BORDENTOWN TOWNSHIP REDEVELOPMENT
PROPOSED CONNECTOR ROAD

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

May 2014

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The symbol in our logo is adapted from the official DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

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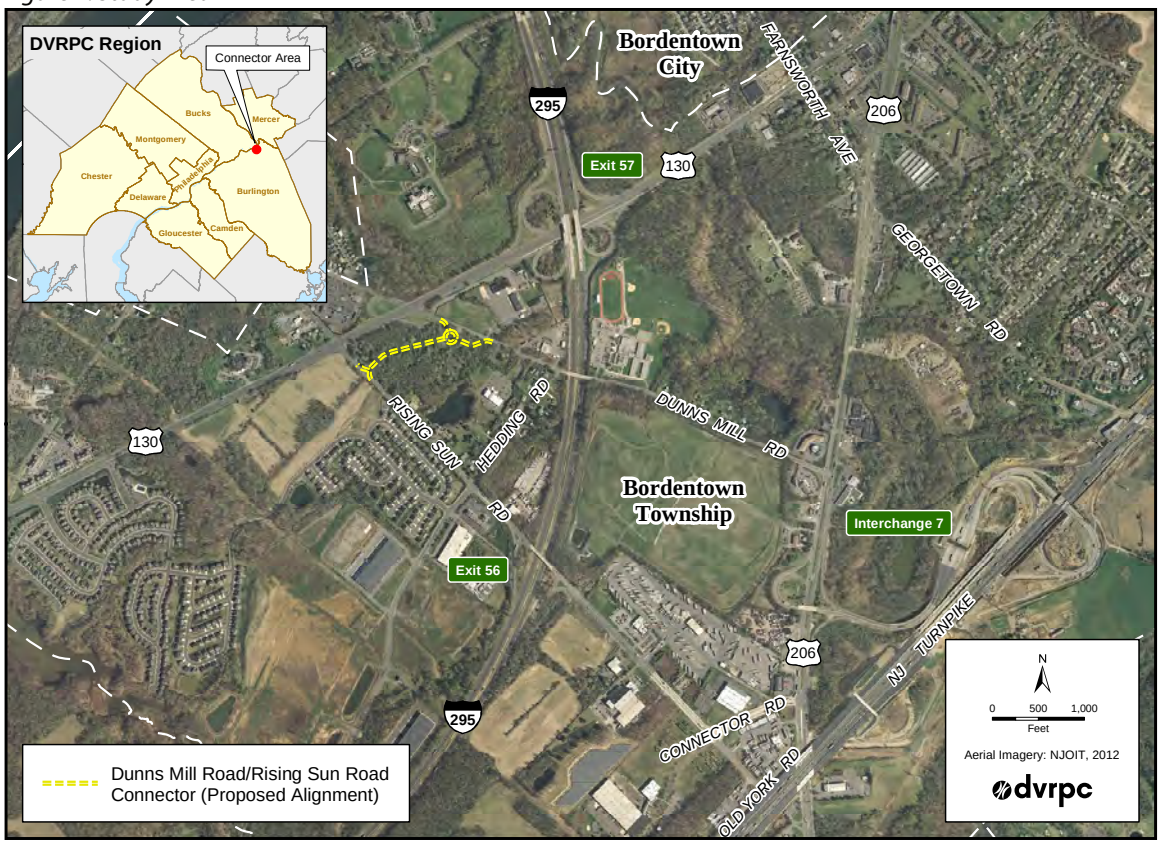
EXECUTIVE SUMMARY

At the request of Burlington County and Bordentown Township, DVRPC conducted a traffic study to determine the impact on traffic of constructing a new road in a developing section of Bordentown Township. The study area encompasses the section of the Township bounded by US 130 to the west, Farnsworth Avenue to the north, US 206 to the east, and Rising Sun Road to the south (see Figure 1). This study examined the impact of building a new connector road between Dunns Mill Road and Rising Sun Road to improve traffic circulation in the area. The proposed road would accommodate tractor-trailer traffic that would otherwise be using Farnsworth Avenue to access Rising Sun Road due to the fact that the southbound off- ramp at Exit 56 of I-295 is missing. This report includes the baseline traffic data, the utilized methodologies, the alternatives explored, and the final recommendations. An implementation plan, highlighting potential breakout projects, has been developed.

Several intersections would be impacted if a new connector road is constructed. The following intersections were analyzed in depth using microsimulation software to determine the impact of a new connector road on their performance through the year 2040.

Figure 1: Study Area



US 130 & Farnsworth Avenue

In a no-build scenario (no improvement to existing road network), this intersection's performance is degraded when compared to the base-year (2013) scenario. The build-scenario also shows degradation over the base-year scenario during the PM peak hour. The eastbound approach experiences delays in all three scenarios and actually sees a modest improvement in the build-scenario over the base-year scenario. Overall, the potential new connector road would provide a performance benefit to this intersection.

US 206 & Farnsworth Avenue

In all three scenarios, the westbound approach performs poorly during the AM peak hour and the southbound approach performs poorly during the PM peak hour. Similar to the US 130 and Farnsworth Avenue intersection, the no-build scenario performs the worst and the build scenario does provide some benefit when compared to the no-build scenario. However, the difference is that both future scenarios degrade significantly when compared to the base-year scenario. Based on the analysis, this intersection would benefit from the new connector road.

US 206 & Connector Road

This intersection performs adequately in all scenarios.

US 130 & Dunns Mill Road

This intersection is key to the success of the new connector road. The intersection performs worst in the build scenario. During the AM peak hour, the performance is satisfactory. The PM peak hour is a concern, particularly the southbound left-turn movement due to the need to use a far-side jug handle. The high traffic volumes entering the jug handle also create the potential for grid-lock. Mitigation techniques are available and were recommended.

Dunns Mill Road and New Connector Road

A roundabout is proposed for the intersection of US 130 with Dunns Mill Road. Based on the traffic estimates used for the build scenario, all traffic traveling along the Dunns Mill Road's eastern leg would travel through the roundabout. The traffic volumes suggest that a two-lane roundabout would likely be necessary. However, keeping open the intersection of US 130 and Rising Sun Road would make a one-lane roundabout sufficient.

Conclusion

Based on the analysis, the new connector road is feasible, yet the southbound approach of the US 130 and Dunns Mill Road intersection has congestion that must be mitigated for the new connector road to be successful. Additionally, the number of vehicles traveling through the new road's intersection with Dunns Mill Road would likely need to be a dual-lane roundabout unless the US 130 and Rising Sun Road intersection were to remain open. However, this would require further evaluation.

The study benefitted from the comments and ideas of the Technical Advisory Committee (TAC), which includes representatives of Burlington County, Burlington Township, and New Jersey Department of Transportation (NJDOT) officials. DVRPC staff worked with the TAC to define and prioritize the project's overall objectives, issue areas, and recommendations.

CHAPTER 1
PURPOSE AND NEED

Bordentown Township continues to experience issues with tractor-trailer traffic using Dunns Mill Road and Hedding Road, to access the truck stops on Rising Sun Road, as well as to access northbound I-295. Some southbound I-295 tractor-trailer traffic travels south on US 130 to Dunns Mill Road and U-turns to north on US 130, then turns right on to Farnsworth Avenue (CR 545). Farnsworth Avenue, which is less than 40 feet wide, has a mix of commercial and residential use and is also the focus of the Township's redevelopment plan to create a town center. Trucks utilize Farnsworth Avenue as a means to navigate to I-295 from US 206 northbound and to the NJ Turnpike from US 130, because of the missing northbound I-295 ramps at Exit 56. The truck traffic creates back-ups and congestion at Farnsworth Avenue and Routes 130 and 206.

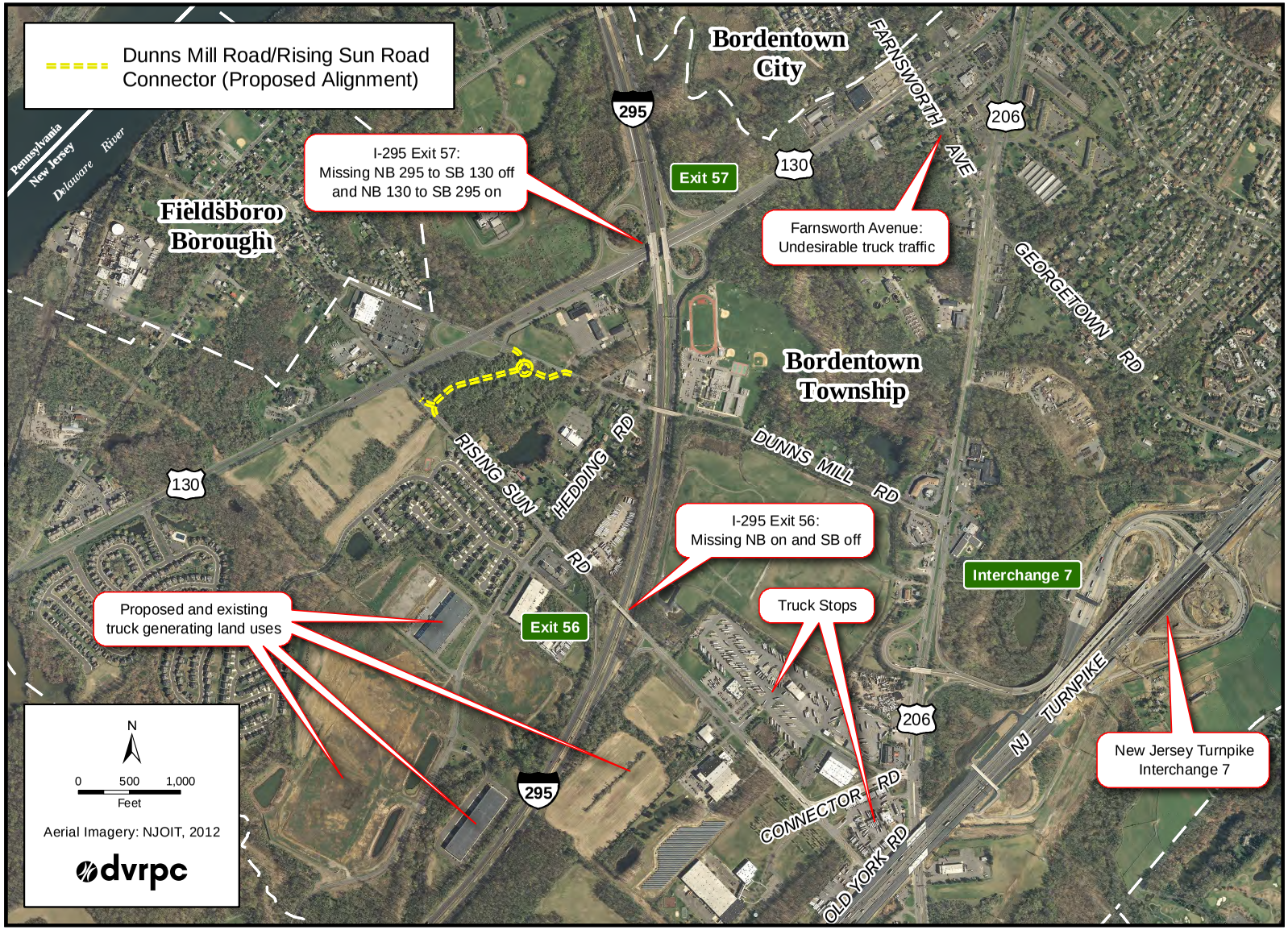
Due to the incomplete interchange at I-295 Exit 56, the most direct route for vehicles heading to Rising Sun Road or the NJ Turnpike from I-295 southbound is Exit 57. The permitted route for trucks is along US 130 to Farnsworth Avenue, to US 206 south. This results in eastbound Farnsworth Avenue experiencing a relatively high percentage of truck traffic (8.46 percent). With more than 2 million square feet of additional warehouse development planned for the Rising Sun Road area, the impact of truck traffic will be exacerbated.

The graphic in Figure 2 highlights the issue areas and truck attractors within the study area, as well as the highway interchanges and Farnsworth Avenue.

The purpose of this study is to develop solutions to improve traffic circulation and reduce delays within the corridor; improve traffic safety through better distribution of truck traffic; enhance local and regional economic development opportunities through improved access; and improve roadway conditions.

This study will therefore address the following needs: (1) Analyze the lack of appropriate connections for heavy vehicles between I-295 and the NJ Turnpike; (2) Identify possible improvements to the road network to improve the consistency, safety, and expediency of highway goods movement and accommodate current and future capacity requirements and; (3) Leverage transportation improvements to facilitate development of undeveloped parcels that would promote economic growth and job creation.

Figure 2: Issue Areas and Truck Attractors

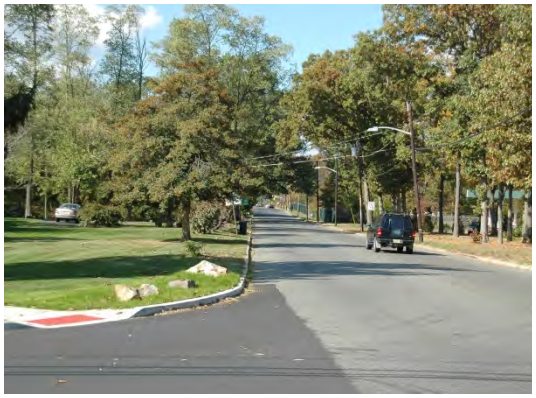


CHAPTER 2
LAND USE AND ENVIRONMENTAL CONSTRAINTS

Land Use

The study team utilized field surveys and GIS to inventory the study area's land use and environmental conditions. This inventory provided a baseline of current conditions. The land use inventory identified residential developments, civic institutions (schools, etc.), and open space. The environmental inventory identified environmental constraints that could impact the development potential of the area.

Existing land use within the study area consists of a mixture of suburban single-family residential development interspersed with trucking related activities such as warehouse and truck stops. Highway commercial activities are concentrated along the major arteries, primarily US 130 and at nodes along US 206. These are mostly eating and drinking places – fast food restaurants that cater to highway traffic.



Typical land use near proposed connector road

Planned Development

Several developments have been planned for the area that will impact traffic volume and circulation.

Old York Road Business Park

This is a proposed 640,000-square foot business park nestled between Old York Road and I-295.

FedEx Distribution Center

This is a proposed Class B warehouse located adjacent to I-295 exit 56 westbound ramp at Rising Sun Road. It will include 440,550 square feet with FedEx being the single tenant.

Central Crossings Business Park

This partially completed business park is located along Hedding Road to the south of Rising Sun Road. It is a Class A distribution center of approximately 2,000,000 square feet spanning 77 acres.

Central Crossings Business Park

Bordentown Waterfront Community

This is a mixed-use community with residential and commercial construction located on the Delaware River waterfront. Located to the west of US 130, this planned community will have access to a new rail station to be constructed along the River Line.

Environmental Constraints

The major environmental issues in the area are water resources. The study area includes a variety of water resources such as streams, wetlands, and floodplains. The area between Dunns Mill Road and Rising Sun Road west of Hedding Road has a large pond with adjacent wetlands. New Jersey protects freshwater wetlands under the New Jersey Freshwater Wetlands Protection Act Rules: N.J.A.C. A 7:7A. The law also protects transition areas, or buffers around freshwater wetlands. Approximately 6.5 acres of Deciduous Wooded Wetlands are located to the west of this pond. This type of wetlands occupies nearly 15 percent of Bordentown Township and supports mixed hardwoods that flourish in lowlands. Figure 9 on Page 25 provides an overview of wetlands in relation to the new connector road.

Between Dunns Mill Road and Farnsworth Avenue runs Blacks Creek, which runs east to west and terminates in the Delaware River. This is a fourth-order stream that is affected by tidal flow from the Delaware River twice a day.

A top-level environmental review was conducted for this study. The impact of the new connector road on the environment was examined.

In August 2013, DVRPC published the *Environmental Resource Inventory (ERI) for Bordentown Township, Burlington County, New Jersey (DVRPC Publication #13062)*. This report provides an extensive overview of environmental resources in the township. It contains a detailed environmental assessment for the township.

CHAPTER 3
HIGHWAY NETWORK

I-295

This is a major north-south interstate highway that runs parallel to the NJ Turnpike from its southern origin in Salem County north to Lawrence Township in Mercer County. Exit 56 provides a connection to Interchange 7 of the NJ Turnpike via Rising Sun Road and Connector Road.

US 130

US 130 is an Urban Principal Arterial linking southern and central New Jersey. Within the study area, US 130 is a divided four-lane roadway. US 130 has access to I-295 (Exit 57A and B) via an interchange that provides seven of the eight potential movements. US 130's posted speed limit ranges from 40 MPH to 55 MPH.

US 206

US 206 is a major north-south Urban Principal Arterial that extends from Atlantic County to the Pennsylvania border in northwest New Jersey. From the study area, US 206 travels north to Trenton and south to suburban and rural communities, as well as providing a direct connection to the NJ Turnpike (Interchange 7). Its posted speed limit ranges from 40 MPH to 55 MPH.

Farnsworth Avenue

Farnsworth Avenue, Burlington County Route 545, is an east-west two-lane Urban Collector. It links Bordentown City with Bordentown Township and suburban communities further east. Within the study area, its posted speed limit is 35 MPH.

Dunns Mill Road

Dunns Mill Road is an east-west road that connects US 206 with US 130. It is primarily residential with a middle school and other community facilities. It is weight-restricted (4 tons) to deter truck traffic.

Hedding Road

Hedding Road is a quiet residential street that facilitates local traffic between Dunns Mill Road and Rising Sun Road.

Traffic Counts

In an effort to better understand current trip movements, traffic counts were conducted on weekday AM and PM peak periods at major intersections within the study area. Automatic traffic recorder volumes, vehicular turning movement counts, and vehicle classification were collected as a part of this task.

Volume and classification data was collected over a period of 24 or 48 hours in order to determine the traffic direction and volumes and the percentage of truck traffic on various roadways. These were compared with historical data from 2009 to 2013. Annual Average Daily Traffic (AADT) Volumes at 14 locations within the study area are illustrated on Figure 3.

US 130 and US 206 each carry more than 10,000 vehicles daily. US 130 northbound recorded volumes of up to 12,771 vehicles per day approaching Rising Sun Road. The number increased to 15,979 between I-295 and Farnsworth Avenue. This reflects the traffic that is added from I-295 to US 130 northbound.

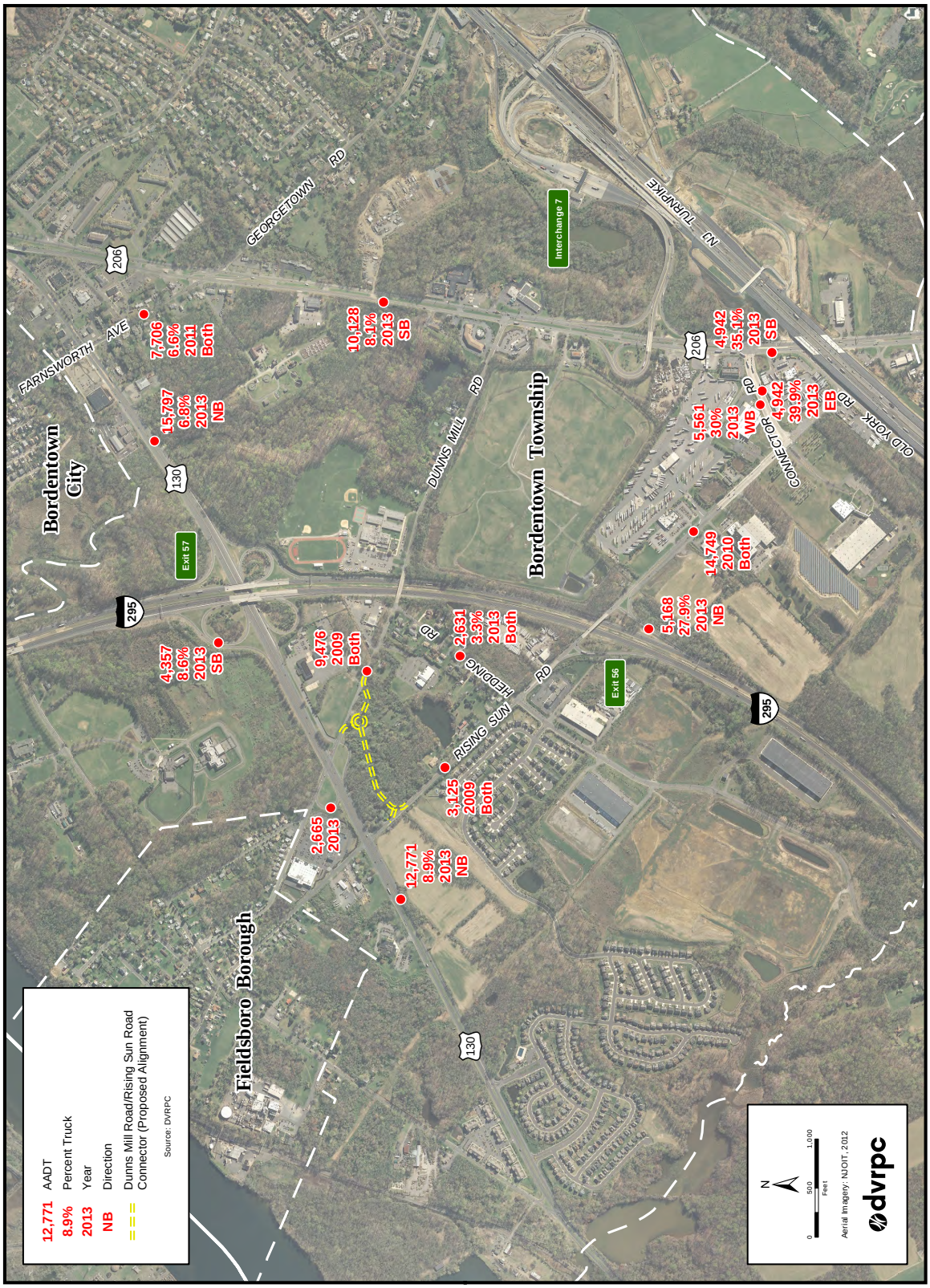


Figure 3: Annual Average Daily Traffic (AADT) Volumes

An opposite trend exists at US 206 southbound, where the AADTs dropped dramatically from 10,128 between Farnsworth Avenue and Dunns Mill Road to 4,942 after the intersection of US 206/NJ Turnpike and US 206/Connector Road. The volume decline indicates that many vehicles at US 206 southbound exit to the Turnpike or Connector Road.

As the most convenient connection that links US 130 and US 206, Farnsworth Avenue experiences volumes of 7,706 vehicles per day between US 130 and US 206. On Dunns Mill Road, traffic volumes are relatively lower (3,476). On Rising Sun Road, they are recorded at 3,125 at the section between US 130 and I-295. This is much lower than the traffic volumes on the section between I-295 and US 206 (14,749). This is due to 5,168 vehicles per day entering from I-295 northbound, and approximately 11, 000 vehicles in total are counted daily at Connector Road.

A number of trucks enter the study area from I-295. Among the 4,357 vehicles that travel to US 130 southbound from I-295 southbound, 8.6 percent are trucks. The truck percentage from I-295 northbound to Rising Sun Road eastbound was 27.9 percent. The percentage of trucks on US 130 and US 206 within the study area generally range from 6.8 percent to 8.9 percent. Around the intersections of US 130/Farnsworth Avenue and US 206/Farnsworth Avenue, the truck percentages are 6.8 percent and 6.6 percent, respectively. As expected, the ratio of heavy vehicles is extremely high around the intersection of US 206 and Connector Road due to two nearby truck stops – 30 percent of all traffic on Connector Road westbound are trucks. Trucks account for 40 percent of eastbound traffic. The truck percentage at US 206 southbound is 35.1 percent.

Traffic Safety Analysis

A crash study was conducted that analyzed data within a 300-foot buffer of four key intersections – US 130/Farnsworth Avenue, US 206/Farnsworth Avenue, US 206/Connector Road, and US 130/Dunns Mill Road. An analysis of data over the three-year period (from 2010 to 2012) reveals 66 traffic crashes in total and 6 specific truck crashes. Thirteen crashes (19.7 percent) involved minor or moderate injury, while the remaining 53 crashes (80.3 percent) only caused property damages.

Both the intersections of US 130/Farnsworth Avenue and US 206/Farnsworth Avenue have a high concentration of crashes, with 29 at each intersection. In aggregate, the crashes are 17 percent more likely to be rear-end, and nine percent more likely to involve only property damage, than the statewide averages. Four truck crashes were reported at the intersection of US 130/Farnsworth Avenue. Over the same period, four crashes were counted each at the intersections of US 206/Connector Road and US 130/Dunns Mill Road. At the intersection of US 206/Connector Road, two out of the four crashes involved a truck.

Truck traffic on Farnsworth Avenue

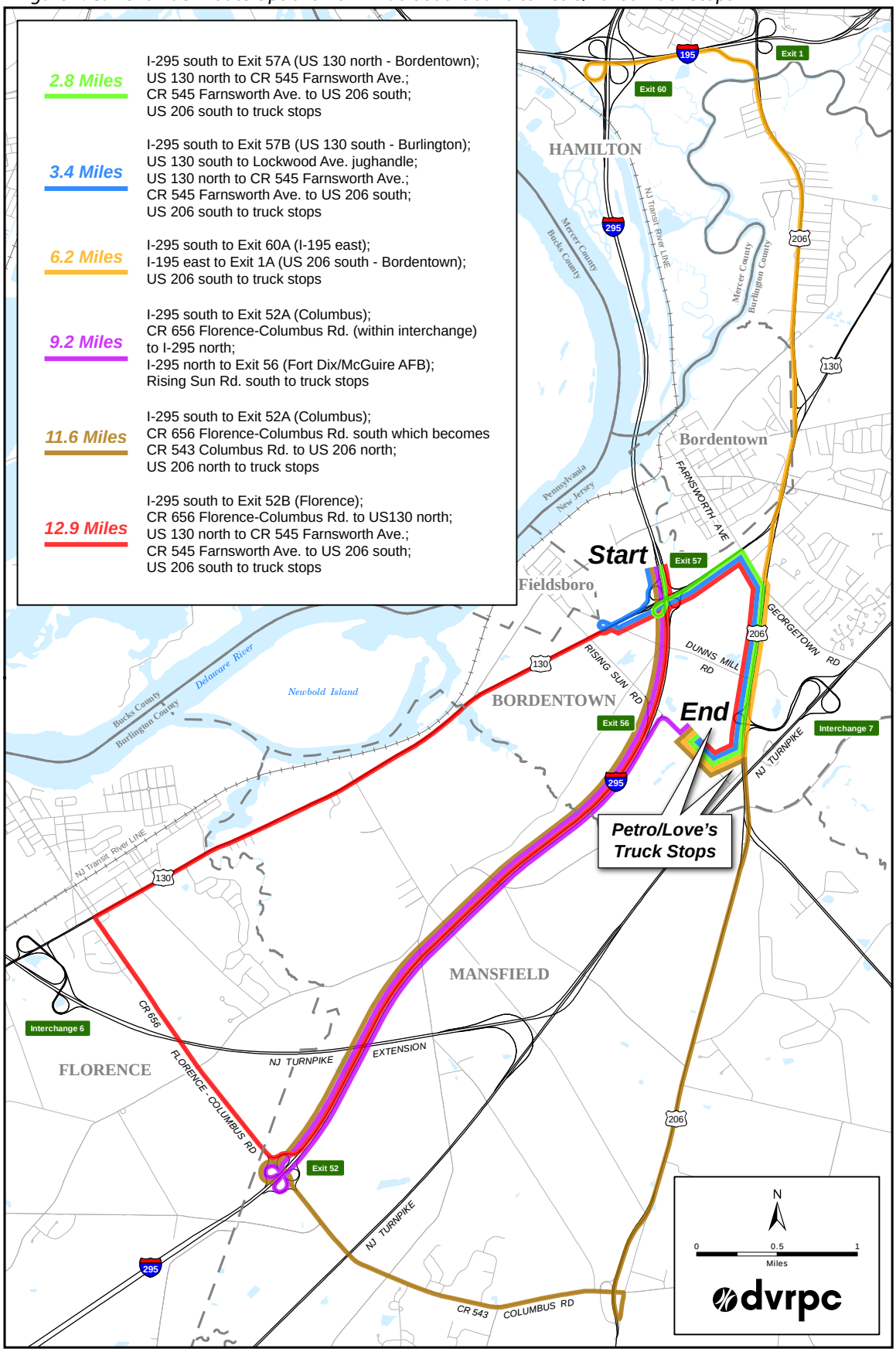
Truck Circulation Study

To better understand truck movements within and around the study area, DVRPC conducted a truck access and origin-destination assessment. Currently, a large number of trucks enter the study area from I-295 and the NJ Turnpike. On the other hand, the Petro truck and Love's Travel Stop, located near Connector Road, are considered the main attraction for trucks within the study area. Many trucks originating from I-295 and the NJ Turnpike head for these two truck stops as their destinations.

Since the intersection of the NJ Turnpike and US 206 is close to the truck stops, it is easy and convenient for trucks to travel between the truck stops and the NJ Turnpike. The intersection of I-295 and Rising Sun Road is also not far from the truck stops. However, trucks can only enter onto Rising Sun Road from I-295 northbound or exit onto I-295 southbound from Rising Sun Road at this incomplete interchange.

There are currently six truck route options from I-295 southbound to Petro and Love's truck stops on Rising Sun Road (see Figure 4). The route marked in orange shows an option for trucks to first use the intersection of I-295/I-195 and then travel all the way southward on US 206 to get to the Petro and Love's truck stops. The total distance of this route is 6.2 miles. The other three route options all start from the intersection of I-295/US 130 and use Farnsworth Avenue to travel between US 130 and US 206. The distances of these three routes range from 2.8 miles to 12.9 miles. The shortest route option, which is marked in green, is also the quickest and is favored by most truckers. This accounts for the amount of truck traffic on Farnsworth Avenue. The fifth option is southbound traffic using I-295 Exit 52 at CR 656 and proceeding north along I-295 to Exit 56. The final option is using I-295 Exit 52 to CR 543; to Route 206 north; terminating at Connector Road and Rising Sun Road.

Figure 4: Current Truck Route Options from I-295 Southbound to Petro/Love's Truck Stops



CHAPTER 4
TRANSPORTATION ANALYSIS

DVRPC conducted microsimulation modeling to analyze the feasibility, from a traffic operations perspective, of the potential new connector road. The feasibility was determined by assessing traffic conditions at four key intersections within the study area. Essentially, the analysis was conducted to determine the degree of traffic operations relief or degradation that the new road might provide.

The microsimulation modeling was conducted using PTV Vision's VISSIM software package. DVRPC has employed VISSIM for numerous studies since 2008. VISSIM is a stochastic modeling software that has the ability to effectively model real-world driving behaviors and conditions. For each scenario, 10 random seed model iterations were used to determine the average condition.

The data used to construct the traffic models came in part from volume and classification traffic counts and, manual turning movement counts. The manual turning movement counts simply count vehicles moving through intersections without regard to vehicle class (i.e., motor cycle, car, truck, etc.). Using known vehicle composition profiles from the vehicle classification counts and the manual turning movement counts, estimates of turning movements by vehicle class (simply car and truck in this case) were estimated. Vehicle volumes and turning movements used in the analyses are provided in Appendix A.

Traffic Operations Analysis – 2013 Base-Year Condition

When conducting a study using a model, such as for this study, calibrating the model to mimic base-year conditions is important to provide a base that other model iterations can be compared against. Two versions of the 2013 base-year model were constructed and calibrated, one for the AM peak hour and one for the PM peak hour.

The 2013 base-year model was calibrated for traffic volumes, turning movements, and congestion. Upon completion of the calibration effort the models were then run to gather performance statistics. Table 1 provides the 2013 base-year scenario's performance statistics.

Average delay and level of service are the performance measures used for this study. Average delay is defined as the average amount of time in seconds that a vehicle traveling through an intersection requires beyond what would be required under free-flowing conditions. The level of service (LOS) is simply a letter grade that corresponds with the amount of average delay, with scoring ranging between A and F. An LOS score of A corresponds with near free-flowing conditions, while an F signifies a break down in traffic flow. In the DVRPC region, it is fairly typical for intersections along major arterials to operate with LOS scores of D, E, or occasionally F during peak travel periods.

US 130 & Farnsworth Avenue – Base-Year Condition

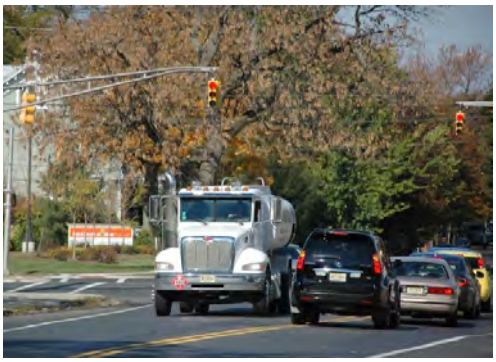
This intersection performs accordingly with what might be expected for an intersection

Table 1: 2013 Base -Year Scenario Performance Statistics

Intersection	Approach	AM Delay	AM LOS	PM Delay	PM LOS
US 130 & Farnsworth Ave	**All**	39.0	**D**	35.9	**D**
	Northbound	28.9	C	30.0	C
	Southbound	25.5	C	30.1	C
	Eastbound	24.2	C	26.6	C
	Westbound	84.2	F	72.7	E
US 206 & Farnsworth Ave	**All**	60.0	**E**	62.5	**E**
	Northbound	41.6	D	39.1	D
	Southbound	37.2	D	93.1	F
	Eastbound	41.2	D	39.8	D
	Westbound	120.2	F	49.5	D
US 206 & Connector Road	**All**	21.1	**C**	22.6	**C**
	Northbound	21.6	C	19.9	B
	Southbound	17.1	B	25.6	C
	Eastbound	25.0	C	24.9	C
US 130 & Dunns Mill Road	**All**	19.7	**B**	31.0	**C**
	Northbound	18.2	B	25.6	C
	Southbound	20.2	C	38.7	D
	Eastbound	32.3	C	28.9	C
	Westbound	17.9	B	19.1	B

DVRPC, 2013

of its type during peak hours, with the exception of the westbound approach. The westbound approach is a single lane with a high left-turn percentage. The westbound left conflicts with the eastbound approach, which in turn causes significant delays.



Farnsworths Avenue westbound delays

US 206 & Farnsworth Avenue – Base-Year Condition

The westbound approach in the AM peak hour and the southbound approach in the PM peak hour fail (LOS F). The westbound approach in the AM suffers from heavy volumes. The southbound approach in the PM suffers from insufficient left-turn lane storage capacity. The left-turn lane frequently spills back into the travel lanes.

Note that the western leg to this intersection is Georgetown Road even though the intersection is referred to as US 206 and Farnsworth Avenue.

US 206 & Connector Road – Base-Year Condition

This intersection performs adequately during the AM and PM peak hours.

US 130 & Dunns Mill Road

This intersection performs adequately during the AM and PM peak hours. The southbound approach suffers moderately in the PM peak hour. This is due to the southbound left requiring the use of the far-side jug handle, which adds time to the movement.

Note that the eastern leg to this intersection is Lockwood Avenue even though the intersection is referred to as US 130 and Dunns Mill Road.

Base-Year Condition Summary

With the exception of a few intersection approaches, the four key intersections

perform within expectations during the AM and PM peak hours. The purpose of the base-year analysis is simply to create a baseline for comparing the two 2040 modeling scenarios.

Future Testing

Trip Generation Analysis

An important aspect of this study is the new traffic that is expected to be traveling along the study area's highways by the 2040 horizon year. A sizable portion of the new traffic is expected to be truck traffic. To estimate the 2040 traffic volumes and compositions, two individual tasks were accomplished.

The first task in estimating future traffic volumes is to determine and apply a background growth factor to the existing traffic volumes. A background growth factor accounts for changes in traffic volumes due to changes in transportation infrastructure and new development that is not necessarily in a particular study area. DVRPC's regional travel demand forecasting model was employed to identify the background growth factor, which was forecasted to be 0.19 percent per year until the 2040 horizon. This was applied to all traffic volumes used in the modeling analysis.

The second part of the trip generation analysis involved estimating the traffic generation resulting from proposed development. This, itself was a two-part exercise. In addition to estimating traffic volumes, the new traffic had to be distributed through the highway network in order to determine the impact on individual intersections. The distribution was completed for both the 2040 No-Build Scenario, and the 2040 Build Scenario. Table 2 provides a summary of the trip generation. Four proposed developments were considered; Old York Road Business Park, Federal Express, Central Crossings Business Park, and Bordentown Waterfront Community. Figure 5 provides a geographical representation of the considered developments.

The Institute of Transportation Engineers' Trip Generation Manual, 8th Edition, was instrumental in estimating trip generation. The manual, however, does not regularly provide trip generation by car or truck. An assumption was made for this study. During the AM peak hour, 20 percent of entering traffic and 80 percent of exiting traffic was assumed to be truck. The opposite was assumed for the PM peak hour. Total trip generation numbers are a function of a development's size and type, and comparable cases from across the United States and Canada.

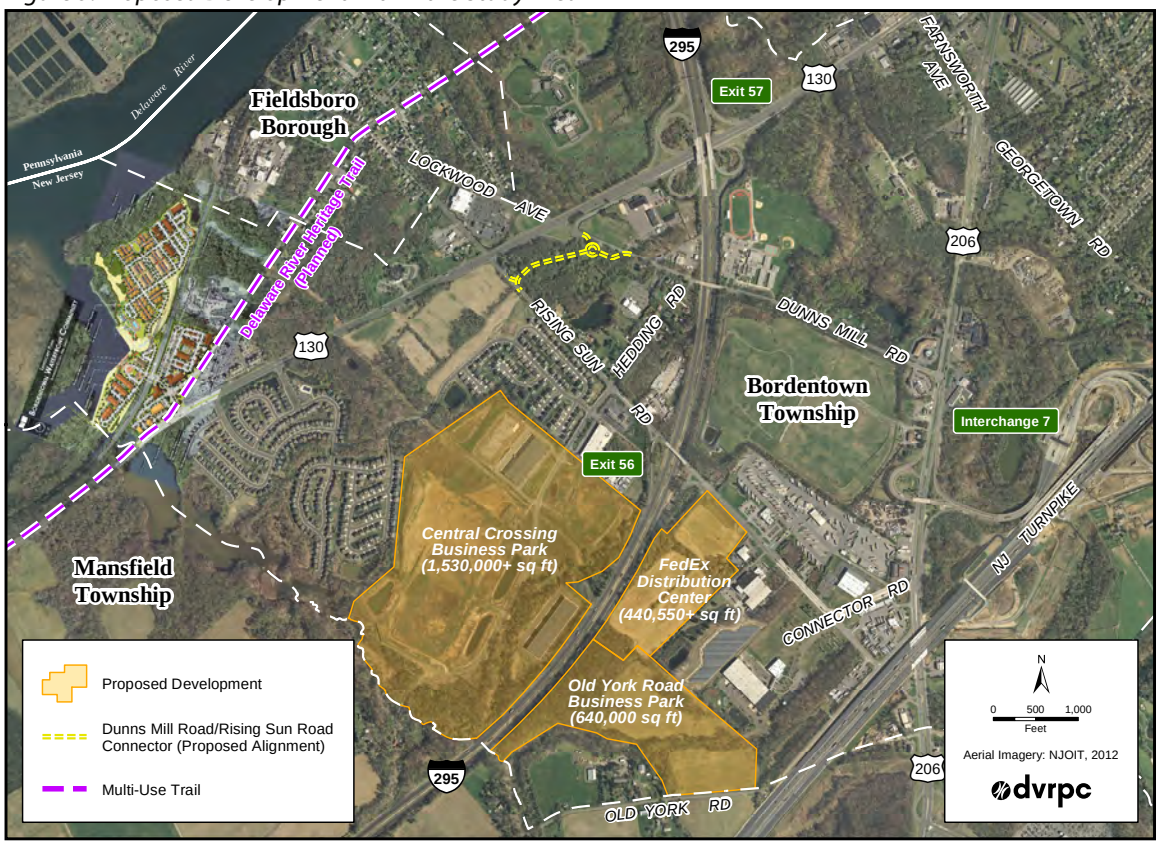
The results of the trip generation analysis represent a conservative scenario. The Trip Generation Manual was used to estimate the total number of potential trips being generated by the proposed developments, however, an assumption regarding the composition (car or truck) was made. Essentially, the results provide the worst-case scenario. In reality, it may prove to generate less traffic, but not more.

Table 2: Trip Generation Summary

	AM Peak Hour				PM Peak Hour			
	Cars		Trucks		Cars		Trucks	
	In	Out	In	Out	In	Out	In	Out
Old York Road Business Park	152	40	30	32	51	154	41	31
Federal Express	104	28	21	22	35	106	28	21
Central Crossings Business Park	483	128	97	102	164	488	130	97
Bordentown Waterfront Community	63	163	N/A	N/A	366	192	N/A	N/A

DVPRC, 2013

Figure 5: Proposed Development within the Study Area



2040 No-Build Scenario

The 2040 No-Build Scenario was one of two future-year scenarios. For this scenario, the transportation infrastructure was representative of the existing condition. The only difference for this scenario was the addition of new car and truck trips associated with the background growth factor and the trip generation estimate. The estimated traffic was distributed across the highway network. Assumptions regarding the origin and destination of new trips were made. The assumptions for truck traffic considered 25 percent traveling to or from I-295 Interchange 56, 25 percent traveling to or from I-295 Interchange 57, and 50 percent traveling to or from the NJ Turnpike.

Traffic volumes used in this scenario are presented in Appendix A.

Ten model iterations for each peak hour were run and averaged to determine the performance statistics. Seconds of delay and level of service are provided in Table 3.

US 130 & Farnsworth Avenue – 2040 No-Build Condition

Each approach during both peak hours degrades under this scenario. The westbound approach, which suffers from eastbound conflicting vehicles, suffered the greatest degradation.

US 206 & Farnsworth Avenue – 2040 No-Build Condition

This intersection suffered moderate degradation on all approaches for this scenario.

Table 3: 2040 No-Build Scenario Performance Statistics

Intersection	Approach	AM Delay	AM LOS	PM Delay	PM LOS
US 130 & Farnsworth Ave.	**All**	45.5	**D**	44.6	**D**
	Northbound	33.9	C	37.7	D
	Southbound	26.1	C	32.8	C
	Eastbound	24.3	C	29.4	C
	Westbound	105.7	F	108.1	F
US 206 & Farnsworth Ave.	**All**	79.4	**E**	77.1	**E**
	Northbound	45.6	D	39.6	D
	Southbound	39.1	D	130.2	F
	Eastbound	43.7	D	45.7	D
	Westbound	194.7	F	50.2	D
US 206 & Connector Road	**All**	21.8	**C**	32.4	**C**
	Northbound	22.9	C	22.5	C
	Southbound	16.5	B	47.9	D
	Eastbound	26.7	C	24.7	C
US 130 & Dunns Mill Road	**All**	22.2	**C**	39.8	**D**
	Northbound	20.1	C	33.6	C
	Southbound	24.1	C	45.0	D
	Eastbound	32.6	C	28.7	C
	Westbound	21.7	C	44.9	D

DVRPC, 2013

US 206 & Connector Road – 2040 No-Build Condition

This intersection remains roughly the same compared to the base-year scenario. Some movements even realized a slight improvement. This is reflective of the available capacity that the intersection possesses.

US 130 & Dunns Mill Road - 2040 No-Build Condition

This intersection improves for most approaches under this scenario. This is likely caused by higher vehicular volumes on the most accommodating movements, which in turn reduces the overall average delay.

2040 No-Build Condition Summary

The results of this scenario are in line with expectations. Higher traffic volumes were run through the same infrastructure. With the exception of the intersection approaches that were operating poorly in the base-year scenario, no other approaches became failing.

2040 Build Scenario

The 2040 build scenario considered the addition of the new connector road between Dunns Mill Road and Rising Sun Road in the analysis. Traffic patterns across the highway network were assessed, for car and truck classes independently, in order to determine the degree to which the new road would be utilized, and how the traffic patterns would change. This scenario included the same level of traffic volumes as the 2040 no-build scenario, though they were adjusted to reflect the assumed new travel patterns.

Traffic volumes used in this scenario are presented in Appendix A.

Ten model iterations for each peak hour were run and averaged to determine the performance statistics. Seconds of delay and level of service are provided in Table 4.

US 130 & Farnsworth Avenue – 2040 Build Condition

This intersection performs similarly to its performance in the base-year scenario.

Table 4: 2040 Build Scenario Performance Statistics

Intersection	Approach	AM Delay	AM LOS	PM Delay	PM LOS
US 130 & Farnsworth Ave.	**All**	38.6	**D**	36.8	**D**
	Northbound	29.6	C	31.1	C
	Southbound	26.0	C	32.9	C
	Eastbound	25.0	C	28.1	C
	Westbound	80.9	F	70.2	E
US 206 & Farnsworth Ave.	**All**	75.2	**E**	76.3	**E**
	Northbound	43.6	D	39.7	D
	Southbound	37.6	D	129.0	F
	Eastbound	40.5	D	40.5	D
	Westbound	179.6	F	49.7	D
US 206 & Connector Road	**All**	21.8	**C**	33.2	**C**
	Northbound	22.9	C	22.1	C
	Southbound	16.5	B	50.4	D
	Eastbound	26.7	C	24.9	C
US 130 & Dunns Mill Road	**All***	27.0	**C**	59.0	**E**
	Northbound*	20.9	C	31.7	C
	Southbound	34.0	C	94.3	F
	Eastbound	37.6	D	27.5	C
	Westbound	26.0	C	37.9	D

*Underestimated due to NB left requiring a long-distance movement

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US 206 & Farnsworth Avenue – 2040 Build Condition

This intersection degrades over the base-year scenario with more congestion caused by the southbound left turn as the primary reason.

US 206 & Connector Road – 2040 Build Condition

The southbound approach degrades significantly during the PM peak hour, though it is still within an acceptable range for an intersection of its type during a peak hour. The other approaches all perform similarly to the base-year scenario's performance.

US 130 & Dunns Mill Road - 2040 Build Condition

This intersection has the most change to travel patterns of any of the four intersections. This is due to the intersection essentially serving as the gateway to the potential new connector road. The southbound movement suffers the most, particularly during the PM peak hour. The southbound left, in particular, is the most troublesome movement. For the northbound approach, left turns were not considered in the analysis. The movement in this scenario requires a right turn onto Dunns Mill Road, travel along Dunns Mill Road to the potential roundabout, and then travel back to and through the intersection. Even in the best conditions, this movement would likely be considered LOS F simply due to the distance a vehicle must travel to complete the movement.

During the simulation, the southbound jug handle reaches capacity on occasion. This causes spillback and the potential to create gridlock at the intersection. This can be overcome with signal timing and perhaps a traffic signal stopping traffic on the eastbound approach so the jug handle may empty.

The southbound shoulder could be used as a deceleration lane for traffic turning westbound onto Lockwood Avenue.

Ground-level view of the southbound jug handle. The intersection is in the center of the photo.

2040 Build Condition Summary

The US 206 and Farnsworth Avenue intersection, along with the US 130 and Dunns Mill Road intersection suffer in the 2040 build scenario. Some relief is provided to the US 130 and Farnsworth Avenue intersection due to less truck traffic attributable to the new connector road.

New Connector Road Feasibility Analysis

The purpose of this project was to assess the feasibility of a potential new connector road between Dunns Mill Road and Rising Sun Road. The new road's purpose is to provide a more direct route between I-295 Exit 57 and the truck origins and destinations along the Rising Sun Road corridor. The assessment was conducted by analyzing four key intersections that will be positively or negatively impacted by the new road. Essentially, the new road should provide relief to the two Farnsworth Avenue intersections, and degrade the US 130 and Dunns Mill Road intersection. This study was a means to quantify the change. Tables 5 and 6 provide a comparison of the three modeling scenarios that were conducted for this study, for the AM and PM peak hours, respectively.

US 130 & Farnsworth Avenue – Summary Analysis

This intersection performs in line with expectations. For the no-build scenario, performance is degraded when compared to the base-year scenario. The build scenario also shows degradation over the base-year scenario during the PM peak hour, though it performs better in the build scenario than the no-build scenario. In summary, the potential new connector road would provide a performance benefit to this intersection. The eastbound approach is troublesome in all three scenarios but actually sees a modest improvement in the build-scenario over the base-year scenario. A left turn lane and signal phase would improve the level of service.

US 206 & Farnsworth Avenue – Summary Analysis

In all three scenarios, the westbound approach performs poorly during the AM peak hour and the southbound approach

Table 5: AM Peak Hour Intersection Performance Comparison

AM Peak Hour	Existing		2040 No-Build			2040 Build		
Intersection	Avg. Delay	LOS	Avg. Delay	Change v. Existing	LOS	Avg. Delay	Change v. Existing	LOS
US 130 & Farnsworth	39.0	D	45.5	16.6%	D	38.6	-1.1%	D
Northbound	28.9	C	33.9	17.4%	C	29.6	2.4%	C
Southbound	25.5	C	26.1	2.4%	C	26.0	2.0%	C
Eastbound	24.2	C	24.3	0.3%	C	25.0	3.3%	C
Westbound	84.2	F	105.7	25.5%	F	80.9	-4.0%	F
US 206 & Farnsworth	60.0	E	79.4	32.4%	E	75.2	25.4%	E
Northbound	41.6	D	45.6	9.6%	D	43.6	4.6%	D
Southbound	37.2	D	39.1	5.1%	D	37.6	1.0%	D
Eastbound	41.2	D	43.7	6.2%	D	40.5	-1.7%	D
Westbound	120.2	F	194.7	62.0%	F	179.6	49.4%	F
US 206 & Connector	21.1	C	21.8	3.2%	C	21.8	3.2%	C
Northbound	21.6	C	22.9	6.2%	C	22.9	6.1%	C
Southbound	17.1	B	16.5	-3.5%	B	16.5	-3.5%	B
Eastbound	25.0	C	26.7	6.6%	C	26.7	6.7%	C
US 130 & Dunns Mill	19.7	B	22.2	13.0%	C	27.0	37.1%	C
Northbound	18.2	B	20.1	10.3%	C	20.9	14.5%	C
Southbound	20.2	C	24.1	19.4%	C	34.0	68.2%	C
Eastbound	32.3	C	32.6	0.9%	C	37.6	16.4%	D
Westbound	17.9	B	21.7	21.6%	C	26.0	45.7%	C

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Table 6: PM Peak Hour Intersection Performance Comparison

PM Peak Hour	Existing		2040 No-Build			2040 Build		
Intersection	Avg. Delay	LOS	Avg. Delay	Change v. Existing	LOS	Avg. Delay	Change v. Existing	LOS
US 130 & Farnsworth	35.9	D	44.6	24.0%	D	36.8	2.4%	D
Northbound	30.0	C	37.7	25.6%	D	31.1	3.8%	C
Southbound	30.1	C	32.8	8.8%	C	32.9	9.2%	C
Eastbound	26.6	C	29.4	10.5%	C	28.1	5.7%	C
Westbound	72.7	E	108.1	48.7%	F	70.2	-3.4%	E
US 206 & Farnsworth	62.5	E	77.1	23.3%	E	76.3	22.1%	E
Northbound	39.1	D	39.6	1.4%	D	39.7	1.7%	D
Southbound	93.1	F	130.2	39.9%	F	129.0	38.6%	F
Eastbound	39.8	D	45.7	14.9%	D	40.5	1.9%	D
Westbound	49.5	D	50.2	1.3%	D	49.7	0.4%	D
US 206 & Connector	22.6	C	32.4	43.6%	C	33.2	46.9%	C
Northbound	19.9	B	22.5	12.9%	C	22.1	11.1%	C
Southbound	25.6	C	47.9	86.9%	D	50.4	96.8%	D
Eastbound	24.9	C	24.7	-0.5%	C	24.9	0.0%	C
US 130 & Dunns Mill	31.0	C	39.8	28.1%	D	59.0	90.3%	E
Northbound	25.6	C	33.6	31.0%	C	31.7	23.7%	C
Southbound	38.7	D	45.0	16.4%	D	94.3	143.6%	F
Eastbound	28.9	C	28.7	-0.8%	C	27.5	-4.6%	C
Westbound	19.1	B	44.9	135.2%	D	37.9	98.3%	D

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performs poorly during the PM peak hour. Similar to the US 130 and Farnsworth Avenue intersection, the no-build scenario performs the worst and the build scenario does provide some benefit when compared to the no-build scenario. However, the difference is that both future scenarios degrade significantly when compared to the base-year scenario. This, however, is due to high westbound traffic volumes during the AM peak period and the insufficient southbound left turn storage capacity, both of which are prevalent in all scenarios. Based on the analysis, this intersection would benefit from the new connector road.

US 206 & Connector Road – Summary Analysis

This intersection performs adequately in all scenarios.

US 130 & Dunns Mill Road - Summary Analysis

This intersection is key to the success of the new connector road. The intersection was expected to perform worst in the build scenario, and it did. During the AM peak hour, the performance is satisfactory. The PM peak hour is a concern, particularly the southbound left turn movement. To complete a southbound left turn, a vehicle must travel through the intersection, travel through a far-side jug handle, and finally proceed through the intersection again. Compared to the base-year scenario, the southbound approach experiences a delay increase of 144 percent. The high traffic volumes entering the jug handle also create the potential for gridlock, as was noted on several occasions in the modeling exercise. Mitigation techniques are available. Without mitigation, the feasibility of the new connector road is questionable. Potential mitigation techniques include the following:

• An extended cycle length to provide additional green time to the eastbound approach;

• Queue sensors in the jug handle to trigger a signal phase change to empty the jug handle;

• A traffic signal for eastbound Lockwood Avenue prior to the entry of the jug handle traffic to allow the jug handle to empty; or

• A combination of the above techniques.

Provided impacts to the southbound approach are mitigated, the intersection should perform satisfactorily when considering the increased traffic volumes and differing traffic patterns that would be associated with the new connector road. As was mentioned in the trip generation analysis, the level of new trips associated with new development is a conservative estimate. The results represent the worst-case scenario. In reality, the level of traffic that funnels through this intersection, particularly for trucks, may not be as high as estimated. It certainly should not be higher than estimated.

Dunns Mill Road and Potential Connector Road

The analysis focused on four key intersections that may be impacted by the new connector road. However, for the new connector road, as discussed in the next chapter, a roundabout is proposed for its intersection with Dunns Mill Road. The roundabout was not analyzed with the models used for this project; however, some analysis can still be conducted. Based on the traffic estimates used for the build scenario, all traffic traveling along the Dunns Mill Road's eastern leg would travel through the roundabout. This equals 1,135 cars and 83 trucks during the AM peak hour and 1,409 cars and 69 trucks during the PM peak hour. Not accounted for is traffic that would not travel through the US 130 and Dunn Mill Road intersection (i.e., Connector Road to eastbound Dunns Mill Road and the opposite). Based on the estimated volumes, and the fact that the estimate does not include certain movements, a dual-lane roundabout would likely be necessary. Part of the concept involves closing Rising Sun Road's connection with northbound US 130. If this were to remain open, a single-lane roundabout would likely be sufficient, but this creates another intersection which will need to be evaluated.

Summary Analysis Conclusion

Based on the analysis, the new connector road is feasible from a transportation perspective, and would alleviate truck traffic on Farnsworth Avenue. The southbound approach of the US 130 and Dunns Mill Road intersection has congestion that must be mitigated for the connector road to be successful. Additionally, the number of vehicles traveling through the new road's intersection with Dunns Mill Road would likely need a dual-lane roundabout unless the US 130 and Rising Sun Road intersection were to remain open. In regards to the two Farnsworth Avenue intersections, congestion is relieved under the build scenario, though it is and remains an issue with specific movements at the US 206 and Farnsworth Avenue intersection. Specific mitigation techniques are listed in Chapter 5.

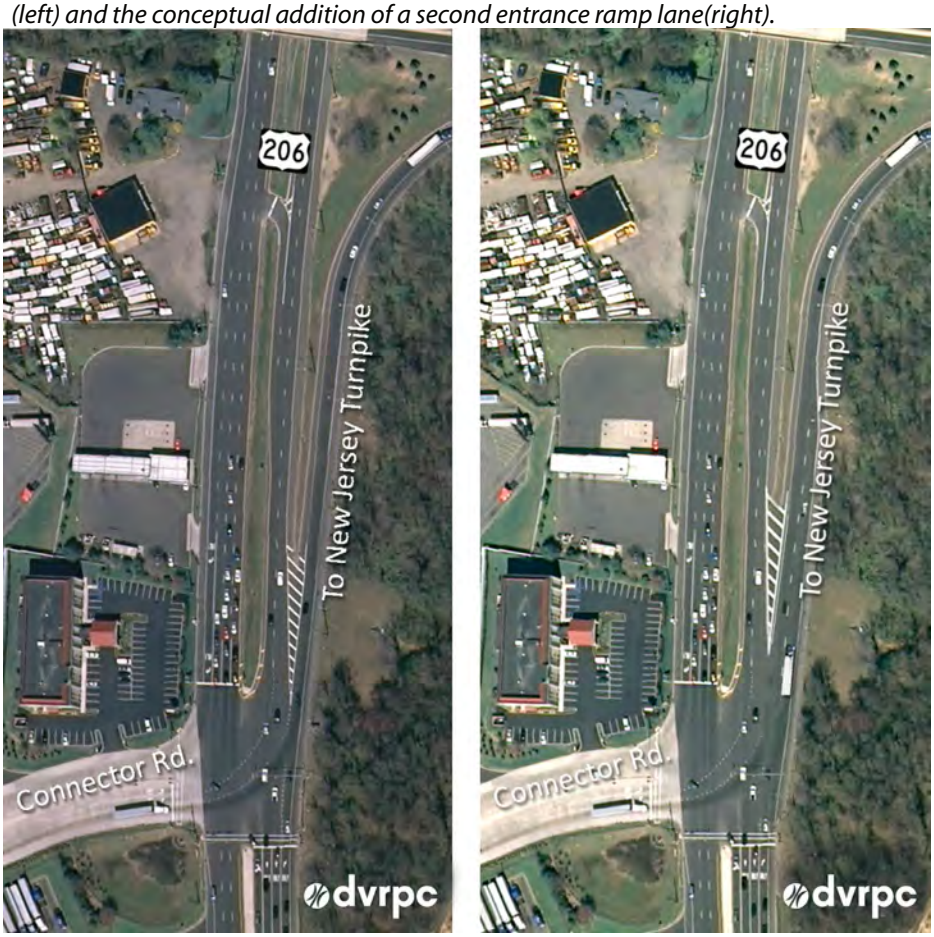
Other Potential Improvements

During the course of this study, several improvements not part of the study's main focus were found to be needed, or at least desirable. Each is discussed independently.

US 206 and Connector Road/NJ Turnpike Entrance

Northbound US 206 and eastbound Connector Road each have one lane dedicated to feeding the NJ Turnpike entrance ramp. The entrance ramp is a single lane. This study found that a second entrance ramp lane would be beneficial to traffic operations (see Figure 6). The associated approaches could then be adjusted to have one dedicated lane, and one lane that also allows for entrance access. This would be

Figure 6: US 206 and Connector Road/NJ Turnpike Entrance - the existing condition (left) and the conceptual addition of a second entrance ramp lane(right).



useful, particularly for the Connector Road, because a high percentage of the traffic enters the Turnpike. The Connector Road has three eastbound lanes. Currently, all Turnpike-bound traffic must be in the right lane. This concept shows a second entrance ramp lane that continues for a short distance before a merge would be required.

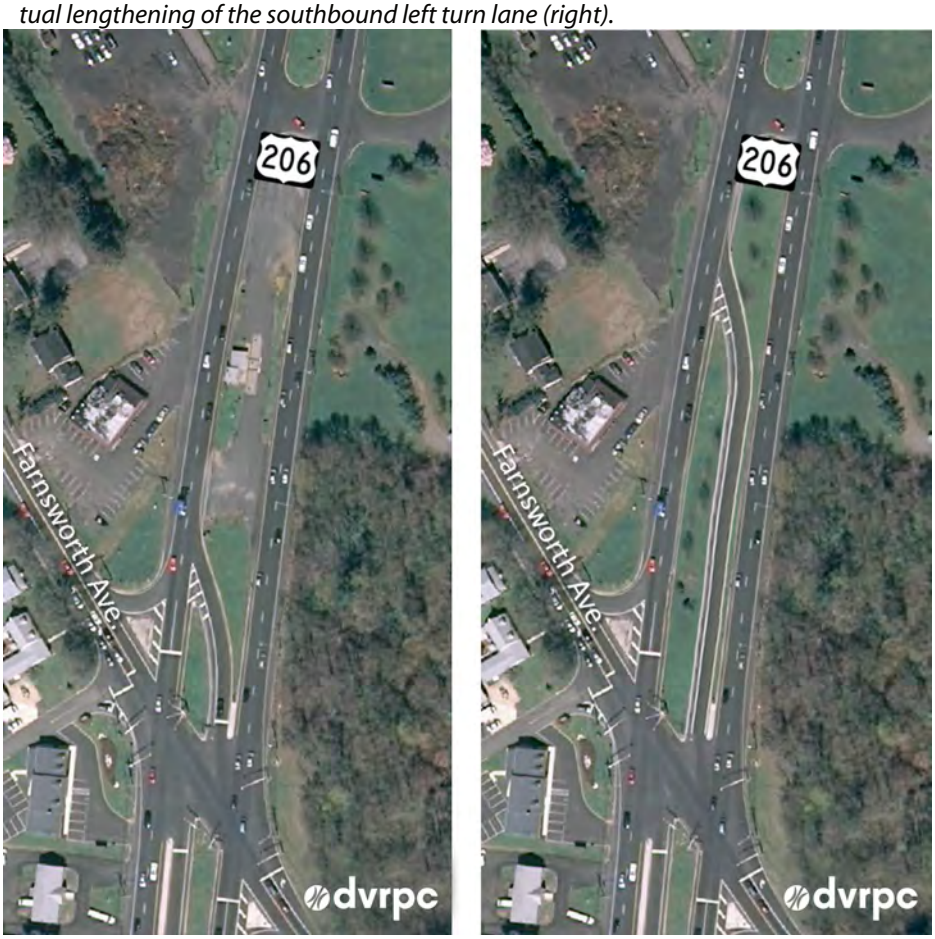
Connector Road Lane Assignment Sign

US 206 and Farnsworth Avenue

The southbound approach to this intersection fails in the PM peak hour due to inadequate storage capacity in the left turn lane. The traffic in the left-turn lane frequently spills back into the travel lanes, causing congestion. Based on analysis, the


Ground-level view of the southbound left-turn lane

Figure 7: US 206 and Farnsworth Avenue - the existing condition (left) and the conceptual lengthening of the southbound left turn lane (right).

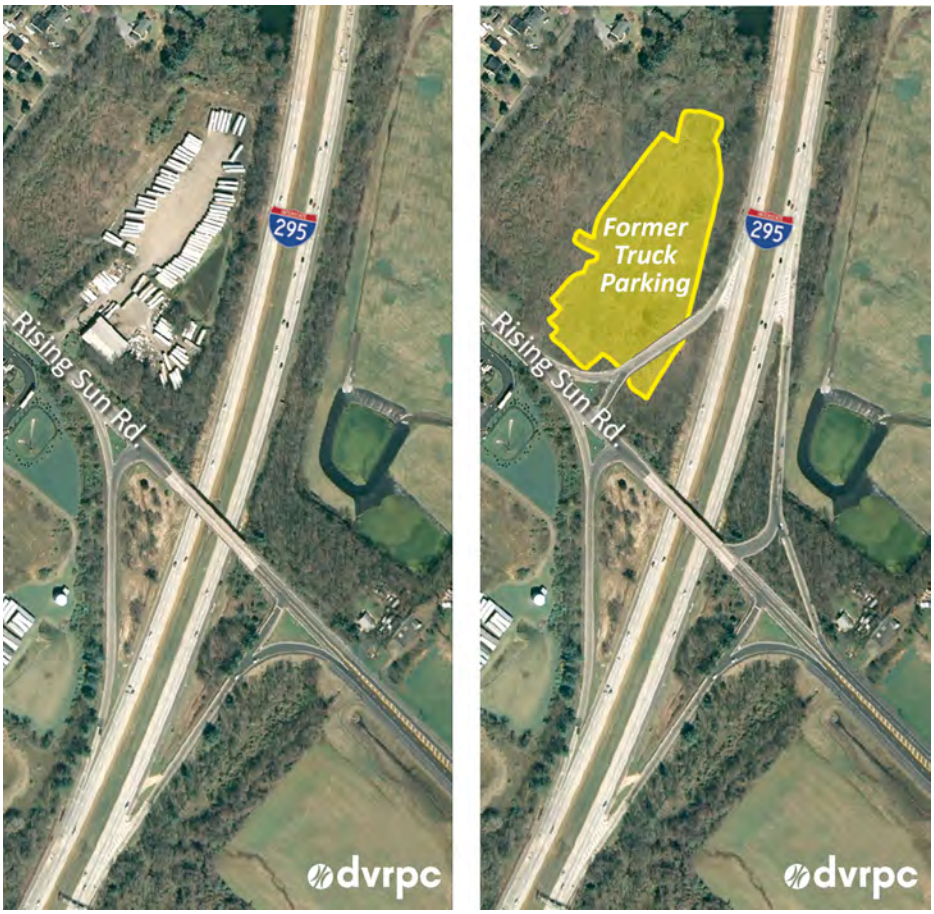


appropriate left turn lane length should be 500 feet to accommodate Year 2040 expected demand (see Figure 7). The lane is currently 170 feet long. The land necessary to extend the lane is currently occupied by an unused NJDOT weigh station.

I-295 and Rising Sun Road

This is the most capital intensive concept presented. Here, the suggestion is to complete the I-295 interchange with Rising Sun Road (Exit 56). Currently, the northbound on and southbound off movements are missing, which is essentially the driver for issues with truck traffic in Bordentown Township. Completing this interchange (see Figure 8) would provide immediate relief to truck traffic issues and alleviate congestion at the US 130 and Dunns Mill Road intersection. This concept can be viewed as an alternative to the connector road or a long-term complement to it. Some adjustments to the current truck parking would be necessary to accommodate the new ramp.

Figure 8: I-295 and Rising Sun Road - the existing condition (left) and the conceptual completion of the interchange (right).



CHAPTER 5
PROPOSED ALIGNMENT AND IMPLEMENTATION

Proposed Alignment

In 2012, DVRPC conducted a traffic study of the area (Traffic Calming Alternatives for Routes 130 and 206 in Bordentown NJ, DVRPC Pub. #11031). One of the findings was to recommend a new road connecting Rising Sun Road to Dunns Mill Road primarily for truck traffic.

Bordentown Township and Burlington County officials have long considered this concept to be a potential solution to excessive truck traffic on local streets due to the two incomplete I-295 interchanges. During the course of this study, several conceptual alignments and configurations were presented to project stakeholders. Ultimately, the alignment shown in Figure 9 was the preferred alignment.

A benefit of this alignment that may be easily overlooked is the removal of the northbound US 130 near-side jug handle. Removing the jug handle removes conflicts from the traffic flow on Dunns Mill Road and also opens additional land to development.

The proposed alignment maximizes potential benefits while minimizing constraints.

Figure 9: New Connector Road Alignment

Benefits:

• Provides a more direct truck route to Rising Sun Road than Farnsworth Avenue

• Discourages truck traffic along Dunns Mill Road east of the new road

• Opens a large undeveloped parcel to new development

• Uses a roundabout as an intersection treatment to minimize delay and reduce speeding

• Closes the Rising Sun Road intersection with US 130 to streamline traffic flow

• Minimizes impact to wetlands

• Provides a multi-use trail for multi-modal travel

Constraints:

• The US 130 northbound left turn would become a long, circuitous movement if the roundabout replaces the jug handle for this movement.

• Adds more traffic to the US 130 and Dunns Mill Road intersection

In addition to the proposed alignment, project stakeholders also selected a proposed typical cross-section (Figure 10). This cross-section includes eight-foot shoulders, 12-foot travel lanes, and an eight-foot multi-use trail alongside the road. The multi-use trail provides the benefit of connecting the residential areas along Rising Sun Road with the Bordentown Middle School along Dunns Mill Road.

Finally, to provide a contextual view of the proposed alignment, a birds-eye view rendering was completed (Figure 11), which shows a realistic view of the roundabout and connector road from the north.

Figure 10: Conceptual Connector Road Cross-section

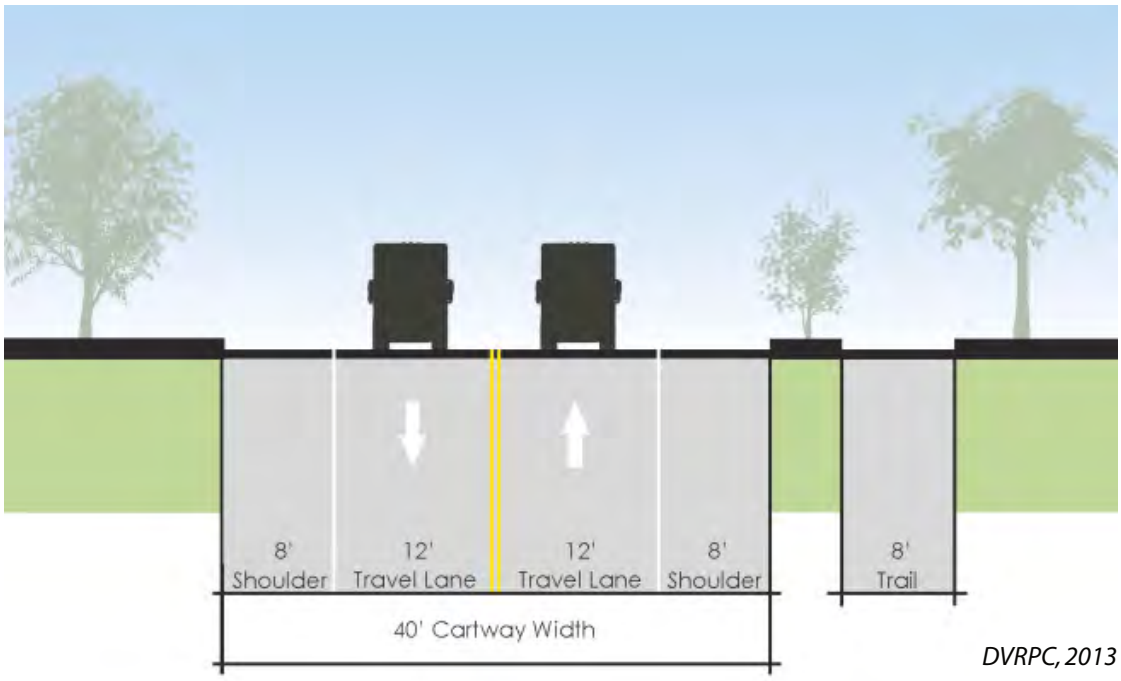


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Figure 11: Birds-Eye View of the Proposed Alignment

Implementation

This report is intended to provide decision makers with a set of tools that will enable them to make informed decisions on what measures should be implemented to improve traffic circulation in the area.

Responsibilities

There are roles for the township, the county, the state, and private entities to advance the recommendations of this study. The NJDOT is primary in terms of maintaining the higher functional class highways such as US 206, US130, and I-295. Municipalities make land use decisions that ultimately affect traffic volumes on adjacent highways. Municipal and county governments oftentimes design, build, and maintain local facilities that are impacted by state highways. Occasionally, developer contributions are a source of funding projects that have special impact by a development. Providing proper transportation access to a new development is often critical for the success of that development. Therefore, developers must work with the transportation providers to assure that the improvements are beneficial to the development and existing transportation infrastructure. Developers frequently design and construct highway improvements for traffic attributable to their developments or that would improve access to their site.

New Connector Road

The proposed new connector road would be constructed through an unimproved area. As discussed before, the environmental review for this area was preliminary. A more detailed environmental review would be necessary to determine the precise alignment and its possible impacts.

With this being an air quality non-attain-

ment area, the Congestion Management Process (CMP) would have to be applied to this project. Federal law prohibits projects that result in a significant increase in carrying capacity for single-occupant vehicles (SOVs) from being programmed in these areas unless the project is addressed in the region's CMP.

If advanced to construction, several measures will have to be taken that will add to the cost of this project. The length of the proposed new road would be approximately 1,640 feet. The three legs leading into the roundabout would be 1,050 feet, 420 feet, and 170 feet in length. Land preparation cost, which includes clearing, excavation, and backfill, could vary depending on the nature of the localized area. Additionally, a base course of well-grounded gravel, topped off with bituminous concrete, will have to be factored into the cost. Because the new road would contribute to runoff by adding impervious surface, the extent of runoff needs to be calculated to determine if detention basins would be required.

Finally, the cost for striping and directional signage will need to be factored into the final cost estimate. Since this would be a local road, preliminary engineering, final design, and construction would be the responsibility of the municipality. The new road would provide relief for county and state facilities and therefore both the county and NJDOT would need to be involved in advancing this project.

Completed Interchange at I-295 Exit 56

There are no ramps that would permit movement from I-295 southbound to exit directly at Rising Sun Road. Constructing those ramps would be the responsibility of the NJDOT with the participation of the Federal Highway Administration (FHWA).

US 206 and Connector Road/NJ Turnpike Entrance

This improvement would involve adding a second entrance ramp lane to the turnpike that continues for a short distance before a merge would be required. The NJDOT and the NJ Turnpike would be the main participants in advancing this project. The improvement could be completed in the short term at relatively low cost. The project mitigates more congestion than it causes.

US 206 and Farnsworth Avenue

This would extend US 206 southbound left turn lane to an appropriate lane length of 500 feet to accommodate Year 2040 expected demand. The lane is currently 170 feet long. The land necessary to extend the lane is currently occupied by an unused NJDOT weigh station. This is an improvement that can be implemented in the short term at relatively low cost. The NJDOT would be responsible for advancing this project.

US 130 and Farnsworth Avenue

NJDOT is currently assessing improvement options for this intersection, specifically ways to reduce Farnsworth Avenue left turn conflicts.

ACKNOWLEDGMENTS

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APPENDIX A
VEHICLE VOLUMES AND TURNING MOVEMENTS

US 130 and Farnsworth Avenue								
			AM			PM		
Approach	Movement	Class	2013 Base Year	2040 No-Build	2040 Build	2013 Base Year	2040 No-Build	2040 Build
Eastbound	L	Car	19	19	19	26	26	26
	T		54	54	55	61	62	62
	R		75	75	75	76	76	76
	L	Truck	1	1	2	2	2	2
	T		2	2	0	3	3	0
	R		4	4	6	4	5	5
Northbound	L	Car	55	56	56	117	120	120
	T		509	570	570	577	708	708
	R		68	70	70	130	134	134
	L	Truck	2	3	3	2	3	3
	T		25	26	26	14	14	14
	R		19	56	0	7	56	0
Southbound	L	Car	14	14	14	29	30	30
	T		324	354	354	742	840	840
	R		6	6	6	20	21	21
	L	Truck	0	0	0	1	1	1
	T		19	19	19	26	27	27
	R		1	1	1	2	2	2
Westbound	L	Car	213	220	220	157	162	162
	T		69	71	71	100	103	103
	R		1	1	1	16	16	16
	L	Truck	9	9	1	11	12	1
	T		2	3	0	2	2	0
	R		0	0	0	1	1	0

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US 206 and Farnsworth Avenue								
			AM			PM		
Approach	Movement	Class	2013 Base Year	2040 No-Build	2040 Build	2013 Base Year	2040 No-Build	2040 Build
Eastbound	L	Car	27	28	28	29	30	30
	T		117	120	120	304	314	314
	R		71	73	73	109	113	113
	L	Truck	4	4	0	1	1	0
	T		4	4	0	4	4	0
	R		29	66	0	7	55	0
Northbound	L	Car	144	148	148	129	133	133
	T		779	809	809	561	627	627
	R		41	46	46	86	110	110
	L	Truck	9	10	10	6	6	6
	T		48	49	49	26	27	27
	R		7	7	7	3	3	3
Southbound	L	Car	105	109	109	229	237	237
	T		415	475	475	745	773	773
	R		21	22	22	14	15	15
	L	Truck	7	7	7	15	15	15
	T		38	39	39	34	35	35
	R		3	3	3	1	1	1
Westbound	L	Car	80	98	98	35	39	39
	T		256	264	264	159	165	165
	R		264	273	273	152	157	157
	L	Truck	4	4	4	1	1	1
	T		1	1	0	11	11	1
	R		5	5	5	10	10	10

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US 130 and Dunns Mill Road								
			AM			PM		
Approach	Movement	Class	2013 Base Year	2040 No-Build	2040 Build	2013 Base Year	2040 No-Build	2040 Build
Eastbound	L	Car	58	60	60	37	38	38
(not including	T		152	157	157	287	296	296
jug handle	R		7	8	8	3	3	3
traffic)	L	Truck	5	5	5	3	3	3
	T		15	15	15	11	11	11
	R		1	1	1	0	0	0
Northbound	L	Car	0	0	0	0	0	0
	T		1513	1676	1554	874	1022	857
	R		76	79	131	93	97	160
	L	Truck	0	0	0	0	0	0
	T		117	160	111	69	108	59
	R		9	9	9	1	1	1
Southbound	L	Car	139	220	208	336	362	360
	T		576	625	625	692	848	848
	R		116	120	120	273	282	282
	L	Truck	1	1	105	2	2	76
	T		36	37	37	11	12	12
	R		9	9	9	5	5	5
WB	L	Car	62	64	64	62	198	198
(includes	T		127	132	132	180	186	186
jug handle	R		407	422	422	151	156	156
traffic)	L	Truck	1	1	1	1	1	1
	T		4	4	4	2	2	2
	R		7	8	8	2	2	2

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US 206 and Connector Road								
			AM			PM		
Approach	Movement	Class	2013 Base Year	2040 No-Build	2040 Build	2013 Base Year	2040 No-Build	2040 Build
Eastbound	L	Car	241	321	321	157	351	351
	L	Truck	88	154	154	82	144	144
Northbound	L	Car	128	132	132	113	117	117
	T		814	844	844	726	797	797
	R		726	750	750	726	749	749
	L	Truck	26	27	27	43	44	44
	T		40	56	56	14	30	30
	R		35	36	36	14	14	14
Southbound	T	Car	343	414	414	871	910	910
	R		144	281	281	292	312	312
	T	Truck	9	47	47	44	70	70
	R		52	126	126	70	191	191

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Geographic Area Covered: The study area includes the southern section of Bordentown Township in Burlington County, New Jersey

Key Words: Truck traffic, congestion, traffic safety, warehouse development, roundabout, capacity analysis, land development, connectivity, water resources, origin-destination, build out analysis

Abstract: The purpose of this study is to develop solutions to improve traffic circulation and reduce delays within a section of Bordentown Township; improve traffic safety through better distribution of truck traffic; enhance local and regional economic development opportunities through improved access; and improve roadway conditions. This study addresses the problem of lack of appropriate connections for southbound trucks between I-295 and the NJ Turnpike and identified possible improvements to the road network to improve the consistency, safety, and expediency of highway goods movement and accommodate current and future capacity requirements.

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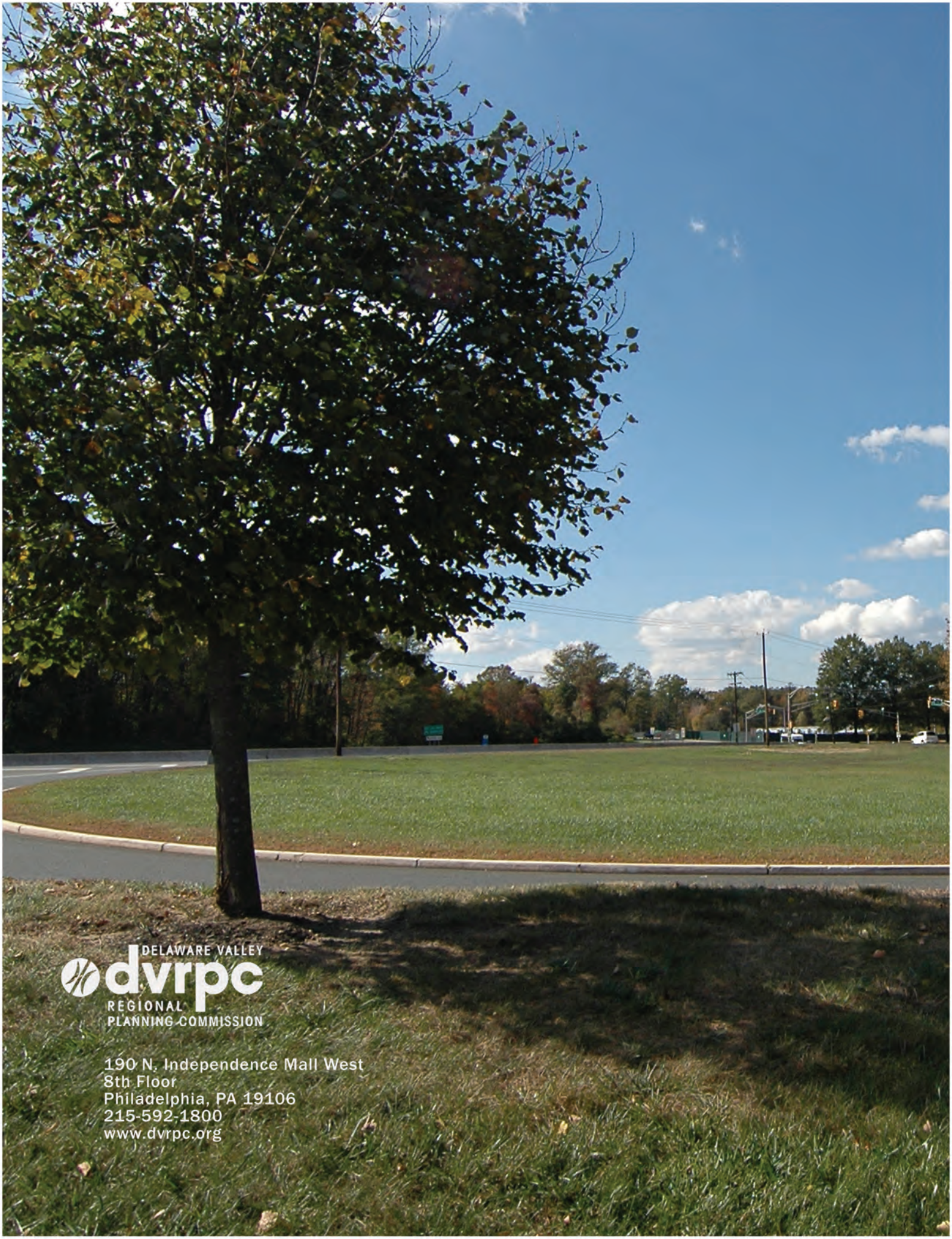

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