.246E-08 3.246E-08  
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EMI SFACT 3 SEASHR 3.309E-08 3.309E-08 3.309E-08 3.309E-08 3.309E-08 3.309E-08 2.305E-07 2.305E-07 2.305E-07  
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EMI SFACT 3 SEASHR 1.274E-07 1.274E-07 1.274E-07 1.274E-07 7.591E-08 7.591E-08 7.591E-08 3.309E-08 3.309E-08  
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EMI SFACT 4 SEASHR 1.709E-07 1.709E-07 1.709E-07 1.709E-07 1.709E-07 1.709E-07 5.938E-07 5.938E-07 5.938E-07  
5.590E-07 5.590E-07 5.590E-07  
EMI SFACT 4 SEASHR 5.590E-07 5.590E-07 5.590E-07 5.590E-07 6.838E-07 6.838E-07 6.838E-07 1.709E-07 1.709E-07  
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EMI SFACT 4 SEASHR 1.723E-07 1.723E-07 1.723E-07 1.723E-07 1.723E-07 1.723E-07 5.981E-07 5.981E-07 5.981E-07  
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EMI SFACT 4 SEASHR 5.629E-07 5.629E-07 5.629E-07 5.629E-07 6.876E-07 6.876E-07 6.876E-07 1.723E-07 1.723E-07  
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EMI SFACT 4 SEASHR 1.756E-07 1.756E-07 1.756E-07 1.756E-07 1.756E-07 1.756E-07 6.079E-07 6.079E-07 6.079E-07  
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EMI SFACT 4 SEASHR 5.720E-07 5.720E-07 5.720E-07 5.720E-07 6.966E-07 6.966E-07 6.966E-07 1.756E-07 1.756E-07  
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EMI SFACT 5 SEASHR 1.408E-07 1.408E-07 1.408E-07 1.408E-07 1.408E-07 1.408E-07 4.655E-07 4.655E-07 4.655E-07  
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EMI SFACT 5 SEASHR 4.605E-07 4.605E-07 4.605E-07 4.605E-07 5.962E-07 5.962E-07 5.962E-07 1.408E-07 1.408E-07  
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EMI SFACT 5 SEASHR 1.419E-07 1.419E-07 1.419E-07 1.419E-07 1.419E-07 1.419E-07 4.688E-07 4.688E-07 4.688E-07  
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EMI SFACT 5 SEASHR 4.637E-07 4.637E-07 4.637E-07 4.637E-07 5.996E-07 5.996E-07 5.996E-07 1.419E-07 1.419E-07  
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EMI SFACT 5 SEASHR 1.447E-07 1.447E-07 1.447E-07 1.447E-07 1.447E-07 1.447E-07 4.765E-07 4.765E-07 4.765E-07  
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EMI SFACT 5 SEASHR 4.712E-07 4.712E-07 4.712E-07 4.712E-07 6.074E-07 6.074E-07 6.074E-07 1.447E-07 1.447E-07  
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EMI SFACT 5 SEASHR 4.637E-07 4.637E-07 4.637E-07 4.637E-07 5.996E-07 5.996E-07 5.996E-07 1.419E-07 1.419E-07  
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EMI SFACT 6 SEASHR 3.000E-08 3.000E-08 3.000E-08 3.000E-08 3.000E-08 3.000E-08 1.273E-07 1.273E-07 1.273E-07  
9.813E-08 9.813E-08 9.813E-08  
EMI SFACT 6 SEASHR 9.813E-08 9.813E-08 9.813E-08 9.813E-08 8.792E-08 8.792E-08 8.792E-08 3.000E-08 3.000E-08  
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EMI SFACT 6 SEASHR 3.025E-08 3.025E-08 3.025E-08 3.025E-08 3.025E-08 3.025E-08 1.282E-07 1.282E-07 1.282E-07  
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EMI SFACT 6 SEASHR 9.882E-08 9.882E-08 9.882E-08 9.882E-08 8.842E-08 8.842E-08 8.842E-08 3.025E-08 3.025E-08

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EMI SFACT 6 SEASHR 3.083E-08 3.083E-08 3.083E-08 3.083E-08 3.083E-08 3.083E-08 3.083E-08 1.303E-07 1.303E-07 1.303E-07  
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EMI SFACT 6 SEASHR 1.004E-07 1.004E-07 1.004E-07 1.004E-07 8.958E-08 8.958E-08 8.958E-08 3.083E-08 3.083E-08  
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EMI SFACT 7 SEASHR 3.975E-08 3.975E-08 3.975E-08 3.975E-08 3.975E-08 3.975E-08 6.837E-08 6.837E-08 6.837E-08  
1.009E-07 1.009E-07 1.009E-07  
EMI SFACT 7 SEASHR 1.009E-07 1.009E-07 1.009E-07 1.009E-07 1.440E-07 1.440E-07 1.440E-07 3.975E-08 3.975E-08  
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EMI SFACT 7 SEASHR 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 6.878E-08 6.878E-08 6.878E-08  
1.014E-07 1.014E-07 1.014E-07  
EMI SFACT 7 SEASHR 1.014E-07 1.014E-07 1.014E-07 1.014E-07 1.448E-07 1.448E-07 1.448E-07 4.000E-08 4.000E-08  
4.000E-08 4.000E-08 4.000E-08  
EMI SFACT 7 SEASHR 4.056E-08 4.056E-08 4.056E-08 4.056E-08 4.056E-08 4.056E-08 6.975E-08 6.975E-08 6.975E-08  
1.028E-07 1.028E-07 1.028E-07  
EMI SFACT 7 SEASHR 1.028E-07 1.028E-07 1.028E-07 1.028E-07 1.466E-07 1.466E-07 1.466E-07 4.056E-08 4.056E-08  
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EMI SFACT 7 SEASHR 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 4.000E-08 6.878E-08 6.878E-08 6.878E-08  
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EMI SFACT 7 SEASHR 1.014E-07 1.014E-07 1.014E-07 1.014E-07 1.448E-07 1.448E-07 1.448E-07 4.000E-08 4.000E-08  
4.000E-08 4.000E-08 4.000E-08  
EMI SFACT 8 SEASHR 1.507E-08 1.507E-08 1.507E-08 1.507E-08 1.507E-08 1.507E-08 2.823E-08 2.823E-08 2.823E-08  
3.825E-08 3.825E-08 3.825E-08  
EMI SFACT 8 SEASHR 3.825E-08 3.825E-08 3.825E-08 3.825E-08 5.143E-08 5.143E-08 5.143E-08 1.507E-08 1.507E-08  
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EMI SFACT 8 SEASHR 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 2.840E-08 2.840E-08 2.840E-08  
3.846E-08 3.846E-08 3.846E-08  
EMI SFACT 8 SEASHR 3.846E-08 3.846E-08 3.846E-08 3.846E-08 5.171E-08 5.171E-08 5.171E-08 1.517E-08 1.517E-08  
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EMI SFACT 8 SEASHR 1.538E-08 1.538E-08 1.538E-08 1.538E-08 1.538E-08 1.538E-08 1.538E-08 2.880E-08 2.880E-08 2.880E-08  
3.897E-08 3.897E-08 3.897E-08  
EMI SFACT 8 SEASHR 3.897E-08 3.897E-08 3.897E-08 3.897E-08 5.237E-08 5.237E-08 5.237E-08 1.538E-08 1.538E-08  
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EMI SFACT 8 SEASHR 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 1.517E-08 2.840E-08 2.840E-08 2.840E-08  
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EMI SFACT 8 SEASHR 3.846E-08 3.846E-08 3.846E-08 3.846E-08 5.171E-08 5.171E-08 5.171E-08 1.517E-08 1.517E-08  
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EMI SFACT 9 SEASHR 9.837E-09 9.837E-09 9.837E-09 9.837E-09 9.837E-09 9.837E-09 9.837E-09 1.448E-08 1.448E-08 1.448E-08  
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EMI SFACT 9 SEASHR 2.496E-08 2.496E-08 2.496E-08 2.496E-08 3.897E-08 3.897E-08 3.897E-08 9.837E-09 9.837E-09  
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EMI SFACT 9 SEASHR 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 1.457E-08 1.457E-08 1.457E-08  
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EMI SFACT 9 SEASHR 2.510E-08 2.510E-08 2.510E-08 2.510E-08 3.918E-08 3.918E-08 3.918E-08 9.897E-09 9.897E-09  
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EMI SFACT 9 SEASHR 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.004E-08 1.478E-08 1.478E-08 1.478E-08  
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EMI SFACT 9 SEASHR 2.543E-08 2.543E-08 2.543E-08 2.543E-08 3.968E-08 3.968E-08 3.968E-08 1.004E-08 1.004E-08  
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EMI SFACT 9 SEASHR 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 9.897E-09 1.457E-08 1.457E-08 1.457E-08  
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EMI SFACT 9 SEASHR 2.510E-08 2.510E-08 2.510E-08 2.510E-08 3.918E-08 3.918E-08 3.918E-08 9.897E-09 9.897E-09  
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EMI SFACT 10 SEASHR 1.471E-08 1.471E-08 1.471E-08 1.471E-08 1.471E-08 1.471E-08 1.471E-08 2.540E-08 2.540E-08 2.540E-08  
3.732E-08 3.732E-08 3.732E-08  
EMI SFACT 10 SEASHR 3.732E-08 3.732E-08 3.732E-08 3.732E-08 5.313E-08 5.313E-08 5.313E-08 1.471E-08 1.471E-08  
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EMI SFACT 10 SEASHR 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 2.555E-08 2.555E-08 2.555E-08  
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EMI SFACT 10 SEASHR 3.753E-08 3.753E-08 3.753E-08 3.753E-08 5.342E-08 5.342E-08 5.342E-08 1.480E-08 1.480E-08  
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EMI SFACT 10 SEASHR 1.501E-08 1.501E-08 1.501E-08 1.501E-08 1.501E-08 1.501E-08 1.501E-08 2.592E-08 2.592E-08 2.592E-08

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EMI SFACT 10 SEASHR 1.480E-08 1.480E-08 1.480E-08 1.480E-08 1.480E-08 2.555E-08 2.555E-08 2.555E-08  
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EMI SFACT 10 SEASHR 3.753E-08 3.753E-08 3.753E-08 3.753E-08 5.342E-08 5.342E-08 5.342E-08 1.480E-08 1.480E-08  
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EMI SFACT 11 SEASHR 5.485E-08 5.485E-08 5.485E-08 5.485E-08 5.485E-08 1.212E-07 1.212E-07 1.212E-07  
1.345E-07 1.345E-07 1.345E-07  
EMI SFACT 11 SEASHR 1.345E-07 1.345E-07 1.345E-07 1.345E-07 1.252E-07 1.252E-07 1.252E-07 5.485E-08 5.485E-08  
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EMI SFACT 11 SEASHR 5.515E-08 5.515E-08 5.515E-08 5.515E-08 5.515E-08 5.515E-08 1.219E-07 1.219E-07 1.219E-07  
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EMI SFACT 11 SEASHR 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.258E-07 1.258E-07 1.258E-07 5.515E-08 5.515E-08  
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EMI SFACT 11 SEASHR 5.587E-08 5.587E-08 5.587E-08 5.587E-08 5.587E-08 5.587E-08 1.234E-07 1.234E-07 1.234E-07  
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EMI SFACT 11 SEASHR 1.369E-07 1.369E-07 1.369E-07 1.369E-07 1.274E-07 1.274E-07 1.274E-07 5.587E-08 5.587E-08  
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EMI SFACT 11 SEASHR 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.258E-07 1.258E-07 1.258E-07 5.515E-08 5.515E-08  
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EMI SFACT 12 SEASHR 2.675E-08 2.675E-08 2.675E-08 2.675E-08 2.675E-08 2.675E-08 7.848E-08 7.848E-08 7.848E-08  
6.557E-08 6.557E-08 6.557E-08  
EMI SFACT 12 SEASHR 6.557E-08 6.557E-08 6.557E-08 6.557E-08 4.334E-08 4.334E-08 4.334E-08 2.675E-08 2.675E-08  
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EMI SFACT 12 SEASHR 2.690E-08 2.690E-08 2.690E-08 2.690E-08 2.690E-08 2.690E-08 7.890E-08 7.890E-08 7.890E-08  
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EMI SFACT 12 SEASHR 2.724E-08 2.724E-08 2.724E-08 2.724E-08 2.724E-08 2.724E-08 7.987E-08 7.987E-08 7.987E-08  
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EMI SFACT 12 SEASHR 6.674E-08 6.674E-08 6.674E-08 6.674E-08 4.411E-08 4.411E-08 4.411E-08 2.724E-08 2.724E-08  
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EMI SFACT 13 SEASHR 1.533E-08 1.533E-08 1.533E-08 1.533E-08 1.533E-08 1.533E-08 2.617E-08 2.617E-08 2.617E-08  
3.758E-08 3.758E-08 3.758E-08  
EMI SFACT 13 SEASHR 3.758E-08 3.758E-08 3.758E-08 3.758E-08 4.203E-08 4.203E-08 4.203E-08 1.533E-08 1.533E-08  
1.533E-08 1.533E-08 1.533E-08  
EMI SFACT 13 SEASHR 1.541E-08 1.541E-08 1.541E-08 1.541E-08 1.541E-08 1.541E-08 2.631E-08 2.631E-08 2.631E-08  
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EMI SFACT 13 SEASHR 3.778E-08 3.778E-08 3.778E-08 3.778E-08 4.225E-08 4.225E-08 4.225E-08 1.541E-08 1.541E-08  
1.541E-08 1.541E-08 1.541E-08  
EMI SFACT 13 SEASHR 1.561E-08 1.561E-08 1.561E-08 1.561E-08 1.561E-08 1.561E-08 2.664E-08 2.664E-08 2.664E-08  
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EMI SFACT 13 SEASHR 3.825E-08 3.825E-08 3.825E-08 3.825E-08 4.277E-08 4.277E-08 4.277E-08 1.561E-08 1.561E-08  
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EMI SFACT 13 SEASHR 1.541E-08 1.541E-08 1.541E-08 1.541E-08 1.541E-08 1.541E-08 2.631E-08 2.631E-08 2.631E-08  
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EMI SFACT 13 SEASHR 3.778E-08 3.778E-08 3.778E-08 3.778E-08 4.225E-08 4.225E-08 4.225E-08 1.541E-08 1.541E-08  
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EMI SFACT 14 SEASHR 1.282E-08 1.282E-08 1.282E-08 1.282E-08 1.282E-08 1.282E-08 1.636E-08 1.636E-08 1.636E-08  
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EMI SFACT 14 SEASHR 3.142E-08 3.142E-08 3.142E-08 3.142E-08 4.019E-08 4.019E-08 4.019E-08 1.282E-08 1.282E-08  
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EMI SFACT 14 SEASHR 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.645E-08 1.645E-08 1.645E-08  
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EMI SFACT 14 SEASHR 3.159E-08 3.159E-08 3.159E-08 3.159E-08 4.040E-08 4.040E-08 4.040E-08 1.289E-08 1.289E-08  
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EMI SFACT 14 SEASHR 1.305E-08 1.305E-08 1.305E-08 1.305E-08 1.305E-08 1.305E-08 1.666E-08 1.666E-08 1.666E-08  
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EMI SFACT 14 SEASHR 3.198E-08 3.198E-08 3.198E-08 3.198E-08 4.090E-08 4.090E-08 4.090E-08 1.305E-08 1.305E-08

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EMI SFACT 14 SEASHR 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.289E-08 1.645E-08 1.645E-08 1.645E-08  
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EMI SFACT 14 SEASHR 3.159E-08 3.159E-08 3.159E-08 3.159E-08 4.040E-08 4.040E-08 4.040E-08 1.289E-08 1.289E-08  
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EMI SFACT 15 SEASHR 1.802E-07 1.802E-07 1.802E-07 1.802E-07 1.802E-07 1.802E-07 5.015E-07 5.015E-07 5.015E-07  
5.682E-07 5.682E-07 5.682E-07  
EMI SFACT 15 SEASHR 5.682E-07 5.682E-07 5.682E-07 5.682E-07 8.549E-07 8.549E-07 8.549E-07 1.802E-07 1.802E-07  
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EMI SFACT 15 SEASHR 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 5.053E-07 5.053E-07 5.053E-07  
5.722E-07 5.722E-07 5.722E-07  
EMI SFACT 15 SEASHR 5.722E-07 5.722E-07 5.722E-07 5.722E-07 8.597E-07 8.597E-07 8.597E-07 1.816E-07 1.816E-07  
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EMI SFACT 15 SEASHR 1.851E-07 1.851E-07 1.851E-07 1.851E-07 1.851E-07 1.851E-07 5.140E-07 5.140E-07 5.140E-07  
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EMI SFACT 15 SEASHR 5.816E-07 5.816E-07 5.816E-07 5.816E-07 8.707E-07 8.707E-07 8.707E-07 1.851E-07 1.851E-07  
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EMI SFACT 15 SEASHR 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 1.816E-07 5.053E-07 5.053E-07 5.053E-07  
5.722E-07 5.722E-07 5.722E-07  
EMI SFACT 15 SEASHR 5.722E-07 5.722E-07 5.722E-07 5.722E-07 8.597E-07 8.597E-07 8.597E-07 1.816E-07 1.816E-07  
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EMI SFACT 16 SEASHR 1.925E-07 1.925E-07 1.925E-07 1.925E-07 1.925E-07 1.925E-07 7.371E-07 7.371E-07 7.371E-07  
6.674E-07 6.674E-07 6.674E-07  
EMI SFACT 16 SEASHR 6.674E-07 6.674E-07 6.674E-07 6.674E-07 7.519E-07 7.519E-07 7.519E-07 1.925E-07 1.925E-07  
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EMI SFACT 16 SEASHR 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 7.415E-07 7.415E-07 7.415E-07  
6.719E-07 6.719E-07 6.719E-07  
EMI SFACT 16 SEASHR 6.719E-07 6.719E-07 6.719E-07 6.719E-07 7.567E-07 7.567E-07 7.567E-07 1.941E-07 1.941E-07  
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EMI SFACT 16 SEASHR 1.979E-07 1.979E-07 1.979E-07 1.979E-07 1.979E-07 1.979E-07 7.518E-07 7.518E-07 7.518E-07  
6.823E-07 6.823E-07 6.823E-07  
EMI SFACT 16 SEASHR 6.823E-07 6.823E-07 6.823E-07 6.823E-07 7.678E-07 7.678E-07 7.678E-07 1.979E-07 1.979E-07  
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EMI SFACT 16 SEASHR 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 1.941E-07 7.415E-07 7.415E-07 7.415E-07  
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EMI SFACT 17 SEASHR 4.550E-08 4.550E-08 4.550E-08 4.550E-08 4.550E-08 4.550E-08 2.223E-07 2.223E-07 2.223E-07  
1.547E-07 1.547E-07 1.547E-07  
EMI SFACT 17 SEASHR 1.547E-07 1.547E-07 1.547E-07 1.547E-07 9.261E-08 9.261E-08 9.261E-08 4.550E-08 4.550E-08  
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EMI SFACT 17 SEASHR 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 2.234E-07 2.234E-07 2.234E-07  
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EMI SFACT 17 SEASHR 1.555E-07 1.555E-07 1.555E-07 1.555E-07 9.312E-08 9.312E-08 9.312E-08 4.578E-08 4.578E-08  
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EMI SFACT 17 SEASHR 4.641E-08 4.641E-08 4.641E-08 4.641E-08 4.641E-08 4.641E-08 2.259E-07 2.259E-07 2.259E-07  
1.575E-07 1.575E-07 1.575E-07  
EMI SFACT 17 SEASHR 1.575E-07 1.575E-07 1.575E-07 1.575E-07 9.429E-08 9.429E-08 9.429E-08 4.641E-08 4.641E-08  
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EMI SFACT 17 SEASHR 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 4.578E-08 2.234E-07 2.234E-07 2.234E-07  
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EMI SFACT 18 SEASHR 4.494E-08 4.494E-08 4.494E-08 4.494E-08 4.494E-08 4.494E-08 2.196E-07 2.196E-07 2.196E-07  
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EMI SFACT 18 SEASHR 1.528E-07 1.528E-07 1.528E-07 1.528E-07 9.146E-08 9.146E-08 9.146E-08 4.494E-08 4.494E-08  
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EMI SFACT 18 SEASHR 4.521E-08 4.521E-08 4.521E-08 4.521E-08 4.521E-08 4.521E-08 2.206E-07 2.206E-07 2.206E-07  
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EMI SFACT 18 SEASHR 4.583E-08 4.583E-08 4.583E-08 4.583E-08 4.583E-08 4.583E-08 2.231E-07 2.231E-07 2.231E-07  
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EMI SFACT 19 SEASHR 3.186E-08 3.186E-08 3.186E-08 3.186E-08 3.186E-08 3.186E-08 1.002E-07 1.002E-07 1.002E-07  
8.669E-08 8.669E-08 8.669E-08  
EMI SFACT 19 SEASHR 8.669E-08 8.669E-08 8.669E-08 8.669E-08 6.045E-08 6.045E-08 6.045E-08 3.186E-08 3.186E-08  
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EMI SFACT 19 SEASHR 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 1.008E-07 1.008E-07 1.008E-07  
8.717E-08 8.717E-08 8.717E-08  
EMI SFACT 19 SEASHR 8.717E-08 8.717E-08 8.717E-08 8.717E-08 6.080E-08 6.080E-08 6.080E-08 3.205E-08 3.205E-08  
3.205E-08 3.205E-08 3.205E-08  
EMI SFACT 19 SEASHR 3.251E-08 3.251E-08 3.251E-08 3.251E-08 3.251E-08 3.251E-08 1.020E-07 1.020E-07 1.020E-07  
8.828E-08 8.828E-08 8.828E-08  
EMI SFACT 19 SEASHR 8.828E-08 8.828E-08 8.828E-08 8.828E-08 6.162E-08 6.162E-08 6.162E-08 3.251E-08 3.251E-08  
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EMI SFACT 19 SEASHR 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 3.205E-08 1.008E-07 1.008E-07 1.008E-07  
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EMI SFACT 19 SEASHR 8.717E-08 8.717E-08 8.717E-08 8.717E-08 6.080E-08 6.080E-08 6.080E-08 3.205E-08 3.205E-08  
3.205E-08 3.205E-08 3.205E-08  
EMI SFACT 20 SEASHR 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 3.219E-08 1.013E-07 1.013E-07 1.013E-07  
8.759E-08 8.759E-08 8.759E-08  
EMI SFACT 20 SEASHR 8.759E-08 8.759E-08 8.759E-08 8.759E-08 6.107E-08 6.107E-08 6.107E-08 3.219E-08 3.219E-08  
3.219E-08 3.219E-08 3.219E-08  
EMI SFACT 20 SEASHR 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 1.018E-07 1.018E-07 1.018E-07  
8.807E-08 8.807E-08 8.807E-08  
EMI SFACT 20 SEASHR 8.807E-08 8.807E-08 8.807E-08 8.807E-08 6.143E-08 6.143E-08 6.143E-08 3.238E-08 3.238E-08  
3.238E-08 3.238E-08 3.238E-08  
EMI SFACT 20 SEASHR 3.284E-08 3.284E-08 3.284E-08 3.284E-08 3.284E-08 3.284E-08 1.031E-07 1.031E-07 1.031E-07  
8.919E-08 8.919E-08 8.919E-08  
EMI SFACT 20 SEASHR 8.919E-08 8.919E-08 8.919E-08 8.919E-08 6.225E-08 6.225E-08 6.225E-08 3.284E-08 3.284E-08  
3.284E-08 3.284E-08 3.284E-08  
EMI SFACT 20 SEASHR 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 3.238E-08 1.018E-07 1.018E-07 1.018E-07  
8.807E-08 8.807E-08 8.807E-08

EMI SFACT	20	SEASHR	8.807E-08	8.807E-08	8.807E-08	8.807E-08	6.143E-08	6.143E-08	6.143E-08	3.238E-08	3.238E-08
3.238E-08	3.238E-08	3.238E-08									
EMI SFACT	21	SEASHR	1.216E-05	1.216E-05	1.216E-05	1.216E-05	1.216E-05	1.216E-05	1.545E-05	1.545E-05	1.545E-05
1.979E-05	1.979E-05	1.979E-05									
EMI SFACT	21	SEASHR	1.979E-05	1.979E-05	1.979E-05	1.979E-05	1.546E-05	1.546E-05	1.546E-05	1.216E-05	1.216E-05
1.216E-05	1.216E-05	1.216E-05									
EMI SFACT	21	SEASHR	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.596E-05	1.596E-05	1.596E-05
2.043E-05	2.043E-05	2.043E-05									
EMI SFACT	21	SEASHR	2.043E-05	2.043E-05	2.043E-05	2.043E-05	1.597E-05	1.597E-05	1.597E-05	1.256E-05	1.256E-05
1.256E-05	1.256E-05	1.256E-05									
EMI SFACT	21	SEASHR	1.349E-05	1.349E-05	1.349E-05	1.349E-05	1.349E-05	1.349E-05	1.713E-05	1.713E-05	1.713E-05
2.194E-05	2.194E-05	2.194E-05									
EMI SFACT	21	SEASHR	2.194E-05	2.194E-05	2.194E-05	2.194E-05	1.715E-05	1.715E-05	1.715E-05	1.349E-05	1.349E-05
1.349E-05	1.349E-05	1.349E-05									
EMI SFACT	21	SEASHR	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.256E-05	1.596E-05	1.596E-05	1.596E-05
2.043E-05	2.043E-05	2.043E-05									
EMI SFACT	21	SEASHR	2.043E-05	2.043E-05	2.043E-05	2.043E-05	1.597E-05	1.597E-05	1.597E-05	1.256E-05	1.256E-05
1.256E-05	1.256E-05	1.256E-05									
EMI SFACT	22	SEASHR	2.693E-06	2.693E-06	2.693E-06	2.693E-06	2.693E-06	2.693E-06	4.686E-06	4.686E-06	4.686E-06
4.380E-06	4.380E-06	4.380E-06									
EMI SFACT	22	SEASHR	4.380E-06	4.380E-06	4.380E-06	4.380E-06	2.157E-06	2.157E-06	2.157E-06	2.693E-06	2.693E-06
2.693E-06	2.693E-06	2.693E-06									
EMI SFACT	22	SEASHR	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	4.839E-06	4.839E-06	4.839E-06
4.523E-06	4.523E-06	4.523E-06									
EMI SFACT	22	SEASHR	4.523E-06	4.523E-06	4.523E-06	4.523E-06	2.227E-06	2.227E-06	2.227E-06	2.781E-06	2.781E-06
2.781E-06	2.781E-06	2.781E-06									
EMI SFACT	22	SEASHR	2.986E-06	2.986E-06	2.986E-06	2.986E-06	2.986E-06	2.986E-06	5.197E-06	5.197E-06	5.197E-06
4.857E-06	4.857E-06	4.857E-06									
EMI SFACT	22	SEASHR	4.857E-06	4.857E-06	4.857E-06	4.857E-06	2.392E-06	2.392E-06	2.392E-06	2.986E-06	2.986E-06
2.986E-06	2.986E-06	2.986E-06									
EMI SFACT	22	SEASHR	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	2.781E-06	4.839E-06	4.839E-06	4.839E-06
4.523E-06	4.523E-06	4.523E-06									
EMI SFACT	22	SEASHR	4.523E-06	4.523E-06	4.523E-06	4.523E-06	2.227E-06	2.227E-06	2.227E-06	2.781E-06	2.781E-06

2.781E-06 2.781E-06 2.781E-06  
EMI SFACT 23 SEASHR 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.023E-05 1.354E-05 1.354E-05 1.354E-05  
1.664E-05 1.664E-05 1.664E-05  
EMI SFACT 23 SEASHR 1.664E-05 1.664E-05 1.664E-05 1.664E-05 1.245E-05 1.245E-05 1.245E-05 1.023E-05 1.023E-05  
1.023E-05 1.023E-05 1.023E-05  
EMI SFACT 23 SEASHR 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.398E-05 1.398E-05 1.398E-05  
1.718E-05 1.718E-05 1.718E-05  
EMI SFACT 23 SEASHR 1.718E-05 1.718E-05 1.718E-05 1.718E-05 1.286E-05 1.286E-05 1.286E-05 1.056E-05 1.056E-05  
1.056E-05 1.056E-05 1.056E-05  
EMI SFACT 23 SEASHR 1.134E-05 1.134E-05 1.134E-05 1.134E-05 1.134E-05 1.134E-05 1.501E-05 1.501E-05 1.501E-05  
1.845E-05 1.845E-05 1.845E-05  
EMI SFACT 23 SEASHR 1.845E-05 1.845E-05 1.845E-05 1.845E-05 1.381E-05 1.381E-05 1.381E-05 1.134E-05 1.134E-05  
1.134E-05 1.134E-05 1.134E-05  
EMI SFACT 23 SEASHR 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.056E-05 1.398E-05 1.398E-05 1.398E-05  
1.718E-05 1.718E-05 1.718E-05  
EMI SFACT 23 SEASHR 1.718E-05 1.718E-05 1.718E-05 1.718E-05 1.286E-05 1.286E-05 1.286E-05 1.056E-05 1.056E-05  
1.056E-05 1.056E-05 1.056E-05  
EMI SFACT 24 SEASHR 2.212E-06 2.212E-06 2.212E-06 2.212E-06 2.212E-06 2.212E-06 3.757E-06 3.757E-06 3.757E-06  
3.598E-06 3.598E-06 3.598E-06  
EMI SFACT 24 SEASHR 3.598E-06 3.598E-06 3.598E-06 3.598E-06 1.864E-06 1.864E-06 1.864E-06 2.212E-06 2.212E-06  
2.212E-06 2.212E-06 2.212E-06  
EMI SFACT 24 SEASHR 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 3.880E-06 3.880E-06 3.880E-06  
3.716E-06 3.716E-06 3.716E-06  
EMI SFACT 24 SEASHR 3.716E-06 3.716E-06 3.716E-06 3.716E-06 1.925E-06 1.925E-06 1.925E-06 2.284E-06 2.284E-06  
2.284E-06 2.284E-06 2.284E-06  
EMI SFACT 24 SEASHR 2.453E-06 2.453E-06 2.453E-06 2.453E-06 2.453E-06 2.453E-06 4.167E-06 4.167E-06 4.167E-06  
3.990E-06 3.990E-06 3.990E-06  
EMI SFACT 24 SEASHR 3.990E-06 3.990E-06 3.990E-06 3.990E-06 2.067E-06 2.067E-06 2.067E-06 2.453E-06 2.453E-06  
2.453E-06 2.453E-06 2.453E-06  
EMI SFACT 24 SEASHR 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 2.284E-06 3.880E-06 3.880E-06 3.880E-06  
3.716E-06 3.716E-06 3.716E-06  
EMI SFACT 24 SEASHR 3.716E-06 3.716E-06 3.716E-06 3.716E-06 1.925E-06 1.925E-06 1.925E-06 2.284E-06 2.284E-06  
2.284E-06 2.284E-06 2.284E-06

EMI SFACT	25	SEASHR	2.025E-06	2.781E-06	2.781E-06	2.781E-06						
			3.806E-06	3.806E-06	3.806E-06							
EMI SFACT	25	SEASHR	3.806E-06	3.806E-06	3.806E-06	3.806E-06	3.752E-06	3.752E-06	3.752E-06	2.025E-06	2.025E-06	
			2.025E-06	2.025E-06	2.025E-06							
EMI SFACT	25	SEASHR	2.091E-06	2.872E-06	2.872E-06	2.872E-06						
			3.931E-06	3.931E-06	3.931E-06							
EMI SFACT	25	SEASHR	3.931E-06	3.931E-06	3.931E-06	3.931E-06	3.875E-06	3.875E-06	3.875E-06	2.091E-06	2.091E-06	
			2.091E-06	2.091E-06	2.091E-06							
EMI SFACT	25	SEASHR	2.245E-06	2.245E-06	2.245E-06	2.245E-06	2.245E-06	2.245E-06	3.084E-06	3.084E-06	3.084E-06	
			4.221E-06	4.221E-06	4.221E-06							
EMI SFACT	25	SEASHR	4.221E-06	4.221E-06	4.221E-06	4.221E-06	4.161E-06	4.161E-06	4.161E-06	2.245E-06	2.245E-06	
			2.245E-06	2.245E-06	2.245E-06							
EMI SFACT	25	SEASHR	2.091E-06	2.872E-06	2.872E-06	2.872E-06						
			3.931E-06	3.931E-06	3.931E-06							
EMI SFACT	25	SEASHR	3.931E-06	3.931E-06	3.931E-06	3.931E-06	3.875E-06	3.875E-06	3.875E-06	2.091E-06	2.091E-06	
			2.091E-06	2.091E-06	2.091E-06							
EMI SFACT	26	SEASHR	1.325E-06	1.325E-06	1.325E-06	1.325E-06	1.325E-06	1.325E-06	1.431E-06	1.431E-06	1.431E-06	
			2.491E-06	2.491E-06	2.491E-06							
EMI SFACT	26	SEASHR	2.491E-06	2.491E-06	2.491E-06	2.491E-06	2.851E-06	2.851E-06	2.851E-06	1.325E-06	1.325E-06	
			1.325E-06	1.325E-06	1.325E-06							
EMI SFACT	26	SEASHR	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.478E-06	1.478E-06	1.478E-06	
			2.572E-06	2.572E-06	2.572E-06							
EMI SFACT	26	SEASHR	2.572E-06	2.572E-06	2.572E-06	2.572E-06	2.944E-06	2.944E-06	2.944E-06	1.368E-06	1.368E-06	
			1.368E-06	1.368E-06	1.368E-06							
EMI SFACT	26	SEASHR	1.470E-06	1.470E-06	1.470E-06	1.470E-06	1.470E-06	1.470E-06	1.587E-06	1.587E-06	1.587E-06	
			2.762E-06	2.762E-06	2.762E-06							
EMI SFACT	26	SEASHR	2.762E-06	2.762E-06	2.762E-06	2.762E-06	3.162E-06	3.162E-06	3.162E-06	1.470E-06	1.470E-06	
			1.470E-06	1.470E-06	1.470E-06							
EMI SFACT	26	SEASHR	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.368E-06	1.478E-06	1.478E-06	1.478E-06	
			2.572E-06	2.572E-06	2.572E-06							
EMI SFACT	26	SEASHR	2.572E-06	2.572E-06	2.572E-06	2.572E-06	2.944E-06	2.944E-06	2.944E-06	1.368E-06	1.368E-06	
			1.368E-06	1.368E-06	1.368E-06							
EMI SFACT	27	SEASHR	1.976E-06	1.976E-06	1.976E-06	1.976E-06	1.976E-06	1.976E-06	2.503E-06	2.503E-06	2.503E-06	

3.715E-06 3.715E-06 3.715E-06  
EMI SFACT 27 SEASHR 3.715E-06 3.715E-06 3.715E-06 3.715E-06 3.877E-06 3.877E-06 3.877E-06 1.976E-06 1.976E-06  
1.976E-06 1.976E-06 1.976E-06  
EMI SFACT 27 SEASHR 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.585E-06 2.585E-06 2.585E-06  
3.837E-06 3.837E-06 3.837E-06  
EMI SFACT 27 SEASHR 3.837E-06 3.837E-06 3.837E-06 3.837E-06 4.004E-06 4.004E-06 4.004E-06 2.041E-06 2.041E-06  
2.041E-06 2.041E-06 2.041E-06  
EMI SFACT 27 SEASHR 2.192E-06 2.192E-06 2.192E-06 2.192E-06 2.192E-06 2.776E-06 2.776E-06 2.776E-06  
4.120E-06 4.120E-06 4.120E-06  
EMI SFACT 27 SEASHR 4.120E-06 4.120E-06 4.120E-06 4.120E-06 4.299E-06 4.299E-06 4.299E-06 2.192E-06 2.192E-06  
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EMI SFACT 27 SEASHR 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.041E-06 2.585E-06 2.585E-06 2.585E-06  
3.837E-06 3.837E-06 3.837E-06  
EMI SFACT 27 SEASHR 3.837E-06 3.837E-06 3.837E-06 3.837E-06 4.004E-06 4.004E-06 4.004E-06 2.041E-06 2.041E-06  
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EMI SFACT 28 SEASHR 4.979E-06 4.979E-06 4.979E-06 4.979E-06 4.979E-06 9.924E-06 9.924E-06 9.924E-06  
9.360E-06 9.360E-06 9.360E-06  
EMI SFACT 28 SEASHR 9.360E-06 9.360E-06 9.360E-06 9.360E-06 6.091E-06 6.091E-06 6.091E-06 4.979E-06 4.979E-06  
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EMI SFACT 28 SEASHR 5.142E-06 5.142E-06 5.142E-06 5.142E-06 5.142E-06 1.025E-05 1.025E-05 1.025E-05  
9.667E-06 9.667E-06 9.667E-06  
EMI SFACT 28 SEASHR 9.667E-06 9.667E-06 9.667E-06 9.667E-06 6.290E-06 6.290E-06 6.290E-06 5.142E-06 5.142E-06  
5.142E-06 5.142E-06 5.142E-06  
EMI SFACT 28 SEASHR 5.522E-06 5.522E-06 5.522E-06 5.522E-06 5.522E-06 1.101E-05 1.101E-05 1.101E-05  
1.038E-05 1.038E-05 1.038E-05  
EMI SFACT 28 SEASHR 1.038E-05 1.038E-05 1.038E-05 1.038E-05 6.755E-06 6.755E-06 6.755E-06 5.522E-06 5.522E-06  
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EMI SFACT 28 SEASHR 5.142E-06 5.142E-06 5.142E-06 5.142E-06 5.142E-06 1.025E-05 1.025E-05 1.025E-05  
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EMI SFACT 28 SEASHR 9.667E-06 9.667E-06 9.667E-06 9.667E-06 6.290E-06 6.290E-06 6.290E-06 5.142E-06 5.142E-06  
5.142E-06 5.142E-06 5.142E-06  
EMI SFACT 29 SEASHR 2.655E-06 2.655E-06 2.655E-06 2.655E-06 2.655E-06 3.079E-06 3.079E-06 3.079E-06  
4.991E-06 4.991E-06 4.991E-06

EMI SFACT 29 SEASHR 4.991E-06 4.991E-06 4.991E-06 4.991E-06 5.496E-06 5.496E-06 5.496E-06 2.655E-06 2.655E-06  
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EMI SFACT 29 SEASHR 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 3.180E-06 3.180E-06 3.180E-06  
5.154E-06 5.154E-06 5.154E-06  
EMI SFACT 29 SEASHR 5.154E-06 5.154E-06 5.154E-06 5.154E-06 5.676E-06 5.676E-06 5.676E-06 2.742E-06 2.742E-06  
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EMI SFACT 29 SEASHR 2.944E-06 2.944E-06 2.944E-06 2.944E-06 2.944E-06 2.944E-06 3.415E-06 3.415E-06 3.415E-06  
5.535E-06 5.535E-06 5.535E-06  
EMI SFACT 29 SEASHR 5.535E-06 5.535E-06 5.535E-06 5.535E-06 6.095E-06 6.095E-06 6.095E-06 2.944E-06 2.944E-06  
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EMI SFACT 29 SEASHR 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 2.742E-06 3.180E-06 3.180E-06 3.180E-06  
5.154E-06 5.154E-06 5.154E-06  
EMI SFACT 29 SEASHR 5.154E-06 5.154E-06 5.154E-06 5.154E-06 5.676E-06 5.676E-06 5.676E-06 2.742E-06 2.742E-06  
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EMI SFACT 30 SEASHR 2.501E-06 2.501E-06 2.501E-06 2.501E-06 2.501E-06 2.501E-06 2.169E-06 2.169E-06 2.169E-06  
4.702E-06 4.702E-06 4.702E-06  
EMI SFACT 30 SEASHR 4.702E-06 4.702E-06 4.702E-06 4.702E-06 5.921E-06 5.921E-06 5.921E-06 2.501E-06 2.501E-06  
2.501E-06 2.501E-06 2.501E-06  
EMI SFACT 30 SEASHR 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.240E-06 2.240E-06 2.240E-06  
4.856E-06 4.856E-06 4.856E-06  
EMI SFACT 30 SEASHR 4.856E-06 4.856E-06 4.856E-06 4.856E-06 6.115E-06 6.115E-06 6.115E-06 2.583E-06 2.583E-06  
2.583E-06 2.583E-06 2.583E-06  
EMI SFACT 30 SEASHR 2.774E-06 2.774E-06 2.774E-06 2.774E-06 2.774E-06 2.774E-06 2.406E-06 2.406E-06 2.406E-06  
5.214E-06 5.214E-06 5.214E-06  
EMI SFACT 30 SEASHR 5.214E-06 5.214E-06 5.214E-06 5.214E-06 6.566E-06 6.566E-06 6.566E-06 2.774E-06 2.774E-06  
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EMI SFACT 30 SEASHR 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.583E-06 2.240E-06 2.240E-06 2.240E-06  
4.856E-06 4.856E-06 4.856E-06  
EMI SFACT 30 SEASHR 4.856E-06 4.856E-06 4.856E-06 4.856E-06 6.115E-06 6.115E-06 6.115E-06 2.583E-06 2.583E-06  
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SRCGROUP 1 1  
SRCGROUP 2 2

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SRCGROUP 29 29  
SRCGROUP 30 30  
SRCGROUP ALL

SO FINI SHED

RE STARTING

INCLUDED NJ73\_FELLOW.ROU  
RE FINISHED

ME STARTING  
SURFFILE KPHL\_2016-2020.SFC  
PROFFILE KPHL\_2016-2020.PFL  
SURFDATA 13739 2016 Philadelphia  
UAIRDATA 93734 2016 Sterling  
PROFBASE 9 METERS  
ME FINISHED

OU STARTING  
RECTABLE ALLAVE 1ST  
PLOTFILE ANNUAL ALL PM25\_Annual\_1ST\_ALL.PLT 31  
OU FINISHED

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\*\* Project Parameters

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\*\* PROJCTN CoordinateSystemUTM  
\*\* DESCPTN UTM: Universal Transverse Mercator  
\*\* DATUM North American Datum 1983  
\*\* DTMRGN CONUS  
\*\* UNITS m  
\*\* ZONE 18  
\*\* ZONEINX 0  
\*\*

Output File

\*\* CONC OF PM25 IN MICROGRAMS/M\*\*3 \*\*

File: C:\Users\KuberaK\AECOM\NJ1-4 - General\1. MODEL ARCHIVE\AERMOD\NJ73\_FeIIow\Annual\NJ73\_FeIIow\_PM25\_Annual . out  
 11/11/2022, 5:38:28 PM

	5TH HIGHEST VALUE IS	0.04974	AT (	503222.33,	4420034.41,	18.69,	18.69,	1.80)	DC
	6TH HIGHEST VALUE IS	0.04769	AT (	503383.37,	4420229.06,	19.01,	20.96,	1.80)	DC
	7TH HIGHEST VALUE IS	0.04553	AT (	503376.45,	4419988.54,	19.25,	19.25,	1.80)	DC
	8TH HIGHEST VALUE IS	0.04314	AT (	503368.72,	4420240.86,	18.88,	21.67,	1.80)	DC
	9TH HIGHEST VALUE IS	0.04141	AT (	503219.51,	4420012.44,	18.35,	18.35,	1.80)	DC
	10TH HIGHEST VALUE IS	0.03887	AT (	503199.23,	4420052.44,	18.73,	18.73,	1.80)	DC
ALL	1ST HIGHEST VALUE IS	2.45875	AT (	503383.37,	4420229.06,	19.01,	20.96,	1.80)	DC
	2ND HIGHEST VALUE IS	2.15477	AT (	503396.80,	4420246.15,	18.90,	18.90,	1.80)	DC
	3RD HIGHEST VALUE IS	1.71597	AT (	503407.79,	4420262.43,	18.87,	18.87,	1.80)	DC
	4TH HIGHEST VALUE IS	1.69587	AT (	503368.72,	4420240.86,	18.88,	21.67,	1.80)	DC
	5TH HIGHEST VALUE IS	1.32066	AT (	503419.99,	4420279.12,	18.85,	18.85,	1.80)	DC
	6TH HIGHEST VALUE IS	1.30216	AT (	503380.11,	4420263.24,	18.59,	18.59,	1.80)	DC
	7TH HIGHEST VALUE IS	1.28712	AT (	503459.16,	4420165.57,	18.63,	18.63,	1.80)	DC
	8TH HIGHEST VALUE IS	1.14306	AT (	503390.29,	4420277.08,	18.76,	18.76,	1.80)	DC
	9TH HIGHEST VALUE IS	1.09365	AT (	503468.02,	4420174.12,	18.60,	18.60,	1.80)	DC
	10TH HIGHEST VALUE IS	1.05042	AT (	503473.72,	4420153.77,	18.67,	18.67,	1.80)	DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

NJ State Route 168 and NJ State Route 41

24-hour PM<sub>2.5</sub> NAAQS

Input File

CO STARTING  
TITLEONE NJ168\_NJ41 - PM25  
MODELOPT DFAULT CONC  
AVERTIME 24  
POLLUTID PM25  
FLAGPOLE 1.8  
RUNORNOT RUN  
CO FINISHED

SO STARTING

** Source	ID	Type	UTMX (m)	UTMY (m)	EI. (m)
LOCATION 1		AREA	493780.180	4410992.220	19.000
LOCATION 2		AREA	493755.038	4411046.988	19.460
LOCATION 3		AREA	493771.566	4410984.934	18.810
LOCATION 4		AREA	493774.637	4410987.561	18.900
LOCATION 5		AREA	493556.160	4410763.890	14.530
LOCATION 6		AREA	493867.345	4410682.393	18.200
LOCATION 7		AREA	493806.171	4410896.321	18.220
LOCATION 8		AREA	493801.721	4410896.894	18.260
LOCATION 9		AREA	493777.730	4410984.260	18.900
LOCATION 10		AREA	493778.941	4410988.255	18.950
LOCATION 11		AREA	493553.090	4410766.237	14.570
LOCATION 12		AREA	493861.982	4410681.703	18.230
LOCATION 13		AREA	493797.197	4411008.793	19.590
LOCATION 14		AREA	493764.697	4411010.090	19.170
LOCATION 15		AREA	493767.737	4411010.563	19.200
LOCATION 16		AREA	493714.853	4410920.782	17.500
LOCATION 17		AREA	493805.870	4410896.740	18.220
LOCATION 18		AREA	493801.708	4410897.068	18.260

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\*\*Area Source

**	SRCID	QS(g/sec*m2)	Hs(m)	X Len(m)	Y Len(m))	Init	Vert(m)
**	-----	-----	-----	-----	-----	-----	-----
	SRCPARAM 1	1.0	1.470	3.600	309.000	45.060	1.36
	SRCPARAM 2	1.0	1.470	3.600	246.200	-16.730	1.36
	SRCPARAM 3	1.0	1.470	3.600	65.150	-15.310	1.36
	SRCPARAM 4	1.0	1.470	3.600	62.000	-15.200	1.36
	SRCPARAM 5	1.0	1.470	3.600	306.400	45.370	1.36
	SRCPARAM 6	1.0	1.470	3.600	222.700	-15.970	1.36
	SRCPARAM 7	1.0	1.470	3.600	88.700	-15.970	1.36
	SRCPARAM 8	1.0	1.470	3.600	85.000	-15.970	1.36
	SRCPARAM 9	1.0	1.470	3.600	317.300	45.160	1.36
	SRCPARAM 10	1.0	1.470	3.600	303.700	-15.960	1.36
	SRCPARAM 11	1.0	1.470	3.600	313.600	44.990	1.36
	SRCPARAM 12	1.0	1.470	3.600	309.500	-16.300	1.36
	SRCPARAM 13	1.0	1.470	3.600	89.000	45.060	1.36
	SRCPARAM 14	1.0	1.470	3.600	39.600	-14.860	1.36
	SRCPARAM 15	1.0	1.470	3.600	37.800	-14.460	1.36
	SRCPARAM 16	1.0	1.470	3.600	61.400	45.370	1.36
	SRCPARAM 17	1.0	1.470	3.600	64.700	-15.970	1.36
	SRCPARAM 18	1.0	1.470	3.600	64.200	-15.970	1.36

EMI SFACT 1 SEASHR 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.232E-07 1.232E-07 1.232E-07  
2.057E-07 2.057E-07 2.057E-07  
EMI SFACT 1 SEASHR 2.057E-07 2.057E-07 2.057E-07 2.057E-07 1.780E-07 1.780E-07 1.780E-07 1.060E-07 1.060E-07  
1.060E-07 1.060E-07 1.060E-07  
EMI SFACT 1 SEASHR 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.239E-07 1.239E-07 1.239E-07  
2.069E-07 2.069E-07 2.069E-07  
EMI SFACT 1 SEASHR 2.069E-07 2.069E-07 2.069E-07 2.069E-07 1.790E-07 1.790E-07 1.790E-07 1.065E-07 1.065E-07  
1.065E-07 1.065E-07 1.065E-07  
EMI SFACT 1 SEASHR 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.255E-07 1.255E-07 1.255E-07  
2.096E-07 2.096E-07 2.096E-07  
EMI SFACT 1 SEASHR 2.096E-07 2.096E-07 2.096E-07 2.096E-07 1.813E-07 1.813E-07 1.813E-07 1.078E-07 1.078E-07  
1.078E-07 1.078E-07 1.078E-07

EMI SFACT 1 SEASHR 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.239E-07 1.239E-07 1.239E-07  
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EMI SFACT 1 SEASHR 2.069E-07 2.069E-07 2.069E-07 2.069E-07 2.069E-07 1.790E-07 1.790E-07 1.790E-07 1.065E-07 1.065E-07  
1.065E-07 1.065E-07 1.065E-07  
EMI SFACT 2 SEASHR 1.621E-07 1.621E-07 1.621E-07 1.621E-07 1.621E-07 1.621E-07 2.497E-07 2.497E-07 2.497E-07  
5.652E-07 5.652E-07 5.652E-07  
EMI SFACT 2 SEASHR 5.652E-07 5.652E-07 5.652E-07 5.652E-07 5.652E-07 7.448E-07 7.448E-07 7.448E-07 1.621E-07 1.621E-07  
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EMI SFACT 2 SEASHR 1.631E-07 1.631E-07 1.631E-07 1.631E-07 1.631E-07 1.631E-07 2.510E-07 2.510E-07 2.510E-07  
5.681E-07 5.681E-07 5.681E-07  
EMI SFACT 2 SEASHR 5.681E-07 5.681E-07 5.681E-07 5.681E-07 5.681E-07 7.481E-07 7.481E-07 7.481E-07 1.631E-07 1.631E-07  
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EMI SFACT 2 SEASHR 1.653E-07 1.653E-07 1.653E-07 1.653E-07 1.653E-07 1.653E-07 2.541E-07 2.541E-07 2.541E-07  
5.750E-07 5.750E-07 5.750E-07  
EMI SFACT 2 SEASHR 5.750E-07 5.750E-07 5.750E-07 5.750E-07 5.750E-07 7.557E-07 7.557E-07 7.557E-07 1.653E-07 1.653E-07  
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EMI SFACT 2 SEASHR 1.631E-07 1.631E-07 1.631E-07 1.631E-07 1.631E-07 1.631E-07 2.510E-07 2.510E-07 2.510E-07  
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EMI SFACT 2 SEASHR 5.681E-07 5.681E-07 5.681E-07 5.681E-07 5.681E-07 7.481E-07 7.481E-07 7.481E-07 1.631E-07 1.631E-07  
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EMI SFACT 3 SEASHR 1.716E-07 1.716E-07 1.716E-07 1.716E-07 1.716E-07 1.716E-07 2.643E-07 2.643E-07 2.643E-07  
5.982E-07 5.982E-07 5.982E-07  
EMI SFACT 3 SEASHR 5.982E-07 5.982E-07 5.982E-07 5.982E-07 5.982E-07 7.882E-07 7.882E-07 7.882E-07 1.716E-07 1.716E-07  
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EMI SFACT 3 SEASHR 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 2.657E-07 2.657E-07 2.657E-07  
6.013E-07 6.013E-07 6.013E-07  
EMI SFACT 3 SEASHR 6.013E-07 6.013E-07 6.013E-07 6.013E-07 6.013E-07 7.917E-07 7.917E-07 7.917E-07 1.726E-07 1.726E-07  
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EMI SFACT 3 SEASHR 1.749E-07 1.749E-07 1.749E-07 1.749E-07 1.749E-07 1.749E-07 2.690E-07 2.690E-07 2.690E-07  
6.085E-07 6.085E-07 6.085E-07  
EMI SFACT 3 SEASHR 6.085E-07 6.085E-07 6.085E-07 6.085E-07 6.085E-07 7.997E-07 7.997E-07 7.997E-07 1.749E-07 1.749E-07  
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EMI SFACT 3 SEASHR 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 2.657E-07 2.657E-07 2.657E-07

6.013E-07 6.013E-07 6.013E-07  
EMI SFACT 3 SEASHR 6.013E-07 6.013E-07 6.013E-07 6.013E-07 7.917E-07 7.917E-07 7.917E-07 1.726E-07 1.726E-07  
1.726E-07 1.726E-07 1.726E-07  
EMI SFACT 4 SEASHR 6.756E-09 6.756E-09 6.756E-09 6.756E-09 6.756E-09 6.756E-09 1.039E-08 1.039E-08 1.039E-08  
2.355E-08 2.355E-08 2.355E-08  
EMI SFACT 4 SEASHR 2.355E-08 2.355E-08 2.355E-08 2.355E-08 3.106E-08 3.106E-08 3.106E-08 6.756E-09 6.756E-09  
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EMI SFACT 4 SEASHR 6.795E-09 6.795E-09 6.795E-09 6.795E-09 6.795E-09 6.795E-09 1.044E-08 1.044E-08 1.044E-08  
2.367E-08 2.367E-08 2.367E-08  
EMI SFACT 4 SEASHR 2.367E-08 2.367E-08 2.367E-08 2.367E-08 3.120E-08 3.120E-08 3.120E-08 6.795E-09 6.795E-09  
6.795E-09 6.795E-09 6.795E-09  
EMI SFACT 4 SEASHR 6.885E-09 6.885E-09 6.885E-09 6.885E-09 6.885E-09 6.885E-09 1.057E-08 1.057E-08 1.057E-08  
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EMI SFACT 4 SEASHR 2.396E-08 2.396E-08 2.396E-08 2.396E-08 3.152E-08 3.152E-08 3.152E-08 6.885E-09 6.885E-09  
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EMI SFACT 4 SEASHR 2.367E-08 2.367E-08 2.367E-08 2.367E-08 3.120E-08 3.120E-08 3.120E-08 6.795E-09 6.795E-09  
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EMI SFACT 5 SEASHR 1.240E-07 1.240E-07 1.240E-07 1.240E-07 1.240E-07 1.240E-07 2.003E-07 2.003E-07 2.003E-07  
3.201E-07 3.201E-07 3.201E-07  
EMI SFACT 5 SEASHR 3.201E-07 3.201E-07 3.201E-07 3.201E-07 1.684E-07 1.684E-07 1.684E-07 1.240E-07 1.240E-07  
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EMI SFACT 5 SEASHR 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 2.014E-07 2.014E-07 2.014E-07  
3.218E-07 3.218E-07 3.218E-07  
EMI SFACT 5 SEASHR 3.218E-07 3.218E-07 3.218E-07 3.218E-07 1.693E-07 1.693E-07 1.693E-07 1.247E-07 1.247E-07  
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EMI SFACT 5 SEASHR 1.263E-07 1.263E-07 1.263E-07 1.263E-07 1.263E-07 1.263E-07 2.039E-07 2.039E-07 2.039E-07  
3.258E-07 3.258E-07 3.258E-07  
EMI SFACT 5 SEASHR 3.258E-07 3.258E-07 3.258E-07 3.258E-07 1.714E-07 1.714E-07 1.714E-07 1.263E-07 1.263E-07  
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EMI SFACT 5 SEASHR 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 2.014E-07 2.014E-07 2.014E-07  
3.218E-07 3.218E-07 3.218E-07

EMI SFACT 5 SEASHR 3.218E-07 3.218E-07 3.218E-07 3.218E-07 1.693E-07 1.693E-07 1.693E-07 1.247E-07 1.247E-07  
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EMI SFACT 6 SEASHR 2.197E-07 2.197E-07 2.197E-07 2.197E-07 2.197E-07 2.197E-07 4.661E-07 4.661E-07 4.661E-07  
5.071E-07 5.071E-07 5.071E-07  
EMI SFACT 6 SEASHR 5.071E-07 5.071E-07 5.071E-07 5.071E-07 5.071E-07 2.535E-07 2.535E-07 2.535E-07 2.197E-07 2.197E-07  
2.197E-07 2.197E-07 2.197E-07  
EMI SFACT 6 SEASHR 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 4.687E-07 4.687E-07 4.687E-07  
5.098E-07 5.098E-07 5.098E-07  
EMI SFACT 6 SEASHR 5.098E-07 5.098E-07 5.098E-07 5.098E-07 5.098E-07 2.548E-07 2.548E-07 2.548E-07 2.209E-07 2.209E-07  
2.209E-07 2.209E-07 2.209E-07  
EMI SFACT 6 SEASHR 2.236E-07 2.236E-07 2.236E-07 2.236E-07 2.236E-07 2.236E-07 4.746E-07 4.746E-07 4.746E-07  
5.161E-07 5.161E-07 5.161E-07  
EMI SFACT 6 SEASHR 5.161E-07 5.161E-07 5.161E-07 5.161E-07 5.161E-07 2.581E-07 2.581E-07 2.581E-07 2.236E-07 2.236E-07  
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EMI SFACT 6 SEASHR 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 4.687E-07 4.687E-07 4.687E-07  
5.098E-07 5.098E-07 5.098E-07  
EMI SFACT 6 SEASHR 5.098E-07 5.098E-07 5.098E-07 5.098E-07 5.098E-07 2.548E-07 2.548E-07 2.548E-07 2.209E-07 2.209E-07  
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EMI SFACT 7 SEASHR 2.084E-07 2.084E-07 2.084E-07 2.084E-07 2.084E-07 2.084E-07 4.522E-07 4.522E-07 4.522E-07  
4.810E-07 4.810E-07 4.810E-07  
EMI SFACT 7 SEASHR 4.810E-07 4.810E-07 4.810E-07 4.810E-07 4.810E-07 2.307E-07 2.307E-07 2.307E-07 2.084E-07 2.084E-07  
2.084E-07 2.084E-07 2.084E-07  
EMI SFACT 7 SEASHR 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 4.546E-07 4.546E-07 4.546E-07  
4.836E-07 4.836E-07 4.836E-07  
EMI SFACT 7 SEASHR 4.836E-07 4.836E-07 4.836E-07 4.836E-07 4.836E-07 2.320E-07 2.320E-07 2.320E-07 2.096E-07 2.096E-07  
2.096E-07 2.096E-07 2.096E-07  
EMI SFACT 7 SEASHR 2.121E-07 2.121E-07 2.121E-07 2.121E-07 2.121E-07 2.121E-07 4.604E-07 4.604E-07 4.604E-07  
4.896E-07 4.896E-07 4.896E-07  
EMI SFACT 7 SEASHR 4.896E-07 4.896E-07 4.896E-07 4.896E-07 4.896E-07 2.349E-07 2.349E-07 2.349E-07 2.121E-07 2.121E-07  
2.121E-07 2.121E-07 2.121E-07  
EMI SFACT 7 SEASHR 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 4.546E-07 4.546E-07 4.546E-07  
4.836E-07 4.836E-07 4.836E-07  
EMI SFACT 7 SEASHR 4.836E-07 4.836E-07 4.836E-07 4.836E-07 4.836E-07 2.320E-07 2.320E-07 2.320E-07 2.096E-07 2.096E-07

2.096E-07 2.096E-07 2.096E-07  
EMI SFACT 8 SEASHR 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.348E-08 1.348E-08 1.348E-08  
2.604E-08 2.604E-08 2.604E-08  
EMI SFACT 8 SEASHR 2.604E-08 2.604E-08 2.604E-08 2.604E-08 2.314E-08 2.314E-08 2.314E-08 1.128E-08 1.128E-08  
1.128E-08 1.128E-08 1.128E-08  
EMI SFACT 8 SEASHR 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.355E-08 1.355E-08 1.355E-08  
2.618E-08 2.618E-08 2.618E-08  
EMI SFACT 8 SEASHR 2.618E-08 2.618E-08 2.618E-08 2.618E-08 2.327E-08 2.327E-08 2.327E-08 1.134E-08 1.134E-08  
1.134E-08 1.134E-08 1.134E-08  
EMI SFACT 8 SEASHR 1.148E-08 1.148E-08 1.148E-08 1.148E-08 1.148E-08 1.148E-08 1.373E-08 1.373E-08 1.373E-08  
2.650E-08 2.650E-08 2.650E-08  
EMI SFACT 8 SEASHR 2.650E-08 2.650E-08 2.650E-08 2.650E-08 2.356E-08 2.356E-08 2.356E-08 1.148E-08 1.148E-08  
1.148E-08 1.148E-08 1.148E-08  
EMI SFACT 8 SEASHR 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.355E-08 1.355E-08 1.355E-08  
2.618E-08 2.618E-08 2.618E-08  
EMI SFACT 8 SEASHR 2.618E-08 2.618E-08 2.618E-08 2.618E-08 2.327E-08 2.327E-08 2.327E-08 1.134E-08 1.134E-08  
1.134E-08 1.134E-08 1.134E-08  
EMI SFACT 9 SEASHR 1.151E-07 1.151E-07 1.151E-07 1.151E-07 1.151E-07 1.151E-07 1.839E-07 1.839E-07 1.839E-07  
2.306E-07 2.306E-07 2.306E-07  
EMI SFACT 9 SEASHR 2.306E-07 2.306E-07 2.306E-07 2.306E-07 1.399E-07 1.399E-07 1.399E-07 1.151E-07 1.151E-07  
1.151E-07 1.151E-07 1.151E-07  
EMI SFACT 9 SEASHR 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.850E-07 1.850E-07 1.850E-07  
2.319E-07 2.319E-07 2.319E-07  
EMI SFACT 9 SEASHR 2.319E-07 2.319E-07 2.319E-07 2.319E-07 1.407E-07 1.407E-07 1.407E-07 1.157E-07 1.157E-07  
1.157E-07 1.157E-07 1.157E-07  
EMI SFACT 9 SEASHR 1.171E-07 1.171E-07 1.171E-07 1.171E-07 1.171E-07 1.171E-07 1.873E-07 1.873E-07 1.873E-07  
2.349E-07 2.349E-07 2.349E-07  
EMI SFACT 9 SEASHR 2.349E-07 2.349E-07 2.349E-07 2.349E-07 1.425E-07 1.425E-07 1.425E-07 1.171E-07 1.171E-07  
1.171E-07 1.171E-07 1.171E-07  
EMI SFACT 9 SEASHR 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.850E-07 1.850E-07 1.850E-07  
2.319E-07 2.319E-07 2.319E-07  
EMI SFACT 9 SEASHR 2.319E-07 2.319E-07 2.319E-07 2.319E-07 1.407E-07 1.407E-07 1.407E-07 1.157E-07 1.157E-07  
1.157E-07 1.157E-07 1.157E-07

EMI SFACT 10 SEASHR 1.321E-07 1.321E-07 1.321E-07 1.321E-07 1.321E-07 1.321E-07 1.321E-07 8.379E-07 8.379E-07 8.379E-07  
5.422E-07 5.422E-07 5.422E-07  
EMI SFACT 10 SEASHR 5.422E-07 5.422E-07 5.422E-07 5.422E-07 2.719E-07 2.719E-07 2.719E-07 1.321E-07 1.321E-07  
1.321E-07 1.321E-07 1.321E-07  
EMI SFACT 10 SEASHR 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 8.416E-07 8.416E-07 8.416E-07  
5.452E-07 5.452E-07 5.452E-07  
EMI SFACT 10 SEASHR 5.452E-07 5.452E-07 5.452E-07 5.452E-07 2.734E-07 2.734E-07 2.734E-07 1.330E-07 1.330E-07  
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EMI SFACT 10 SEASHR 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.352E-07 8.501E-07 8.501E-07 8.501E-07  
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EMI SFACT 10 SEASHR 5.521E-07 5.521E-07 5.521E-07 5.521E-07 2.768E-07 2.768E-07 2.768E-07 1.352E-07 1.352E-07  
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EMI SFACT 10 SEASHR 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 8.416E-07 8.416E-07 8.416E-07  
5.452E-07 5.452E-07 5.452E-07  
EMI SFACT 10 SEASHR 5.452E-07 5.452E-07 5.452E-07 5.452E-07 2.734E-07 2.734E-07 2.734E-07 1.330E-07 1.330E-07  
1.330E-07 1.330E-07 1.330E-07  
EMI SFACT 11 SEASHR 1.366E-07 1.366E-07 1.366E-07 1.366E-07 1.366E-07 1.366E-07 1.904E-07 1.904E-07 1.904E-07  
3.634E-07 3.634E-07 3.634E-07  
EMI SFACT 11 SEASHR 3.634E-07 3.634E-07 3.634E-07 3.634E-07 2.677E-07 2.677E-07 2.677E-07 1.366E-07 1.366E-07  
1.366E-07 1.366E-07 1.366E-07  
EMI SFACT 11 SEASHR 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.914E-07 1.914E-07 1.914E-07  
3.654E-07 3.654E-07 3.654E-07  
EMI SFACT 11 SEASHR 3.654E-07 3.654E-07 3.654E-07 3.654E-07 2.691E-07 2.691E-07 2.691E-07 1.373E-07 1.373E-07  
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EMI SFACT 11 SEASHR 1.390E-07 1.390E-07 1.390E-07 1.390E-07 1.390E-07 1.390E-07 1.938E-07 1.938E-07 1.938E-07  
3.700E-07 3.700E-07 3.700E-07  
EMI SFACT 11 SEASHR 3.700E-07 3.700E-07 3.700E-07 3.700E-07 2.724E-07 2.724E-07 2.724E-07 1.390E-07 1.390E-07  
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EMI SFACT 11 SEASHR 3.654E-07 3.654E-07 3.654E-07 3.654E-07 2.691E-07 2.691E-07 2.691E-07 1.373E-07 1.373E-07  
1.373E-07 1.373E-07 1.373E-07  
EMI SFACT 12 SEASHR 1.792E-07 1.792E-07 1.792E-07 1.792E-07 1.792E-07 1.792E-07 2.746E-07 2.746E-07 2.746E-07

4.126E-07 4.126E-07 4.126E-07  
EMI SFACT 12 SEASHR 4.126E-07 4.126E-07 4.126E-07 4.126E-07 3.069E-07 3.069E-07 3.069E-07 1.792E-07 1.792E-07  
1.792E-07 1.792E-07 1.792E-07  
EMI SFACT 12 SEASHR 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 2.761E-07 2.761E-07 2.761E-07  
4.148E-07 4.148E-07 4.148E-07  
EMI SFACT 12 SEASHR 4.148E-07 4.148E-07 4.148E-07 4.148E-07 3.085E-07 3.085E-07 3.085E-07 1.801E-07 1.801E-07  
1.801E-07 1.801E-07 1.801E-07  
EMI SFACT 12 SEASHR 1.823E-07 1.823E-07 1.823E-07 1.823E-07 1.823E-07 1.823E-07 2.795E-07 2.795E-07 2.795E-07  
4.199E-07 4.199E-07 4.199E-07  
EMI SFACT 12 SEASHR 4.199E-07 4.199E-07 4.199E-07 4.199E-07 3.124E-07 3.124E-07 3.124E-07 1.823E-07 1.823E-07  
1.823E-07 1.823E-07 1.823E-07  
EMI SFACT 12 SEASHR 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 2.761E-07 2.761E-07 2.761E-07  
4.148E-07 4.148E-07 4.148E-07  
EMI SFACT 12 SEASHR 4.148E-07 4.148E-07 4.148E-07 4.148E-07 3.085E-07 3.085E-07 3.085E-07 1.801E-07 1.801E-07  
1.801E-07 1.801E-07 1.801E-07  
EMI SFACT 13 SEASHR 1.358E-06 1.358E-06 1.358E-06 1.358E-06 1.358E-06 1.358E-06 1.745E-06 1.745E-06 1.745E-06  
3.068E-06 3.068E-06 3.068E-06  
EMI SFACT 13 SEASHR 3.068E-06 3.068E-06 3.068E-06 3.068E-06 2.498E-06 2.498E-06 2.498E-06 1.358E-06 1.358E-06  
1.358E-06 1.358E-06 1.358E-06  
EMI SFACT 13 SEASHR 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.802E-06 1.802E-06 1.802E-06  
3.169E-06 3.169E-06 3.169E-06  
EMI SFACT 13 SEASHR 3.169E-06 3.169E-06 3.169E-06 3.169E-06 2.580E-06 2.580E-06 2.580E-06 1.402E-06 1.402E-06  
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EMI SFACT 13 SEASHR 1.506E-06 1.506E-06 1.506E-06 1.506E-06 1.506E-06 1.506E-06 1.935E-06 1.935E-06 1.935E-06  
3.403E-06 3.403E-06 3.403E-06  
EMI SFACT 13 SEASHR 3.403E-06 3.403E-06 3.403E-06 3.403E-06 2.771E-06 2.771E-06 2.771E-06 1.506E-06 1.506E-06  
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EMI SFACT 13 SEASHR 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.802E-06 1.802E-06 1.802E-06  
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EMI SFACT 13 SEASHR 3.169E-06 3.169E-06 3.169E-06 3.169E-06 2.580E-06 2.580E-06 2.580E-06 1.402E-06 1.402E-06  
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EMI SFACT 14 SEASHR 5.126E-06 5.126E-06 5.126E-06 5.126E-06 5.126E-06 5.126E-06 6.504E-06 6.504E-06 6.504E-06  
1.158E-05 1.158E-05 1.158E-05

EMI SFACT 14 SEASHR 1.158E-05 1.158E-05 1.158E-05 1.158E-05 9.514E-06 9.514E-06 9.514E-06 5.126E-06 5.126E-06  
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EMI SFACT 14 SEASHR 5.294E-06 5.294E-06 5.294E-06 5.294E-06 5.294E-06 5.294E-06 6.717E-06 6.717E-06 6.717E-06  
1.196E-05 1.196E-05 1.196E-05  
EMI SFACT 14 SEASHR 1.196E-05 1.196E-05 1.196E-05 1.196E-05 9.825E-06 9.825E-06 9.825E-06 5.294E-06 5.294E-06  
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EMI SFACT 14 SEASHR 5.685E-06 5.685E-06 5.685E-06 5.685E-06 5.685E-06 5.685E-06 7.213E-06 7.213E-06 7.213E-06  
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EMI SFACT 14 SEASHR 1.285E-05 1.285E-05 1.285E-05 1.285E-05 1.055E-05 1.055E-05 1.055E-05 5.685E-06 5.685E-06  
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EMI SFACT 14 SEASHR 5.294E-06 5.294E-06 5.294E-06 5.294E-06 5.294E-06 5.294E-06 6.717E-06 6.717E-06 6.717E-06  
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EMI SFACT 14 SEASHR 1.196E-05 1.196E-05 1.196E-05 1.196E-05 9.825E-06 9.825E-06 9.825E-06 5.294E-06 5.294E-06  
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EMI SFACT 15 SEASHR 2.402E-07 2.402E-07 2.402E-07 2.402E-07 2.402E-07 2.402E-07 3.042E-07 3.042E-07 3.042E-07  
5.427E-07 5.427E-07 5.427E-07  
EMI SFACT 15 SEASHR 5.427E-07 5.427E-07 5.427E-07 5.427E-07 4.462E-07 4.462E-07 4.462E-07 2.402E-07 2.402E-07  
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EMI SFACT 15 SEASHR 2.480E-07 2.480E-07 2.480E-07 2.480E-07 2.480E-07 2.480E-07 3.142E-07 3.142E-07 3.142E-07  
5.605E-07 5.605E-07 5.605E-07  
EMI SFACT 15 SEASHR 5.605E-07 5.605E-07 5.605E-07 5.605E-07 4.608E-07 4.608E-07 4.608E-07 2.480E-07 2.480E-07  
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EMI SFACT 15 SEASHR 2.663E-07 2.663E-07 2.663E-07 2.663E-07 2.663E-07 2.663E-07 3.374E-07 3.374E-07 3.374E-07  
6.019E-07 6.019E-07 6.019E-07  
EMI SFACT 15 SEASHR 6.019E-07 6.019E-07 6.019E-07 6.019E-07 4.948E-07 4.948E-07 4.948E-07 2.663E-07 2.663E-07  
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EMI SFACT 15 SEASHR 2.480E-07 2.480E-07 2.480E-07 2.480E-07 2.480E-07 2.480E-07 3.142E-07 3.142E-07 3.142E-07  
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EMI SFACT 15 SEASHR 5.605E-07 5.605E-07 5.605E-07 5.605E-07 4.608E-07 4.608E-07 4.608E-07 2.480E-07 2.480E-07  
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EMI SFACT 16 SEASHR 2.053E-06 2.053E-06 2.053E-06 2.053E-06 2.053E-06 2.053E-06 3.684E-06 3.684E-06 3.684E-06  
4.638E-06 4.638E-06 4.638E-06  
EMI SFACT 16 SEASHR 4.638E-06 4.638E-06 4.638E-06 4.638E-06 2.729E-06 2.729E-06 2.729E-06 2.053E-06 2.053E-06

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EMI SFACT 16 SEASHR 2.120E-06 2.120E-06 2.120E-06 2.120E-06 2.120E-06 2.120E-06 3.805E-06 3.805E-06 3.805E-06  
4.790E-06 4.790E-06 4.790E-06  
EMI SFACT 16 SEASHR 4.790E-06 4.790E-06 4.790E-06 4.790E-06 2.818E-06 2.818E-06 2.818E-06 2.120E-06 2.120E-06  
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EMI SFACT 16 SEASHR 2.276E-06 2.276E-06 2.276E-06 2.276E-06 2.276E-06 2.276E-06 4.086E-06 4.086E-06 4.086E-06  
5.144E-06 5.144E-06 5.144E-06  
EMI SFACT 16 SEASHR 5.144E-06 5.144E-06 5.144E-06 5.144E-06 3.027E-06 3.027E-06 3.027E-06 2.276E-06 2.276E-06  
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EMI SFACT 16 SEASHR 2.120E-06 2.120E-06 2.120E-06 2.120E-06 2.120E-06 2.120E-06 3.805E-06 3.805E-06 3.805E-06  
4.790E-06 4.790E-06 4.790E-06  
EMI SFACT 16 SEASHR 4.790E-06 4.790E-06 4.790E-06 4.790E-06 2.818E-06 2.818E-06 2.818E-06 2.120E-06 2.120E-06  
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EMI SFACT 17 SEASHR 3.730E-06 3.730E-06 3.730E-06 3.730E-06 3.730E-06 3.730E-06 7.466E-06 7.466E-06 7.466E-06  
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EMI SFACT 17 SEASHR 8.430E-06 8.430E-06 8.430E-06 8.430E-06 4.189E-06 4.189E-06 4.189E-06 3.730E-06 3.730E-06  
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EMI SFACT 17 SEASHR 3.853E-06 3.853E-06 3.853E-06 3.853E-06 3.853E-06 3.853E-06 7.711E-06 7.711E-06 7.711E-06  
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EMI SFACT 17 SEASHR 8.706E-06 8.706E-06 8.706E-06 8.706E-06 4.327E-06 4.327E-06 4.327E-06 3.853E-06 3.853E-06  
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EMI SFACT 17 SEASHR 4.137E-06 4.137E-06 4.137E-06 4.137E-06 4.137E-06 4.137E-06 8.280E-06 8.280E-06 8.280E-06  
9.349E-06 9.349E-06 9.349E-06  
EMI SFACT 17 SEASHR 9.349E-06 9.349E-06 9.349E-06 9.349E-06 4.646E-06 4.646E-06 4.646E-06 4.137E-06 4.137E-06  
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EMI SFACT 18 SEASHR 3.574E-06 3.574E-06 3.574E-06 3.574E-06 3.574E-06 3.574E-06 7.316E-06 7.316E-06 7.316E-06  
8.076E-06 8.076E-06 8.076E-06  
EMI SFACT 18 SEASHR 8.076E-06 8.076E-06 8.076E-06 8.076E-06 3.852E-06 3.852E-06 3.852E-06 3.574E-06 3.574E-06  
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EMI SFACT 18 SEASHR 3.691E-06 3.691E-06 3.691E-06 3.691E-06 3.691E-06 3.691E-06 3.691E-06 7.555E-06 7.555E-06 7.555E-06  
8.341E-06 8.341E-06 8.341E-06  
EMI SFACT 18 SEASHR 8.341E-06 8.341E-06 8.341E-06 8.341E-06 3.978E-06 3.978E-06 3.978E-06 3.691E-06 3.691E-06  
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EMI SFACT 18 SEASHR 3.964E-06 3.964E-06 3.964E-06 3.964E-06 3.964E-06 3.964E-06 8.113E-06 8.113E-06 8.113E-06  
8.957E-06 8.957E-06 8.957E-06  
EMI SFACT 18 SEASHR 8.957E-06 8.957E-06 8.957E-06 8.957E-06 4.272E-06 4.272E-06 4.272E-06 3.964E-06 3.964E-06  
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EMI SFACT 18 SEASHR 3.691E-06 3.691E-06 3.691E-06 3.691E-06 3.691E-06 3.691E-06 7.555E-06 7.555E-06 7.555E-06  
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EMI SFACT 18 SEASHR 8.341E-06 8.341E-06 8.341E-06 8.341E-06 3.978E-06 3.978E-06 3.978E-06 3.691E-06 3.691E-06  
3.691E-06 3.691E-06 3.691E-06

SRCGROUP 1 1  
SRCGROUP 2 2  
SRCGROUP 3 3  
SRCGROUP 4 4  
SRCGROUP 5 5  
SRCGROUP 6 6  
SRCGROUP 7 7  
SRCGROUP 8 8  
SRCGROUP 9 9  
SRCGROUP 10 10  
SRCGROUP 11 11  
SRCGROUP 12 12  
SRCGROUP 13 13  
SRCGROUP 14 14  
SRCGROUP 15 15  
SRCGROUP 16 16  
SRCGROUP 17 17  
SRCGROUP 18 18  
SRCGROUP ALL

SO FINISHED

RE STARTING

INCLUDED NJ168\_NJ41.ROU

RE FINISHED

ME STARTING

SURFFILE KPHL\_2016-2020.SFC

PROFFILE KPHL\_2016-2020.PFL

SURFDATA 13739 2016 Philadelphia

UAIRDATA 93734 2016 Sterling

PROFBASE 9 METERS

ME FINISHED

OU STARTING

RECTABLE ALLAVE 1ST 8TH

PLOTFILE 24 ALL 1ST PM25\_24HR\_1ST\_ALL.PLT 31

PLOTFILE 24 ALL 8TH PM25\_24HR\_8TH\_ALL.PLT 32

OU FINISHED

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\*\* Project Parameters

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\*\* PROJCTN CoordinateSystemUTM

\*\* DESCPTN UTM: Universal Transverse Mercator

\*\* DATUM North American Datum 1983

\*\* DTMRGN CONUS

\*\* UNITS m

\*\* ZONE 18

\*\* ZONEINX 0

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Output File

\*\* CONC OF PM25 IN MICROGRAMS/M\*\*3 \*\*

File: C:\Users\KuberaK\AECOM\NJ1-4 - General\1. MODEL ARCHIVE\AERMOD\NJ168\_NJ41\24hr\NJ168\_NJ41\_PM25\_24hr.out 11/11/2022, 5:54:36 PM

	5TH HIGHEST VALUE IS	0.30178	AT (	493884.49,	4410887.97,	19.47,	19.47,	1.80)	DC
	6TH HIGHEST VALUE IS	0.25902	AT (	493913.20,	4410970.98,	19.79,	19.79,	1.80)	DC
	7TH HIGHEST VALUE IS	0.24757	AT (	493629.73,	4410930.72,	15.85,	15.85,	1.80)	DC
	8TH HIGHEST VALUE IS	0.24333	AT (	493896.90,	4410890.69,	19.49,	19.49,	1.80)	DC
	9TH HIGHEST VALUE IS	0.23231	AT (	493914.36,	4410957.41,	19.74,	19.74,	1.80)	DC
	10TH HIGHEST VALUE IS	0.22932	AT (	493897.29,	4410848.02,	20.03,	20.03,	1.80)	DC
ALL	1ST HIGHEST VALUE IS	3.04504	AT (	493722.82,	4410954.45,	18.06,	18.06,	1.80)	DC
	2ND HIGHEST VALUE IS	2.86038	AT (	493702.74,	4410932.55,	17.59,	17.59,	1.80)	DC
	3RD HIGHEST VALUE IS	1.50506	AT (	493679.74,	4411016.62,	17.66,	17.66,	1.80)	DC
	4TH HIGHEST VALUE IS	1.33682	AT (	493801.48,	4411106.21,	20.74,	20.74,	1.80)	DC
	5TH HIGHEST VALUE IS	1.32820	AT (	493852.29,	4410839.48,	19.05,	19.05,	1.80)	DC
	6TH HIGHEST VALUE IS	1.21570	AT (	493815.38,	4411110.63,	20.88,	20.88,	1.80)	DC
	7TH HIGHEST VALUE IS	1.13653	AT (	493694.11,	4411108.74,	18.78,	18.78,	1.80)	DC
	8TH HIGHEST VALUE IS	1.13395	AT (	493774.32,	4411134.64,	20.90,	20.90,	1.80)	DC
	9TH HIGHEST VALUE IS	1.09773	AT (	493629.73,	4410930.72,	15.85,	15.85,	1.80)	DC
	10TH HIGHEST VALUE IS	1.05172	AT (	493792.01,	4411140.32,	21.26,	21.26,	1.80)	DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR

NJ State Route 168 and NJ State Route 41

Annual PM<sub>2.5</sub> NAAQS

Input File

CO STARTING  
TITLEONE NJ168\_NJ41 - PM25  
MODELOPT DFAULT CONC  
AVERTIME ANNUAL  
POLLUTID PM25  
FLAGPOLE 1.8  
RUNORNOT RUN  
CO FINISHED

SO STARTING

** Source	ID	Type	UTMX (m)	UTMY (m)	EI. (m)
LOCATION 1		AREA	493780.180	4410992.220	19.000
LOCATION 2		AREA	493755.038	4411046.988	19.460
LOCATION 3		AREA	493771.566	4410984.934	18.810
LOCATION 4		AREA	493774.637	4410987.561	18.900
LOCATION 5		AREA	493556.160	4410763.890	14.530
LOCATION 6		AREA	493867.345	4410682.393	18.200
LOCATION 7		AREA	493806.171	4410896.321	18.220
LOCATION 8		AREA	493801.721	4410896.894	18.260
LOCATION 9		AREA	493777.730	4410984.260	18.900
LOCATION 10		AREA	493778.941	4410988.255	18.950
LOCATION 11		AREA	493553.090	4410766.237	14.570
LOCATION 12		AREA	493861.982	4410681.703	18.230
LOCATION 13		AREA	493797.197	4411008.793	19.590
LOCATION 14		AREA	493764.697	4411010.090	19.170
LOCATION 15		AREA	493767.737	4411010.563	19.200
LOCATION 16		AREA	493714.853	4410920.782	17.500
LOCATION 17		AREA	493805.870	4410896.740	18.220
LOCATION 18		AREA	493801.708	4410897.068	18.260

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\*\*Area Source

**	SRCID	QS(g/sec*m2)	Hs(m)	X Len(m)	Y Len(m))	Init	Vert(m)
**	-----	-----	-----	-----	-----	-----	-----
	SRCPARAM 1	1.0	1.470	3.600	309.000	45.060	1.36
	SRCPARAM 2	1.0	1.470	3.600	246.200	-16.730	1.36
	SRCPARAM 3	1.0	1.470	3.600	65.150	-15.310	1.36
	SRCPARAM 4	1.0	1.470	3.600	62.000	-15.200	1.36
	SRCPARAM 5	1.0	1.470	3.600	306.400	45.370	1.36
	SRCPARAM 6	1.0	1.470	3.600	222.700	-15.970	1.36
	SRCPARAM 7	1.0	1.470	3.600	88.700	-15.970	1.36
	SRCPARAM 8	1.0	1.470	3.600	85.000	-15.970	1.36
	SRCPARAM 9	1.0	1.470	3.600	317.300	45.160	1.36
	SRCPARAM 10	1.0	1.470	3.600	303.700	-15.960	1.36
	SRCPARAM 11	1.0	1.470	3.600	313.600	44.990	1.36
	SRCPARAM 12	1.0	1.470	3.600	309.500	-16.300	1.36
	SRCPARAM 13	1.0	1.470	3.600	89.000	45.060	1.36
	SRCPARAM 14	1.0	1.470	3.600	39.600	-14.860	1.36
	SRCPARAM 15	1.0	1.470	3.600	37.800	-14.460	1.36
	SRCPARAM 16	1.0	1.470	3.600	61.400	45.370	1.36
	SRCPARAM 17	1.0	1.470	3.600	64.700	-15.970	1.36
	SRCPARAM 18	1.0	1.470	3.600	64.200	-15.970	1.36

EMI SFACT 1 SEASHR 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.060E-07 1.232E-07 1.232E-07 1.232E-07  
2.057E-07 2.057E-07 2.057E-07  
EMI SFACT 1 SEASHR 2.057E-07 2.057E-07 2.057E-07 2.057E-07 1.780E-07 1.780E-07 1.780E-07 1.060E-07 1.060E-07  
1.060E-07 1.060E-07 1.060E-07  
EMI SFACT 1 SEASHR 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.239E-07 1.239E-07 1.239E-07  
2.069E-07 2.069E-07 2.069E-07  
EMI SFACT 1 SEASHR 2.069E-07 2.069E-07 2.069E-07 2.069E-07 1.790E-07 1.790E-07 1.790E-07 1.065E-07 1.065E-07  
1.065E-07 1.065E-07 1.065E-07  
EMI SFACT 1 SEASHR 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.078E-07 1.255E-07 1.255E-07 1.255E-07  
2.096E-07 2.096E-07 2.096E-07  
EMI SFACT 1 SEASHR 2.096E-07 2.096E-07 2.096E-07 2.096E-07 1.813E-07 1.813E-07 1.813E-07 1.078E-07 1.078E-07  
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EMI SFACT 1 SEASHR 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.065E-07 1.239E-07 1.239E-07 1.239E-07  
2.069E-07 2.069E-07 2.069E-07  
EMI SFACT 1 SEASHR 2.069E-07 2.069E-07 2.069E-07 2.069E-07 1.790E-07 1.790E-07 1.790E-07 1.065E-07 1.065E-07  
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EMI SFACT 2 SEASHR 1.621E-07 1.621E-07 1.621E-07 1.621E-07 1.621E-07 1.621E-07 2.497E-07 2.497E-07 2.497E-07  
5.652E-07 5.652E-07 5.652E-07  
EMI SFACT 2 SEASHR 5.652E-07 5.652E-07 5.652E-07 5.652E-07 7.448E-07 7.448E-07 7.448E-07 1.621E-07 1.621E-07  
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EMI SFACT 2 SEASHR 1.631E-07 1.631E-07 1.631E-07 1.631E-07 1.631E-07 1.631E-07 2.510E-07 2.510E-07 2.510E-07  
5.681E-07 5.681E-07 5.681E-07  
EMI SFACT 2 SEASHR 5.681E-07 5.681E-07 5.681E-07 5.681E-07 5.681E-07 7.481E-07 7.481E-07 7.481E-07 1.631E-07 1.631E-07  
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EMI SFACT 2 SEASHR 1.653E-07 1.653E-07 1.653E-07 1.653E-07 1.653E-07 1.653E-07 2.541E-07 2.541E-07 2.541E-07  
5.750E-07 5.750E-07 5.750E-07  
EMI SFACT 2 SEASHR 5.750E-07 5.750E-07 5.750E-07 5.750E-07 5.750E-07 7.557E-07 7.557E-07 7.557E-07 1.653E-07 1.653E-07  
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EMI SFACT 2 SEASHR 5.681E-07 5.681E-07 5.681E-07 5.681E-07 5.681E-07 7.481E-07 7.481E-07 7.481E-07 1.631E-07 1.631E-07  
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EMI SFACT 3 SEASHR 1.716E-07 1.716E-07 1.716E-07 1.716E-07 1.716E-07 1.716E-07 2.643E-07 2.643E-07 2.643E-07  
5.982E-07 5.982E-07 5.982E-07  
EMI SFACT 3 SEASHR 5.982E-07 5.982E-07 5.982E-07 5.982E-07 5.982E-07 7.882E-07 7.882E-07 7.882E-07 1.716E-07 1.716E-07  
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EMI SFACT 3 SEASHR 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 2.657E-07 2.657E-07 2.657E-07  
6.013E-07 6.013E-07 6.013E-07  
EMI SFACT 3 SEASHR 6.013E-07 6.013E-07 6.013E-07 6.013E-07 6.013E-07 7.917E-07 7.917E-07 7.917E-07 1.726E-07 1.726E-07  
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EMI SFACT 3 SEASHR 1.749E-07 1.749E-07 1.749E-07 1.749E-07 1.749E-07 1.749E-07 2.690E-07 2.690E-07 2.690E-07  
6.085E-07 6.085E-07 6.085E-07  
EMI SFACT 3 SEASHR 6.085E-07 6.085E-07 6.085E-07 6.085E-07 6.085E-07 7.997E-07 7.997E-07 7.997E-07 1.749E-07 1.749E-07  
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EMI SFACT 3 SEASHR 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 1.726E-07 2.657E-07 2.657E-07 2.657E-07

6.013E-07 6.013E-07 6.013E-07  
EMI SFACT 3 SEASHR 6.013E-07 6.013E-07 6.013E-07 6.013E-07 7.917E-07 7.917E-07 7.917E-07 1.726E-07 1.726E-07  
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EMI SFACT 4 SEASHR 6.756E-09 6.756E-09 6.756E-09 6.756E-09 6.756E-09 6.756E-09 1.039E-08 1.039E-08 1.039E-08  
2.355E-08 2.355E-08 2.355E-08  
EMI SFACT 4 SEASHR 2.355E-08 2.355E-08 2.355E-08 2.355E-08 3.106E-08 3.106E-08 3.106E-08 6.756E-09 6.756E-09  
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EMI SFACT 4 SEASHR 6.795E-09 6.795E-09 6.795E-09 6.795E-09 6.795E-09 6.795E-09 1.044E-08 1.044E-08 1.044E-08  
2.367E-08 2.367E-08 2.367E-08  
EMI SFACT 4 SEASHR 2.367E-08 2.367E-08 2.367E-08 2.367E-08 3.120E-08 3.120E-08 3.120E-08 6.795E-09 6.795E-09  
6.795E-09 6.795E-09 6.795E-09  
EMI SFACT 4 SEASHR 6.885E-09 6.885E-09 6.885E-09 6.885E-09 6.885E-09 6.885E-09 1.057E-08 1.057E-08 1.057E-08  
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EMI SFACT 4 SEASHR 2.396E-08 2.396E-08 2.396E-08 2.396E-08 3.152E-08 3.152E-08 3.152E-08 6.885E-09 6.885E-09  
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EMI SFACT 4 SEASHR 6.795E-09 6.795E-09 6.795E-09 6.795E-09 6.795E-09 6.795E-09 1.044E-08 1.044E-08 1.044E-08  
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EMI SFACT 4 SEASHR 2.367E-08 2.367E-08 2.367E-08 2.367E-08 3.120E-08 3.120E-08 3.120E-08 6.795E-09 6.795E-09  
6.795E-09 6.795E-09 6.795E-09  
EMI SFACT 5 SEASHR 1.240E-07 1.240E-07 1.240E-07 1.240E-07 1.240E-07 1.240E-07 2.003E-07 2.003E-07 2.003E-07  
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EMI SFACT 5 SEASHR 3.201E-07 3.201E-07 3.201E-07 3.201E-07 1.684E-07 1.684E-07 1.684E-07 1.240E-07 1.240E-07  
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EMI SFACT 5 SEASHR 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 2.014E-07 2.014E-07 2.014E-07  
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EMI SFACT 5 SEASHR 3.218E-07 3.218E-07 3.218E-07 3.218E-07 1.693E-07 1.693E-07 1.693E-07 1.247E-07 1.247E-07  
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EMI SFACT 5 SEASHR 1.263E-07 1.263E-07 1.263E-07 1.263E-07 1.263E-07 1.263E-07 2.039E-07 2.039E-07 2.039E-07  
3.258E-07 3.258E-07 3.258E-07  
EMI SFACT 5 SEASHR 3.258E-07 3.258E-07 3.258E-07 3.258E-07 1.714E-07 1.714E-07 1.714E-07 1.263E-07 1.263E-07  
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EMI SFACT 5 SEASHR 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 1.247E-07 2.014E-07 2.014E-07 2.014E-07  
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EMI SFACT 5 SEASHR 3.218E-07 3.218E-07 3.218E-07 3.218E-07 1.693E-07 1.693E-07 1.693E-07 1.247E-07 1.247E-07  
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EMI SFACT 6 SEASHR 2.197E-07 2.197E-07 2.197E-07 2.197E-07 2.197E-07 2.197E-07 4.661E-07 4.661E-07 4.661E-07  
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EMI SFACT 6 SEASHR 5.071E-07 5.071E-07 5.071E-07 5.071E-07 5.071E-07 2.535E-07 2.535E-07 2.535E-07 2.197E-07 2.197E-07  
2.197E-07 2.197E-07 2.197E-07  
EMI SFACT 6 SEASHR 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 4.687E-07 4.687E-07 4.687E-07  
5.098E-07 5.098E-07 5.098E-07  
EMI SFACT 6 SEASHR 5.098E-07 5.098E-07 5.098E-07 5.098E-07 5.098E-07 2.548E-07 2.548E-07 2.548E-07 2.209E-07 2.209E-07  
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EMI SFACT 6 SEASHR 2.236E-07 2.236E-07 2.236E-07 2.236E-07 2.236E-07 2.236E-07 4.746E-07 4.746E-07 4.746E-07  
5.161E-07 5.161E-07 5.161E-07  
EMI SFACT 6 SEASHR 5.161E-07 5.161E-07 5.161E-07 5.161E-07 5.161E-07 2.581E-07 2.581E-07 2.581E-07 2.236E-07 2.236E-07  
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EMI SFACT 6 SEASHR 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 2.209E-07 4.687E-07 4.687E-07 4.687E-07  
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EMI SFACT 6 SEASHR 5.098E-07 5.098E-07 5.098E-07 5.098E-07 5.098E-07 2.548E-07 2.548E-07 2.548E-07 2.209E-07 2.209E-07  
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EMI SFACT 7 SEASHR 2.084E-07 2.084E-07 2.084E-07 2.084E-07 2.084E-07 2.084E-07 4.522E-07 4.522E-07 4.522E-07  
4.810E-07 4.810E-07 4.810E-07  
EMI SFACT 7 SEASHR 4.810E-07 4.810E-07 4.810E-07 4.810E-07 4.810E-07 2.307E-07 2.307E-07 2.307E-07 2.084E-07 2.084E-07  
2.084E-07 2.084E-07 2.084E-07  
EMI SFACT 7 SEASHR 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 4.546E-07 4.546E-07 4.546E-07  
4.836E-07 4.836E-07 4.836E-07  
EMI SFACT 7 SEASHR 4.836E-07 4.836E-07 4.836E-07 4.836E-07 4.836E-07 2.320E-07 2.320E-07 2.320E-07 2.096E-07 2.096E-07  
2.096E-07 2.096E-07 2.096E-07  
EMI SFACT 7 SEASHR 2.121E-07 2.121E-07 2.121E-07 2.121E-07 2.121E-07 2.121E-07 4.604E-07 4.604E-07 4.604E-07  
4.896E-07 4.896E-07 4.896E-07  
EMI SFACT 7 SEASHR 4.896E-07 4.896E-07 4.896E-07 4.896E-07 4.896E-07 2.349E-07 2.349E-07 2.349E-07 2.121E-07 2.121E-07  
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EMI SFACT 7 SEASHR 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 2.096E-07 4.546E-07 4.546E-07 4.546E-07  
4.836E-07 4.836E-07 4.836E-07  
EMI SFACT 7 SEASHR 4.836E-07 4.836E-07 4.836E-07 4.836E-07 4.836E-07 2.320E-07 2.320E-07 2.320E-07 2.096E-07 2.096E-07

2.096E-07 2.096E-07 2.096E-07  
EMI SFACT 8 SEASHR 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.128E-08 1.348E-08 1.348E-08 1.348E-08  
2.604E-08 2.604E-08 2.604E-08  
EMI SFACT 8 SEASHR 2.604E-08 2.604E-08 2.604E-08 2.604E-08 2.314E-08 2.314E-08 2.314E-08 1.128E-08 1.128E-08  
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EMI SFACT 8 SEASHR 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.355E-08 1.355E-08 1.355E-08  
2.618E-08 2.618E-08 2.618E-08  
EMI SFACT 8 SEASHR 2.618E-08 2.618E-08 2.618E-08 2.618E-08 2.327E-08 2.327E-08 2.327E-08 1.134E-08 1.134E-08  
1.134E-08 1.134E-08 1.134E-08  
EMI SFACT 8 SEASHR 1.148E-08 1.148E-08 1.148E-08 1.148E-08 1.148E-08 1.148E-08 1.373E-08 1.373E-08 1.373E-08  
2.650E-08 2.650E-08 2.650E-08  
EMI SFACT 8 SEASHR 2.650E-08 2.650E-08 2.650E-08 2.650E-08 2.356E-08 2.356E-08 2.356E-08 1.148E-08 1.148E-08  
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EMI SFACT 8 SEASHR 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.134E-08 1.355E-08 1.355E-08 1.355E-08  
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EMI SFACT 8 SEASHR 2.618E-08 2.618E-08 2.618E-08 2.618E-08 2.327E-08 2.327E-08 2.327E-08 1.134E-08 1.134E-08  
1.134E-08 1.134E-08 1.134E-08  
EMI SFACT 9 SEASHR 1.151E-07 1.151E-07 1.151E-07 1.151E-07 1.151E-07 1.151E-07 1.839E-07 1.839E-07 1.839E-07  
2.306E-07 2.306E-07 2.306E-07  
EMI SFACT 9 SEASHR 2.306E-07 2.306E-07 2.306E-07 2.306E-07 1.399E-07 1.399E-07 1.399E-07 1.151E-07 1.151E-07  
1.151E-07 1.151E-07 1.151E-07  
EMI SFACT 9 SEASHR 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.850E-07 1.850E-07 1.850E-07  
2.319E-07 2.319E-07 2.319E-07  
EMI SFACT 9 SEASHR 2.319E-07 2.319E-07 2.319E-07 2.319E-07 1.407E-07 1.407E-07 1.407E-07 1.157E-07 1.157E-07  
1.157E-07 1.157E-07 1.157E-07  
EMI SFACT 9 SEASHR 1.171E-07 1.171E-07 1.171E-07 1.171E-07 1.171E-07 1.171E-07 1.873E-07 1.873E-07 1.873E-07  
2.349E-07 2.349E-07 2.349E-07  
EMI SFACT 9 SEASHR 2.349E-07 2.349E-07 2.349E-07 2.349E-07 1.425E-07 1.425E-07 1.425E-07 1.171E-07 1.171E-07  
1.171E-07 1.171E-07 1.171E-07  
EMI SFACT 9 SEASHR 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.157E-07 1.850E-07 1.850E-07 1.850E-07  
2.319E-07 2.319E-07 2.319E-07  
EMI SFACT 9 SEASHR 2.319E-07 2.319E-07 2.319E-07 2.319E-07 1.407E-07 1.407E-07 1.407E-07 1.157E-07 1.157E-07  
1.157E-07 1.157E-07 1.157E-07

EMI SFACT 10 SEASHR 1.321E-07 1.321E-07 1.321E-07 1.321E-07 1.321E-07 1.321E-07 1.321E-07 8.379E-07 8.379E-07 8.379E-07  
5.422E-07 5.422E-07 5.422E-07  
EMI SFACT 10 SEASHR 5.422E-07 5.422E-07 5.422E-07 5.422E-07 2.719E-07 2.719E-07 2.719E-07 1.321E-07 1.321E-07  
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EMI SFACT 10 SEASHR 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 8.416E-07 8.416E-07 8.416E-07  
5.452E-07 5.452E-07 5.452E-07  
EMI SFACT 10 SEASHR 5.452E-07 5.452E-07 5.452E-07 5.452E-07 2.734E-07 2.734E-07 2.734E-07 1.330E-07 1.330E-07  
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EMI SFACT 10 SEASHR 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.352E-07 1.352E-07 8.501E-07 8.501E-07 8.501E-07  
5.521E-07 5.521E-07 5.521E-07  
EMI SFACT 10 SEASHR 5.521E-07 5.521E-07 5.521E-07 5.521E-07 2.768E-07 2.768E-07 2.768E-07 1.352E-07 1.352E-07  
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EMI SFACT 10 SEASHR 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 1.330E-07 8.416E-07 8.416E-07 8.416E-07  
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EMI SFACT 10 SEASHR 5.452E-07 5.452E-07 5.452E-07 5.452E-07 2.734E-07 2.734E-07 2.734E-07 1.330E-07 1.330E-07  
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EMI SFACT 11 SEASHR 1.366E-07 1.366E-07 1.366E-07 1.366E-07 1.366E-07 1.366E-07 1.904E-07 1.904E-07 1.904E-07  
3.634E-07 3.634E-07 3.634E-07  
EMI SFACT 11 SEASHR 3.634E-07 3.634E-07 3.634E-07 3.634E-07 2.677E-07 2.677E-07 2.677E-07 1.366E-07 1.366E-07  
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EMI SFACT 11 SEASHR 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.914E-07 1.914E-07 1.914E-07  
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EMI SFACT 11 SEASHR 3.654E-07 3.654E-07 3.654E-07 3.654E-07 2.691E-07 2.691E-07 2.691E-07 1.373E-07 1.373E-07  
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EMI SFACT 11 SEASHR 1.390E-07 1.390E-07 1.390E-07 1.390E-07 1.390E-07 1.390E-07 1.938E-07 1.938E-07 1.938E-07  
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EMI SFACT 11 SEASHR 3.700E-07 3.700E-07 3.700E-07 3.700E-07 2.724E-07 2.724E-07 2.724E-07 1.390E-07 1.390E-07  
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EMI SFACT 11 SEASHR 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.373E-07 1.914E-07 1.914E-07 1.914E-07  
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EMI SFACT 11 SEASHR 3.654E-07 3.654E-07 3.654E-07 3.654E-07 2.691E-07 2.691E-07 2.691E-07 1.373E-07 1.373E-07  
1.373E-07 1.373E-07 1.373E-07  
EMI SFACT 12 SEASHR 1.792E-07 1.792E-07 1.792E-07 1.792E-07 1.792E-07 1.792E-07 2.746E-07 2.746E-07 2.746E-07

4.126E-07 4.126E-07 4.126E-07  
EMI SFACT 12 SEASHR 4.126E-07 4.126E-07 4.126E-07 4.126E-07 3.069E-07 3.069E-07 3.069E-07 1.792E-07 1.792E-07  
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EMI SFACT 12 SEASHR 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 2.761E-07 2.761E-07 2.761E-07  
4.148E-07 4.148E-07 4.148E-07  
EMI SFACT 12 SEASHR 4.148E-07 4.148E-07 4.148E-07 4.148E-07 3.085E-07 3.085E-07 3.085E-07 1.801E-07 1.801E-07  
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EMI SFACT 12 SEASHR 1.823E-07 1.823E-07 1.823E-07 1.823E-07 1.823E-07 1.823E-07 2.795E-07 2.795E-07 2.795E-07  
4.199E-07 4.199E-07 4.199E-07  
EMI SFACT 12 SEASHR 4.199E-07 4.199E-07 4.199E-07 4.199E-07 3.124E-07 3.124E-07 3.124E-07 1.823E-07 1.823E-07  
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EMI SFACT 12 SEASHR 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 1.801E-07 2.761E-07 2.761E-07 2.761E-07  
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EMI SFACT 12 SEASHR 4.148E-07 4.148E-07 4.148E-07 4.148E-07 3.085E-07 3.085E-07 3.085E-07 1.801E-07 1.801E-07  
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EMI SFACT 13 SEASHR 1.358E-06 1.358E-06 1.358E-06 1.358E-06 1.358E-06 1.358E-06 1.745E-06 1.745E-06 1.745E-06  
3.068E-06 3.068E-06 3.068E-06  
EMI SFACT 13 SEASHR 3.068E-06 3.068E-06 3.068E-06 3.068E-06 2.498E-06 2.498E-06 2.498E-06 1.358E-06 1.358E-06  
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EMI SFACT 13 SEASHR 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.802E-06 1.802E-06 1.802E-06  
3.169E-06 3.169E-06 3.169E-06  
EMI SFACT 13 SEASHR 3.169E-06 3.169E-06 3.169E-06 3.169E-06 2.580E-06 2.580E-06 2.580E-06 1.402E-06 1.402E-06  
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EMI SFACT 13 SEASHR 1.506E-06 1.506E-06 1.506E-06 1.506E-06 1.506E-06 1.506E-06 1.935E-06 1.935E-06 1.935E-06  
3.403E-06 3.403E-06 3.403E-06  
EMI SFACT 13 SEASHR 3.403E-06 3.403E-06 3.403E-06 3.403E-06 2.771E-06 2.771E-06 2.771E-06 1.506E-06 1.506E-06  
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EMI SFACT 13 SEASHR 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.402E-06 1.802E-06 1.802E-06 1.802E-06  
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EMI SFACT 13 SEASHR 3.169E-06 3.169E-06 3.169E-06 3.169E-06 2.580E-06 2.580E-06 2.580E-06 1.402E-06 1.402E-06  
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EMI SFACT 14 SEASHR 5.126E-06 5.126E-06 5.126E-06 5.126E-06 5.126E-06 5.126E-06 6.504E-06 6.504E-06 6.504E-06  
1.158E-05 1.158E-05 1.158E-05

EMI SFACT 14 SEASHR 1.158E-05 1.158E-05 1.158E-05 1.158E-05 9.514E-06 9.514E-06 9.514E-06 5.126E-06 5.126E-06  
5.126E-06 5.126E-06 5.126E-06  
EMI SFACT 14 SEASHR 5.294E-06 5.294E-06 5.294E-06 5.294E-06 5.294E-06 5.294E-06 6.717E-06 6.717E-06 6.717E-06  
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\*\* Project Parameters

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\*\* PROJCTN CoordinateSystemUTM  
\*\* DESCPTN UTM: Universal Transverse Mercator  
\*\* DATUM North American Datum 1983  
\*\* DTMRGN CONUS  
\*\* UNITS m  
\*\* ZONE 18  
\*\* ZONEINX 0  
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Output File

\*\* CONC OF PM25 IN MICROGRAMS/M\*\*3 \*\*

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	5TH HIGHEST VALUE IS	0.05524	AT (	493913.20,	4410970.98,	19.79,	19.79,	1.80)	DC
	6TH HIGHEST VALUE IS	0.05367	AT (	493896.90,	4410890.69,	19.49,	19.49,	1.80)	DC
	7TH HIGHEST VALUE IS	0.05103	AT (	493914.36,	4410957.41,	19.74,	19.74,	1.80)	DC
	8TH HIGHEST VALUE IS	0.04390	AT (	493919.40,	4410942.67,	19.69,	19.69,	1.80)	DC
	9TH HIGHEST VALUE IS	0.04295	AT (	493917.07,	4410925.60,	19.38,	19.38,	1.80)	DC
	10TH HIGHEST VALUE IS	0.04201	AT (	493679.74,	4411016.62,	17.66,	17.66,	1.80)	DC
ALL	1ST HIGHEST VALUE IS	0.79280	AT (	493722.82,	4410954.45,	18.06,	18.06,	1.80)	DC
	2ND HIGHEST VALUE IS	0.65802	AT (	493702.74,	4410932.55,	17.59,	17.59,	1.80)	DC
	3RD HIGHEST VALUE IS	0.39235	AT (	493801.48,	4411106.21,	20.74,	20.74,	1.80)	DC
	4TH HIGHEST VALUE IS	0.35578	AT (	493815.38,	4411110.63,	20.88,	20.88,	1.80)	DC
	5TH HIGHEST VALUE IS	0.33675	AT (	493679.74,	4411016.62,	17.66,	17.66,	1.80)	DC
	6TH HIGHEST VALUE IS	0.32347	AT (	493852.29,	4410839.48,	19.05,	19.05,	1.80)	DC
	7TH HIGHEST VALUE IS	0.30248	AT (	493774.32,	4411134.64,	20.90,	20.90,	1.80)	DC
	8TH HIGHEST VALUE IS	0.27840	AT (	493792.01,	4411140.32,	21.26,	21.26,	1.80)	DC
	9TH HIGHEST VALUE IS	0.25879	AT (	493884.49,	4410887.97,	19.47,	19.47,	1.80)	DC
	10TH HIGHEST VALUE IS	0.25154	AT (	493810.96,	4411146.64,	21.36,	21.36,	1.80)	DC

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR

**TABLE:**  
**DELINEATED WETLANDS AND WATERWAYS**

## Delineated Wetlands and Waterways

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 3.2 – MP 3.5	SB-ACT-G	Game Creek (SOW); PFO1/PEM1	0.3+	NJDEP	Mainline
MP 3.3 – MP 3.5	NB-ACT-AG	PFO1/PEM/RSB	0.6+	NJDEP	Mainline
MP 3.4 – MP 3.6	NB-ACT-AR	SOW	0.4+	NJDEP	Mainline
MP 3.5 – MP 3.7	SB-ACT-F	Game Creek Unnamed Tributary (SOW); PFO1/R5UB	0.6+	NJDEP	Mainline
MP 3.6	NB-ACT-AH	Game Creek Unnamed Tributary (SOW); PSS/R4SB	0.1+	NJDEP	Mainline
MP 3.9 – MP 4.0	SB-ACT-D SB-ACT-AP	Two Penny Run (SOW); Laytons Lake (SOW); PFO1	0.8+	NJDEP	Mainline
MP 3.9 – MP 4.0	NB-ACT-AI	Two Penny Run (SOW); PFO1/PEM/R2UB	1.8+	NJDEP	Mainline
MP 3.9 – MP 4.0	NB-ACT-AJ	Two Penny Run (SOW); PSS/R2UB	0.2+	NJDEP	Mainline
MP 4.0	SB-ACT-E	PFO1	0.4+	NJDEP	Mainline
MP 4.1 – MP 4.3	SB-ACT-B	PFO1	1.7+	NJDEP	Mainline
MP 4.1 – MP 4.2	NB-ACT-AL	PFO1	0.6+	NJDEP	Mainline
MP 4.4	SB-ACT-AO	Two Penny Run Unnamed Tributary (SOW); PFO1/SOW	0.5+	NJDEP	Mainline
MP 4.5 – MP 4.6	SB-ACT-C	PFO1	1.3+	NJDEP	Mainline
MP 4.5 – MP 4.6	NB-ACT-AM	PFO1	0.5+	NJDEP	Mainline
MP 4.6 – MP 4.8	SB-ACT-A SB-ACT Q	Game Creek Unnamed Tributary (SOW); PFO1	2.5+	NJDEP	Mainline
MP 4.6 – MP 4.8	NB-ACT-AN	PFO1/PSS	4.0+	NJDEP	Mainline
MP 4.9 – MP 5.2	SB-ACM-AL	PFO1	5.6+	NJDEP	Mainline/ Service Area (Truck Expansion)
MP 4.9 – MP 5.2	NB-ACM-AM	PFO1	5.7+	NJDEP	Mainline
MP 5.3	NB-ACM-BL	PFO1	0.4+	NJDEP	Service Area (Truck Expansion)
MP 5.4	NB-ACM-AP	PFO1	0.3+	NJDEP	Mainline
MP 5.4 – MP 5.6	SB-ACM-AI SB-ACM-AJ	PFO1	1.7+	NJDEP	Mainline
MP 5.7	SB-ACM-AK	PFO1/PEM1	0.05+	NJDEP	Mainline
MP 5.8 – MP 6.1	NB-ACM-AO	PFO1/SOW	5.5+	NJDEP	Mainline
MP 5.9 – MP 6.3	SB-ACM-AH	PFO1	8.5+	NJDEP	Mainline
MP 6.1 – MP 6.3	NB-ACM-AN	PFO1	3.3+	NJDEP	Mainline
MP 6.5 – MP 6.6	SB-ACM-AF SB-ACM-AG	PEM1	0.1	NJDEP	Mainline

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 7.4 – MP 7.6	NB-ACM-AS NB-ACM-AT	PFO1/PEM1/WOTUS	0.8+	USACE/ NJDEP	Mainline
MP 7.5 – MP 7.9	SB-ACM-AD SB-ACM-AE	Oldmans Creek (WOTUS); PFO1/PEM1	4.5+	USACE/ NJDEP	Mainline
MP 7.7 – MP 8.0	NB-ACM-AQ NB-ACM-AR NB-ACM-AU	Oldmans Creek (WOTUS); PFO1/PEM1	2.9+	USACE/ NJDEP	Mainline
MP 8.0	SB-ACM-NEW-W-A	PFO1/PEM1	0.03	USACE/ NJDEP	Mainline
MP 8.0 – MP 8.1	SB-ACM-AC	PFO1	0.4+	USACE/ NJDEP	Mainline
MP 8.1	SB-ACM-AA	PSS1/PEM1	0.1+	USACE/ NJDEP	Mainline
MP 8.4	SB-ACM-AB	PEM1	0.02	NJDEP	Mainline
MP 8.5 – MP 8.7	NB-ACM-AV NB-ACM-AW	Oldmans Creek Unnamed Tributary (SOW); PFO1/PEM1/PUB	1.4+	NJDEP	Mainline
MP 9.3	NB-ACM-AY	PFO1	0.2+	NJDEP	Mainline
MP 9.3 – MP 9.4	SB-ACM-Z	PFO1	0.6+	NJDEP	Mainline
MP 9.4	NB-ACM-AX	PFO1/PEM1	0.1+	NJDEP	Mainline
MP 9.6	SB-ACM-Y	PFO1/PSS1/PEM1	0.04+	NJDEP	Mainline
MP 10.0	SB-ACM-X	PEM1 (Wetland Mitigation Site)	0.1+ <sup>2</sup>	NJDEP	Mainline
MP 10.1	SB-ACM-W	PEM1/SOW	0.05+	NJDEP	Mainline
MP 10.2	SB-ACM-V	Church Run (SOW)	0.02+ <sup>2</sup>	NJDEP	Mainline
MP 10.5	SB-ACM-U	PFO1/PEM1	0.03	NJDEP	Mainline
MP 11.2 – MP 11.3	SB-ACM-S SB-ACM-T	Church Run Unnamed Tributary (SOW); PFO1/PEM1	1.0+	NJDEP	Mainline
MP 11.2 – MP 11.3	NB-ACM-AZ	Church Run Unnamed Tributary (SOW); PFO1	1.3+	NJDEP	Mainline
MP 12.0 – MP 12.2	SB-ACM-Q SB-ACM-R	Raccoon Creek (WOTUS); PFO1/PEM1	2.6+	USACE/ NJDEP	Mainline
MP 12.0 – MP 12.2	NB-ACM-BA NB-ACM-BB	Raccoon Creek (WOTUS); Raccoon Creek Unnamed Tributary (WOTUS); PFO1/PEM1	2.8+	USACE/ NJDEP	Mainline
MP 12.4	NB-ACM-BC NB-ACM-BD	PFO1/SOW	0.2+	NJDEP	Mainline
MP 12.4	SB-ACM-O SB-ACM-P	PFO1	0.05+	NJDEP	Mainline
MP 12.7 – MP 12.9	NB-ACM-BE NB-ACM-BF	Raccoon Creek Unnamed Tributary (SOW); PFO1	0.9+	NJDEP	Interchange 2
MP 12.7 – MP 12.8	SB-ACM-N	Raccoon Creek Unnamed Tributary (SOW); PFO1	0.9+	NJDEP	Interchange 2
MP 12.8	SB-ACM-M	PFO1	0.7+	NJDEP	Interchange 2

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 13.0	SB-ACM-K SB-ACM-L	PFO1/PEM1/SOW	0.2+	NJDEP	Interchange 2
MP 14.3 – MP 14.7	NB-ACM-BG	Rattling Run (SOW); Rattling Run Unnamed Tributary (SOW); PFO1	6.2+	NJDEP	Mainline
MP 14.3 – MP 14.8	SB-ACM-I SB-ACM-J	Rattling Run (SOW); PFO1/PEM1	4.6+	NJDEP	Mainline
MP 15.2 – MP 15.4	SB-ACM-G SB-ACM-H	PFO1/PEM1	0.4	NJDEP	Mainline
MP 15.4	SB-ACM-F	PUB	0.1+	NJDEP	Mainline
MP 15.4	SB-ACM-D SB-ACM-E	Still Run (SOW); PFO1	0.1+	NJDEP	Mainline
MP 15.4 – MP 15.5	NB-ACM-BH	Still Run (SOW); PFO1/PEM1	1.0+	NJDEP	Mainline
MP 15.5	SB-ACM-C	PFO1	0.04+	NJDEP	Mainline
MP 15.6 – MP 15.7	NB-ACM-BI	PFO1	0.1+	NJDEP	Mainline
MP 15.9 – MP 16.0	SB-WSP-W-DO SB-WSP-WW-DN	PFO1/SOW	0.1	NJDEP	Mainline
MP 15.9 – MP 16.1	NB-WSP-W-A NB-WSP-WW-B NB-WSP-WW-C NB-WSP-WW-D	PFO1/SOW	1.6+	NJDEP	Mainline
MP 17.1 – MP 17.2	SB-WSP-W-DM	PEM5	0.3	NJDEP	Mainline
MP 17.2 – MP 17.3	SB-WSP-W-DK SB-WSP-W-DL SB-WSP-WW-DJ	PFO1/PUB/SOW	0.1+	NJDEP	Mainline
MP 17.2	NB-WSP-WW-F	SOW	0.04+	NJDEP	Mainline
MP 17.4 – MP 17.6	NB-WSP-W-G	Edwards Run (WOTUS); Edwards Run Unnamed Tributary (WOTUS); PFO1	1.7+	USACE/ NJDEP	Mainline
MP 17.4 – MP 17.5	SB-WSP-W-BM SB-WSP-WW-BL	Edwards Run (WOTUS); PFO1	0.6+	USACE/ NJDEP	Mainline
MP 17.5	SB-WSP-W-BN	PEM1	0.1+	USACE/ NJDEP	Mainline
MP 18.4 – MP 18.5	SB-WSP-W-BK SB-WSP-WW-BJ	Mantua Creek (WOTUS); Mantua Creek Unnamed Tributary (WOTUS); E2EM2	1.6+	USACE/ NJDEP	Mainline
MP 18.3 – MP 18.5	NB-WSP-WW-I NB-WSP-WW-J NB-WSP-WW-K	Mantua Creek (WOTUS); Mantua Creek Unnamed Tributary (WOTUS)	2.6+	USACE/ NJDEP	Mainline
MP 18.7 – MP 18.9	SB-WSP-W-DG	PFO1	2.5+	NJDEP	Mainline
MP 18.8	NB-WSP-W-H	PFO1	0.2	NJDEP	Mainline
MP 19.5	SB-WSP-W-DI SB-WSP-WW-DH	PFO1/SOW	0.2+	NJDEP	Mainline
MP 19.5	NB-WSP-WW-AA	SOW	0.03+	NJDEP	Mainline
MP 19.6 – MP 19.7	NB-WSP-W-AB NB-WSP-WI-AB-1	PFO1/PEM1	1.9+	NJDEP	Mainline
MP 19.9 – MP 20.0	NB-WSP-WW-AD	SOW	0.1	NJDEP	Mainline
MP 20.0 – MP 20.2	SB-WSP-WW-CC SB-WSP-WW-DD	SOW	0.5+	NJDEP	Mainline

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 20.1 – MP 20.2	NB-WSP-WW-AE NJDEP Wetland A	PFO1/SOW	0.1	NJDEP	Mainline
MP 20.5	SB-WSP-WW-CH SB-WSP-WW-CI	SOW	0.1+	NJDEP	Mainline
MP 20.5	NB-WSP-WW-AF	SOW	0.02	NJDEP	Mainline
MP 20.7	NB-WSP-W-AG	PFO1	0.1	NJDEP	Mainline
MP 20.8	NB-WSP-W-AH	PEM1	0.1	NJDEP	Mainline
MP 20.9	SB-WSP-W-DJ	PFO1	0.1	NJDEP	Mainline
MP 21.1 – MP 21.2	NB-WSP-W-AK NB-WSP-WW-AI NB-WSP-WW-AJ	Hesters Branch (SOW); PEM1	0.3+	NJDEP	Mainline
MP 21.2	SB-WSP-W-CG	PFO1	0.3+	NJDEP	Mainline
MP 21.2 – MP 21.3	SB-WSP-WW-CE SB-WSP-WW-CF	Hesters Branch (SOW)	0.1+	NJDEP	Mainline
MP 21.4 – MP 22.1	NB-WSP-W-AM NB-WSP-WI-AM-1 NB-WSP-WI-AM-2 NB-WSP-WW-AL	Woodbury Creek (SOW); PFO1/PEM1/SOW	4.2+	NJDEP	Mainline
MP 22.0 – MP 22.1	SB-WSP-W-BO SB-WSP-WW-BI	Woodbury Creek (SOW); PEM1	0.3+	NJDEP	Mainline
MP 22.1	SB-WSP-WW-BE	Woodbury Creek Unnamed Tributary (SOW)	0.1+	NJDEP	Mainline
MP 22.1 – MP 22.2	NB-WSP-WW-AO	Woodbury Creek Unnamed Tributary (SOW)	0.2+	NJDEP	Mainline
MP 22.2 – MP 22.5	NB-WSP-W-AQ	PEM1	1.1	NJDEP	Mainline
MP 22.6 – MP 22.7	SB-WSP-W-DC	PFO1	0.1	NJDEP	Mainline
MP 22.7 – MP 22.8	SB-WSP-W-CC SB-WSP-WI-CC-1	PFO1/PEM1	1.3+	NJDEP	Mainline
MP 22.7 – MP 22.8	NB-WSP-W-AS NB-WSP-WW-AR	PFO1/SOW	0.1	NJDEP	Mainline
MP 22.9	SB-WSP-W-CB SB-WSP-WI-CB-1 SB-WSP-WI-CB-2	PFO1/PEM1	0.4+	NJDEP	Mainline
MP 23.3 – MP 23.4	NB-WSP-W-AT NB-WSP-WI-AT-1 NB-WSP-WW-AV	PFO1/PEM1/SOW	0.6	NJDEP	Mainline
MP 23.4 – MP 23.5	SB-WSP-W-CA	PFO1	0.2	USACE/ NJDEP	Mainline
MP 23.5 – MP 23.6	NB-WSP-W-AW	PFO1	0.6	USACE/ NJDEP	Mainline
MP 23.7 – MP 23.8	SB-WSP-W-AX SB-WSP-WW-AY SB-WSP-WW-AZ	Big Timber Creek Unnamed Tributary (WOTUS); PEM1	0.6+	USACE/ NJDEP	Mainline
MP 23.7 – MP 23.8	NB-WSP-W-AY NB-WSP-WI-AY-1 NB-WSP-WW-AX	Big Timber Creek Unnamed Tributary (WOTUS); PFO1/PEM1	0.8+	USACE/ NJDEP	Mainline
MP 24.1	NB-WSP-W-HA	PEM1	0.8	NJDEP	Mainline
MP 24.2 – MP 24.3	NB-WSP-WW-HB	WOTUS/SOW	0.1+	USACE/ NJDEP	Mainline

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 24.4 – MP 24.7	SB-WSP-W-BF SB-WSP-W-BH SB-WSP-WW-BG	Big Timber Creek (WOTUS); Big Timber Creek Unnamed Tributary (WOTUS); E2EM1/E2FO1	4.3+	USACE/ NJDEP	Mainline
MP 24.4 – MP 24.7	NB-WSP-W-AZ NB-WSP-W-ABB NB-WSP-WW-DK NB-WSP-WW-ABA	Big Timber Creek (WOTUS); Big Timber Creek Unnamed Tributary (WOTUS); PFO1/PEM1	4.3+	USACE/ NJDEP	Mainline
MP 24.7 – MP 25.0	NB-WSP-W-ABB NB-WSP-WW-E	Beaver Brook (WOTUS); Beaver Brook Unnamed Tributaries (WOTUS); PFO1	4.0+	USACE/ NJDEP	Mainline
MP 24.8 – MP 25.0	SB-WSP-W-BC SB-WSP-W-BD SB-WSP-WW-BA SB-WSP-WW-BB	Beaver Brook Unnamed Tributary (WOTUS); E2EM1/PFO1	3.3+	USACE/ NJDEP	Mainline
MP 25.1 – MP 25.5	NB-WSP-W-FB NB-WSP-WI-FB-1 NB-WSP-WI-FB-2 NB-WSP-WI-FB-3 NB-WSP-WW-DE NB-WSP-WW-DF NB-WSP-WW-FA	Beaver Brook (WOTUS); PFO1/PEM1	4.5+	USACE/ NJDEP	Mainline
MP 25.4 – MP 25.5	SB-WSP-W-AT SB-WSP-W-AW SB-WSP-WW-AU SB-WSP-WW-AV	Beaver Brook (WOTUS); PFO1/PEM1	1.6+	USACE/ NJDEP	Mainline
MP 25.7	NB-WSP-WW-ABC	SOW	0.02	NJDEP	Interchange 3
MP 25.8 – MP 25.9	SB-WSP-WW-AM SB-WSP-WW-AN SB-WSP-WW-AO SB-WSP-WW-AP	Beaver Brook (SOW); SOW	0.3+	NJDEP	Interchange 3
MP 25.8 – MP 25.9	SB-WSP-W-AQ	PFO1	0.4	NJDEP	Interchange 3
MP 25.9 – MP 26.1	SB-WSP-W-AR SB-WSP-WW-AS	Beaver Brook Unnamed Tributaries (SOW); PEM1	0.6	NJDEP	Interchange 3
MP 25.9 – MP 26.0	SB-ACM-BN	PEM5/SOW	0.316+	NJDEP	Interchange 3
MP 25.9 – MP 26.8	SB-WSP-WW-AI SB-WSP-WW-AJ SB-WSP-WW-AK	Beaver Brook (SOW); SOW	1.0+	NJDEP	Interchange 3
MP 25.9 – MP 26.1	SB-WSP-W-AL SB-ACM-BM	Beaver Brook (SOW); Beaver Brook Unnamed Tributary (SOW); PFO1/PEM1	8.7	NJDEP	Interchange 3
MP 26.3 – MP 26.5	NB-WSP-W-ABD NB-WSP-WI-ABD-1 NB-WSP-WI-ABD-2 NB-WSP-WW-HC NB-WSP-WW-ABE	Beaver Brook (SOW); PFO1/PEM1	2.0+	NJDEP	Interchange 3
MP 26.1	SB-ACM-BN	PEM5/SOW	0.3	NJDEP	Interchange 3
MP 26.7 – MP 26.9	NB-WSP-W-DH NB-WSP-WW-DG	PFO1/SOW	0.5+	NJDEP	Mainline/ Interchange 3
MP 27.0	NB-WSP-WW-DG	SOW	0.1	NJDEP	Mainline

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 27.6	NB-WSP-WW-DI	PFO1/SOW	0.04	NJDEP	Mainline
MP 28.3	NJDEP Wetland B	PEM1	0.04	NJDEP	Mainline
MP 28.8	NB-WSP-WW-CA	SOW	0.01	NJDEP	Mainline
MP 28.8	NJDEP Wetland C NJDEP SOW D	PFO1/SOW	0.2	NJDEP	Mainline
MP 28.9	NJDEP Wetland E	PFO1	0.02	NJDEP	Mainline
MP 29.2	NB-WSP-WW-CH	SOW	0.02	NJDEP	Mainline
MP 29.2 – MP 29.3	NB-WSP-W-CJ NB-WSP-WW-CI NB-WSP-WW-CK	Cooper River (SOW); PEM1	0.9+	NJDEP	Mainline
MP 29.2	NB-WSP-WW-AH	Cooper River (SOW)	0.3	NJDEP	Mainline
MP 29.4	NB-WSP-W-CB	PEM1	0.05	NJDEP	Mainline
MP 29.4 – MP 29.5	SB-WSP-W-DA	PEM1	1.1	NJDEP	Mainline
MP 29.4 – MP 29.8	NB-WSP-W-CF NB-WSP-WW-CC NB-WSP-WW-CD NB-WSP-WW-CE	PEM1/SOW	0.9+	NJDEP	Mainline
MP 29.6 – MP 29.7	NB-WSP-W-CG	PEM1	0.1+	NJDEP	Mainline
MP 30.2 – MP 30.3	NB-WSP-W-CL NB-WSP-WW-CM NB-WSP-WW-CN	Tindale Run (SOW); PFO1	2.1+	NJDEP	Mainline
MP 30.2 – MP 30.3	SB-ACM-BJ SB-ACM-BK SB-WSP-WW-AG	Tindale Run (SOW); PFO1/PEM1	1.5+	NJDEP	Mainline/ Service Area (Truck Expansion)
MP 30.4 – MP 30.5	NB-WSP-W-CL	PFO1	1.2+	NJDEP	Mainline
MP 30.8	NJDEP Wetland F	PEM1	0.1	NJDEP	Mainline
MP 31.0	NJDEP Wetland G	PFO1	0.6	NJDEP	Mainline
MP 31.1 – MP 31.4	SB-WSP-W-AF SB-WSP-WI-AF-1 SB-WSP-WI-AF-2	PFO1/PEM1	4.0+	NJDEP	Mainline
MP 31.2 – MP 31.3	NB-WSP-W-CO NB-WSP-WI-CO-1	PFO1/PEM1	1.2+	NJDEP	Mainline
MP 31.6 – MP 31.7	NB-WSP-W-CQ NB-WSP-WW-CP	North Branch Cooper River (SOW); PFO1	0.5+	NJDEP	Mainline
MP 31.6	SB-WSP-WW-AC	North Branch Cooper River (SOW)	0.1+	NJDEP	Mainline
MP 31.6 – MP 31.9	SB-WSP-W-AE SB-WSP-W-AD SB-WSP-WW-AB	PFO1/PEM1/SOW	2.1+	NJDEP	Mainline
MP 31.9	NB-WSP-WW-CR	SOW	0.02+	NJDEP	Mainline
MP 32.0 – MP 32.2	NB-WSP-W-CS	PEM1	0.6+	NJDEP	Mainline
MP 32.1 – MP 32.2	SB-WSP-W-AA	PEM1	0.2	NJDEP	Mainline
MP 32.4 – MP 33.1	NB-WSP-W-CT NB-WSP-WI-CT-2 NB-WSP-WW-CV	South Branch Pennsauken Creek Unnamed Tributary (SOW); PFO1/PEM1	13.9+	NJDEP	Mainline
MP 32.4 – MP 32.5	NJDEP Wetland H	PEM1	0.8	NJDEP	Mainline
MP 32.6 – MP 32.8	SB-WSP-W-Z SB-WSP-WI-Z-1 SB-WSP-WI-Z-2 SB-WSP-W-Y SB-WSP-WI-Y-1	PFO1/PEM1	3.1+	NJDEP	Mainline

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 32.9	SB-WSP-W-X	PEM5	1.7	NJDEP	Mainline
MP 33.0 – MP 33.1	SB-WSP-W-V SB-WSP-WW-W	South Branch Pennsauken Creek Unnamed Tributary (SOW); PEM1	0.7+	NJDEP	Mainline
MP 33.2 – MP 33.3	NB-WSP-W-CY NB-WSP-WI-CY-1 NB-WSP-WW-CZ	PFO1/SOW	1.6+	NJDEP	Mainline
MP 33.3 – MP 33.5	SB-WSP-WW-U SB-WSP-W-T SB-WSP-WW-S	South Branch Pennsauken Creek (SOW); PEM1/SOW	2.9+	NJDEP	Mainline
MP 33.4 – MP 33.5	NB-WSP-W-CX NB-WSP-WI-CX-1 NB-WSP-WW-CW	South Branch Pennsauken Creek (SOW); PFO1/PEM1	0.5+	NJDEP	Mainline
MP 33.6 – MP 33.9	NB-WSP-W-DA	PFO1	0.5	NJDEP	Mainline
MP 33.7 – MP 33.9	SB-WSP-W-Q SB-WSP-WI-Q-1 SB-WSP-WW-R	PFO1/PEM1/SOW	2.8+	NJDEP	Mainline
MP 34.0	NB-WSP-WW-DB	SOW	0.01	NJDEP	Mainline
MP 34.2 – MP 34.4	SB-WSP-W-H	PEM1	0.4	NJDEP	Interchange 4
MP 34.3 – MP 34.7	SB-WSP-W-I SB-WSP-WI-I-1 SB-WSP-WW-A SB-WSP-WW-J SB-WSP-WW-K SB-WSP-WB-L	PFO1/PEM5/PUB/SOW	4.3+	NJDEP	Interchange 4
MP 34.3 – MP 35.0	NB-WSP-W-DC NB-WSP-WI-DC-1 NB-WSP-WW-M NB-WSP-WW-N	North Branch Pennsauken Creek (SOW); PFO1/PEM1/SOW	9.7+	NJDEP	Interchange 4
MP 34.7	NB-WSP-WB-L	PUB	0.2+	NJDEP	Interchange 4
MP 34.7	SB-WSP-W-B	PEM1	0.04	NJDEP	Interchange 4
MP 34.8 – MP 34.9	SB-WSP-W-C SB-WSP-WW-D SB-WSP-WW-E SB-WSP-WW-M SB-WSP-WW-N	North Branch Pennsauken Creek (SOW); PEM1/SOW	0.6+	NJDEP	Interchange 4
MP 34.8	SB-WSP-W-O	PEM1	0.01+	NJDEP	Interchange 4
MP 34.9	SB-WSP-W-P	PSS1	0.1	NJDEP	Interchange 4
MP 34.9 – MP 35.0	SB-WSP-W-F	PEM1	0.1	NJDEP	Interchange 4
MP 34.9	SB-WSP-W-G	PFO1	0.1	NJDEP	Interchange 4
MP 35.3 – MP 35.5	SB-WSP-WW-EQ NJDEP Wetland I	PFO1/SOW	1.1+	NJDEP	Mainline
MP 35.3 – MP 35.4	NB-WSP-W-EA NB-WSP-WW-EB	PEM1/SOW	1.9+	NJDEP	Mainline
MP 35.5	NB-WSP-W-EC NB-WSP-WW-ES	PFO1/SOW	0.1	NJDEP	Mainline
MP 35.5 – MP 35.7	SB-WSP-W-EP	PFO1/PEM1	1.5+	NJDEP	Mainline
MP 35.5 – MP 35.7	NB-WSP-W-ER	PFO1	0.5	NJDEP	Mainline
MP 35.6	NB-WSP-WB-ED	SOW	0.3+	NJDEP	Mainline
MP 35.8 – MP 35.9	SB-WSP-W-EO	PFO1/PEM1	1.7+	NJDEP	Mainline

Approximate Milepost	Wetland ID	Wetland Classification	Acreage <sup>1</sup>	Jurisdiction	Design Element
MP 35.9 – MP 36.5	NB-WSP-W-EE1 NB-WSP-W-EE2 NB-WSP-W-EE3 NB-WSP-W-EE4 NB-WSP-W-EE5 NB-WSP-WW-EF NB-WSP-WW-EG NB-WSP-WW-EI	North Branch Pennsauken Creek Unnamed Tributaries (SOW); PFO1/PEM1/SOW	2.0+	NJDEP	Mainline
MP 36 – MP 36.1	SB-WSP-WW-EN	SOW	0.1	NJDEP	Mainline
MP 36 – MP 36.1	SB-WSP-W-EM	PEM1	2.3+	NJDEP	Mainline
MP 36.1	NB-WSP-WW-EH	SOW	0.02	NJDEP	Mainline
MP 36.2	SB-WSP-W-EK SB-WSP-WW-EL	North Branch Pennsauken Creek Unnamed Tributary (SOW); PEM1	0.5	NJDEP	Mainline
MP 36.4 - 36.5	SB-WSP-W-EJ	PFO1	1.4+	NJDEP	Mainline

Source: AECOM, 2022

<sup>1</sup> Includes only the portion of the wetland within the 200-foot study area

<sup>2</sup> Wetland not delineated to the 200-foot study area

+ Wetland/SOW extends beyond the 200-foot study area

**Notes:**

ACM: Name of consultant performing delineation

WSP: Name of consultant performing delineation

ACT: Name of consultant performing delineation

**Key to Wetland Types:**

E2EM1: Estuarine Intertidal Emergent Persistent

E2EM2: Estuarine Intertidal Emergent Non-Persistent

E2FO1: Estuarine Intertidal Forested Broad-Leaved Deciduous

PEM: Palustrine Emergent

PEM1: Palustrine Emergent Persistent

PEM5: Palustrine Emergent *Phragmites australis*

PFO1: Palustrine Forested Broad-Leaved Deciduous

PSS: Palustrine Scrub-Shrub

PSS1: Palustrine Scrub-Shrub Broad-Leaved Deciduous

PUB: Palustrine Unconsolidated Bottom

PUB2: Palustrine Unconsolidated Bottom Sand

RSB: Riverine Streambed

R4SB: Riverine Intermittent Streambed

R2UB: Riverine Lower Perennial Unconsolidated Bottom

R5UB: Riverine Unknown Perennial Unconsolidated Bottom

SOW: State Open Water

WOTUS: Waters of the United States

**NJDEP NATURAL HERITAGE PROGRAM RESPONSE  
JULY 2, 2021**



## State of New Jersey

MAIL CODE 501-04

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF PARKS & FORESTRY

NEW JERSEY FOREST SERVICE

OFFICE OF NATURAL LANDS MANAGEMENT

P.O. BOX 420

TRENTON, NJ 08625-0420

Tel. (609) 984-1339 Fax (609) 984-0427

PHILIP D. MURPHY

*Governor*

SHEILA Y. OLIVER

*Lt. Governor*

SHAWN M. LATOURETTE

*Commissioner*

July 2, 2021

Timothy Hand  
AECOM  
30 Knightsbridge Road, Suite 520  
Piscataway, NJ 08854

Re: Interchange 1-4 Widening Program  
NJTPKE ROW  
South of Interchange 1 to North of Interchange 4

Dear Mr. Hand:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

We have also checked the Landscape Project habitat mapping and Biotics Database for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

For requests submitted in order to make a riparian zone width determination as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species is also covered by the FHACA rules when the records are located within one mile of the project site. One mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are

provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html>. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from [http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes\\_2010.pdf](http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf).

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, <https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7>, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at <http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html>.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf>.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,



Robert J. Cartica  
Administrator

c: NHP File No. 21-3907564-22346

**Table 1: On Site Data Request Search Results (6 Possible Reports)**

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	Yes	1 page(s) included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

**Rare Wildlife Species or Wildlife Habitat on the  
Project Site Based on Search of  
Landscape Project 3.3 Species Based Patches**

<b>Class</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
<i>Aves</i>								
	American Kestrel	Falco sparverius	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Bobolink	Dolichonyx oryzivorus	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Nest	2	NA	Special Concern	G5	S3B,S4N
	Eastern Meadowlark	Sturnella magna	Breeding Sighting	2	NA	Special Concern	G5	S3B,S3N
	Grasshopper Sparrow	Ammodramus savannarum	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Horned Lark	Eremophila alpestris	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Kentucky Warbler	Oporornis formosus	Breeding Sighting	2	NA	Special Concern	G5	S3B,S3N

**Rare Wildlife Species or Wildlife Habitat on the  
Project Site Based on Search of  
Landscape Project 3.3 Species Based Patches**

<b>Class</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Savannah Sparrow	Passerculus sandwichensis	Breeding Sighting	3	NA	State Threatened	G5	S2B,S4N
	Upland Sandpiper	Bartramia longicauda	Breeding Sighting	4	NA	State Endangered	G5	S1B,S1N
	Vesper Sparrow	Poocetes gramineus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
	Yellow-breasted Chat	Icteria virens	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
<b><i>Mammalia</i></b>								
	Bobcat	Lynx rufus	Live Individual Sighting	4	NA	State Endangered	G5	S2
<b><i>Reptilia</i></b>								
	Bog Turtle	Glyptemys muhlenbergii	Occupied Habitat	5	Federally Listed Threatened	State Endangered	G3	S1
	Eastern Box Turtle	Terrapene carolina carolina	Occupied Habitat	2	NA	Special Concern	G5T5	S3

**Vernal Pool Habitat on the  
Project Site Based on Search of  
Landscape Project 3.3**

<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Potential vernal habitat area	806
Potential vernal habitat area	838
Potential vernal habitat area	843
Potential vernal habitat area	893
Potential vernal habitat area	979
Potential vernal habitat area	1089
Potential vernal habitat area	1189
Total number of records:	7

**Rare Wildlife Species or Wildlife Habitat  
On the Project Site Based on Search of  
Landscape Project 3.3 Stream Habitat File**

<b>Link ID</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>	<b>Last Observed</b>	<b>Count</b>
32155	Eastern Pondmussel	Ligumia nasuta	Occupied Habitat	3	NA	State Threatened	G4	S2	2000	1

Total number of records: 1

**Other Animal Species  
On the Project Site Based on  
Additional Species Tracked by  
Endangered and Nongame Species Program**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
<i><b>Invertebrate Animals</b></i>					
Cucullia alfarata	A Moth			G4	S2?
Dargida rubripennis	Pink Streak			G3G4	S3
Datana ranaeiceps	A Hand-maid Moth			G3G4	S3S4
Macrochilo louisiana	A Noctuid Moth			G4	S2S3
Macrochilo santerivalis	A Noctuid Moth			G3G4	S1S3
Total number of records:	5				

**Table 2: Vicinity Data Request Search Results (6 possible reports)**

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	Yes	1 page(s) included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	Yes	1 page(s) included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

**Immediate Vicinity of the Project Site  
Based on Search of Natural Heritage Database  
Rare Plant Species and Ecological Communities Currently Recorded in  
the New Jersey Natural Heritage Database**

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Regional Status	Grank	Srank	Identified	Last Observed	Location
<i>Vascular Plants</i>									
<i>Asclepias variegata</i>	White Milkweed			HL	G5	S1	Y	1918-06-13	Along Still Run, southwest of Mickleton [B.Long, 1918]; Mickleton [B. Heritage, 1892]; 1 mile south of Mickleton [B. Heritage, 1894].
<i>Helonias bullata</i>	Swamp-pink	LT	E	LP, HL	G3	S3	Y	1914-01-16	On streamlet tributary to Cooper Creek, northwest of Woodcrest.
<i>Lygodium palmatum</i>	Climbing Fern			LP, HL	G4	S2	Y	1914-01-16	On streamlet tributary to Cooper Creek, northwest of Woodcrest.
<i>Obolaria virginica</i>	Virginia Pennywort			HL	G5	S2	Y	1961-05-04	Lake Park Cemetery, Swedesboro.
<i>Phlox maculata</i> var. <i>maculata</i>	Spotted Phlox			HL	G5T4T5	S2	Y	1918-06-29	By Cooper Creek, west of Woodcrest.
<i>Sisyrinchium fuscatum</i>	Sand-plain Blue-eyed Grass			HL	G5?	S1	Y	1917-06-11	Lake Park Cemetery, Swedesboro.
<i>Spiranthes odorata</i>	Fragrant Ladies'-tresses			HL	G5	S2	Y	1934-10-03	Along Game Creek north of Biddles Landing.

Total number of records: 7

**Rare Wildlife Species or Wildlife Habitat Within the  
Immediate Vicinity of the Project Site Based on Search of  
Landscape Project 3.3 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Strank
<i>Aves</i>								
	American Kestrel	Falco sparverius	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Bobolink	Dolichonyx oryzivorus	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Nest	2	NA	Special Concern	G5	S3B,S4N
	Eastern Meadowlark	Sturnella magna	Breeding Sighting	2	NA	Special Concern	G5	S3B,S3N
	Grasshopper Sparrow	Ammodramus savannarum	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Horned Lark	Eremophila alpestris	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Kentucky Warbler	Oporornis formosus	Breeding Sighting	2	NA	Special Concern	G5	S3B,S3N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Osprey	Pandion haliaetus	Nest	3	NA	State Threatened	G5	S2B,S4N
	Savannah Sparrow	Passerculus sandwichensis	Breeding Sighting	3	NA	State Threatened	G5	S2B,S4N

**Rare Wildlife Species or Wildlife Habitat Within the  
Immediate Vicinity of the Project Site Based on Search of  
Landscape Project 3.3 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
	Upland Sandpiper	Bartramia longicauda	Breeding Sighting	4	NA	State Endangered	G5	S1B,S1N
	Vesper Sparrow	Poocetes gramineus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
	Yellow-breasted Chat	Icteria virens	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
<b><i>Mammalia</i></b>								
	Bobcat	Lynx rufus	Live Individual Sighting	4	NA	State Endangered	G5	S2
<b><i>Reptilia</i></b>								
	Bog Turtle	Glyptemys muhlenbergii	Occupied Habitat	5	Federally Listed Threatened	State Endangered	G3	S1
	Eastern Box Turtle	Terrapene carolina carolina	Occupied Habitat	2	NA	Special Concern	G5T5	S3

**Vernal Pool Habitat  
In the Immediate Vicinity of  
Project Site Based on Search of  
Landscape Project 3.3**

<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Potential vernal habitat area	798
Potential vernal habitat area	806
Potential vernal habitat area	838
Potential vernal habitat area	843
Potential vernal habitat area	892
Potential vernal habitat area	893
Potential vernal habitat area	922
Potential vernal habitat area	979
Potential vernal habitat area	1021
Potential vernal habitat area	1066
Potential vernal habitat area	1089
Potential vernal habitat area	1162
Potential vernal habitat area	1189
Total number of records:	13

**Rare Wildlife Species or Wildlife Habitat  
In the Immediate Vicinity of the  
Project Site Based on Search of  
Landscape Project 3.3 Stream Habitat File**

<b>Link ID</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>	<b>Last Observed</b>	<b>Count</b>
32155	Eastern Pondmussel	Ligumia nasuta	Occupied Habitat	3	NA	State Threatened	G4	S2	2000	1

Total number of records: 1

**Other Animal Species  
In the Immediate Vicinity of the Project Site Based on  
Additional Species Tracked by  
Endangered and Nongame Species Program**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
<i><b>Invertebrate Animals</b></i>					
Cucullia alfarata	A Moth			G4	S2?
Dargida rubripennis	Pink Streak			G3G4	S3
Datana ranaeiceps	A Hand-maid Moth			G3G4	S3S4
Macrochilo louisiana	A Noctuid Moth			G4	S2S3
Macrochilo santerivalis	A Noctuid Moth			G3G4	S1S3
Total number of records:	5				

**Table 3: Within 1 Mile for Riparian Zone Width Determination  
(6 possible reports)**

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
1. Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Application) - Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites for Riparian Zone Width Determination - Within One Mile of the Project Site	Yes	See emailed attachments
3. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	3 page(s) included
4. Vernal Pool Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3	Yes	3 page(s) included
5. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	Yes	1 page(s) included
6. Other Animal Species for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

<p><b>Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination</b>  <b>Within One Mile of the Project Site</b>  <b>Based on Search of Landscape Project 3.3 Species Based Patches</b></p>
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Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
<i>Aves</i>								
	American Kestrel	Falco sparverius	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Wintering	3	NA	State Threatened	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Bobolink	Dolichonyx oryzivorus	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Nest	2	NA	Special Concern	G5	S3B,S4N
	Eastern Meadowlark	Sturnella magna	Breeding Sighting	2	NA	Special Concern	G5	S3B,S3N
	Grasshopper Sparrow	Ammodramus savannarum	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N

<p><b>Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination</b>  <b>Within One Mile of the Project Site</b>  <b>Based on Search of Landscape Project 3.3 Species Based Patches</b></p>
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Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Horned Lark	Eremophila alpestris	Breeding Sighting	3	NA	State Threatened	G5	S2B,S3N
	Kentucky Warbler	Oporornis formosus	Breeding Sighting	2	NA	Special Concern	G5	S3B,S3N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Osprey	Pandion haliaetus	Nest	3	NA	State Threatened	G5	S2B,S4N
	Peregrine Falcon	Falco peregrinus	Nest	4	NA	State Endangered	G4	S1B,S3N
	Red-headed Woodpecker	Melanerpes erythrocephalus	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Red-shouldered Hawk	Buteo lineatus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Savannah Sparrow	Passerculus sandwichensis	Breeding Sighting	3	NA	State Threatened	G5	S2B,S4N
	Upland Sandpiper	Bartramia longicauda	Breeding Sighting	4	NA	State Endangered	G5	S1B,S1N
	Vesper Sparrow	Poocetes gramineus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N

<p><b>Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</b></p>
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Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
<i>Mammalia</i>	Yellow-breasted Chat	Icteria virens	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Bobcat	Lynx rufus	Live Individual Sighting	4	NA	State Endangered	G5	S2
<i>Osteichthyes</i>	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Shortnose Sturgeon	Acipenser brevirostrum	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Shortnose Sturgeon	Acipenser brevirostrum	Migration Corridor - Juvenile Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
<i>Reptilia</i>	Bog Turtle	Glyptemys muhlenbergii	Occupied Habitat	5	Federally Listed Threatened	State Endangered	G3	S1
	Eastern Box Turtle	Terrapene carolina carolina	Occupied Habitat	2	NA	Special Concern	G5T5	S3

**Vernal Pool Habitat for Riparian Zone Width Determination  
Within One Mile of the Project Site  
Based on Search of Landscape Project 3.3**

<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Vernal habitat area	2742
Potential vernal habitat area	774
Potential vernal habitat area	784
Potential vernal habitat area	790
Potential vernal habitat area	794
Potential vernal habitat area	798
Potential vernal habitat area	806
Potential vernal habitat area	838
Potential vernal habitat area	842
Potential vernal habitat area	843
Potential vernal habitat area	849
Potential vernal habitat area	858
Potential vernal habitat area	861
Potential vernal habitat area	884
Potential vernal habitat area	892
Potential vernal habitat area	893
Potential vernal habitat area	903

**Vernal Pool Habitat for Riparian Zone Width Determination  
Within One Mile of the Project Site  
Based on Search of Landscape Project 3.3**

<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Potential vernal habitat area	910
Potential vernal habitat area	922
Potential vernal habitat area	941
Potential vernal habitat area	957
Potential vernal habitat area	960
Potential vernal habitat area	968
Potential vernal habitat area	979
Potential vernal habitat area	1021
Potential vernal habitat area	1025
Potential vernal habitat area	1033
Potential vernal habitat area	1035
Potential vernal habitat area	1066
Potential vernal habitat area	1070
Potential vernal habitat area	1078
Potential vernal habitat area	1089
Potential vernal habitat area	1092
Potential vernal habitat area	1110

**Vernal Pool Habitat for Riparian Zone Width Determination  
Within One Mile of the Project Site  
Based on Search of Landscape Project 3.3**

<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Potential vernal habitat area	1144
Potential vernal habitat area	1162
Potential vernal habitat area	1167
Potential vernal habitat area	1178
Potential vernal habitat area	1189
Potential vernal habitat area	1201
Total number of records:	40

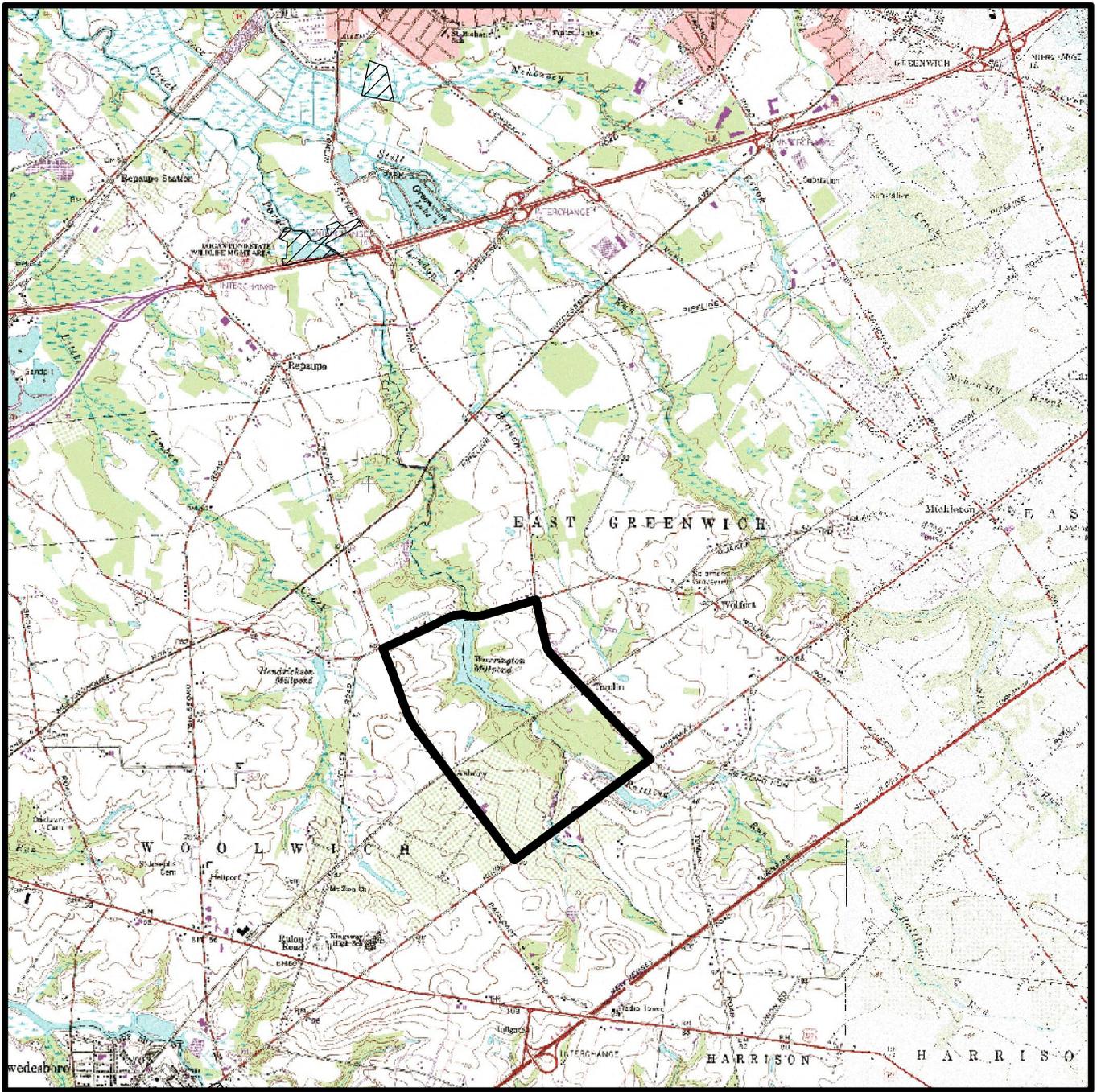
**Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination  
Within One Mile of the Project Site  
Based on Search of Landscape Project 3.3 Stream Habitat File**

<b>Link ID</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>	<b>Last Observed</b>	<b>Count</b>
32155	Eastern Pondmussel	Ligumia nasuta	Occupied Habitat	3	NA	State Threatened	G4	S2	2000	1

Total number of records: 1

**Other Animal Species for Riparian Zone Width Determination  
 Within One Mile of the Project Site  
 Based on Additional Species Tracked by  
 Endangered and Nongame Species Program**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
<i><b>Invertebrate Animals</b></i>					
Cucullia alfarata	A Moth			G4	S2?
Dargida rubripennis	Pink Streak			G3G4	S3
Datana ranaeiceps	A Hand-maid Moth			G3G4	S3S4
Macrochilo louisiana	A Noctuid Moth			G4	S2S3
Macrochilo santerivalis	A Noctuid Moth			G3G4	S1S3
Total number of records:	5				



Natural Heritage Priority Site

# Tomlin Station

Gloucester County



NJ Department of Environmental Protection  
 Division of Parks and Forestry  
**Natural Lands Management**



 Priority Sites  
 Public Land

# 4

# Natural Heritage Priority Site Tomlin Station

## *Locational Information*

**Quad Name:** Bridgeport  
**County:** Gloucester  
**Municipality:** Woolwich Twp ; East Greenwich Twp

## *Description of Site*

Dry pine/oak woodlands on crest of stream valley.

## *Boundary Justification*

Primary boundary includes known boundary of species occurrence plus areas of potential habitat. Secondary boundaries drawn to nearest roads.

## *Biodiversity Rank*    **B5**

State critically imperiled plant species. Other state rare species - both historic & extant.

**USFWS IPAC RESPONSE LETTER  
MARCH 19, 2024**



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New Jersey Ecological Services Field Office  
4 E. Jimmie Leeds Road, Suite 4  
Galloway, NJ 08205  
Phone: (609) 646-9310

In Reply Refer To:

03/19/2024 18:20:39 UTC

Project Code: 2024-0065045

Project Name: NJTA I 1-4 Widening Program

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see [Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service \(fws.gov\)](#).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

**Note:** IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

## OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

### **New Jersey Ecological Services Field Office**

4 E. Jimmie Leeds Road, Suite 4  
Galloway, NJ 08205  
(609) 646-9310

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

### **Chesapeake Bay Ecological Services Field Office**

177 Admiral Cochrane Drive  
Annapolis, MD 21401-7307  
(410) 573-4599

## PROJECT SUMMARY

Project Code: 2024-0065045

Project Name: NJTA I 1-4 Widening Program

Project Type: Road/Hwy - Maintenance/Modification

Project Description: The Widening Program proposes to widen the New Jersey Turnpike mainline from two lanes in each direction to three lanes in each direction from Interchange 1 (Delaware Memorial Bridge) to just north of Interchange 4 (NJ 73, Camden, Philadelphia). The Widening Program will also provide full-width left and right shoulders on the mainline and will address congestion as well as geometric and operational needs for all interchanges, ramps, toll plazas and service areas within the Widening Program limits. The Widening Program may include the addition of one new interchange and will require the construction, modification, or replacement of approximately 53 bridges. Additional improvements are anticipated to include the elimination of z-turns, the replacement of sign structures, and other improvements necessary to make connections to and from the interchanges and service areas. The approximate limits of the Widening Program are from Milepost 0.0 to Milepost 36.5; totaling approximately 36.5 miles through 17 municipalities in Salem, Gloucester, Camden, and Burlington Counties.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.82240055,-75.15185505238057,14z>



Counties: Delaware and New Jersey

## ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

**MAMMALS**

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>	Proposed Endangered

**BIRDS**

NAME	STATUS
Rufa Red Knot <i>Calidris canutus rufa</i> There is <b>proposed</b> critical habitat for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> <li>This activity area is upstream of red knot habitat. Consultation is needed <b>ONLY</b> for proposed new or changed petroleum product storage or transport, and for spill response planning. No other activity types are expected to affect red knots in this area.</li> </ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a>	Threatened

**REPTILES**

NAME	STATUS
Bog Turtle <i>Glyptemys muhlenbergii</i> Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/6962">https://ecos.fws.gov/ecp/species/6962</a>	Threatened

**INSECTS**

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

**FLOWERING PLANTS**

NAME	STATUS
Sensitive Joint-vetch <i>Aeschynomene virginica</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/855">https://ecos.fws.gov/ecp/species/855</a>	Threatened
Swamp Pink <i>Helonias bullata</i> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4333">https://ecos.fws.gov/ecp/species/4333</a>	Threatened

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

## BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act<sup>1</sup> and the Migratory Bird Treaty Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats<sup>3</sup>, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

- 
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
  2. The [Migratory Birds Treaty Act](#) of 1918.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Oct 15 to Aug 31



## MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats<sup>3</sup> should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Oystercatcher <i>Haematopus palliatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/8935">https://ecos.fws.gov/ecp/species/8935</a>	Breeds Apr 15 to Aug 31
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Oct 15 to Aug 31
Black Scoter <i>Melanitta nigra</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/10413">https://ecos.fws.gov/ecp/species/10413</a>	Breeds elsewhere
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a>	Breeds May 15 to Oct 10
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9454">https://ecos.fws.gov/ecp/species/9454</a>	Breeds May 20 to Jul 31

NAME	BREEDING SEASON
<p><b>Brown Pelican</b> <i>Pelecanus occidentalis</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/6034">https://ecos.fws.gov/ecp/species/6034</a></p>	Breeds Jan 15 to Sep 30
<p><b>Canada Warbler</b> <i>Cardellina canadensis</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9643">https://ecos.fws.gov/ecp/species/9643</a></p>	Breeds May 20 to Aug 10
<p><b>Chimney Swift</b> <i>Chaetura pelagica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9406">https://ecos.fws.gov/ecp/species/9406</a></p>	Breeds Mar 15 to Aug 25
<p><b>Common Loon</b> <i>gavia immer</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/4464">https://ecos.fws.gov/ecp/species/4464</a></p>	Breeds Apr 15 to Oct 31
<p><b>Double-crested Cormorant</b> <i>phalacrocorax auritus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/3478">https://ecos.fws.gov/ecp/species/3478</a></p>	Breeds Apr 20 to Aug 31
<p><b>Eastern Whip-poor-will</b> <i>Antrastomus vociferus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/10678">https://ecos.fws.gov/ecp/species/10678</a></p>	Breeds May 1 to Aug 20
<p><b>Gull-billed Tern</b> <i>Gelochelidon nilotica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9501">https://ecos.fws.gov/ecp/species/9501</a></p>	Breeds May 1 to Jul 31
<p><b>Hudsonian Godwit</b> <i>Limosa haemastica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9482">https://ecos.fws.gov/ecp/species/9482</a></p>	Breeds elsewhere
<p><b>Lesser Yellowlegs</b> <i>Tringa flavipes</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a></p>	Breeds elsewhere

NAME	BREEDING SEASON
<p>Long-eared Owl <i>asio otus</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/3631">https://ecos.fws.gov/ecp/species/3631</a></p>	Breeds Mar 1 to Jul 15
<p>Long-tailed Duck <i>Clangula hyemalis</i>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/7238">https://ecos.fws.gov/ecp/species/7238</a></p>	Breeds elsewhere
<p>Pectoral Sandpiper <i>Calidris melanotos</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9561">https://ecos.fws.gov/ecp/species/9561</a></p>	Breeds elsewhere
<p>Pomarine Jaeger <i>Stercorarius pomarinus</i>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/10458">https://ecos.fws.gov/ecp/species/10458</a></p>	Breeds elsewhere
<p>Prothonotary Warbler <i>Protonotaria citrea</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9439">https://ecos.fws.gov/ecp/species/9439</a></p>	Breeds Apr 1 to Jul 31
<p>Red Phalarope <i>Phalaropus fulicarius</i>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/10469">https://ecos.fws.gov/ecp/species/10469</a></p>	Breeds elsewhere
<p>Red-breasted Merganser <i>Mergus serrator</i>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/10693">https://ecos.fws.gov/ecp/species/10693</a></p>	Breeds elsewhere
<p>Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9398">https://ecos.fws.gov/ecp/species/9398</a></p>	Breeds May 10 to Sep 10
<p>Red-necked Phalarope <i>Phalaropus lobatus</i>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/10467">https://ecos.fws.gov/ecp/species/10467</a></p>	Breeds elsewhere

NAME	BREEDING SEASON
<p>Red-throated Loon <i>Gavia stellata</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/9589">https://ecos.fws.gov/ecp/species/9589</a></p>	Breeds elsewhere
<p>Ring-billed Gull <i>Larus delawarensis</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/10468">https://ecos.fws.gov/ecp/species/10468</a></p>	Breeds elsewhere
<p>Royal Tern <i>Thalasseus maximus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/10471">https://ecos.fws.gov/ecp/species/10471</a></p>	Breeds Apr 15 to Aug 31
<p>Rusty Blackbird <i>Euphagus carolinus</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p><a href="https://ecos.fws.gov/ecp/species/9478">https://ecos.fws.gov/ecp/species/9478</a></p>	Breeds elsewhere
<p>Short-billed Dowitcher <i>Limnodromus griseus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9480">https://ecos.fws.gov/ecp/species/9480</a></p>	Breeds elsewhere
<p>Surf Scoter <i>Melanitta perspicillata</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/10463">https://ecos.fws.gov/ecp/species/10463</a></p>	Breeds elsewhere
<p>White-winged Scoter <i>Melanitta fusca</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/10462">https://ecos.fws.gov/ecp/species/10462</a></p>	Breeds elsewhere
<p>Wood Thrush <i>Hylocichla mustelina</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9431">https://ecos.fws.gov/ecp/species/9431</a></p>	Breeds May 10 to Aug 31

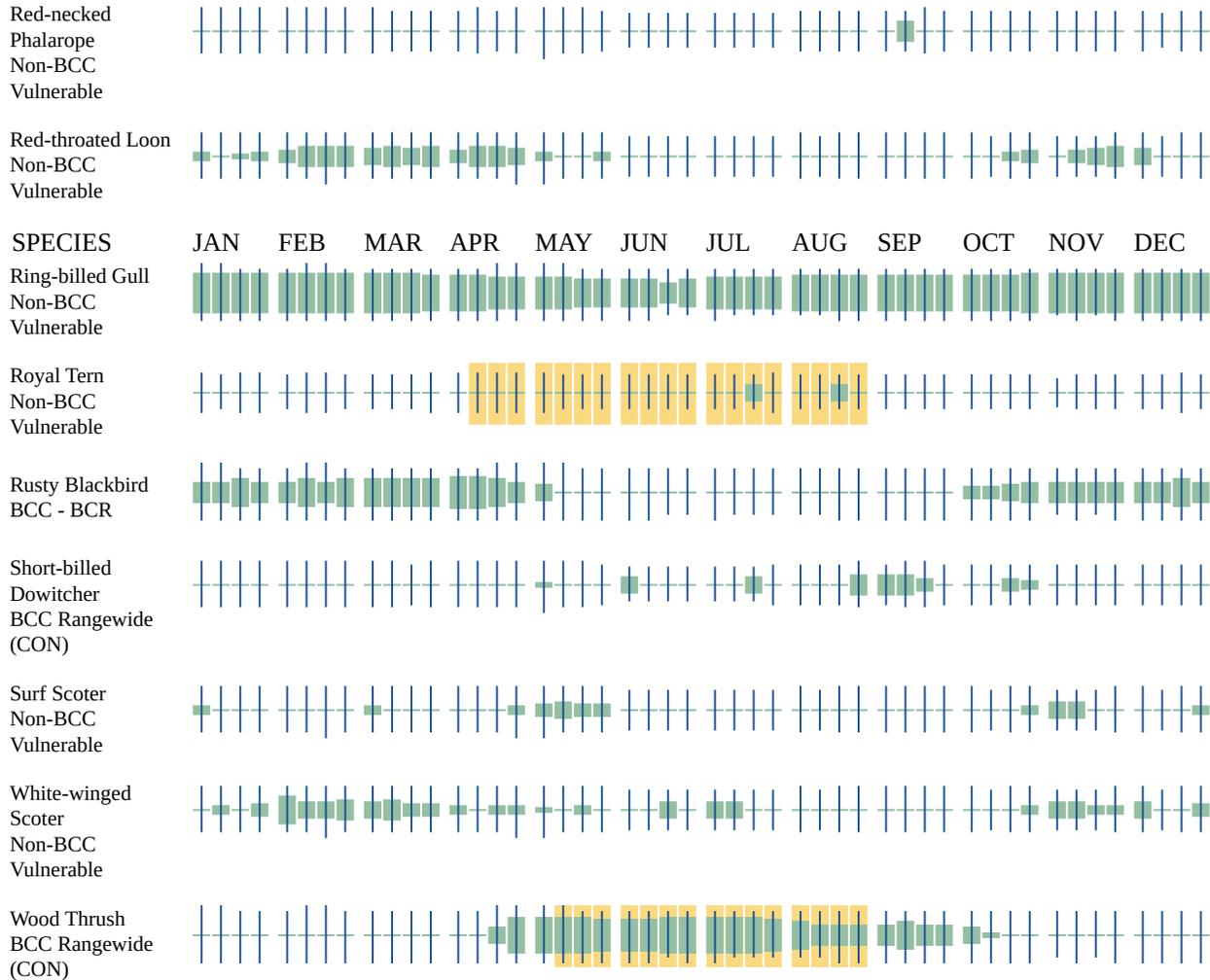
## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental](#)





BCC Rangewide  
(CON)



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

# WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

Due to your project's size, the list below may be incomplete, or the acreages reported may be inaccurate. For a full list, please contact the local U.S. Fish and Wildlife office or visit <https://www.fws.gov/wetlands/data/mapper.HTML>

## FRESHWATER POND

- PAB4Hx
- PAB4/UBHh

## LAKE

- L1UBHh
- L1UBHx

## FRESHWATER FORESTED/SHRUB WETLAND

- PFO1Cd
- PFO1/EM1Cd
- PFO1Ch
- PFO1/4C
- PFO1/SS1Dd
- PFO1/EM5D
- PFO1/SS1A
- PFO1/SS1D
- PFO1/EM1E
- PFO1C
- PFO1A
- PFO1D
- PFO1/EM1Eh
- PFO1/4Dd
- PFO1/SS1R
- PFO1/EM1C
- PFO1/EM1R
- PFO1/SS1C

- PFO1/EM1Ed
- PFO1/EM1Dd
- PFO1/EM1A
- PFO1/3D
- PFO1/4E
- PFO1/4D
- PFO1/EM1D
- PFO1/EM1Ch

#### FRESHWATER EMERGENT WETLAND

- PEM1T
- PEM1C
- PEM1/SS1Dd
- PEM5Dd
- PEM1Rh
- PEM1/SS1D
- PEM1/SS1E
- PEM1Ex
- PEM1Fx
- PEM1Cd
- PEM5T
- PEM1/FO1Ch
- PEM1Ed
- PEM1Ax
- PEM1Eh
- PEM1E
- PEM1/FO1Rd
- PEM1F
- PEM5R
- PEM1/FO1A
- PEM1D
- PEM5/SS1R
- PEM1R
- PEM5Rd
- PEM1/SS1R
- PEM1Dd
- PEM1A

- PEM5Cx
- PEM1/FO5Th
- PEM1Cx
- PEM1Fh
- PEM5C
- PEM5Rh
- PEM1/SS1C
- PEM1Ch

OTHER

- Pf

ESTUARINE AND MARINE WETLAND

- E2EM1P6

**TABLE:**  
**COMPOSITE PLANT SPECIES LIST**

## COMPOSITE PLANT SPECIES LIST

AGCP = Atlantic and Gulf Coast Plain

N/A = Not Applicable

NL = Not listed

### TREE SPECIES

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Boxelder/Ash-leaf maple	<i>Acer negundo</i>	FAC
Norway maple	<i>Acer platanoides</i>	UPL
Red maple	<i>Acer rubrum</i>	FAC
Trident maple	<i>Acer rubrum L. var trilobum</i>	NL
Silver maple	<i>Acer saccharinum</i>	FAC
Tree-of-heaven	<i>Ailanthus altissima</i>	FACU
Mimosa	<i>Albizia julibrissin</i>	NL
River birch	<i>Betula nigra</i>	FACW
Gray birch	<i>Betula populifolia</i>	FAC
Paper-mulberry	<i>Broussonetia papyrifera</i>	FACU
Pignut hickory	<i>Carya glabra</i>	FACU
Pecan	<i>Carya illinoensis</i>	FACU
Mockernut hickory	<i>Carya tomentosa</i>	NL
Northern catalpa	<i>Catalpa speciosa</i>	FACU
Common hackberry	<i>Celtis occidentalis</i>	FACU
Atlantic white-cedar	<i>Chamaecyparis thyoides</i>	OBL
Flowering dogwood	<i>Cornus florida</i>	FACU
Red-osier dogwood	<i>Cornus sericea</i>	NL
Dogwood	<i>Cornus sp.</i>	N/A
Common persimmon	<i>Diospyros virginiana</i>	FAC
American beech	<i>Fagus grandifolia</i>	FACU
European beech	<i>Fagus sylvatica</i>	NL
White ash	<i>Fraxinus americana</i>	FACU
Green ash	<i>Fraxinus pennsylvanica</i>	FACW
Northern dwarf huckleberry	<i>Gaylussacia bigeloviana</i>	OBL
Blue huckleberry	<i>Gaylussacia frondose</i>	FAC
Huckleberry species	<i>Gaylussacia sp.</i>	N/A
English holly	<i>Ilex aquifolium</i>	FACU
American holly	<i>Ilex opaca</i>	FAC
Black walnut	<i>Juglans nigra</i>	UPL
Common juniper	<i>Juniperus communis</i>	FACU
Eastern red-cedar	<i>Juniperus virginiana</i>	FACU
Sweetgum	<i>Liquidambar styraciflua</i>	FAC
Tulip tree	<i>Liriodendron tulipifera</i>	FACU
Crabapple	<i>Malus sp.</i>	N/A
White mulberry	<i>Morus alba</i>	FACU
Red mulberry	<i>Morus rubra</i>	FACU

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Black tupelo	<i>Nyssa sylvatica</i>	FAC
Eastern hop-hornbeam	<i>Ostrya virginiana</i>	FACU
Princesstree	<i>Paulownia tomentosa</i>	UPL
Norway spruce	<i>Picea abies</i>	NL
Blue spruce	<i>Picea pungens</i>	NL
Red pine	<i>Pinus resinosa</i>	FACU
Pitch pine	<i>Pinus rigida</i>	FACU
Eastern white pine	<i>Pinus strobus</i>	FACU
American sycamore	<i>Platanus occidentalis</i>	FACW
Eastern cottonwood	<i>Populus deltoides</i>	FAC
Sweet cherry	<i>Prunus avium</i>	UPL
Black cherry	<i>Prunus serotina</i>	FACU
Callery pear	<i>Pyrus calleryana</i>	NL
Common pear	<i>Pyrus communis</i>	NL
Sawtooth oak	<i>Quercus acutissima</i>	NL
Northern white oak	<i>Quercus alba</i>	FACU
Scrub oak	<i>Quercus berberidifolia</i>	NL
Swamp white oak	<i>Quercus bicolor</i>	FACW
Southern red oak	<i>Quercus falcata</i>	FACU
Scrub oak	<i>Quercus ilicifolia</i>	NL
Burr oak	<i>Quercus macrocarpa</i>	FACU
Blackjack oak	<i>Quercus marilandica</i>	NL
Swamp chestnut oak	<i>Quercus michauxii</i>	FACW
Chestnut oak	<i>Quercus montana</i>	UPL
Pin oak	<i>Quercus palustris</i>	FACW
Willow oak	<i>Quercus phellos</i>	FACW
Northern red oak	<i>Quercus rubra</i>	FACU
Oak species	<i>Quercus sp.</i>	N/A
Black oak	<i>Quercus velutina</i>	UPL
Black locust	<i>Robinia pseudoacacia</i>	UPL
Weeping willow	<i>Salix babylonica</i>	FACW
Black willow	<i>Salix nigra</i>	OBL
Sassafras	<i>Sassafras albidum</i>	FACU
American elm	<i>Ulmus americana</i>	FAC
Slippery elm	<i>Ulmus rubra</i>	FAC

#### SHRUBS/VINES

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Downy service-berry	<i>Amelanchier arborea</i>	FACU
False indigo-bush	<i>Amorpha fruticose</i>	FACW
Groundseltree	<i>Baccharis halimifolia</i>	FAC
European barberry	<i>Berberis thunbergii</i>	UPL
Wild morning glory	<i>Calystegia macrostegia</i>	NL

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Hedge false bindweed	<i>Calystegia sepium</i>	FAC
Trumpet-creeper	<i>Campsis radicans</i>	FAC
Asian bittersweet	<i>Celastrus orbiculatus</i>	FACU
Brown-ray knapweed	<i>Centaurea jacea</i>	FACU
Common buttonbush	<i>Cephalanthus occidentalis</i>	OBL
Devil's-darning-needles	<i>Clematis virginiana</i>	FAC
Coastal sweet-pepperbush	<i>Clethra alnifolia</i>	FACW
Dwarf honeysuckle	<i>Diervilla lonicera</i>	NL
Russian-olive	<i>Elaeagnus angustifolia</i>	FACU
Autumn olive	<i>Elaeagnus umbellata</i>	NL
Wintercreeper	<i>Euonymus fortunei</i>	NL
Blue huckleberry	<i>Gaylussacia frondosa</i>	FAC
American witch-hazel	<i>Hamamelis virginiana</i>	FACU
English ivy	<i>Hedera helix</i>	FACU
Japanese holly	<i>Ilex crenata</i>	NL
Mountain-laurel	<i>Kalmia latifolia</i>	FACU
Northern spicebush	<i>Lindera benzoin</i>	FACW
Japanese honeysuckle	<i>Lonicera japonica</i>	FACU
Amur honeysuckle	<i>Lonicera maackii</i>	NL
Morrow's honeysuckle	<i>Lonicera morrowii</i>	FACU
Honeysuckle species	<i>Lonicera sp.</i>	N/A
Tatarian honeysuckle	<i>Lonicera tatarica</i>	NL
European fly honeysuckle	<i>Lonicera xylosteum</i>	NL
Sweet-bay	<i>Magnolia virginiana</i>	FACW
Soft-leaf mimosa	<i>Mimosa malacophylla</i>	FACW
Virginia creeper	<i>Parthenocissus quinquefolia</i>	FACU
Asiatic tearthumb (Mile a minute)	<i>Persicaria perfoliata</i>	FAC
Arrow-leaf tearthumb	<i>Persicaria sagittata</i>	OBL
Japanese-knotweed	<i>Reynoutria japonica</i>	UPL
Winged sumac	<i>Rhus copallinum</i>	UPL
Smooth sumac	<i>Rhus glabra</i>	NL
Staghorn sumac	<i>Rhus typhina</i>	NL
Multiflora rose	<i>Rosa multiflora</i>	FACU
Allegheny blackberry	<i>Rubus allegheniensis</i>	UPL
Saw-tooth blackberry	<i>Rubus argutus</i>	FAC
Bristly dewberry	<i>Rubus hispidus</i>	FACW
Common red raspberry	<i>Rubus idaeus</i>	FACU
Rubus species	<i>Rubus sp.</i>	N/A
Common elder	<i>Sambucus canadensis</i>	NL
Horsebrier (Greenbrier)	<i>Smilax rotundifolia</i>	FAC
Coral-berry	<i>Symphoricarpos orbiculatus</i>	FACU
Eastern poison ivy	<i>Toxicodendron radicans</i>	FAC
Late lowbush blueberry	<i>Vaccinium angustifolium</i>	FACU
Highbush blueberry	<i>Vaccinium corymbosum</i>	FACW

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Southern arrow-wood	<i>Viburnum dentatum</i>	FAC
Smooth arrow-wood	<i>Viburnum recognitum</i>	FAC
Fox grape	<i>Vitis labrusca</i>	FAC
River-bank grape	<i>Vitis riparia</i>	FACW
Muscadine	<i>Vitis rotundifolia</i>	FAC
Chinese wisteria	<i>Wisteria sinensis</i>	NL

#### HERBACEOUS

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Common yarrow	<i>Achillea millefolium</i>	FACU
White snakeroot	<i>Ageratina altissima</i>	FACU
Black bent	<i>Agrostis gigantea</i>	FACW
Spreading bent	<i>Agrostis stolonifera</i>	FACW
Garlic-mustard	<i>Alliaria petiolata</i>	FACU
Mustard species	<i>Alliaria sp.</i>	N/A
Annual ragweed	<i>Ambrosia artemisiifolia</i>	FACU
Perennial ragweed	<i>Ambrosia psilostachya</i>	FAC
American hog-peanut	<i>Amphicarpaea bracteata</i>	FAC
Broom-sedge	<i>Andropogon virginicus</i>	FAC
Bottle brush grass	<i>Antheophora pubescens</i>	NL
Indian-hemp (hemp dogbane)	<i>Apocynum cannabinum</i>	FACU
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	FACW
Common wormwood (Mugwort)	<i>Artemisia vulgaris</i>	UPL
Milkweed species	<i>Asclepias sp.</i>	N/A
Common milkweed	<i>Asclepias syriaca</i>	UPL
Southern lady fern	<i>Athyrium asplenoides</i>	FAC
Bamboo	<i>Bambusa sp.</i>	N/A
Devil's-pitchfork	<i>Bidens frondosa</i>	FACW
Small-spike false nettle	<i>Boehmeria cylindrica</i>	FACW
Field brome	<i>Bromus arvensis</i>	FACU
Moss species	<i>Bryophyta sp.</i>	N/A
Greater bladder sedge	<i>Carex intumescens</i>	FACW
Hop sedge	<i>Carex lupulina</i>	OBL
Shallow sedge	<i>Carex lurida</i>	OBL
Sedge species	<i>Carex sp.</i>	N/A
Uptight sedge	<i>Carex stricta</i>	OBL
White turtlehead	<i>Chelone glabra</i>	OBL
Sweet wood-reed	<i>Cinna arundinacea</i>	FACW
Broad-leaf enchanter's nightshade	<i>Circaea canadensis</i>	FACU
Canadian thistle	<i>Cirsium arvense</i>	FACU
Dodder species	<i>Cuscuta sp.</i>	N/A
Tall flat sedge	<i>Cyperus eragrostis</i>	FACW

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Chufa	<i>Cyperus esculentus</i>	FAC
Purple flat sedge	<i>Cyperus rotundus</i>	FAC
Sedge species	<i>Cyperus sp.</i>	N/A
Straw-color flat sedge	<i>Cyperus strigosus</i>	FACW
Queen Anne's lace	<i>Daucus carota</i>	UPL
Princess-pine	<i>Dendrolycopodium obscurum</i>	FACU
Hay-scented fern	<i>Dennstaedtia punctilobula</i>	UPL
Deer-tongue rosette grass	<i>Dichanthelium clandestinum</i>	FACW
Hairy crab grass	<i>Digitaria sanguinalis</i>	FACU
Crab grass species	<i>Digitaria sp.</i>	N/A
Virginia buttonweed	<i>Diodia virginiana</i>	FACW
Large barnyard grass	<i>Echinochloa crus-galli</i>	FACW
Needle spike-rush	<i>Eleocharis acicularis</i>	OBL
Blunt spike-rush	<i>Eleocharis obtusa</i>	OBL
Slender spike-rush	<i>Eleocharis tenuis</i>	FACW
Virginia wild rye	<i>Elymus virginicus</i>	FAC
Fringed willowherb	<i>Epilobium ciliatum</i>	FACW
American burnweed	<i>Erechtites hieraciifolius</i>	NL
Eastern daisy fleabane	<i>Erigeron annuus</i>	FACU
Late-flowering thoroughwort (late boneset)	<i>Eupatorium serotinum</i>	FAC
Flat-top goldentop	<i>Euthamia graminifolia</i>	FAC
Spotted trumpetweed	<i>Eutrochium maculatum</i>	FACW
Sweet-scented Joe-pye-weed	<i>Eutrochium purpureum</i>	FAC
Fescue species	<i>Festuca sp.</i>	N/A
Purple bedstraw	<i>Galium latifolium</i>	NL
Bedstraw	<i>Galium sp.</i>	N/A
Ground ivy	<i>Glechoma hederacea</i>	FACU
Fowl manna grass	<i>Glyceria striata</i>	OBL
Downy rattlesnake-plantain	<i>Goodyera pubescens</i>	UPL
American witch-hazel	<i>Hamamelis virginiana</i>	FACU
Swamp rose-mallow	<i>Hibiscus grandiflorus</i>	OBL
Crimson-eyed rose-mallow	<i>Hibiscus moscheutos</i>	OBL
Rose of Sharon	<i>Hibiscus syriacus</i>	NL
Jewelweed	<i>Impatiens capensis</i>	FACW
Whitestar	<i>Ipomoea lacunosa</i>	FAC
Pale-yellow iris	<i>Iris pseudacorus</i>	OBL
Canadian rush	<i>Juncus canadensis</i>	OBL
Soft rush	<i>Juncus effusus</i>	OBL
Common rush	<i>Juncus pylaei</i>	OBL
Lesser poverty rush (Path rush)	<i>Juncus tenuis</i>	FAC
Japanese-clover	<i>Kummerowia striata</i>	FACU
Prickly lettuce	<i>Lactuca serriola</i>	FAC
Rice cut grass	<i>Leersia oryzoides</i>	OBL

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
White grass	<i>Leersia virginica</i>	FACW
Chinese bush-clover	<i>Lespedeza cuneata</i>	FACU
Tiger lily	<i>Lilium lancifolium</i>	NL
Turk's-cap lily	<i>Lilium superbum</i>	FACW
Butter-and-eggs	<i>Linaria vulgaris</i>	NL
Garden bird's-foot-trefoil	<i>Lotus corniculatus</i>	FACU
Seedbox	<i>Ludwigia alternifolia</i>	OBL
Marsh primrose-willow	<i>Ludwigia palustris</i>	OBL
Virginia water-horehound	<i>Lycopus virginicus</i>	OBL
American skunk cabbage	<i>Lysichiton americanus</i>	NL
Swampcandles	<i>Lysimachia terrestris</i>	OBL
Purple loosestrife	<i>Lythrum salicaria</i>	OBL
Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
Climbing hempvine	<i>Mikania scandens</i>	FACW
Partridge-berry	<i>Mitchella repens</i>	FACU
Yellow water-lily	<i>Nuphar lutea</i>	NL
Sensitive fern	<i>Onoclea sensibilis</i>	FACW
Long-leaf basket grass	<i>Oplismenus hirtellus</i>	FAC
Interrupted fern	<i>Osmunda claytoniana</i>	FAC
Royal fern	<i>Osmunda spectabilis</i>	OBL
Cinnamon fern	<i>Osmundastrum cinnamomeum</i>	FACW
Sorrel species	<i>Oxalis sp.</i>	N/A
Upright yellow wood-sorrel	<i>Oxalis stricta</i>	UPL
Fall panic grass	<i>Panicum dichotomiflorum</i>	FACW
Wand panic grass	<i>Panicum virgatum</i>	FAC
New York fern	<i>Parathelypteris noveboracensis</i>	FAC
Golden crown grass	<i>Paspalum dilatatum</i>	FAC
Field crown grass	<i>Paspalum laeve</i>	FACW
Green arrow-arum	<i>Peltandra virginica</i>	OBL
Halberd-leaf tearthumb	<i>Persicaria arifolia</i>	OBL
Mild water-pepper	<i>Persicaria hydropiper</i>	OBL
Swamp smartweed	<i>Persicaria hydropiperoides</i>	OBL
Pinkweed (Pennsylvania smartweed)	<i>Persicaria pennsylvanica</i>	FACW
Dotted smartweed	<i>Persicaria punctata</i>	OBL
Jumpseed	<i>Persicaria virginiana</i>	FAC
Reed canary grass	<i>Phalaris arundinacea</i>	OBL
Narrow beech fern	<i>Phegopteris connectilis</i>	FAC
Common reed	<i>Phragmites australis</i>	FACW
American pokeweed	<i>Phytolacca americana</i>	FACU
Canadian clearweed	<i>Pilea pumila</i>	FACW
English plantain	<i>Plantago lanceolata</i>	FACU
Great plantain	<i>Plantago major</i>	FACU
Sweetscent	<i>Pluchea odorata</i>	FACW
Fowl blue grass	<i>Poa palustris</i>	FAC

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
Kentucky blue grass	<i>Poa pratensis</i>	FACU
Grass species/Maintained shoulder	<i>Poa sp.</i>	N/A
Christmas fern	<i>Polystichum acrostichoides</i>	FACU
Pickernelweed	<i>Pontederia cordata</i>	OBL
Northern bracken fern	<i>Pteridium aquilinum</i>	FACU
Japanese-knotweed	<i>Reynoutria japonica</i>	UPL
Maryland meadow-beauty	<i>Rhexia mariana</i>	FACW
Meadow-beauty	<i>Rhexia sp.</i>	N/A
Allegheny blackberry	<i>Rubus allegheniensis</i>	UPL
Bristly dewberry	<i>Rubus hispidus</i>	FACW
Black raspberry	<i>Rubus occidentalis</i>	NL
Elm leaf blackberry	<i>Rubus ulmifolius</i>	N/A
Curly dock	<i>Rumex crispus</i>	FAC
Canadian black-snakeroot	<i>Sanicula canadensis</i>	FACU
Lizard's tail	<i>Saururus cernuus</i>	OBL
Three-square	<i>Schoenoplectus pungens</i>	OBL
Dark-green bulrush	<i>Scirpus atrovirens</i>	OBL
Cottongrass bulrush	<i>Scirpus cyperinus</i>	OBL
Yellow bristle grass	<i>Setaria pumila</i>	FAC
Foxtail species	<i>Setaria sp.</i>	N/A
Rough bristle grass	<i>Setaria verticillata</i>	FAC
Carolina horse-nettle	<i>Solanum carolinense</i>	FACU
Atlantic goldenrod	<i>Solidago arguta</i>	UPL
Canadian goldenrod	<i>Solidago canadensis</i>	FACU
Late goldenrod	<i>Solidago gigantea</i>	FACW
Old field goldenrod	<i>Solidago nemoralis</i>	NL
Round-leaf goldenrod	<i>Solidago patula</i>	OBL
Wrinkle-leaf goldenrod	<i>Solidago rugosa</i>	FAC
Seaside goldenrod	<i>Solidago sempervirens</i>	FACW
Golden rod species	<i>Solidago sp.</i>	N/A
American burr-reed	<i>Sparganium americanum</i>	OBL
Rough white prairie American-aster	<i>Symphyotrichum falcatum</i>	FAC
Aster species	<i>Symphyotrichum sp.</i>	N/A
Skunk cabbage	<i>Symplocarpus foetidus</i>	OBL
Common dandelion	<i>Taraxacum officinale</i>	FACU
Eastern marsh fern	<i>Thelypteris palustris</i>	OBL
Tall redtop	<i>Tridens flavus</i>	FACU
Red clover	<i>Trifolium pratense</i>	FACU
White clover	<i>Trifolium repens</i>	FACU
Whip-poor-will-flower	<i>Trillium cernuum</i>	FACW
Narrow-leaf cat-tail	<i>Typha angustifolia</i>	OBL
Broad-leaf cat-tail	<i>Typha latifolia</i>	OBL
Stinging nettle	<i>Urtica dioica</i>	FAC
Great mullein	<i>Verbascum thapsus</i>	FACU

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS (AGCP)
White vervain	<i>Verbena urticifolia</i>	FAC
New York ironweed	<i>Vernonia noveboracensis</i>	FACW
American purple vetch	<i>Vicia americana</i>	FACU
Periwinkle	<i>Vinca minor</i>	NL
Violet species	<i>Viola sp.</i>	N/A
Netted chain fern	<i>Woodwardia areolata</i>	OBL
Virginia chain fern	<i>Woodwardia virginica</i>	OBL
Maize	<i>Zea mays sp.</i>	NL
Indian wild rice	<i>Zizania aquatica</i>	OBL

**TABLE:**  
**EXISTING UTILITY CROSSINGS**

## Existing Utility Crossings

Approx MP	Location	Municipality	County	Utility
3.6	Mainline	Carneys Point Township	Salem	Electrical
3.7	Mainline	Carneys Point Township	Salem	Water
				Sewer
3.72R*	NJ 48 (Harding Hwy) over Mainline	Carneys Point Township	Salem	Telephone
				Electrical
3.7 - 5.4	Mainline	Carneys Point Township	Salem	Sewer
4.89*	Pennsgrove Auburn Rd (CR 641) over Mainline	Carneys Point Township/ Oldmans Township	Salem	Telephone
				Electrical
5.2	Mainline	Oldmans Township	Salem	Gas
5.3	Mainline	Oldmans Township	Salem	Telephone
5.4	Mainline	Oldmans Township	Salem	Water
				Sewer
				Electrical
				Telephone
5.6	Mainline	Oldmans Township	Salem	Electrical
5.73*	Stumpy Road over Mainline	Oldmans Township	Salem	
6.77*	Pointers Auburn Rd (CR 646) over Mainline	Oldmans Township	Salem	Telephone
6.96*	Auburn Road (CR 602) over Mainline	Oldmans Township	Salem	Electrical
				Cable
7.0	Mainline	Oldmans Township	Salem	Gas
7.85*	Mainline over Oldmans Creek	Pilesgrove Township/ Woolwich Township	Salem/ Gloucester	
8.68*	Old Mans Creek Road (CR 602) over Mainline	Woolwich Township	Gloucester	Electrical
				Telephone
9.14*	Rainey Rd over Mainline	Woolwich Township	Gloucester	
9.71*	Mainline over Kings Highway (CR 620)	Woolwich Township	Gloucester	Telephone
9.93*	Mainline Over South Jersey Railroad Co.	Woolwich Township	Gloucester	Telephone
10.04*	Woodstown-Swedesboro Rd (CR 605) over Mainline	Woolwich Township	Gloucester	Telephone
				Cable
				Electrical
11.2	Mainline	Woolwich Township	Gloucester	Gas
11.3	Mainline	Woolwich Township	Gloucester	Gas

Approx MP	Location	Municipality	County	Utility
11.38*	Swedesboro Monroeville Rd (CR 694) over Mainline	Woolwich Township	Gloucester	Telephone
11.4	Mainline	Woolwich Township	Gloucester	Sewer
11.5	Mainline	Woolwich Township	Gloucester	Gas
11.50*	Franklinville Rd (CR 538) over Mainline	Woolwich Township	Gloucester	Telephone
				Electrical
				Cable
12.13*	Mainline over Raccoon Creek	Woolwich Township	Gloucester	
12.58*	Back Creek Rd over Mainline	Woolwich Township	Gloucester	Telephone
12.86A*	NJ Turnpike Interchange 2 over Mainline	Woolwich Township	Gloucester	Telephone
12.9	Mainline	Woolwich Township	Gloucester	Telephone
				Water
13.1	Mainline	Woolwich Township	Gloucester	Sewer
				Water
13.18*	US 322 (Swedesboro Rd) over Mainline	Woolwich Township	Gloucester	Telephone
13.2	Mainline	Woolwich Township	Gloucester	Gas
				Electrical
13.4	Mainline	Woolwich Township	Gloucester	Sewer
				Water
13.40*	U-Turn over Mainline	Woolwich Township	Gloucester	
13.8	Mainline	Harrison Township/ E. Greenwich Township	Gloucester	Water
13.88*	E. Townlin Station Road (CR 607) over Mainline	E. Greenwich Township	Gloucester	
15.0	Mainline	E. Greenwich Township	Gloucester	Water
15.03*	E. Wolfort Station Rd (CR CR 664) over Mainline	E. Greenwich Township	Gloucester	Electrical
				Telephone
15.4	Mainline	E. Greenwich Township	Gloucester	Electrical
15.6	Mainline	E. Greenwich Township	Gloucester	Telephone
15.92*	Cedar Rd (CR 673) over Mainline	E. Greenwich Township	Gloucester	Telephone
				Electrical
15.9	Mainline	E. Greenwich Township	Gloucester	Gas

Approx MP	Location	Municipality	County	Utility
16.7	Mainline	E. Greenwich Township	Gloucester	Water
				Gas
16.73*	E. Cohawkin Rd (CR 667) over Mainline	E. Greenwich Township	Gloucester	Telephone
				Electrical
				Cable
				Electrical
16.9	Mainline	E. Greenwich Township	Gloucester	Telephone
17.5	Mainline	E. Greenwich Township	Gloucester	Sewer
17.50*	Mainline over Edwards Run	E. Greenwich Township	Gloucester	
17.9	Mainline	E. Greenwich Township	Gloucester	Water
17.98*	Mantua Rd (CR 678) over Mainline	E. Greenwich Township	Gloucester	Electrical
				Cable
				Telephone
18.0	Mainline	E. Greenwich Township	Gloucester	Gas
18.3	Mainline	E. Greenwich Township	Gloucester	Sewer
18.45*	Mainline over Mantua Creek	E. Greenwich Township/ W. Deptford Township	Gloucester	Electrical
18.88*	Ogden Rd (CR648) over Mainline	W. Deptford Township	Gloucester	Telephone
				Electrical
19.2	Mainline	W. Deptford Township	Gloucester	Petroleum
19.3	Mainline	W. Deptford Township		Water
19.38*	Parkville Station Rd (CR 656) over Mainline	W. Deptford Township	Gloucester	Electrical
20.0	Mainline	W. Deptford Township	Gloucester	Telephone
20.2	Mainline	W. Deptford Township	Gloucester	Sewer
				Water
20.23R*	NJ 45 (Mantua Pike) over Mainline	W. Deptford Township/ Woodbury Heights Borough	Gloucester	Gas
				Telephone
20.5	Mainline	Woodbury Heights Borough	Gloucester	Water
20.47*	Elm Ave (CR 652) over Mainline	Woodbury Heights Borough	Gloucester	Water
				Telephone
				Gas
				Electrical
20.7	Mainline	Woodbury Heights Borough	Gloucester	Sewer
20.96*	Mainline over W. Jersey Ave & PRSL	Woodbury Heights Borough	Gloucester	Cable
				Petroleum
				Telephone
21.0	Mainline	Woodbury Heights Borough	Gloucester	Gas

Approx MP	Location	Municipality	County	Utility
21.08*	Mainline over N. Glassboro Rd (CR 553)	Woodbury Heights Borough	Gloucester	Sewer
				Water
				Telephone
				Gas
				Electrical
				Cable
21.1	Mainline	Woodbury Heights Borough	Gloucester	Gas
				Gas
21.2	Mainline	Woodbury Heights Borough	Gloucester	Sewer
21.52*	Tanyard Rd (CR 663) over Mainline	Deptford Township	Gloucester	Electrical
				Gas
				Water
				Telephone
				Electrical
21.9	Mainline	Deptford Township	Gloucester	Gas
				Gas
22.0	Mainline	Deptford Township	Gloucester	Sewer
22.1	Mainline	Deptford Township	Gloucester	Gas
22.22*	Cooper St (CR 534) over Mainline	Deptford Township	Gloucester	Gas
				Electrical
				Water
				Telephone
22.81*	NJ 47 (N. Delsea Dr) over Mainline	Deptford Township	Gloucester	Electrical
				Gas
				Telephone
22.8	Mainline	Deptford Township	Gloucester	Water
23.0	Mainline	Deptford Township	Gloucester	Water
23.12*	Turkey Hill Rd (CR 646) over Mainline	Deptford Township	Gloucester	Telephone
23.1	Mainline	Deptford Township	Gloucester	Gas
23.7	Mainline	Deptford Township	Gloucester	Sewer
24.03*	Almonessen Rd (CR 621) over Mainline	Deptford Township	Gloucester	Telephone
				Electrical
24.0	Mainline	Deptford Township	Gloucester	Water
				Gas
24.61*	Mainline over Big Timber Creek	Deptford Township/ Borough of Runnemede	Gloucester Camden	
24.69*	NJ 42 over Mainline	Borough of Runnemede	Camden	

Approx MP	Location	Municipality	County	Utility
24.71*	NJ 42 over Mainline	Borough of Runnemede	Camden	
25.5	Mainline	Borough of Runnemede	Camden	Sewer
25.72*	Mainline over PRL RR Grenloch Br (Abandoned)	Borough of Runnemede	Camden	Electrical
				Sewer
				Electrical
25.88*	Mainline over NJ 168 (Black Horse Pike)	Borough of Runnemede	Camden	Telephone
				Cable
				Water
				Electrical
25.9	Mainline	Borough of Runnemede	Camden	Gas
26.0	Mainline	Borough of Runnemede	Camden	Fiber
26.1	Mainline	Borough of Runnemede	Camden	Sewer
26.13R*	NJ Turnpike Interchange 3 over Mainline	Borough of Runnemede	Camden	
26.98R*	NJ 41 (Clements Bridge Rd) over Mainline	Borough of Barrington	Camden	Water
				Telephone
				Electrical
				Gas
27.0	Mainline	Borough of Barrington	Camden	Sewer
27.1	Mainline	Borough of Barrington	Camden	Water
27.28*	Shreve Ave over Mainline	Borough of Barrington	Camden	Electrical
				Cable
				Telephone
				Sewer
27.6	Mainline	Borough of Barrington	Camden	Sewer
27.71*	Mainline over PRSL RR, & E. Atlantic Ave (CR 727)	Borough of Lawnside	Camden	Electrical
				Telephone
				Fiber
				Electrical
				Water
27.95*	Mainline over US 30	Borough of Lawnside	Camden	Gas
				Water
				Electrical
				Cable
28.19*	Warwick Rd (CR 699) over Mainline	Borough of Lawnside	Camden	Water
				Telephone
				Electrical
				Cable

Approx MP	Location	Municipality	County	Utility
28.3	Mainline	Borough of Lawnside	Camden	Sewer
29.1	Mainline	Borough of Haddonfield	Camden	Fiber
29.18*	Mainline over Woodcrest Station Rd (PATCO)	Borough of Haddonfield	Camden	
29.24*	Mainline over Cooper Creek	Borough of Haddonfield/ Cherry Hill Township	Camden	
29.35*	Mainline over PRSL Atlantic City Branch	Cherry Hill Township	Camden	Electrical
				Fiber
29.4	Mainline	Cherry Hill Township	Camden	Sewer
29.8	Mainline	Cherry Hill Township	Camden	Gas
				Water
29.84*	Haddonfield Berlin Rd (CR 561) over Mainline	Cherry Hill Township	Camden	Telephone
				Electrical
30.3	Mainline	Cherry Hill Township	Camden	Telephone
30.7	Mainline	Cherry Hill Township	Camden	Water
30.75*	Kresson Rd (CR 671) over Mainline	Cherry Hill Township	Camden	Cable
				Telephone
				Sewer
				Electrical
				Gas
31.6	Mainline	Cherry Hill Township	Camden	Sewer
32.30R*	NJ 70 (E. Marlton Pike) over Mainline	Cherry Hill Township	Camden	Cable
				Telephone
				Gas
				Electrical
32.3	Mainline	Cherry Hill Township	Camden	Water
33.2	Mainline	Cherry Hill Township	Camden	Water
33.6	Mainline	Township of Mount Laurel	Burlington	Electrical
				Telephone
				Water
33.94*	Church Rd (CR 616) over Mainline	Township of Mount Laurel	Burlington	Telephone
				Electrical
				Cable
33.9	Mainline	Township of Mount Laurel	Burlington	Gas
34.21R*	NJ 73 over Mainline	Township of Mount Laurel	Burlington	Electrical
				Cable
				Fiber
				Telephone
34.49A*	NJ Turnpike Interchange 4 over Mainline	Township of Mount Laurel	Burlington	

Approx MP	Location	Municipality	County	Utility
34.5	Mainline	Township of Mount Laurel	Burlington	Telephone
				Gas
34.8	Mainline	Township of Mount Laurel	Burlington	Sewer
34.9	Mainline	Township of Mount Laurel	Burlington	Water
35.53*	Mainline over Church St (CR 607)	Township of Mount Laurel	Burlington	Gas
				Water
				Sewer
				Telephone
				Electrical
35.7	Mainline	Township of Mount Laurel	Burlington	Petroleum
				Gas

Source: Source and Notes: New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program: Preliminary Design Report, Mainline - MP 3.5 to 36.5. June 1, 2022. Refer to Appendix A and Appendix O of the Preliminary Design Report for Master Plans noting the location of Existing Utilities.

\*Utilities attached to roadway bridges

**TABLE:**  
**POTENTIAL CONTAMINATED SITES**

## Potential Contaminated Sites

Site #	MP	PI Number	Name	Address	Areas of Concern
9	7.5	N/A	MP 7.5 Drums and Tires Dump	MP 7.5 Northbound Turnpike, Piles Grove Township, Gloucester County	Deteriorated state of drums, potential impact, additional investigation recommended if earth disturbance.
10	10.3	004429	Erdner Brothers Inc.	31 Davidson Road, Woolwich Township, Gloucester Township	Not expected to environmentally impact the Widening Program ROW.
11	11	239017	195 & 201 Monroeville Road	195 and 201 Monroeville Road, Woolwich Township, Gloucester County	Known groundwater contamination at site and proximity, additional investigation recommended if earth disturbance
12	13	031704	Swedesboro Shell	1111 Route 322, Woolwich Township, Gloucester County	Known soil and groundwater contamination at site and proximity, additional investigation recommended if earth disturbance. Avoid disturbing the UST systems at the site.
13	14.7	N/A	MP 14.7 Drums and Tires Dump	MP 14.65 Northbound Turnpike, East Greenwich Township, Gloucester County	Deteriorated state of drum, potential impact, additional investigation recommended if earth disturbance.
14	21	033002	Together Citgo Inc.	428 Glassboro Road, Woodbury Heights, Gloucester County	Known soil and groundwater contamination at site and proximity, additional investigation recommended if earth disturbance. Avoid disturbing the UST systems at the site.
15	21.5	840475	313 Woodbury Lake Drive	313 Woodbury Lake Drive, Deptford Township, Gloucester County	Known groundwater contamination at site and proximity, additional investigation recommended if earth disturbance.
16	22.5	007339	Delsea Service Station	1350 Delsea Drive, Deptford Township, Gloucester County	Known groundwater contamination at site and proximity, additional investigation

Site #	MP	PI Number	Name	Address	Areas of Concern
					recommended if earth disturbance.
17	25	030058	Byerley Holdings	400 Benigno Boulevard, Bellmawr, Camden County	Known groundwater contamination at site and proximity, additional investigation recommended if earth disturbance.
18	25.8	016277	Trap Rock Industries Inc.	1201 North Black Horse Pike, Runnemede, Camden County	Known soil and groundwater contamination at site and proximity, potential for historic fill, additional investigation recommended if earth disturbance.
19	25.8	000714	Beaverbrook Motors Inc.	1253 North Black Horse Pike, Runnemede, Camden County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance.
20	25.8	919920	300 South Black Horse Pike	300 South Black Horse Pike, Bellmawr, Camden County	Known groundwater contamination at site and proximity, additional investigation recommended if earth disturbance.
21	25.9	247669	North Star Holding	341 South Black Horse Pike, Bellmawr, Camden County	Known soil and groundwater contamination at site and proximity, potential for historic fill, additional investigation recommended and potential UST encounter if earth disturbance.
22	27	000030	John O'Malley Auto Service LLC	700 Clement Bridge Road, Barrington, Camden County	Known soil and groundwater contamination at site and proximity, additional investigation recommended if earth disturbance. Avoid disturbing the UST systems at the site.
23	27.3	N/A	Bright Lights USA	141 Shreve Avenue, Barrington, Camden County	Active case, soil and/or groundwater contamination at site and proximity, additional

Site #	MP	PI Number	Name	Address	Areas of Concern
					investigation recommended if earth disturbance.
24	27.5	606480	1 Commerce Drive @ Barrington	1 Commerce Drive, Barrington, Camden County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance.
25	27.8	004023	First Transit Inc # 55812	MP 27.75 Northbound Turnpike, Lawnside, Camden County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance. Avoid disturbing the UST systems at the site.
26	27.8	010833	First Student Inc # 11840	270 Gloucester Pike, Lawnside, Camden County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance. Avoid disturbing the UST systems at the site.
27	27.8	G000039347	Clean Machine Dry Cleaning & Laundromat	200 North White Horse Pike, Lawnside, Camden County	Not expected to environmentally impact the Widening Program ROW. CEA noted if ground disturbance is planned in vicinity.
28	27.8	586624	Transcontinental Gas Pipeline Lawnside M&R	MP 27.75 Southbound Turnpike, Lawnside, Camden County	Not expected to environmentally impact the Widening Program ROW. Avoid disturbing pipeline at site and vicinity.
29	27.9	N/A	Lawnside Lukoil Service Station	MP 27.9 Southbound Turnpike, Lawnside, Camden County	Not expected to environmentally impact the Widening Program ROW. Avoid disturbing pipeline at site and vicinity.
30	27.9	N/A	Valero	111 White Horse Pike, Lawnside, Camden County	Not expected to environmentally impact the Widening Program ROW. Avoid

Site #	MP	PI Number	Name	Address	Areas of Concern
					disturbing UST systems at site and vicinity.
31	28.9	608614	31 East Oak Ave	31 East Oak Avenue, Lawnside, Camden County	Known groundwater contamination at site and proximity, additional investigation recommended if earth disturbance.
32	29.7	005036	Ryder Truck Rental # 0144	1401 Haddonfield-Berlin Road, Cherry Hill Township, Camden County	Not expected to environmentally impact the Widening Program ROW. Avoid disturbing UST systems at site and vicinity.
33	29.7	G000013168	Victory Refrigeration Co.	110 Woodcrest Road, Cherry Hill Township, Camden County	Active case, soil contamination at site and proximity, additional investigation recommended if earth disturbance.
34	29.8	006249	MAIA Properties Inc.	1498 Haddonfield-Berlin Road, Cherry Hill Township, Camden County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance at site or within the CEA. Avoid disturbing the UST systems at the site.
35	31.7	005287	Cherry Hill Public Works	1 Perina Boulevard, Cherry Hill Township, Camden County	Known soil contamination at site and proximity, potential for historic fill, additional investigation recommended if earth disturbance.
36	32.9	011394	SourceOne Healthcare Tech Inc.	4 Esterbrook Lane, Cherry Hill Township, Camden County	Known soil and groundwater contamination at site and proximity, additional investigation recommended if earth disturbance at site or within the CEA.
37	33.3	023343	Gandalf Systems Corp.	9 North Olney Avenue, Cherry Hill Township, Camden County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation

Site #	MP	PI Number	Name	Address	Areas of Concern
					recommended if earth disturbance at site.
38	33.3	031944	Cherry Hill Industrial Park Buildings 5 and 6	4 Olney Avenue North (now known as 2080 Springdale Road) in Cherry Hill Township, Camden County	Known soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance at site or within the CEA.
39	33.4	217008	2090 Spring Road	2090 Spring Road, Cherry Hill Township, Camden County	Known soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance.
40	34	012541	Republic Services of NJ LLC	MP 34 Northbound Turnpike, Mount Laurel Township, Burlington County	Known soil contamination at site and proximity, potential for historic fill, additional investigation recommended if earth disturbance.
41	34	G000033414	PBP Enterprises Inc.	MP 34 Northbound Turnpike, Mount Laurel Township, Burlington County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance at site.
42	34.5	007208	Lukoil Station #5770	921 Fellowship Road (NJ-73), Mount Laurel Township, Burlington County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance at site or within the CEA. Avoid disturbing UST systems at the site.
43	34.5	G000042244	Greyhound Bus Terminal	538 Fellowship Road, Mount Laurel Township, Burlington County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance at site.
44	35.4	001898	American Biltrite Rubber Co.	106 Gaither Drive, Mount Laurel Township, Burlington County	Active case, soil and/or groundwater contamination at site

Site #	MP	PI Number	Name	Address	Areas of Concern
					and proximity, additional investigation recommended if earth disturbance at site.
45	35.4	016424	Sunoco 0012-2697	712 South Church Street, Mount Laurel Township, Burlington County	Active case, soil and/or groundwater contamination at site and proximity, additional investigation recommended if earth disturbance at site.
46	35.8	196506	Colonial Pipeline	MP 35.8 Northbound Turnpike, Mount Laurel Township, Burlington, County	Known soil contamination at site and proximity, potential for historic fill, additional investigation recommended if earth disturbance at site or within the CEA.
48	13	N/A	Interchange 2	MP 13 Southbound Turnpike, Woolwich Township, Gloucester County	Potential for historic fill, additional investigation recommended.
49	25.4	N/A	New Interchange 2A	Between MP 23.75 and MP 25.4, in Deptford Township, Gloucester County, and Runnemede Borough, Camden County	Potential for historic fill, additional investigation recommended.
50	24.3	009383	Friends of Israel Gospel Ministry Inc.	1179 Almonsson Road, Deptford Township, Gloucester County	Not expected to environmentally impact the Widening Program ROW.
51	24.5	261740	Bellmawr Landfill Redevelopment	MP 24.5 Southbound Turnpike, Deptford Township, Gloucester County	Known soil contamination at site and proximity, potential for historic fill, additional investigation recommended if earth disturbance at site or within the CEA.
52	26.1	013173	Interchange 3	MP 26.1 Southbound Turnpike, Runnemede, Camden County	Known groundwater contamination at site, presence of historic fill, deed restriction, and CEA, additional investigation is recommended if earth disturbance at site.
53	34.5	013174	Interchange 4	MP 34.5 Southbound Turnpike, Runnemede, Camden County	Potential for historic fill, additional investigation recommended.

Site #	MP	PI Number	Name	Address	Areas of Concern
54	5.4	013307	Clara Barton Service Area 1-S	MP 5.4 Southbound Turnpike, Oldmans Township, Salem County	Known soil contamination at site and potential for historic fill; additional investigation recommended if earth disturbance at site or within the CEA. Avoid disturbing active UST systems at site.
55	5.4	013308	John Fenwick Service Area 1-N Sunoco 0368-294	MP 5.4 Northbound Turnpike, Oldmans Township, Salem County	Known soil contamination at site and potential for historic fill; additional investigation recommended if earth disturbance at site or within the CEA. Avoid disturbing active UST systems at site.
56	30	013305	Walt Whitman Service Area 3-S	MP 30 Southbound Turnpike, Cherry Hill Township, Camden County	Known soil contamination at site and potential for historic fill; additional investigation recommended if earth disturbance at site or within the CEA. Avoid disturbing active UST systems at site.

Source: AECOM, 2021 and EDR, 2021

**TABLE:  
SUMMARY OF ELECTED AND PUBLIC OFFICIALS' BRIEFINGS**

### Summary of Elected and Public Officials' Briefings

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
1/7/2021, Via Zoom, Runnemede Mayor Nick Kappatos, Councilman Robert Farrell, Council President Patricia Tartaglia Passio	Elected Officials Briefing	Project briefing	Improving the aesthetics and traffic problems on Black Horse Pike is important; existing traffic issues at Interchange 3; there is a Black Horse Pike redevelopment plan; there is poor drainage in the area of an existing pump station near the Turnpike	Continue coordination
6/17/2021. Via Zoom. Assemblyman William Moen's office (LD5).	Elected Officials Briefing	Project briefing	Interchange 3, quality of life, direct access; emergency access points for first responders; need for community engagement; special event traffic congestion	Continue coordination
6/22/2021. Via Zoom. Congressman Jeff Van Drew's office (CD2)	Elected Officials Briefing	Project briefing	Ongoing community engagement; volunteered as a resource; potential impacts to residents; be kept informed on any detours	Continue coordination
6/24/2021. Via Zoom. Brooklawn Borough Mayor Theresa Branella.	Elected Officials Briefing	Project briefing	Concerns about construction impacts; ongoing community engagement and communication is important	Continue coordination
6/30/2021. Via Zoom. Camden County Commissioner Director Lou Cappelli.	Elected Officials Briefing	Project briefing	Ongoing community engagement and communication is important; recommended providing briefings with local officials	Continue coordination
6/30/2021. Via Zoom. Salem County Commissioner Ed Ramsay.	Elected Officials Briefing	Project briefing	Inquired if the project will stay within the existing ROW; informed project team to a resident petition to the County for the elimination of a bridge and if the Authority would create the necessary turnarounds	Continue coordination
7/1/2021. Via Zoom. Haddonfield Borough Mayor Colleen Bianco Bezich.	Elected Officials Briefing	Project briefing	Inquired what ROW would be necessary and how that would impact residents and businesses; stormwater impacts	Continue coordination

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
7/1/2021. Via Zoom. Runnemede Borough Mayor Nick Kappatos.	Elected Officials Briefing	Project briefing	Black Horse Pike aesthetics around the interchange area; traffic issues at Interchange 3; construction lead time; drainage issues; meetings and notifications for residents; town special event may be impacted by construction	Continue coordination
7/7/2021. Via Zoom. Senator Troy Singleton's office (LD7).	Elected Officials Briefing	Project briefing	Concerns about traffic backups around the interchanges during expansion	Continue coordination
7/8/2021. Via Zoom. Senator James Beach's office (LD6).	Elected Officials Briefing	Project briefing	Ongoing community engagement and communication is important	Continue coordination
7/8/2021. Via Zoom. Woolwich Township Mayor Vernon Marino.	Elected Officials Briefing	Project briefing	Issues regarding Route 322/Interchange 2 specifically planned water and sewer work, development, traffic, and existing turning lanes; noise study and barriers; sequence of construction	Continue coordination
7/9/2021. Via Zoom. U.S. Senator Cory Booker's Office: South Jersey Director MacKenzie Belling, & Deputy State Director Zach McCue.	Elected Officials Briefing	Project briefing	Possible Detours; possible noise barriers; emergency access needs; Interchange 3 traffic issues; Federal waterway involvement; ongoing community engagement and communication is important	Continue coordination
7/15/2021. Via Zoom. Senator Stephen Sweeney (LD3) & Assemblymen John Burzichelli & Adam Taliaferro.	Elected Officials Briefing	Project briefing	Interchange 3 traffic issues; community outreach, requested a 360 virtual presentation	Continue coordination
7/15/2021. Via Zoom. Burlington County Commissioner Tom Pullion.	Elected Officials Briefing	Project briefing	Community engagement plans; Route 73 / I-295 improvements impact	Continue coordination

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
7/15/2021. Via Zoom. Congressman Donald Norcross' office (CD1).	Elected Officials Briefing	Project briefing	Federal waterways; pipeline locations; budget and funding; needed land acquisition and the Direct Connector project; design of overpasses; possibility of additional interchange	Continue coordination
7/19/2021. Via Zoom. Assemblywoman Carol Murphy (LD7), Mt. Laurel Mayor Stephen Steglick, Mt. Laurel Deputy Township Manager Brandon Shillingford & Mt. Laurel Traffic Engineer Joseph Raday.	Elected Officials Briefing	Project briefing	Infrastructure importance; keeping constituents informed; Route 73 NJDOT work; Roger's Walk; possible road closures during construction. Interchange traffic issues	Continue coordination
7/19/2021. Via Zoom. Assemblyman Herb Conaway's office (LD7).	Elected Officials Briefing	Project briefing	Emergency U-Turns; cultural resources; new Interchange 3 access points; fiber optic lines; community outreach	Continue coordination
7/19/2021. Via Zoom. Barrington Borough Mayor Patti Harris.	Elected Officials Briefing	Project briefing	Construction period; public notifications and Borough's role; emergency bridges; community events; Beaver Brook stormwater runoff	Continue coordination
7/20/2021. Via Zoom. Congressman Andy Kim (CD3).	Elected Officials Briefing	Project briefing	Importance of community engagement; potential impacts: ROW, noise, and traffic flow; detour information	Continue coordination
7/22/2021. Via Zoom. East Greenwich Township Mayor Dale Archer.	Elected Officials Briefing	Project briefing	Future development in the Township; noise barriers; Interchange 3; detours; utilities	Continue coordination
7/26/2021. Via Zoom. Oldmans Township Mayor George Bradford.	Elected Officials Briefing	Project briefing	ROW issues; communication materials; traffic noise	Continue coordination

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
7/27/2021. Via Zoom. Assemblyman Louis Greenwald (LD6).	Elected Officials Briefing	Project briefing	Interchange 4 traffic and I-295; updates on detours and construction; ROW acquisitions; response from other Townships; economic growth	Continue coordination
7/27/2021. Via Zoom. Cherry Hill Township Mayor Susan Shin Angulo.	Elected Officials Briefing	Project briefing	Noise barriers	Continue coordination
7/28/2021. Via Zoom. Bellmawr Borough Mayor Chuck Sauter.	Elected Officials Briefing	Project briefing	Request to meet with police and fire; communication materials	Continue coordination
7/30/2021. Via Zoom. Woodbury Heights Borough Mayor William Packer.	Elected Officials Briefing	Project briefing	Property owner concerns and notifications; stormwater and sewer issues; South Jersey Light Rail project	Continue coordination
8/9/2021. Via Zoom. Pennsville Township Robert McDade.	Elected Officials Briefing	Project briefing	Planned warehouse projects in the Township	Continue coordination
8/9/2021. Via Zoom. Carney's Point Township Mayor Kenneth Brown.	Elected Officials Briefing	Project briefing	Courses Landing Road overpass; warehouse developments in the Township; ROW issues; communication materials	Continue coordination
8/9/2021. Via Zoom. West Deptford Township Mayor Denise DiCarlo.	Elected Officials Briefing	Project briefing	Traffic; detour outreach	Continue coordination
8/11/2021. Via Zoom. Pennsville Township Mayor Robert McDade.	Elected Officials Briefing	Project briefing	Planned warehouse projects in the Township	Continue coordination
8/11/2021. Via Zoom. Senator Bob Menendez's Office: Deputy State Director Frank Schultz.	Elected Officials Briefing	Project briefing	Offered support with Federal entities	Continue coordination

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
8/11/2021. Via Zoom. Assemblywoman Pamela Lampitt (LD6).	Elected Officials Briefing	Project briefing	Land takings and condemnations; impacts from construction on the community; traffic; noise barriers; endangered species; outreach with NJ State Police; future technologies such as fully autonomous vehicles	Continue coordination
8/12/2021. Via Zoom. Lawnside Borough Mayor Mary Ann Wardlow.	Elected Officials Briefing	Project briefing	Overpass/traffic issues	Continue coordination
8/12/2021. Via Zoom. Gloucester County Commissioner Director Robert Dammingier.	Elected Officials Briefing	Project briefing	Municipality contact assistance; Interchange 2 warehouse development; Gloucester County Utilities Authority/Improvement Authority coordination	Continue coordination
8/23/2021. Via Zoom. Harrison Township Mayor Lou Manzo.	Elected Officials Briefing	Project briefing	Warehouse developments in the Township; community outreach	Continue coordination
8/23/2021. Via Zoom. Pilesgrove Township Mayor Kevin Eachus.	Elected Officials Briefing	Project briefing	Warehouse developments in the Township; traffic pattern issues	Continue coordination
9/15/2021. Via Zoom. Deptford Township Mayor Paul Medany.	Elected Officials Briefing	Project briefing	Township recently joined Gloucester County Emergency Management Services; noise levels	Continue coordination
11/4/2021. Via Zoom. Gloucester County Commissioner Heather Simmons	Elected Officials Briefing	Project briefing	Importance of working together; detours at Interchange 2/Rt 322; Interchange 3	Continue coordination
11/29/2021. Via Zoom. Mount Laurel Mayor Steve Steglik.	Elected Officials Briefing	Project briefing	Detours/overpass bridges; construction timing of widening and Interchange 4 improvements	Continue coordination
12/8/2021, Via Zoom. Lawnside Mayor Mary Ann Wardlow, Councilwoman Rhonda Wardlow Hurley,	Elected Officials Briefing	Project briefing	Turnpike overpass traffic issues; emergency services access	Continue coordination

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
Councilman Robert Lee, Police Captain W. Plenty, Deputy Administrator Angelique Rankins, and Borough Engineer Sean Smith				
12/15/2021, Via Zoom. Assemblyman William Moen, and Legislative Director and Barrington Councilman Kyle Hanson	Elected Officials Briefing	Project briefing	Interchange 2A and 3 issues and potential solutions	Continue coordination
3/7/2022 and 4/19/2022, Via Zoom. Congressman Donald Norcross	Elected Officials Briefing	Project briefing	Overpass bridge replacement and underpasses; Interchange 3 congestion reduction needs	Continue coordination
3/8/2022, Via Zoom. Senator Troy Singleton	Elected Officials Briefing	Project briefing	Overpass bridge replacement and underpasses; impacts on residential development; construction equipment staging	Continue coordination
3/9/2022, Via Zoom. Woolwich Township Mayor Craig Frederick, Deputy Mayor Dennis Callahan, Business Administrator Jane DiBella, Township Engineer Rick Alaimo	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; regarding, two bridges (Swedesboro-Monroeville Road and Franklinville Road), local preference is for maintenance of one-way traffic on these bridges during Program construction; future development along CR 322 requires coordination between the Authority, NJDOT, and the Township regarding accommodating future traffic	Provision for one-way traffic on bridges during Program construction was incorporated into the Program design; Authority to coordinate with NJDOT regarding future development traffic accommodation
3/11/2022, Via Zoom. Assemblyman William Moen, Chief of Staff Kyle Hanson	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; noise effects and barriers; Interchange 3 studies; Route 168 congestion	Continue coordination

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
3/14/2022, Via Zoom. East Greenwich Mayor Dale Archer, Deputy Mayor Jim Philbin, Township Planner/Engineer Joe Austyn, Solicitor Maria Gaglione, Public Works Manager Anthony Rossett, Municipal Engineer Frank Morris and Rick Hunt	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; water line impacts; utilities maps; effect on retaining wall; Program to reprofile Jessup Hill Road/East Cohawkin Road intersection to address sight distance issues; use of Mantua Road bridge by bicyclists and pedestrians warrants sidewalks; request for proposed development information from municipality	Continue coordination
3/15/2022, Via Zoom. Senator James Beach	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; support for maintaining two directions of traffic on bridges during Program construction; support for Wildflower Program; support for Program outreach efforts to municipalities	Continue coordination
3/28/2022, Via Zoom. Burlington County Commissioner Director Daniel O'Donnell, County Engineer Joe Brickley; County Administrator Eve Cullinan; Director of Marketing and Communications Charlene Webster, County Solicitor Ashley Buono	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; concern regarding potential concurrent construction of Program and NJDOT's Route 73/Fellowship Road project; support for maintaining access to Springdale Road during Church Road construction; County road closures require Commission approval and a County Occupancy Permit; potential for temporary change in jurisdiction over County roads during construction as was done for the Turnpike 6 to 9 Widening Program, would require discussion with the County; County request to be notified before meeting with stakeholders in County	Authority coordinates with NJDOT regarding the Route 73/Fellowship Road project, which will not impact traffic on Church Road where both lanes will remain open during Program construction; Program would maintain access to Springdale Road during Church Road construction; Authority to notify County before meeting with stakeholders
3/28/2022, Via Zoom. Chief of Staff for Assemblyman Louis	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; construction schedule	Continue coordination

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
Greenwald and Assemblywoman Pamela Lampitt: Amy Swan				
3/28/2022, Via Zoom. Runnemede Borough Mayor Nick Kappatos, Sewer Utility Superintendent Harry Wozunk, Borough Engineer Steve Bach	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; Conrail Grenloch Branch property is part of County Rails to Trails program, but no plans to extend under the Turnpike because the rail line is active on the west side; Borough supports improvements in the rail line area; drainage issues under the Turnpike bridge; sanitary sewer line under the bridge; Bowers Avenue will be repaved this year; existing foreclosure issue with the property at the rail line crossing; Interchange 3 ramps have flooded; Borough is worried about potential for flooding on Route 168 if elevation is lowered; request for Authority's policy on murals; redevelopment proposed east of Interchange 3, requests determination if Program will impact the site; municipal support for new interchange at Route 42	Authority is studying and cleaning the Turnpike drainage system; Authority to provide mural policy to Borough; Authority to respond regarding the Interchange 3 redevelopment site
3/30/2022, Via Zoom. Gloucester County Commissioner Heather Simmons, County Engineer Vincent Voltaggio	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; County typically does traffic controls not detours during construction; CR 538 is a summer traffic road and must remain open; concern regarding emergency response times on temporary detours	Authority will consider County's typical construction practices regarding detours
3/30/2022, Via Zoom. Assemblywoman Carol Murphy, Mount Laurel Manager Meredith Tomczyk, Deputy Township Manager Brandon Shillingford,	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; need for Authority to coordinate with NJDOT regarding the Route 73 project and Interchange 4; noise barriers	Authority is coordinating with NJDOT; Authority to share noise barrier analysis with Township

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
Township Engineer Michael Angelastro				
3/30/2022, Via Zoom. Salem County Commissioner Director Benjamin Laury, Commissioner Ed Ramsay, County Engineer James McKelvie	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; Authority would replace existing sidewalks that are impacted by the Program; concern that proposed traffic signals would affect local traffic	Authority to coordinate with NJDOT regarding signal design
4/11/2022, Via Zoom. Barrington Mayor Patti Harris, Borough Engineer Greg Evans, Borough Clerk Terry Shannon	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; concern regarding access to 150 and 152 Shreve Avenue; Shreve Avenue guardrail maintenance responsibility exchange; development generates heavy truck traffic along Atlantic Avenue; proposed sewer line work under the Turnpike by Borough	Authority to review access to 150 and 152 Shreve Avenue during final design; Authority to seek memorandum of agreement with the Borough regarding maintenance and operational responsibilities
4/11/2022, Via Zoom. Camden County Commissioner Al Dyer, Engineer Kevin Becica	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; a local trail is being considered along the Grenloch Branch; Clements Bridge Road is a major connector in the County; County completed road upgrade project five years ago; County would be open to some form of detour or closure of Shreve Avenue, although access to existing industrial development would have to be maintained; existing Turnpike drainage issue at Atlantic Avenue; County concerns regarding Warwick Road safety issues, impacts of Program construction on the communities, need for communication as the Program advances; proposed residential development along Essex Road; CR 561 resurfacing by Program; Planned development in Cherry Hill at the Woodcrest Shopping Center; Vineland Construction property south of	Authority to review drainage issue at Atlantic Avenue during final design; CR 561 resurfacing material to be determined during final design

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
			Haddonfield-Berlin Road to be redeveloped; NJDOT has a project on Route 70; sidewalks are important along Church Road; maintenance of traffic is desired by County during bridge replacement; replace impacted sidewalks; address traffic congestion around Interchange 3, Route 168, and Route 42; County identified its major roadway improvement projects	
4/11/2022, Via Zoom. Legislative Assistant to Congressman Kim, Nate Riggins	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; concern regarding traffic impacts during Program construction	Continue coordination
4/19/2022, Via Zoom. Lawnside Mayor Mary Ann Wardlow, Councilwoman Rhonda Wardlow Hurley, Councilman Robert Lee, Police Captain William Plenty, Deputy Administrator Angelique Rankins, Borough Solicitor Edward Hill, Fire Department Manager Portie Farmer, Assistant Fire Chief Tim Drumm	Elected Officials Briefing	Program update and issues discussion	Overpass bridge replacement and underpasses; stormwater runoff issues at Atlantic Avenue; residents' concerns regarding existing and future planned development traffic on White Horse Pike; existing force main under the White Horse Pike bridge; property acquisitions; NJ American Water and pipeline infrastructure near White Horse Pike; concern for grade lowering effects to adjacent properties along Warwick Road; emergency service access requirements during Program construction	Continue coordination
4/22/2022, Via Zoom, Senator Cory Booker's Office: Deputy State Director Zach McCue, South Jersey Director MacKenzie Belling	Elected Officials Briefing	Program update and issues discussion	In addition to questions about the details of the Program, South Jersey Director MacKenzie Belling asked for a description of Program outreach to the public; the response provide is that outreach currently includes elected officials and future public	Program outreach to the public includes elected officials and future public hearings; Program information is also available

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			hearings; Program information is also available on the Program's virtual consultation room	on the Program's virtual consultation room
4/27/2022, Via Zoom, Senator Edward Durr, Assemblywoman Bethanne McCarthy Patrick, Assemblywoman Beth Sawyer	Elected Officials Briefing	Program update and issues discussion	Is the Authority considering a new interchange at Route 42? Concern about the potential impact of truck traffic on local roadways, especially near schools; there is no plan to increase capacity on local roadways	Potential for a new interchange at Route 42 or elsewhere north and south of Interchange 3 is being studied; Authority has the local development and traffic info for proposed developments, particularly near Interchange 2 and is evaluating interchange improvements to accommodate the expected traffic growth
5/16/2022, Via Zoom, Carney's Point Mayor Kenneth Brown, Engineer Steven Cosaboon	Elected Officials Briefing	Program update and issues discussion	Need to improve signage in the area of Interchange 0; the sewerage authority is planning a force main extension under the Turnpike; the Authority should coordinate with emergency service providers; attendees support the Interchange 0 improvements	Appropriate signage would be provided in connection with Program improvements; the Authority has reviewed the force main extension proposal and recommends moving the force main to the south of the existing Courses Landing Road structure over the Turnpike; emergency service provider coordination is being scheduled
5/16/2022, Via Zoom. Woolwich Township	Elected Officials Briefing	Program update and issues discussion	This meeting was to further discuss the NJTA Program in the context of other development in the Interchange 2 area, particularly related to roadway improvements	The NJTA would continue coordinating with the township during Final Design

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
5/18/2022, Via Zoom, Oldmans Mayor Dean Sparks, Engineer Tom Tedesco	Elected Officials Briefing	Program update and issues discussion	Concerned that local road closures may be required during Program construction; Temporary detours at CR 646 during Program construction are supported if Program impacts would be reduced; support maintaining traffic on local roadways during Program construction; Authority should coordinate with emergency service providers	In general, local roadways will remain open during Program construction although temporary closures could occur to make connections between Turnpike and local roadways; coordination with emergency service providers is being scheduled
5/19/2022, Via Zoom, Cherry Hill Mayor Susan Shin Angulo	Elected Officials Briefing	Program update and issues discussion	Consider improvements that take advantage of efficiencies of design, construction mobilization, and provide longer term congestion relief	The Authority is analyzing capacity and operational needs through design year 2040
5/19/2022, Via Zoom, Woodbury Heights Engineer Mark Brunermer, Clerk Shannon Elton, Public Works Manager Ryan Wells	Elected Officials Briefing	Program update and issues discussion	The Borough would like to upgrade an existing water line in the area of CR 652; also, the Borough would like to coordinate with the Authority to perform a video inspection of an existing sewer main that traverses the Turnpike; has the Authority coordinated with the DRPA regarding the proposed Gloucester to Camden Light Rail; Line	The Authority has a “license to Cross” process, which identifies the design requirements and process for utility work; the Authority will coordinate with the DRPA during final design
5/23/2022, Via Zoom, Haddonfield Mayor Colleen Bianco Bezich, Borough Administrator Sharon McCullough	Elected Officials Briefing	Program update and issues discussion	Timely sharing of Program information with the public is important	Continue coordination
5/25/2022, Via Zoom, Legislative District 5 Chief of Staff Nohemi Soria-Perez	Elected Officials Briefing	Program update and issues discussion	What is the timing for staged construction?	Staged construction is typically 18-20 months compared to 12-14 months if the bridge is closed during construction

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Type	Objective		
5/25/2022, Via Zoom, Pennsville Mayor Rob McDade, Committee Member Dan Neu, Engineer/Township Administrator Jack Lynch, Engineer Mark Brunermer, Superintendent Pennsville Sewerage Authority Plant Office Tom Gant, Zoning Officer Bernard Sennstrom	Elected Officials Briefing	Program update and issues discussion	Route 49/Lippincott Avenue is problematic; NJDOT is reviewing in light of a 2 million square foot warehouse development being proposed on the former Atlantic City Electric facility site; the township is beginning a force main replacement project that will go under the Turnpike on the north side of the Deepwater Canal and coordination with the Authority will be needed; there is a question of who owns Old Pennsville-Auburn Road between Route 49 and CR 551 Hook Road	The Authority will consider the proposed development and will coordinate with the Township as the force main project is developed; the Authority will review the road ownership issue
5/27/2022, Via Zoom, Harrison Mayor Lou Manzo, Deputy Mayor Julie DeLaurentis, Police Chief Ronald Cundey, Police Captain Adam McEvoy, Engineer Dennis McNulty	Elected Officials Briefing	Program update and issues discussion	Coordination with emergency service providers is needed	Coordination with such providers is being undertaken through the NJ State Police and the County Offices of Emergency Management, which will support outreach to municipalities and local providers
5/27/2022, Via Zoom, Pilesgrove Township Engineer James McKelvie	Elected Officials Briefing	Program update and issues discussion	Potential for a future warehouse development on a property that is at the edge of the Program limits of disturbance; support for not providing a sidewalk on the two structures over the Turnpike because there is little pedestrian activity in those areas	Program impacts to the property would be minimal
6/3/2022, Via Zoom. Burlington County Engineer Joe Brickley	Elected Officials Briefing	Program update and issues discussion	The meeting purpose was for the county to share information with the Authority regarding their project at Creek Road; the county agreed to share their project plans with the NJTA when available	The NJTA would consider the county's project plans and will coordinate further with the county during Final Design

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
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6/7/2022, Via Zoom, Senator Menendez's Statewide Director Rudy A. Rodas, Deputy State Director Frank Schultz, Legislative Congressman Josh Sanders	Elected Officials Briefing	Program update and issues discussion	A question about Program funding was asked; a question about effects on school bus operations on bridges over the Turnpike	Program funding is sourced from the 2020 toll increases; traffic operations will remain open on the existing bridges while the new bridges are constructed
6/13/2022, Via Zoom, Bellmawr Mayor Charles Sauter, Borough Clerk Fran Wright-Straub, Engineer Steven Bach, Engineer Nicholas J. Bishop	Elected Officials Briefing	Program update and issues discussion	Borough is concerned with the potential of lowering Route 168 under the mainline because of flooding issues; Borough asked about a potential new interchange at Route 42; the Borough has not approved any redevelopment plans	Program would not lower Route 168 in the flooding concern area; the Authority is analyzing solutions to traffic issues at Interchange 3
6/21/2022, via Zoom, West Deptford Mayor James P. Mehaffey, Township Administrator Lee Ann DeHart, Emergency Management Coordinator Bob Gigliotti, Lieutenant Michael Pfeiffer	Elected Officials Briefing	Program update and issues discussion	A 600-home development is underway west of the Turnpike between Ogden Road and Parkville Station Road; substantial stormwater issues are present near Interchange 3; concern with bridge construction and potential for detours; potential for sound barriers	The NJDOT pipe at Route 45 is backed up and is scheduled to be cleaned along with other NJDOT pipes in the area; existing bridges will remain open during construction of new bridges; the warrant for sound barriers will be based on established criteria, which is under study
7/28/2022, Via Zoom, Deptford Township Manager Tom Newman, Township Engineer Jon Bryson	Elected Officials Briefing	Program update and issues discussion	The schedule for public engagement was requested; concern with bridge construction	Public meetings will occur during final design, but in the meantime the public can access the Program's Virtual Public Information Center on the website; existing bridge construction

Meetings and Workshops			Key Comment Themes	New Jersey Turnpike Authority Response Actions
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8/15/2022, Via Zoom, Pennsville Sewerage Authority (PSA)	Elected Officials Briefing	Program update and issues discussion	PSA and Authority coordination needed regarding potential sanitary sewer force main project at I-295 Interchange 1	The Authority will continue coordinating with the PSA during final design
8/16/2022, Via Zoom, Borough of Lawnside, Mayor Mary Ann Wardlow, Councilman Robert Lee, Councilwoman Rhonda Wardlow-Hurley, Engineer Sean Smith, Business Administrator Angelique Rankins, Police Captain William Plenty, Borough Solicitor Edward Hill, Esq., Assistant Fire Chief Tim Drumm	Elected Officials Briefing	Program update and issues discussion	Relocation of a hydrant and digital sign on Douglas Avenue may be required. The historic Peter Mott house and associated dirt road are close to the Turnpike's existing ROW. A fence is close to or on the Turnpike's ROW line  Concern about the design of Warwick Road in light of instances of motorists speeding on the road and ROW requirements that could affect municipal properties; and concern about water main relocation and effect on hydrants. Question about ROW needs on the east side of the Turnpike	The Authority would coordinate with the Borough regarding relocation of the hydrant and sign on Douglas Avenue as well as the location of the dirt road behind the Peter Mott House and the fence. All Program activities would occur within the existing Turnpike ROW in the area of the Peter Mott House, dirt road, and fence  The Authority will continue coordinating with the Borough and utility providers during final design when more design detail will be developed for Warwick Road, utility relocations, and ROW needs
11/28/2022, Via Zoom. Congressman Donald Norcross' office (CD1).	Elected Officials Briefing	Program update and issues discussion	Warrant for a new Interchange 2A	The Authority will continue investigating the potential for this new interchange
11/30/2022, Via Teams Salem County Commissioner Ed Ramsay, County Administrator Jeffrey Ridgeway, and Deputy	Officials Briefing	Program update and issues discussion	Discussion of proposed U-Turn designs	The Authority will continue coordinating with the County during final design.

**TABLE:**  
**SUMMARY OF AGENCY MEETINGS AND WORKSHOPS**

## Summary of Agency Meetings and Workshops

Federal and State Agency Meetings			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Types	Objective		
5/19/2021 Via Teams, New Jersey Department of Environmental Protection (NJDEP)	Regulatory Agency Coordination Meeting	Wetland Delineation Discussion	The purpose of this meeting was the discussion of the wetland delineation and waterway identification. Specific topics discussed were drainage ditches, delineation distance (150 feet), data form use, the LOI and Flood Hazard Area Verification, and threatened and endangered species	The Authority will continue coordination with NJDEP
6/30/2021 Via Teams, New Jersey Department of Transportation (NJDOT)	Agency Coordination Meeting	Route 73 Project Overview	Overview and discussion of NJDOT's Route 73 Project including widening, bridge replacement, and Fellowship Road modifications. Including coordination of the Program and the project	The Authority will continue coordination with NJDOT
7/27/2021 Via Teams, NJDOT	Agency Coordination Meeting	Monthly Coordination Meeting	Provided an overview presentation of the Program. This meeting also included discussion concerning NJDOT facilities within the Program area as well as establishing the communication protocols between the agencies	The Authority will continue coordination with NJDOT
8/12/2021 Via Teams, NJDOT	Agency Coordination Meeting	Monthly Coordination Meeting	NJDOT provided the Program Team with traffic studies and other supporting information for Route 168 as requested. An inventory of NJDOT crossings on the Corridor was shared in the meeting. Discussion included the Program schedule and NJDOT engagement and the design alternatives for interchanges 0, 2, & 3A	The Authority will continue coordination with NJDOT
9/8/2021 Via Teams, US Army Corps of Engineers (USACE)	Regulatory Agency Coordination Meeting	Project briefing	Provided an overview presentation of the Program. The meeting also included discussion on regulatory elements and an independent utility analysis	The Authority will continue coordination with USACE

Federal and State Agency Meetings			Key Comment Themes	New Jersey Turnpike Authority Response Actions
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9/9/2021 Via Teams, NJDOT	Agency Coordination Meeting	Monthly Coordination Meeting	The Program Team provided an in-depth look at potential design alternatives for the Interchange 0A/0B area, with concepts that are now informed by traffic data and projections. This discussion included traffic analysis, next steps and coordination with the NJDOT	The Authority will continue coordination with NJDOT
10/6/2021 Via Teams, New Jersey's Historic Preservation Office (NJHPO)	Agency Coordination Meeting	Architectural History Survey and Reporting Methodology	This meeting took place at the request of the New Jersey Historic Preservation Office (NJHPO) to discuss the survey and reporting methodology for the Program after receiving the Initiation of Project Consultation, submitted to the NJHPO by the Authority and the Program Team on August 18, 2021	The Authority will continue coordination with NJHPO
10/12/2021 Via Teams, NJDOT	Agency Coordination Meeting	Monthly Coordination Meeting	The purpose of this meeting was to introduce a larger NJDOT audience to the Program and potential design concepts	The Authority will continue coordination with NJDOT
10/21/2021 Via Teams, Delaware River & Bay Authority (DRBA)	Agency Coordination Meeting	Project briefing	Provided an overview of the Interchange 1 to 4 Widening Program and review current design concepts for the Interchange 0A / 0B area. Included discussion on schedule, jurisdictional limits, the individual interchanges, and traffic and crash analysis	The Authority will continue coordination with DRBA
11/10/2021 Via Teams, Federal Highway Administration (FHWA)	Agency Coordination Meeting	Project briefing	Provided an overview of the Program and review current design concepts for the Interchange 0A / 0B area. Included discussion on schedule, jurisdictional limits, the individual interchanges, and traffic and crash analysis	The Authority will continue coordination with FHWA

Federal and State Agency Meetings			Key Comment Themes	New Jersey Turnpike Authority Response Actions
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1/13/2022 Via Teams, NJDOT.	Agency Coordination Meeting	Monthly Coordination Meeting	The purpose of this meeting was the discussion of Interchange 3, NJDOT's Route 168 project, and the overview of overpassing structures replacement / construction that will affect NJDOT roadway traffic	The Authority will continue coordination with NJDOT
2/10/2022 Via Teams, NJDOT.	Agency Coordination Meeting	Monthly Coordination Meeting	Status updates were provided by NJDOT for the Route 73 and Route 168 projects; Authority would like to coordinate with NJDOT regarding existing structures over the mainline	The Authority will continue coordinating with NJDOT
3/10/2022 Via Teams, NJDOT.	Agency Coordination Meeting	Monthly Coordination Meeting	This meeting focused on existing NJDOT structures over the mainline and NJDOT facilities under the mainline; need for coordination with NJDOT where NJDOT's construction plans for structures occur at the same time as the Authority's mainline construction activity; need to protect integrity of NJDOT and Authority structures during construction activities by each agency, such as the NJDOT structure over the mainline, US 40 and the Salem Canal at M.P. 0.47); NJDOT bridge policies to reduce lifecycle and maintenance costs will need to be considered	The Authority will continue coordinating with NJDOT on the issues raised during this meeting
3/23/2022 Via Teams, NJHPO.	Agency Coordination Meeting	Architectural History Survey and Reporting Methodology	NJHPO comments on table of resources and suitability criteria enhancements	The Authority to refine the Survey and Reporting Methodology according to NJHPO input
3/24/2022 Via Teams, Delaware River Port Authority (DRPA)	Agency Coordination Meeting	Project briefing	Regarding Program replacement of the bridge (No. 29.35) that crosses over PATCO, the DRPA will require maintenance of PATCO train traffic	The Authority will coordinate with DRPA regarding design and construction planning for the bridge over PATCO

Federal and State Agency Meetings			Key Comment Themes	New Jersey Turnpike Authority Response Actions
Date, Location & Officials	Types	Objective		
			under the bridge during construction. Related considerations include maintaining existing vertical clearance and accommodating existing power lines on the structure	
4/14/2022 Via Teams, NJDOT	Agency Coordination Meeting	Monthly Coordination Meeting	Discussion of development plans around Interchange 2 and the traffic data; the Authority plans to replace the CR 561 structure over the mainline in Camden County; NJDOT has concepts to replace the Route 70 bridge over the mainline at M.P. 32.3	The Authority will continue coordinating with NJDOT on the issues raised during this meeting
7/8/2022 Via Teams, NJ State Police Troop D, Sgt. Justin Mokszycki, SFC Paul Mirao	Agency Coordination Meeting	Project briefing	Program overview with a focus on the U-Turns and proposed radar pad locations to be used by the State Police; concern that spacing between U-Turns could increase emergency response times	The Authority's Department of Operations will consider the concern about U-Turn spacing
9/8/2022 Via Teams, NJDOT	Agency Coordination Meeting	Monthly Coordination Meeting	Program updates related Interchanges 0, 2, 3, and 4; NJDOT project updates at these locations	The Authority will continue coordinating with NJDOT on the issues raised during this meeting
10/12/2022 Via Teams, NJDOT	Agency Coordination Meeting	Monthly Coordination Meeting	Program updates related Interchange 2 ramps; various traffic studies by others propose new signals along Route 322	The Authority will provide comment on the Woolwich Traffic Study; coordination with NJDOT on the issues raised during this meeting will continue
10/13/2022 Via Teams, NJDOT	Agency Coordination Meeting	Additional Coordination Meeting	Program updates related Interchange 0; discussion of proposed area development and resulting truck traffic; stormwater effects	The Authority will continue coordinating with NJDOT on the issues raised during this meeting