Harrington Multimodal Freight Terminal Feasibility Study

Harrington, Delaware

Dover/Kent County Metropolitan Planning Organization
City of Harrington

August 5, 2021 DRAFT

DRAFT

CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The City of Harrington desires to promote industrial development and jobs on three separately owned properties totaling 131 acres that lie adjacent to the Delmarva Central Railroad (DCR) Indian River Branch. The Harrington Multimodal Freight Terminal Feasibility Study, led by the Dover/Kent County Metropolitan Planning Organization (D/KC MPO), found that the site offers the opportunity for development of a new multimodal freight terminal, as well as for an industrial park with large industrial parcels that are directly served by rail.

Multimodal Freight Terminal

Kent County and DCR see a market for a multimodal terminal at this site that would allow customers elsewhere in southern Kent County and nearby Sussex County to ship and receive bulk commodities by rail, transloading to trucks at the terminal for the final portion of the trip. Demand is estimated at 1,500 – 2,000 rail carloads per year, resulting in more than 200,000 tons of freight and 7,000 to 10,000 truckloads per year. Assuming a three day per week operating schedule, the truck traffic generated is estimated at 130 truck trips total in and out on an operating day.

Track configuration for the multimodal terminal was developed with the review and input of DCR's engineering department. Several options for location and layout were developed and the preferred option was selected through a series of meetings involving the City, property owners, and DCR. DCR would operate train service to the terminal but would not operate or manage the terminal. A terminal operator would need to be engaged. The City consulted an experienced terminal operator who provided some guidance and who expressed confidence in the feasibility of the terminal.

Industrial Park

A site plan was developed with input of the three property owners: Newton Properties III, LLC, J.P. Latham, Inc., and the City of Harrington. Four initial options were presented; the plan then went through several iterations of revised road locations, track locations, lot size and configuration. The conceptual site plan shows a potential for up to 750,000 square feet of industrial buildings, after accounting for environmental constraints and road infrastructure. The industrial park, upon full development, could employ between 500 and 750 people. Traffic generated by industrial uses is estimated at 2,900 trips total in and out on a weekday and 320 trips during a commuter peak hour.

Individual industrial users on certain lots can choose to construct a rail siding to their facility for direct rail service. The concept plan illustrates the feasible locations of turnouts for rail sidings. Because of the scarcity of rail-served development parcels in Kent County, it is recommended that lots with capability for direct rail service be marketed only to businesses that have a need for and would utilize rail service.

Road Access

Primary access to the industrial park and multimodal terminal will be via the intersection of US 13 and Clukey Drive. Clukey Drive will be extended as a public street into the site and will serve all of the individual parcels as well as the multimodal terminal.

The intersection of US 13 and Clukey Drive is recommended to be physically modified to provide left- and right-turn entry into Clukey Drive, with all traffic exiting the site turning right, or to the north. Traffic exiting Clukey Drive that is destined to the south on US 13 will be accommodated by relocating and improving the existing U-turn median opening located 1,120 feet north of Clukey Drive. The northbound to southbound U-turn will be designed for large trucks and have a southbound acceleration lane in the median. Traffic signal control was considered at US 13 and Clukey Drive since that would provide direct left turn exits. However, the unsignalized option was selected to improve safety and minimize overall delay.

A second site access to SR 14 could be constructed in the future that would facilitate industrial park and terminal trips to and from the east on SR 14. An existing private road that is built to City standards currently connects SR 14 to the Latham property. The Independent Bible Fellowship Church, which owns the road between Brown's Branch and SR 14, allows only traffic to the Latham property in the easement agreement. Therefore, this roadway cannot serve the industrial park or multimodal terminal. It is proposed to be used only as an emergency access. The City should seek to acquire this easement as a street right of way to allow for full access to the industrial park. It is anticipated that the church would require visual and noise buffering along the road. Another option exists for access to SR 14 through an easement owned by Amazon Steel, which is located east of the church's road. The Amazon Steel easement leads to the City property and fits well into the preferred site plan road layout. However, it would require a new bridge or culvert crossing Brown's Branch, with associated environmental permits.

Planning-Level Cost

The cost of roadway and water and sewer utility infrastructure construction is estimated at approximately **$5.3 million** not including future road access to SR 14. Cost of a future road connection to SR 14 is not known at this time. It is assumed that gas, electric, and telecommunications utilities will install their facilities at their own expense and build the cost into their rates and hookup fees.

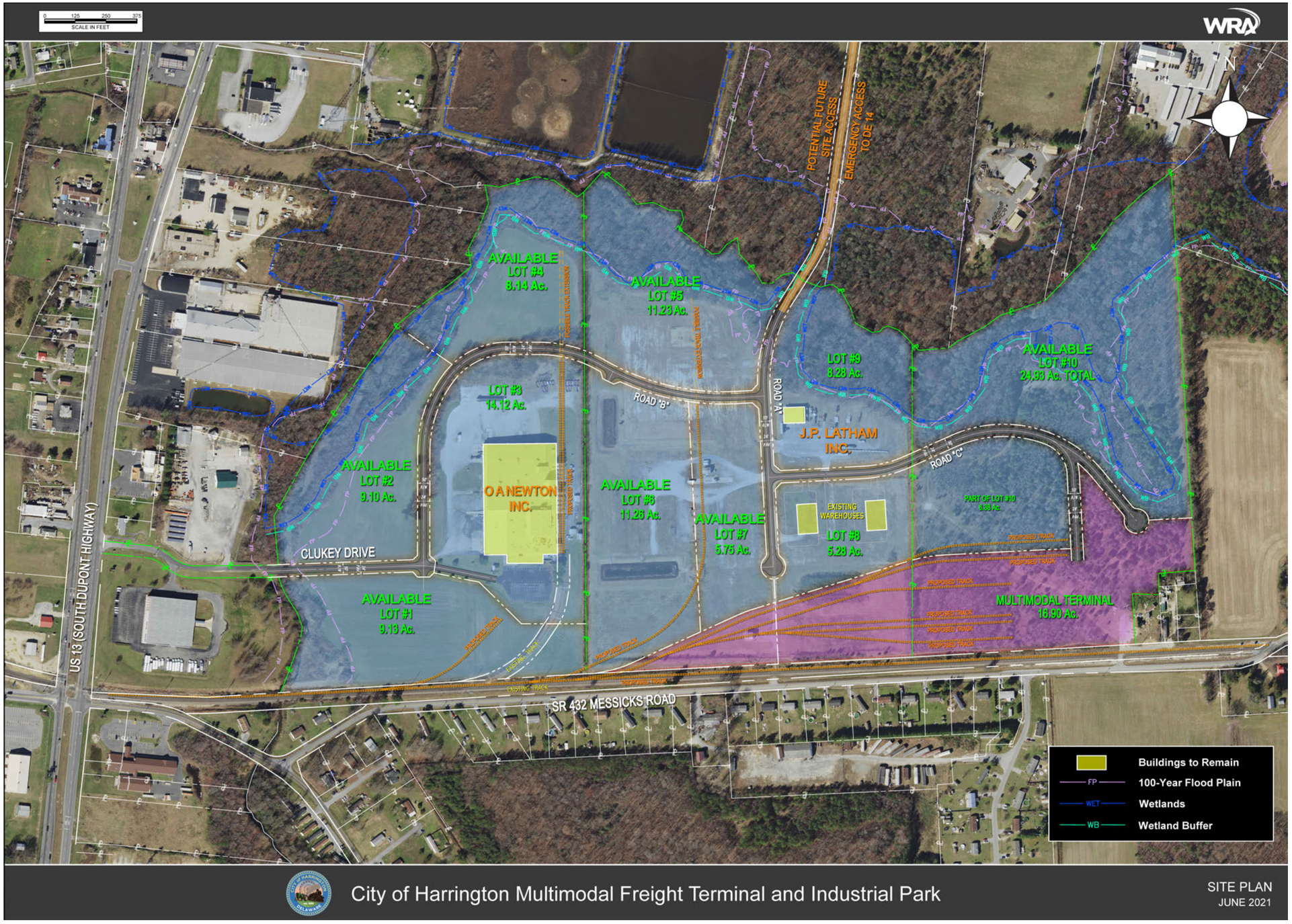
Rail cost is estimated at approximately **$15 million** for the terminal and for rail and track modifications within the railroad right of way. That cost does not include sidings at buildings.

Funding to support infrastructure construction can be sought from several state and federal sources. The City should be the applicant for funding. Private funds might also be contributed by the terminal operator for terminal improvements as a strategic investment.

Next Steps

The City of Harrington has agreed to take the lead in overall coordination of activities needed to implement the multimodal terminal and industrial park. Any funding from the City for implementation is subject to the approval of City Council. Activities for implementation include approval of the study, identification of funding, and ultimately design and construction. Specific implementation steps are addressed in the study.

DRAFT


0 125 250 375
SCALE IN FEET
WRA
N
POTENTIAL FUTURE SITE ACCESS
EMERGENCY ACCESS TO DE 14
AVAILABLE LOT #4 8.14 Ac.
AVAILABLE LOT #5 11.23 Ac.
LOT #9 8.28 Ac.
AVAILABLE LOT #10 24.33 Ac. TOTAL
LOT #3 14.12 Ac.
ROAD "B"
ROAD "A"
J.P. LATHAM INC.
ROAD "C"
AVAILABLE LOT #2 9.10 Ac.
O A NEWTON INC.
AVAILABLE LOT #6 11.26 Ac.
AVAILABLE LOT #7 5.75 Ac.
EXISTING WAREHOUSES
LOT #8 5.28 Ac.
PART OF LOT #10 6.68 Ac.
CLUKEY DRIVE
AVAILABLE LOT #1 9.13 Ac.
MULTIMODAL TERMINAL 16.90 Ac.
US 13 (SOUTH DUPONT HIGHWAY)
SR 432 MESSICKS ROAD
Buildings to Remain
FP 100-Year Flood Plain
WET Wetlands
WB Wetland Buffer
City of Harrington Multimodal Freight Terminal and Industrial Park
SITE PLAN
JUNE 2021

INTRODUCTION

Purpose of the Study

The City of Harrington is currently updating its Comprehensive Plan and has identified three parcels for a possible multimodal freight terminal supporting industrial, warehouse, and office park uses. The overall goal is to master plan these three parcels to allow the City to proceed with all necessary road, rail, water, and sewer infrastructure to accommodate potential employers looking to locate in the City.

In addition to the City's Comprehensive Plan Update, the Kent Economic Partnership (KEP) had an Economic Analysis completed in 2018[1]. The analysis, among other things, recommended warehousing, distribution, and logistics as a key sector to target in the future regarding Kent County's economic development initiatives. As such, this Multimodal Freight Terminal Feasibility Study supports the goals outlined in that report.

The purpose of this study is to explore the feasibility of establishing a multimodal freight terminal servicing rail and truck freight logistical operations throughout Kent County and the region, and to develop a master plan for the terminal and associated industrial development on the three parcels.

Site Description

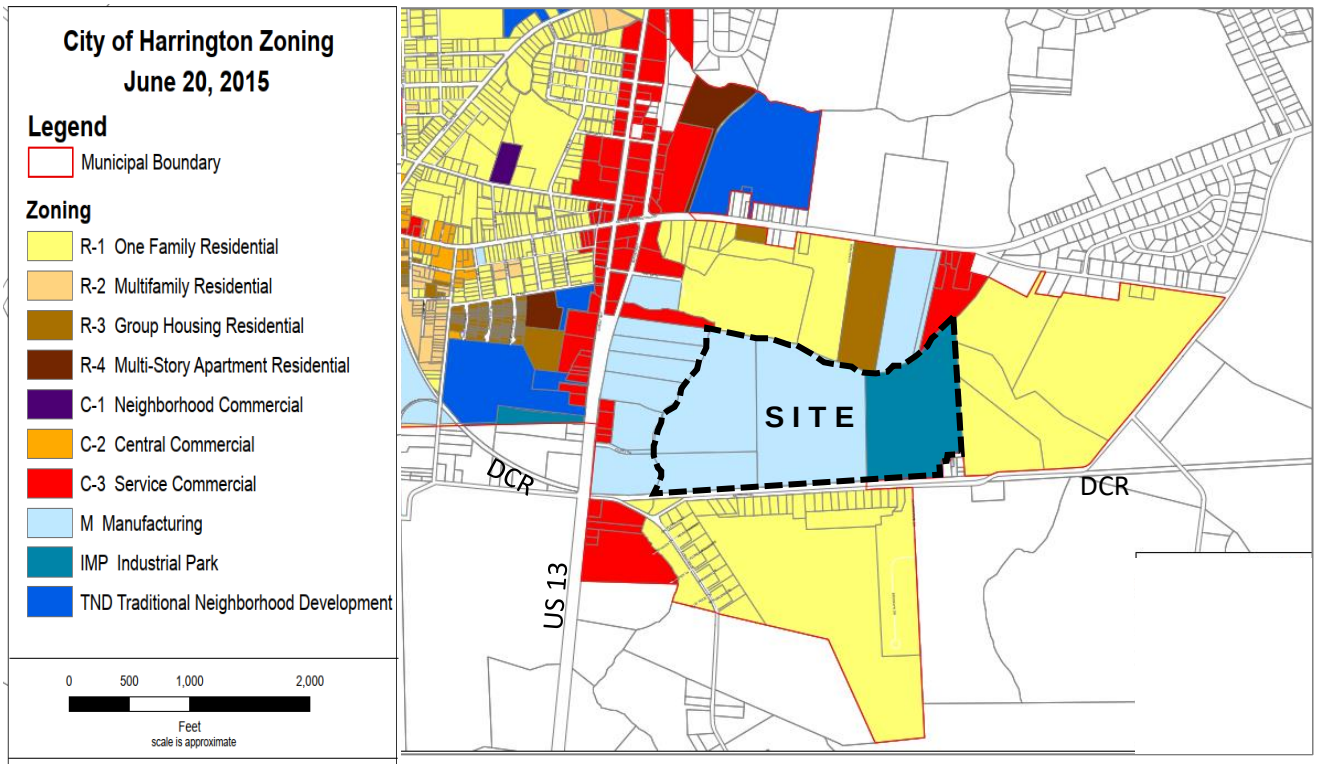
The development site consists of three adjacent properties located along the Delmarva Central Railroad (DCR). From west to east, the properties are:

- Parcel 6-09-18005-01-5900-00001; Property owner is Newton Properties III, LLC; 44.55 acres; the zoning is M-Manufacturing.
- Parcel 6-09-18000-01-0700-00001; Property owner is J.P. Latham, Inc.; 48.40 acres; the zoning is M-Manufacturing.
- Parcel 6-09-18000-01-1400-00001; Property owner is City of Harrington; 38.32 acres; the zoning is IMP-Industrial Park.

The boundaries of the combined development site coincide with Brown's Branch on the north and west, DCR right of way on the south, and the property line of Schiff Farms agricultural property on the east.

[1] Fostering Growth, Living Standards, and the Quality of Life in Kent County, September 2018

Figure 1: Site Location and Zoning



The western property, owned by Newton Properties, contains a 135,000-square-foot industrial building occupied by OA Newton and multiple tenants. There is a UPS modular facility at the north end of the building that had previously been active just in the November-December holiday season but is now getting more use because of more online shopping. The building is about 75% occupied. The building has an existing sidetrack for freight rail service by DCR. Road access to the property is provided via Clukey Drive from US 13.

OA Newton building on Clukey Drive

OA Newton building viewed from Messicks Road

The center property, owned by J.P. Latham, Inc., formerly contained a lumberyard. Currently it contains the owner's office and two recently constructed warehouses of 9,600 square feet each. Road access to the Latham property is from SR 14 via an easement to use a private road owned by the Independent Bible Fellowship Church. Latham extended this road over Brown's Branch into their property. It is built to City standards, but the church easement currently allows access only to the Latham property.

The eastern property, owned by the City of Harrington, is undeveloped and currently is mostly woodland. It has no road access. Adjacent to the southeastern corner of the City's property is a cluster of small private properties that are not located within the City boundary. At the eastern border of the City's property is land owned by Schiff Farms that is zoned R-1 and is now in agricultural use. The Schiff Farms property also borders the railroad. The City invited Schiff Farms to include their property in this study, but they declined.

PURPOSE AND NEED STATEMENT

There is an unmet need for large industrial development sites of ten or more acres. Of the available industrial zoned properties in Kent County, most are small.

There is a demand for industrial properties that can be directly served by rail. The opportunities for new rail-served industrial parcels in Kent County are currently extremely limited.

DCR sees the potential market for a multimodal freight terminal that will attract rail shipments by businesses whose properties do not have direct rail access. This study's overview of data from the Delmarva Freight Plan supports their conclusion.

Converting long distance truck trips to rail will reduce regional truck vehicle-miles travelled, which will reduce wear and tear on roads and will reduce emissions of air pollutants.

The City of Harrington is in need of new development that will provide jobs and promote economic growth. The concept site plan envisions up to 750,000 square feet of industrial space in the new industrial park which will create an estimated 500 to 750 permanent jobs in addition to the temporary jobs created during construction. To the extent the new industrial park businesses and employees patronize other local businesses, the economic development is amplified.

The purpose of the Harrington multimodal facility is to provide a greater opportunity for rail shipment of goods to Harrington and nearby portions of Kent and Sussex Counties, to meet a demand for rail-served industrial parcels, to create jobs, and to promote economic development in the City of Harrington.

EXISTING CONDITIONS

For purposes of the traffic analysis, the study area is bounded by SR 14 on the north, Messicks Road on the south, Butler Road on the east, and US 13 on the west.

Existing Roadways

US 13

US 13, or Dupont Highway, is a primary arterial roadway that traverses the entire north-south length of Delaware. US 13 connects many important cities and towns in Delaware, including Seaford, Harrington, Dover, and Wilmington. In the study area, US 13 has two lanes and a shoulder in each direction separated by a wide median. Left and right turn lanes are provided at intersections and the median openings at intersections also provide the opportunity for U turns. As US 13 approaches SR 14, the northbound and southbound lanes diverge and in effect become one-way roadways separated by a median approximately 300 feet wide. Businesses occupy the median in this widened area. The intersection of US 13 and SR 14 is signalized. There are no signals south of SR 14 in the study area.

The Indian River Branch of the Delmarva Central Railroad crosses US 13 approximately 500 feet south of Clukey Drive and just north of the intersection with Corn Crib Road/Fairground Road. The crossing is protected with gates and flashers. The distance from the edge of the US 13 crossing to the signal circuit on the east side of US 13 that activates the gates is 930 feet. Maximum train speed at the crossing is 20 mph. Because of the proximity of the intersection of Corn Crib Road/Fairground Road to the railroad, left turns and U turns are prohibited from southbound US 13 at Corn Crib Road, and Fairground Road is channelized to allow only right turn exits to southbound US 13.

The speed limit on US 13 is 50 mph south of the study area. The speed limit is reduced to 40 mph just north of the railroad crossing, and further reduced to 35 mph approaching the intersection with SR 14. The speed limit remains 35 mph in the Harrington commercial area and returns to 50 mph north of the City.

SR 14

SR 14, or Milford-Harrington Highway, is a 40-foot-wide roadway that has one 12-foot travel lane in each direction and 8-foot shoulders. In the study area, the functional classification of SR 14 is a minor arterial. The speed limit is 25 mph in the vicinity of US 13 and the entrance to the Harrington Midway Park Center, becomes 35 mph at the Independent Bible Fellowship Church property, 40 mph in the vicinity of Doctor Smith Road, and increases to 50 mph east of Doctor Smith Road. The only signalized intersection in the study area is the intersection of SR 14 and US 13. There are side-mounted intersection ahead warning signs with yellow flashers for Butler Road/Airport Road located approximately 700 feet in advance of that intersection in both directions.

Trucks other than local deliveries are prohibited on SR 14 in downtown Harrington, west of US 13. A truck route is established that directs westbound through trucks on SR 14 to turn south on US 13, travel approximately two miles to Tower Hill Road, turn right and follow Tower Hill Road and Farmington Road back north to meet SR 14 west of downtown. Through trucks on eastbound SR 14 follow the reverse route. The intersection of US 13 and Tower Hill Road is channelized with turn lanes and also has a median acceleration lane for trucks turning left onto US 13 north.

SR 14 westbound west of Butler Road

MESSICKS ROAD

Messicks Road (K432) is a 20-foot-wide uncurbed roadway with no shoulders that runs between Corn Crib Road and Butler Road. Messicks Road runs along the south side of the DCR track opposite the development site. There is a private grade crossing of the DCR track called Earl Street that provides access to Messicks Road for a cluster of small properties at the southeastern corner of the City's development parcel. These properties are not located within the City boundary.

East of these properties, Messicks Road crosses the track at grade to the north side. The grade crossing is protected by side-mounted crossbuck signs with flashers. East of the grade crossing, Messicks Road turns north and becomes Butler Road.

Messicks Road

BUTLER ROAD

Butler Road (K429) is a 20-foot wide uncurbed roadway with no shoulders that connects Messicks Road with SR 14 east of the development site. The four-way intersection of SR 14, Butler Road and Old Airport Road is stop-sign controlled on the minor street. There are side-mounted intersection ahead warning signs with yellow flashers on SR 14 approximately 700 feet in advance of the intersection with Butler Road/Old Airport Road in both directions.

Butler Road

CLUKEY DRIVE

Clukey Drive is a City street at its intersection with US 13. The roadway is 22 feet wide and uncurbed. Clukey Drive provides access to two businesses, a Pepsi bottling facility and AgroLab, before becoming a private street to the OA Newton property. US 13 has left and right turn lanes for turns into Clukey Drive.

Clukey Drive looking west toward OA Newton building

Existing Traffic/Truck Volumes

Traffic counts were conducted on roads and intersections in the vicinity of the site in late January and early February 2020. All counts were completed before the COVID-19 pandemic disrupted typical travel patterns in March 2020.

Turning movement counts were conducted from 7:00 am to 9:00 am and from 4:00 pm to 6:00 pm on February 6, 2020 at the following intersections:

- US 13 and SR 14
- US 13 and Clukey Drive
- US 13 and Corn Crib Road
- US 13 and Truck Route 14 (Tower Hill Road)
- SR 14 and Airport Road

Turning movement counts included classification of heavy vehicles.

Twenty-four-hour automatic traffic recorders were placed at two locations for a one-week period beginning January 21, 2020:

- SR 14 approximately 0.44 miles east of US 13, at the Independent Bible Fellowship Church
- Messicks Road approximately 700 feet east of the Delmarva Central Railroad grade crossing

The average daily traffic volume for the count period on SR 14 was 8,157 vehicles. This compares with a 2019 annual average daily traffic (AADT) of 8,062 and a 2020 AADT of 6,409 provided on Delaware Department of Transportation (DelDOT) volume maps. The truck percentage during the count was 10%, including 2% tractor trailers.

The average daily traffic volume for the count period on Messicks Road was 707 vehicles. The truck percentage was 5%. DelDOT volume maps show a 2019 AADT of 964 and a 2020 AADT of 766 vehicles on Messicks Road.

The AADT of US 13 was obtained from DelDOT maps. The total two-way AADT was 41,400 in 2019 and 33,000 in 2020. Vehicle classification from six hours of intersection turning movement counts in early February 2020 showed a truck percentage on US 13 of 10%.

AM peak hour intersection volumes are illustrated in Figure 2 and PM peak hour volumes are illustrated in Figure 3. These volumes represent pre-pandemic conditions and are seasonally adjusted.

Figure 2: Existing AM Peak Hour Traffic Volumes

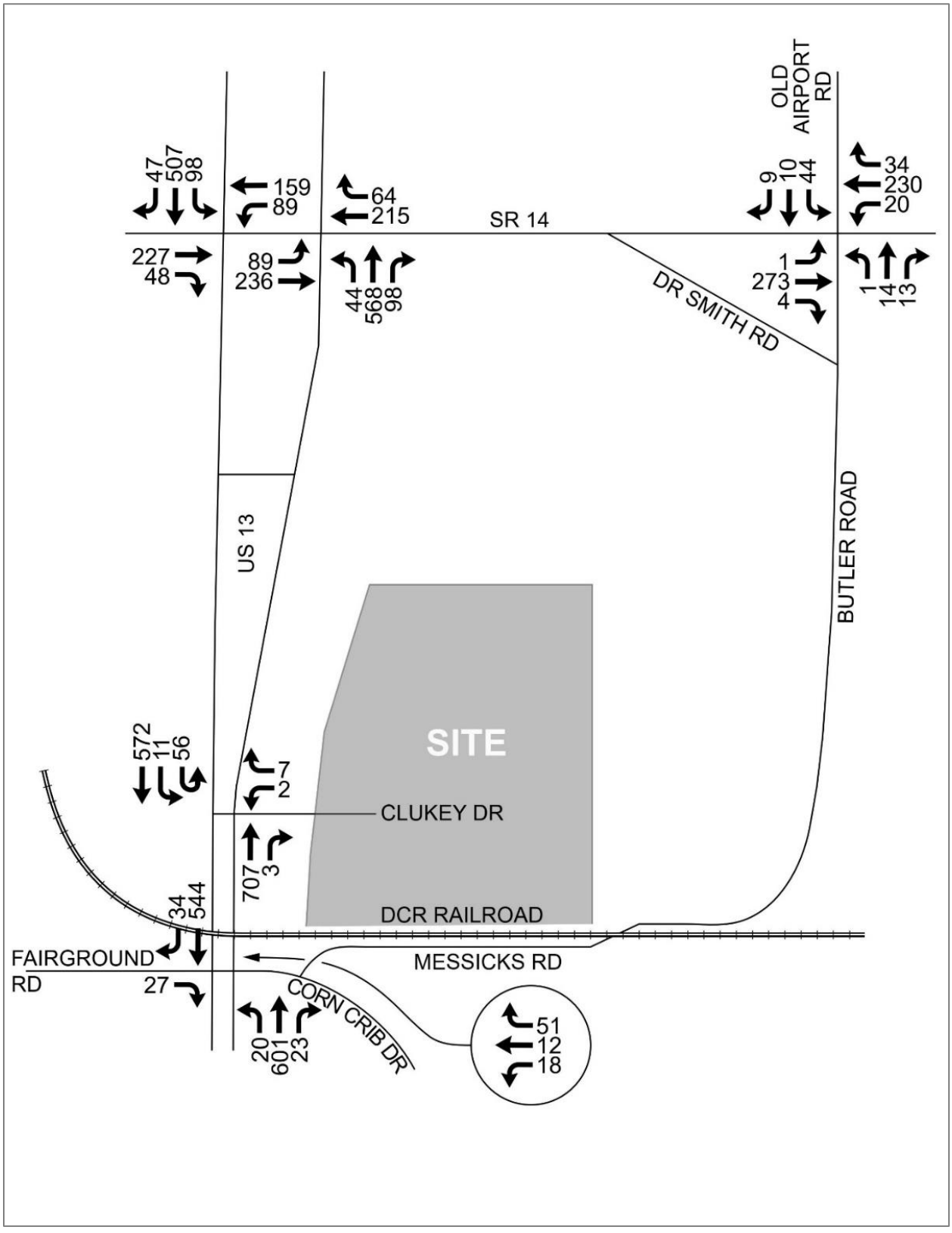
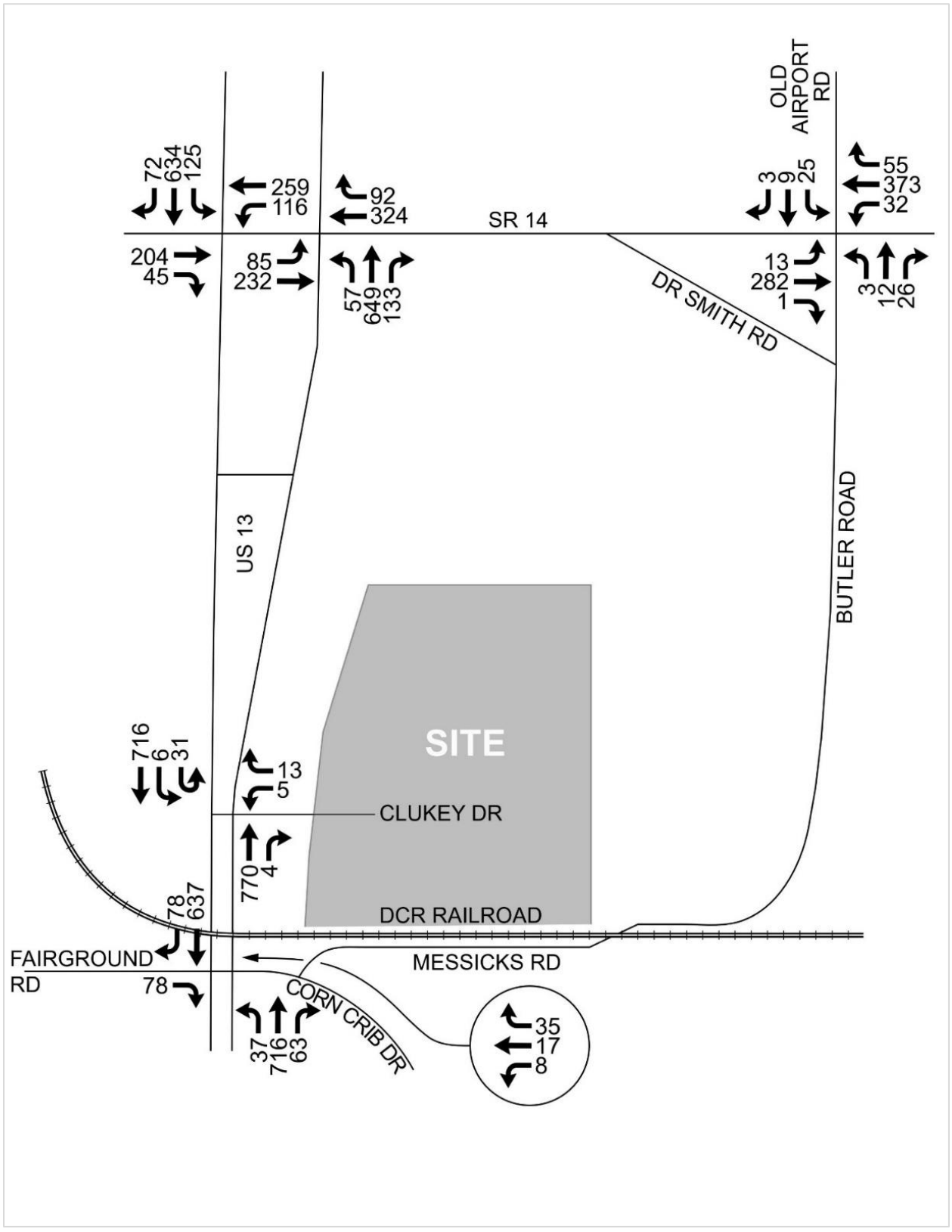


Figure 3: Existing PM Peak Hour Traffic Volumes



Existing Intersection Operations

Level of service (LOS) is an indication of average vehicle delay and is graded on a scale from A to F, with LOS A representing little or no delay and LOS F representing severe delay. In Delaware, DelDOT generally considers LOS D to be an acceptable level of service. Improvements may be needed at signalized intersections with LOS E or F.

Table 1: Level of Service Criteria

Level of Service Criteria for Unsignalized Intersections (Two-Way Stop Control, All-Way Stop Control and Roundabouts)

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

Level of Service Criteria for Signalized Intersections

Level of Service	Average Delay (sec/ veh)	Description
A	0 – 10	This level is assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable most vehicles arrive during the green indication and travel through the intersection without stopping.
B	>10 – 20	This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
C	>20 – 35	This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	>35 – 55	This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	>55 – 80	This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
F	>80	This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

SOURCE: *Highway Capacity Manual 2010*, pages 18-5, 18-6, 19-2, 20-3, and 21-1

All study intersections are unsignalized with two-way stop control on the minor street except the intersection of US 13 and SR 14, which is signalized.

Looking west on SR 14 at signalized intersection with US 13 northbound and US 13 southbound

The existing peak hour intersection levels of service for unsignalized intersections were determined using Highway Capacity Software (HCS) 2010. The signalized level of service for US 13 and SR 14 was determined using Synchro version 10. The intersection levels of service for existing conditions are shown in Table 2. All intersections operate at acceptable levels of service in the AM and PM peak hours.

Table 2: 2020 Peak Hour Levels of Service

Intersection	Approach	AM Peak Hour		PM Peak Hour	
		LOS	Avg. Delay (sec/vehicle)	LOS	Avg. Delay (sec/vehicle)
US 13 northbound and SR 14 (signal)	US 13 NB left	B	15.7	B	19.3
	US 13 NB through	B	19.1	C	24.8
	US 13 NB right	B	15.8	B	19.5
	SR 14 EB left	B	17.1	C	23.5
	SR 14 EB through	B	19.3	C	22.6
	SR 14 WB through	D	38.2	D	48.0
	SR 14 WB right	C	31.6	C	33.2
	OVERALL	C	22.3	C	28.9
US 13 southbound and SR 14 (signal)	US 13 SB left	B	16.6	C	20.3
	US 13 SB through	B	18.8	C	23.6
	US 13 SB right	B	15.5	B	18.9
	SR 14 EB through/right	D	39.6	D	41.3
	SR 14 WB left	B	14.4	B	13.7
	SR 14 WB through	B	10.9	B	13.3
	OVERALL	C	22.0	C	23.5
US 13 and Clukey Drive	US 13 SB left and U turn	B	13.7	B	14.1
	Clukey Drive left and right turn	B	12.8	B	14.4
US 13 and Corn Crib Rd./ Fairground Rd.	US 13 NB left	A	9.1	A	9.8
	Corn Crib Road all movements	C	18.0	D	26.4
	Fairground Road (right turn only)	B	10.4	B	11.4
SR 14 and Butler Rd./ Old Airport Rd.	SR 14 EB left (in shared lane)	A	7.8	A	8.3
	SR 14 WB left (in shared lane)	A	7.9	A	8.0
	Butler Rd. all movements	B	12.7	B	13.8
	Old Airport Rd. all movements	C	15.8	C	20.9

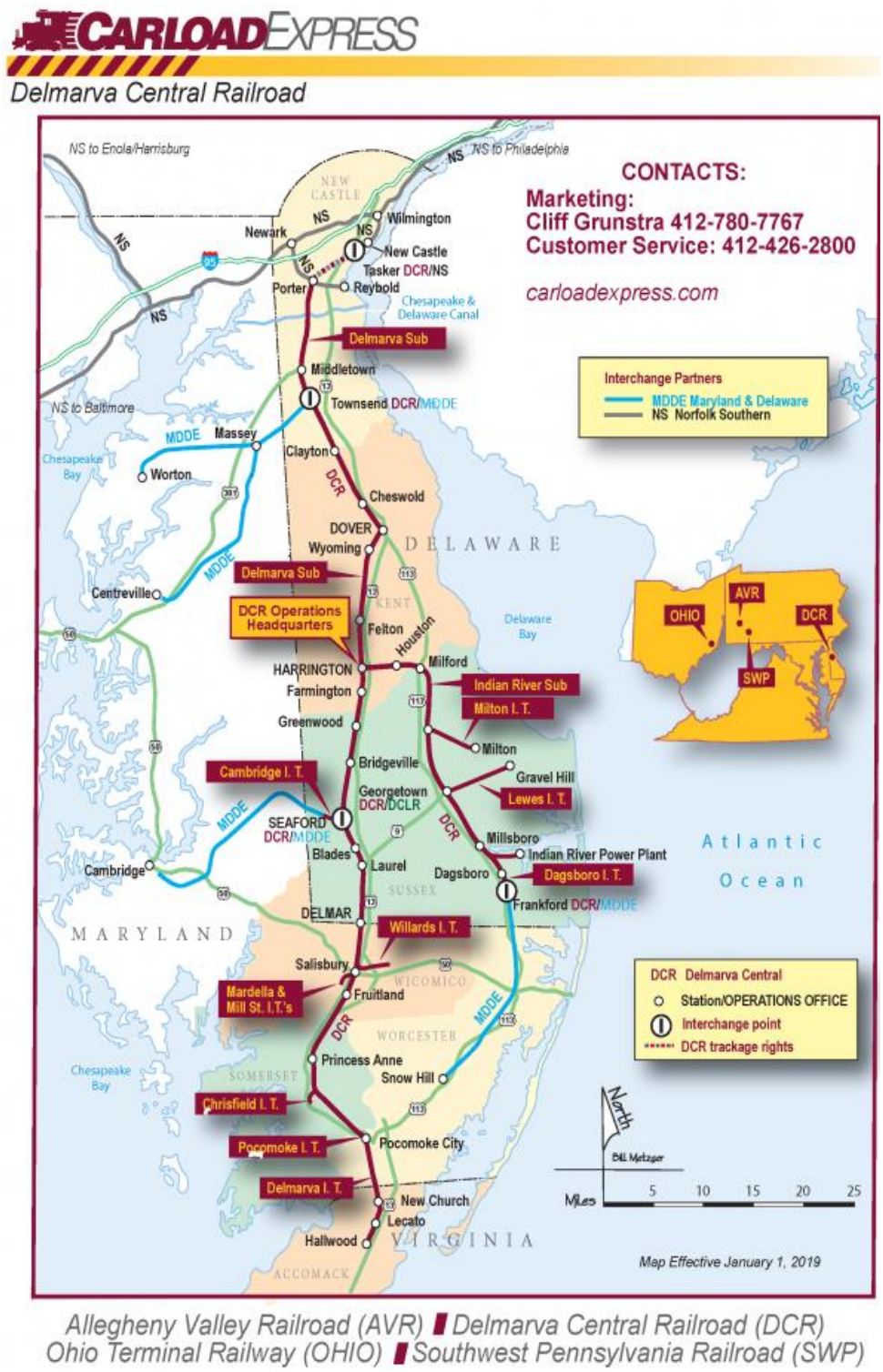
Existing Rail Operations

Carload Express, Inc. is a short line railroad and transportation company serving Pennsylvania, Delaware, Maryland, Virginia, and the surrounding region. The Delmarva Central Railroad Company (DCR) is a subsidiary of Carload Express Inc. and operates 188 miles of rail line in Delaware, Maryland, and Virginia. The lines run from near Porter, Delaware, (south of Wilmington) south to Hillwood, Virginia; and from Harrington, Delaware, to Frankford, Delaware; with branches to Milton and Gravel Hill. DCR interchanges with Norfolk Southern (NS), as well as the Maryland & Delaware Railroad, in several locations on the Delmarva Peninsula.

The Indian River Branch of DCR that runs to Frankford crosses US 13 approximately 500 feet south of Clukey Drive. The crossing is protected with gates and flashers. Approximately one mile east of US 13, the line crosses Messicks Road; the track is straight and Messicks Road makes an S-curve to cross the track. This grade crossing is protected by side-mounted crossbuck signs with flashers.

DCR is managed locally from offices in Harrington. Freight operations are based out of Harrington, Dover, and Seaford.

Figure 4: Delmarva Central Railroad facilities



MULTIMODAL FREIGHT TERMINAL POTENTIAL

General Operations of a Transload Freight Terminal

BACKGROUND

Transload terminals have grown in popularity with railroads of all classes over the past 40 years as a very effective way for railroads to serve customers that are either not located on an existing rail line or whose volume of business is not great enough to justify the cost of having their own sidetrack. The concept is almost as old as railroading, having begun as tracks that were designated for access by teams of horses with wagons which would pull alongside railroad cars and load the products into the wagons by hand labor. The practice gave rise to the term "team track" which was commonly used by railroads through the 1970's and is still recognized today. Team tracks are now frequently clustered into terminals supported by services and infrastructure suited to the products, transportation methods, and safety regulations of our current times.

Most traffic at these terminals consists of inbound loads that are transferred to local trucks that make the "last mile" delivery to the customer. The loads are generally bulk solids and liquids of every description, and sometimes finished products such as building materials, that are used in the local manufacture of finished products or for distribution through retail sales. Terminals may be of any size from one- or two-track operations closely resembling the old team track practice to large multi-track facilities specializing in handling a specific product. Because the terminals do not necessarily require large areas of land or large investments in infrastructure, typically do not receive large numbers of railcars at one time, and can attract business from far beyond the reach of a railroad's tracks, they are especially popular with short line, industrial, and regional railroads which are also more suited to performing the railcar switching operations typically required by these facilities.

RELEVANT EXAMPLES

Two examples of transload facilities of the size contemplated for Harrington are located in Baltimore City on CSXT and on the Canton Railroad. A third example is located in the City of Philadelphia at CSXT's East Side Yard, but it is larger and approximately half of its original size was dedicated to the shipping of a single product (potash).

In Baltimore, the CSXT facility is located at Fort Avenue and Andre Street in Locust Point. It began as a 7-track facility in 1986 but quickly expanded to a 15-track facility by the early 1990s. The site is about 14 acres and was a former lumber distribution and retail sales facility. The facility features an office, truck scales, storage and maintenance facilities for the unloading/loading equipment, paired tracks with some pairs equipped with package boilers for providing steam heat to tank cars for unloading viscous liquid products, and drive aisles wide enough to permit trucks to pass other trucks that are loading/unloading products. The facility was, and probably still is, operated by a contractor to CSXT.

The Canton Railroad facility in Baltimore is located on Boston Street between Haven Street and Newkirk Street and is operated by the railroad. It began as a 4-track facility in 2002 and expanded to a 5-track facility in 2019. The site is 5 acres and was formerly an aggregate unloading and stockpile facility. Facility features include an office, truck scale, storage and maintenance facilities for unloading/loading equipment, one pair of tracks set up to be equipped with a package boiler for providing steam heat to tank cars for unloading viscous liquid products, drive aisles wide enough to permit trucks to pass other

trucks that are loading/unloading products, one track with adjacent space for ground stockpiling of products for unloading/loading boxcars, and two tracks set up for unloading propane tank cars. The Canton Railroad facility, with improvements, was used as the basic pattern for the Harrington concepts.

Transloading facilities need to be set up to be flexible as to the types of products that will be handled at those facilities since traffic patterns change over time as the railroad's customers change. The CSXT facility was originally designed to handle bulk solids but now handles as much, or more, liquids in tank cars. The Canton Railroad facility was originally designed to handle loads in boxcars and bulk solids in covered hopper cars, but now handles more tank cars of liquids and liquified propane gas. With the diversity of products that move through transloading facilities, the American Railway Engineering and Maintenance of Way Association (AREMA) has established recommended practices for their general design.

FACILITY BEST PRACTICES

AREMA Chapter 14, Part 4 "Specialized Freight Terminals," plus experience with the Canton Railroad Boston Street facility, was used as design guidance for the Harrington facility. AREMA does not provide specific details or criteria for how a facility should be designed, but rather provides a discussion of the elements that need to be considered for inclusion in the terminal depending on the anticipated products to be handled and the type of train operation. Section 4.5 of the chapter provides the recommendations for facilities handling bulk and fluid products. Within this section there are articles discussing site selection, unloading and loading facilities, commodity storage, buildings, security, environment and maintenance, and terminal configuration.

Experience with the Canton Railroad facility shows the importance of providing as much space as possible for storage and support facilities. Originally designed on speculation with just drive aisles and maximum railroad car storage, the facility has provided the railroad with diverse business beyond their expectations. While most traffic during the last 18 years has been transferring product from railcars to trucks, there have at various times been a tank car cleaning facility, grain storage silos, bagged product storage under a tent-like structure, ground storage for pallets of roofing shingles, and most recently the addition of a fifth track to provide a paired track arrangement serving a tank car unloading rack for propane and two above-ground 10,000-gallon propane storage tanks, which also required the railroad to relocate its fence to slightly expand the size of the site.

In general, the Harrington site satisfies the recommendations regarding short- and long-term development of the terminal, truck access, rail access, environment, size, available utilities, and zoning and permitting with the only concerns being those of light pollution, proximity to residential areas, and proximity to sensitive environmental areas such as wetlands. For unloading and loading facilities, this was considered to be a low-volume terminal that would use small portable pump and vacuum equipment, and each aisle provides a 21-foot lane adjacent to each track for that purpose. The aisles also provide two 12-foot through lanes so that trucks can always pull through an aisle in either direction without backing up to avoid opposing traffic or other trucks being loaded. A track was also provided with 30 feet of clear space on either side to allow forklifts to unload/load centerbeam cars and boxcars which are typically used for transporting building materials. Adjacent to each 30-foot clear space, an additional 50-foot-wide space is provided for ground storage of materials so that the railcars may be unloaded whether or not a truck is available. This allows the railcar to be released more quickly to avoid demurrage payments. Propane is a popular commodity on the Delmarva Peninsula, so space has been

provided for above-ground storage tanks, and the track centers of the paired tracks are wide enough to permit the erection of a propane car unloading rack and/or a package boiler that could provide steam heat for unloading tank cars. An office, truck scale, and entrance road can be configured to accommodate the selected facility location. The site perimeter fences, where parallel to tracks, were set a minimum distance of 20 feet from the centerline of the nearest track to accommodate a typical sidetrack roadbed section with drainage ditch that is common to most railroads and AREMA recommended practices.

TRACK BEST PRACTICES

The conceptual terminal design followed the AREMA recommended practice for a typical transloading facility that would receive non-unit train traffic (meaning individual or small groups of cars consigned to various customers) as well as the design criteria of CSXT and NS. For track in transloading facilities AREMA provides minimal guidance for track curvature, grades, turnouts, and length of lead tracks. The conceptual design meets or exceeds all AREMA recommendations and generally meets all CSXT and NS requirements.

The initial conceptual design criteria included the following:

- Maximum curvature – 12°
- Minimum turnout angle within the facility – No. 8
- Minimum turnout angle off the mainline – No. 10
- Minimum tangent distance between reverse curves – 100 feet
- Minimum tangent distance ahead of or beyond turnouts – 50 feet
- All grades are anticipated to be flat (0.00%) or sloped very slightly downgrade away from the mainline (not to exceed 0.1%) to avoid the possibility of cars rolling out of the facility
- Roadbed width of 24 feet (12 feet on each side of the track centerline) for each track with 2:1 slope to perimeter ditches

The conceptual design was reviewed by Carload Express engineering staff and the plan incorporates their recommendations. Some modifications were necessary to meet their specific sidetrack design criteria which in some cases exceeds those of CSXT and NS.

Anticipated Commodity Types and Number of Rail Car Loads

DELMARVA FREIGHT OVERVIEW

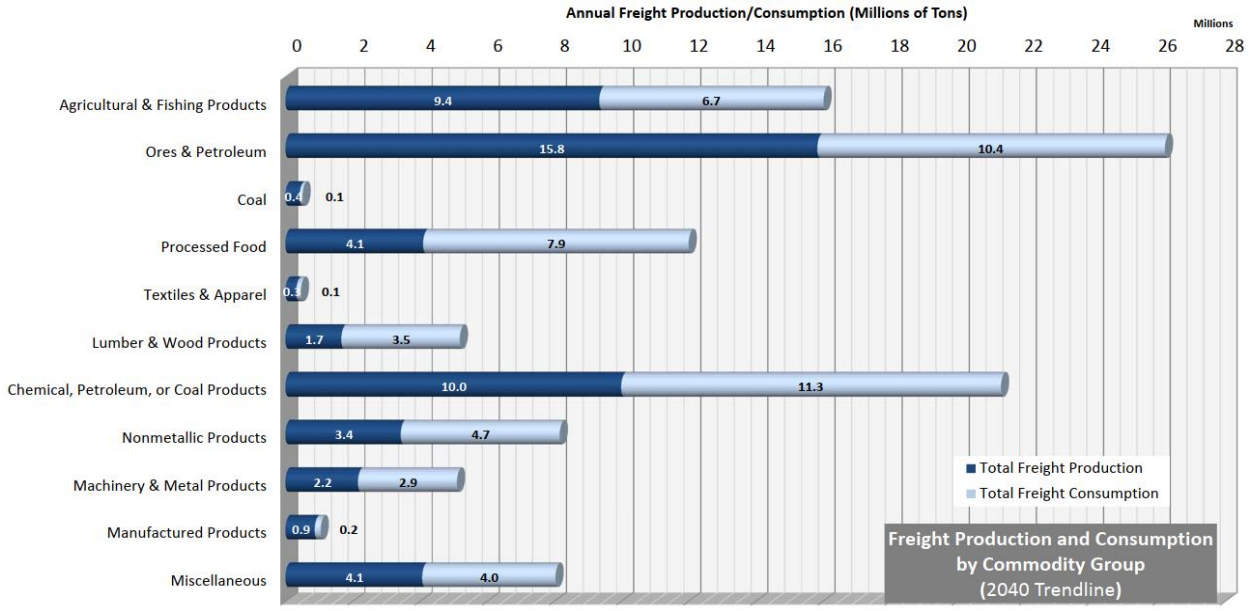
To help explore potential freight patterns that may be relevant to the proposed rail site in Harrington, freight data from the *Delmarva Freight Plan*[2] was reviewed. The plan's 2010 base year reported the following:

- 70 million tons ($75 billion) of freight to, from, or on the Delmarva Peninsula
- 175 million tons ($327 billion) of pass-through freight
- Over 80% of freight movements by truck
- A predicted 70-80% increase in annual freight estimates from 2010-2040

Within such an environment, there could certainly be opportunities to both encourage a shift of existing freight movements from one mode to another (i.e. from truck to rail) and to help capture and manage future freight growth via enhancements to the peninsula's multimodal freight infrastructure.

Resources from the *Delmarva Freight Plan* also included a commodity flow model that was customized for the peninsula using the Cube Cargo software platform.[3] As part of that effort, commodity flows were summarized in terms of **11 Commodity Groups** (CDGs) and distinguished between **freight production** (i.e., tonnage that is created in or originating from an area) and **freight consumption** (i.e., tonnage that is delivered to or used in an area). Within the context of these definitions, the plan reported overall freight production and consumption estimates by CDG as shown in Figure 5.

Figure 5: 2040 Freight Production and Consumption Estimates for the Delmarva Peninsula by Commodity Group



[2] **Reference**: DelDOT, *Delmarva Freight Plan – The Delaware Freight Plan with Regional Coordination*, May 2015, https://deldot.gov/Publications/reports/freight_plan/index.shtml.

[3] **Reference**: Citilabs, Cube Cargo Freight Movement, https://www.citilabs.com/software/cube/cube-cargo/

COMMODITY GROUPS (CDGs) OF INTEREST

Discussions with DCR noted that potential rail freight may span a variety of types. Examples could include stone and aggregate, construction materials, lumber, agricultural products (particularly as related to Delmarva's poultry industry), chemical products, propane, or recyclable materials. While many opportunities may be possible, it is anticipated based on overall freight trends on the peninsula in general, and for the proposed rail site in Harrington specifically, that those opportunities may be especially represented within six of the commodity groups from the freight plan's Cargo model, including **CDGs 1-2, 6-8, and 11** (see sidebar).

Delmarva Freight Plan Commodity Groups (CDG)

1. **Agricultural & Fishing Products**
2. **Ores & Petroleum**
3. Coal
4. Processed Food
5. Textiles & Apparel
6. **Lumber & Wood Products**
7. **Chemical, Petroleum, or Coal Products**
8. **Nonmetallic Products**
9. Machinery & Metal Products
10. Manufactured Products
11. **Miscellaneous (e.g. waste, scrap, mixed)**

FREIGHT ACTIVITY AREAS

To identify potential insights into where future rail demands may occur, the origins and destinations (O-D) of the six CDGs noted above were explored based on available Cargo model data. This approach compiles 2040 production and consumption estimates for review using a simplified perspective to determine where relevant freight activities may exist on the peninsula. This approach does not attempt to reflect specific freight sites, predict new industry creation, or account for possible diversion of pass-through freight that does not have an origin or destination on the peninsula today. Rather, the O-D perspectives here aim to understand where certain types of freight activity are generally located across the peninsula, as those same locations may inform how truck patterns might unfold to/from a new rail site in Harrington. Such insights, alongside a review of existing truck volumes in the area, may support a broader understanding of future truck patterns and related site accessibility needs for the overall site feasibility study.

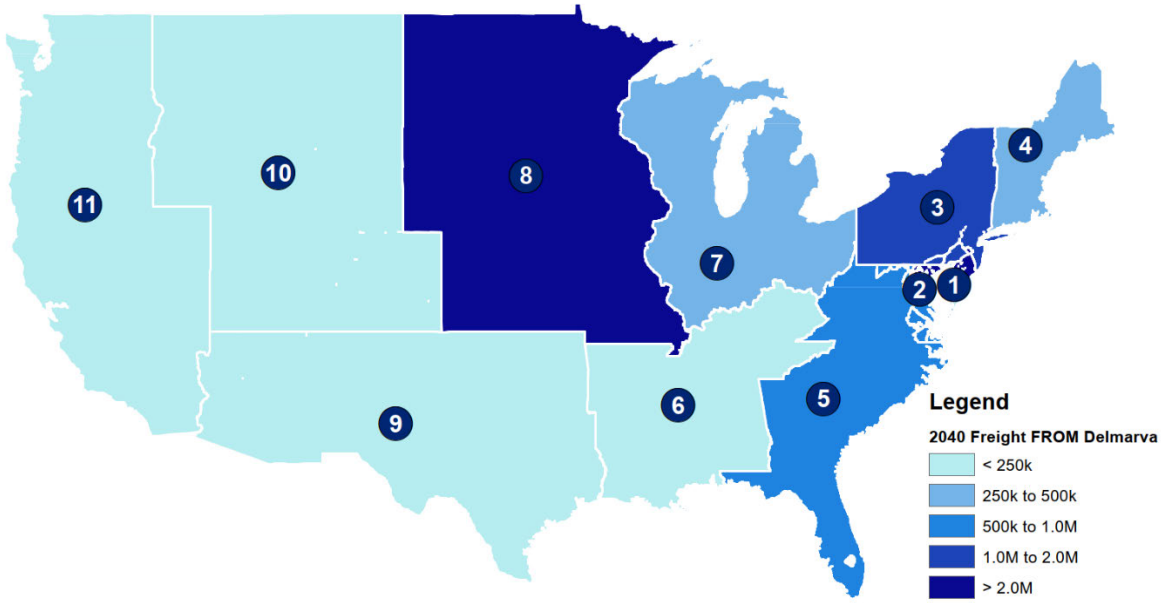
Relevant freight activity perspectives[4] were compiled at three levels as follows:

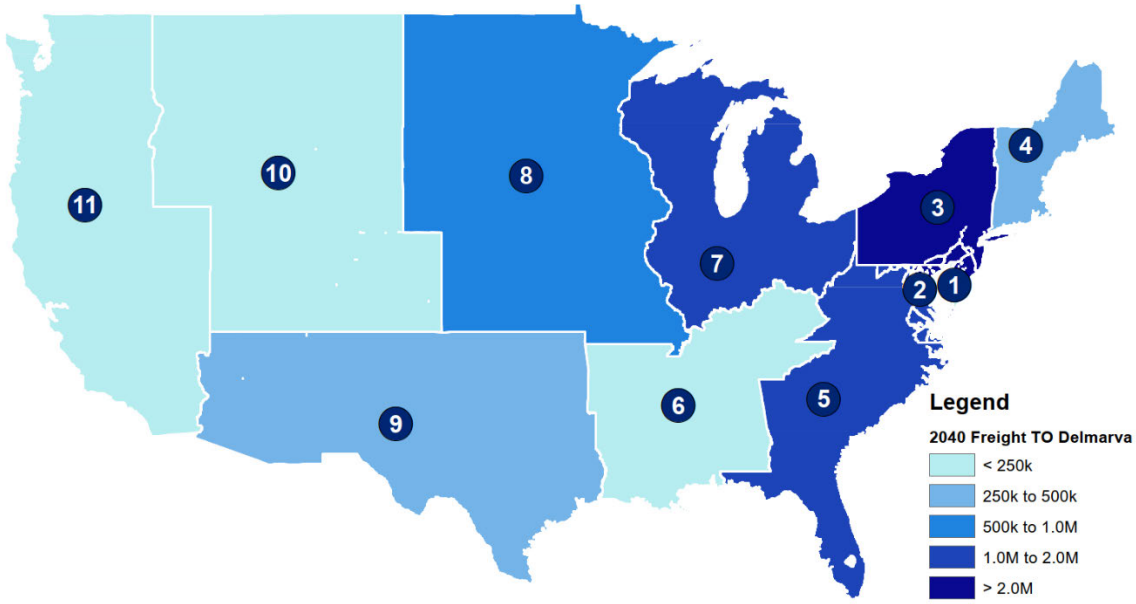
- **National/Regional Freight Perspectives** (Figure 6) provide a high-level overview of domestic freight flows for the Delmarva Peninsula (Zone 1) as a whole. Such insights represent a pool of freight activity from which new truck-to-rail demands could potentially draw including, for example, millions of tons to/from the adjacent Mid and South Atlantic regions (Zones 3 and 5), or more distant areas across the Great Lakes, Plains, or Southwest regions (Zones 7-9).

[4] In all cases, it is important to keep in mind that these perspectives do NOT reflect overall freight activity; rather, they intentionally focus only on activities that are more likely to generate truck-rail traffic through Harrington with an emphasis on (1) only the six CDG's of interest noted previously, and (2) only external freight activity that moves onto or off of the peninsula. By default, this approach excludes freight movements for other CDG's, for pass-through freight that does not start/stop on the peninsula, and for intercounty freight that is wholly contained on the peninsula (i.e. short-distance movements that would be far less likely to shift from truck to rail).

*Figure 6: 2040 National/Regional Freight Perspectives **

*** NOTE:** showing only tonnage from/to the Delmarva Peninsula, and only for CDGs 1-2, 6-8, and 11





(#) **Regional Freight Zones:**

1. Delmarva Peninsula
2. Delmarva Buffer
3. Mid-Atlantic
4. New England
5. South Atlantic
6. South Central
7. Great Lakes
8. Plains
9. Southwest
10. Mountain
11. Pacific

- **County Freight Perspectives** (
- Figure 7) represent freight production and consumption by county for the CDGs of interest and for activity that has an external origin or destination off the peninsula (i.e. related to longer-distance freight flows that may be more likely to shift from truck to rail). The tonnage distributions may help to inform future truck distributions relative to a new rail site in Harrington based on, for example, a higher tonnage draw to the south (e.g. Sussex or Wicomico Counties) compared to lower tonnage levels in the Maryland counties to the west.
- **Localized Freight Activity** (Figure 8) was detailed only for Kent County to supplement the broader county insights above, but relative to estimating intra-county draws around Harrington.

*Figure 7: 2040 County Freight Perspectives **

*** NOTE:** showing only tonnage with origin/destination off the Delmarva Peninsula, and only for CDGs 1-2, 6-8, and 11

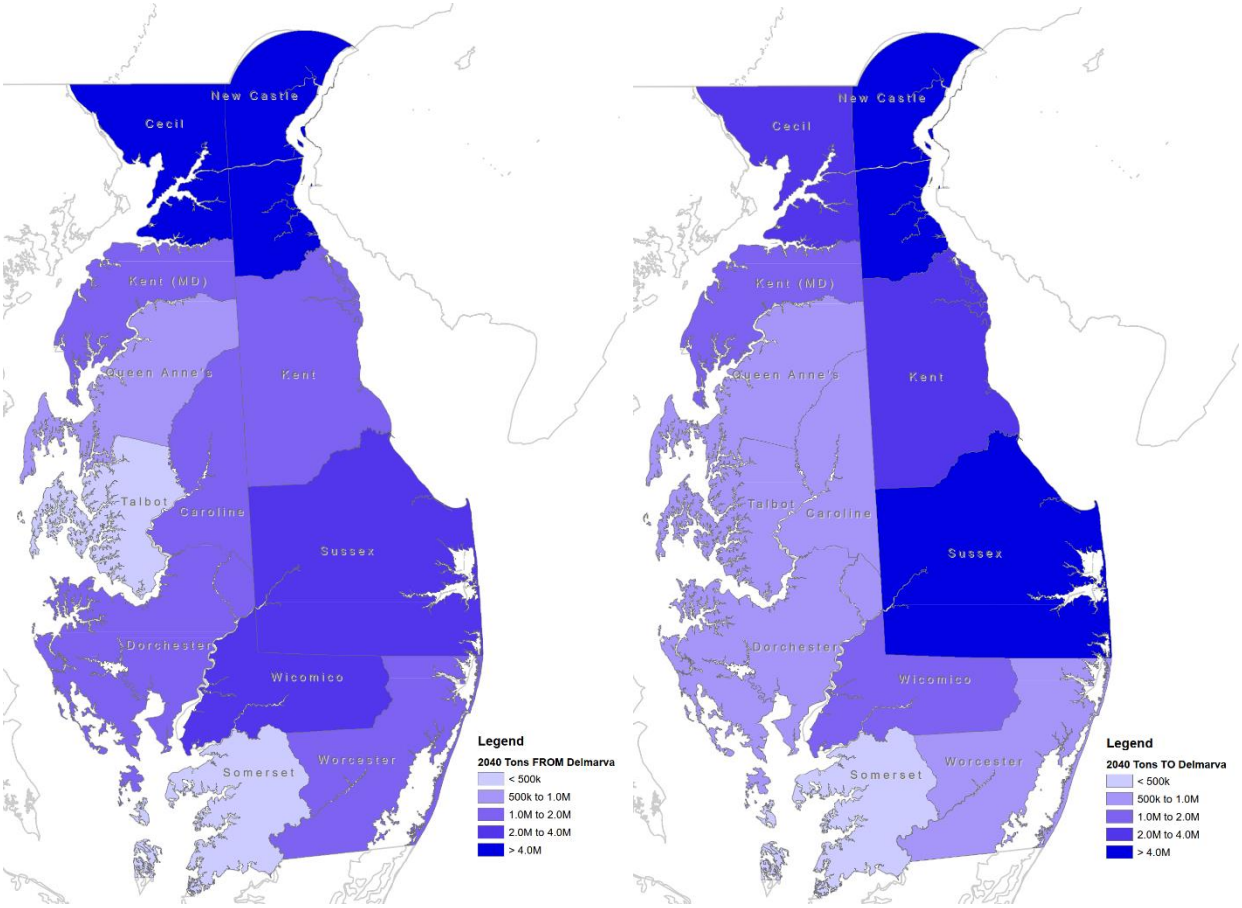
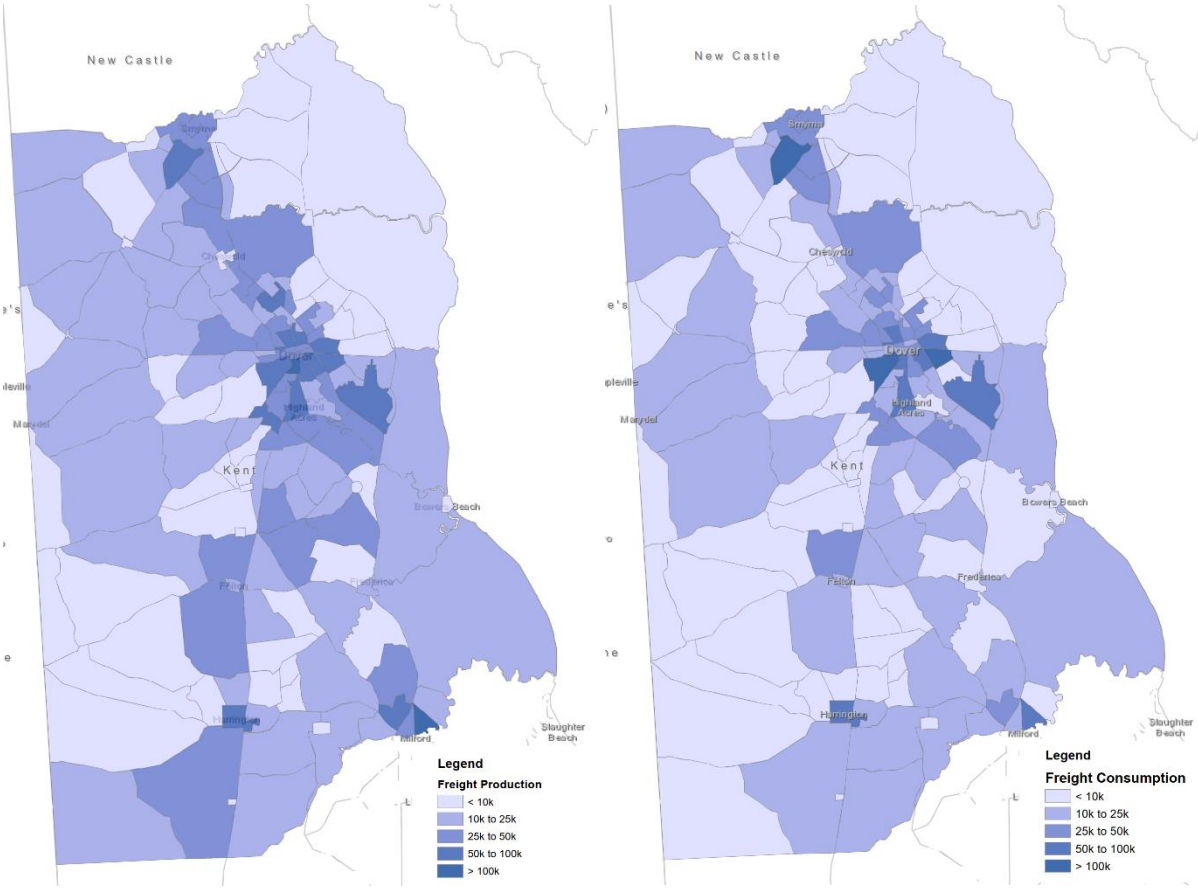


*Figure 8: 2040 Kent County Local Freight Zones **

*** NOTE:** showing tonnage only for CDGs 1-2, 6-8, and 11



TRUCK DISTRIBUTION ESTIMATES BASED ON COUNTY-LEVEL FREIGHT ACTIVITY

*2040 Freight Production Data **

County	2040 Production (kTons)	County-Level Directional Estimates (%)				County-Level Freight Estimates (kTons)				Notes
		North	South	East	West	North	South	East	West	
New Castle	6,260	0%	0%	0%	0%	-	-	-	-	*0% via Harrington; assume rail moves via other hubs to the north*
Kent (DE)	1,880	83%	1%	12%	4%	1,560	19	226	75	*Assume distribution per Fine Zone data in Kent Co only*
Sussex	3,960	0%	50%	50%	0%	-	1,980	1,980	-	*split traffic south via US 13 and east to south via US 113*
Caroline	1,400	25%	25%	0%	50%	350	350	-	700	*split traffic west via DE 14 and north/south via US 13 then west*
Cecil	11,230	0%	0%	0%	0%	-	-	-	-	*0% via Harrington; assume rail moves via other hubs to the north*
Dorchester	1,050	0%	100%	0%	0%	-	1,050	-	-	*all south via US 13*
Kent (MD)	1,780	25%	0%	0%	0%	445	-	-	-	*limited via Harrington; assume most use rail hubs to the north*
Queen Anne's	970	25%	0%	0%	75%	243	-	-	728	*split traffic west via DE 14 and north via US 13 then west*
Somerset	300	0%	100%	0%	0%	-	300	-	-	*all south via US 13*
Talbot	480	0%	0%	0%	100%	-	-	-	480	*all west via DE 14*
Wicomico	2,220	0%	100%	0%	0%	-	2,220	-	-	*all south via US 13*
Worcester	1,440	0%	33%	66%	0%	-	475	950	-	*split traffic south via US 13 and east to south via US 113*
Totals	**32,970**	-	-	-	-	**2,598**	**6,394**	**3,156**	**1,983**	
Totals (%)	-	-	-	-	-	**18.4%**	**45.2%**	**22.3%**	**14.0%**	

*2040 Freight Consumption Data **

County	2040 Consumption (kTons)	County-Level Directional Estimates (%)				County-Level Freight Estimates (kTons)				Notes
		North	South	East	West	North	South	East	West	
New Castle	8,420	0%	0%	0%	0%	-	-	-	-	*0% via Harrington; assume rail moves via other hubs to the north*
Kent (DE)	2,350	93%	1%	5%	1%	2,186	24	118	24	*Assume distribution per Fine Zone data in Kent Co only*
Sussex	8,300	0%	50%	50%	0%	-	4,150	4,150	-	*split traffic south via US 13 and east to south via US 113*
Caroline	780	25%	25%	0%	50%	195	195	-	390	*split traffic west via DE 14 and north/south via US 13 then west*
Cecil	2,660	0%	0%	0%	0%	-	-	-	-	*0% via Harrington; assume rail moves via other hubs to the north*
Dorchester	750	0%	100%	0%	0%	-	750	-	-	*all south via US 13*
Kent (MD)	1,100	25%	0%	0%	0%	275	-	-	-	*limited via Harrington; assume most use rail hubs to the north*
Queen Anne's	800	25%	0%	0%	75%	200	-	-	600	*split traffic west via DE 14 and north via US 13 then west*
Somerset	430	0%	100%	0%	0%	-	430	-	-	*all south via US 13*
Talbot	900	0%	0%	0%	100%	-	-	-	900	*all west via DE 14*
Wicomico	1,870	0%	100%	0%	0%	-	1,870	-	-	*all south via US 13*
Worcester	840	0%	33%	66%	0%	-	277	554	-	*split traffic south via US 13 and east to south via US 113*
Totals	**29,200**	-	-	-	-	**2,856**	**7,696**	**4,822**	**1,914**	
Totals (%)	-	-	-	-	-	**16.5%**	**44.5%**	**27.9%**	**11.1%**	

*2040 Total (Two-Way) Freight Data **

County	2040 Prod & Cons (kTons)	County-Level Directional Estimates (%)				County-Level Freight Estimates (kTons)				Notes
		North	South	East	West	North	South	East	West	
New Castle	14,680	0%	0%	0%	0%	-	-	-	-	*0% via Harrington; assume rail moves via other hubs to the north*
Kent (DE)	4,230	93%	1%	5%	1%	3,934	42	212	42	*Assume distribution per Fine Zone data in Kent Co only*
Sussex	12,260	0%	50%	50%	0%	-	6,130	6,130	-	*split traffic south via US 13 and east to south via US 113*
Caroline	2,180	25%	25%	0%	50%	545	545	-	1,090	*split traffic west via DE 14 and north/south via US 13 then west*
Cecil	13,890	0%	0%	0%	0%	-	-	-	-	*0% via Harrington; assume rail moves via other hubs to the north*
Dorchester	1,800	0%	100%	0%	0%	-	1,800	-	-	*all south via US 13*
Kent (MD)	2,880	25%	0%	0%	0%	720	-	-	-	*limited via Harrington; assume most use rail hubs to the north*
Queen Anne's	1,770	25%	0%	0%	75%	443	-	-	1,328	*split traffic west via DE 14 and north via US 13 then west*
Somerset	730	0%	100%	0%	0%	-	730	-	-	*all south via US 13*
Talbot	1,380	0%	0%	0%	100%	-	-	-	1,380	*all west via DE 14*
Wicomico	4,090	0%	100%	0%	0%	-	4,090	-	-	*all south via US 13*
Worcester	2,280	0%	33%	66%	0%	-	752	1,505	-	*split traffic south via US 13 and east to south via US 113*
Totals	**62,170**	-	-	-	-	**5,641**	**14,090**	**7,846**	**3,840**	
Totals (%)	-	-	-	-	-	**18.0%**	**44.8%**	**25.0%**	**12.2%**	

*** NOTE:** showing only tonnage with origin/destination off the Delmarva Peninsula, and only for CDGs 1-2, 6-8, and 11

HARRINGTON TRUCK DISTRIBUTION ESTIMATES

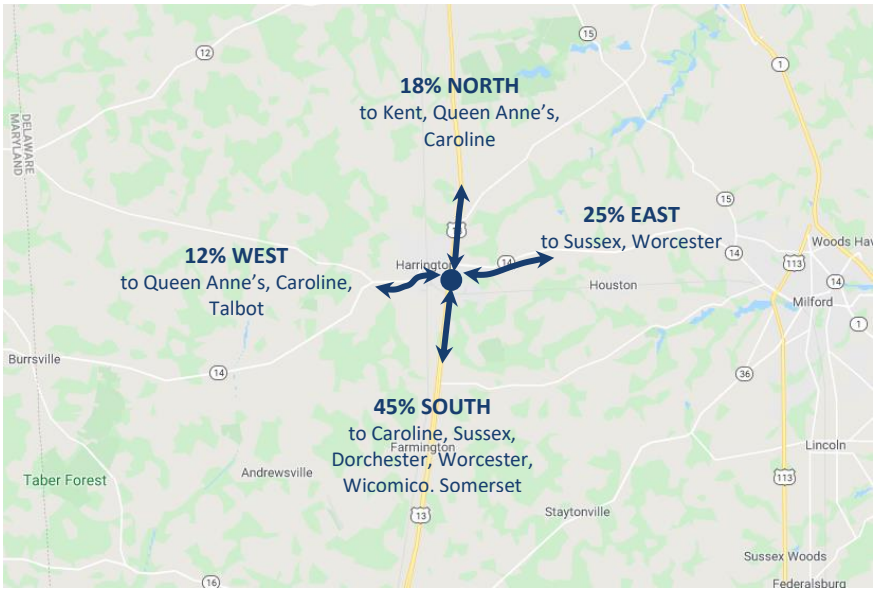
Without a future customer base to establish specific origins and destinations for truck trips to/from the proposed rail site in Harrington, the distribution of site traffic (and related influences on access points or connecting roadways) is a broader unknown that may change as new rail customers and site operations evolve over time. However, one approach to establishing a distribution would be to review the relevant freight activities by county (previous

Figure 7 and Figure 8) to estimate a weighted or directional draw to/from Harrington based on the locations of higher versus lower tonnage areas. Considering the major connecting routes near the site – including US 13 to the north and south and DE 14 to the east and west – gross assumptions can be made as to which routes may link the county-level activities with the site, and a sum of the corresponding tonnage estimates by county or zone can be used to establish a distribution percentage based on the potential freight draw in each direction.

For this exercise, it was assumed that freight activity in Cecil and New Castle Counties would be ignored relative to potential rail traffic through Harrington, as movements to/from those counties may use rail hubs further to the north in lieu of continuing by rail down to Harrington, only to back-track north by truck. Kent County, Maryland was treated similarly, though a small portion of that county's freight activity was retained for movements that may occur to the northwest of Harrington. All remaining county tonnages were proportioned to the north, south, east, or west of Harrington, as applicable, while details for Kent County, Delaware (Figure 8) were referenced to estimate similar proportioning for any local/intra-county movements.

Based on these insights, it was determined that on a percentage basis, the directional distribution of potential freight opportunities would be similar whether based on freight production, consumption, or total (two-way) tonnage (typically less than ±3% difference for any given direction). Therefore, as a gross estimate for overall truck distribution for a new rail site in Harrington, summary insights for the total (two-way) proportions are illustrated below (Figure 9).

Figure 9: Estimated Truck Distribution (based on County-Level Freight Activities)



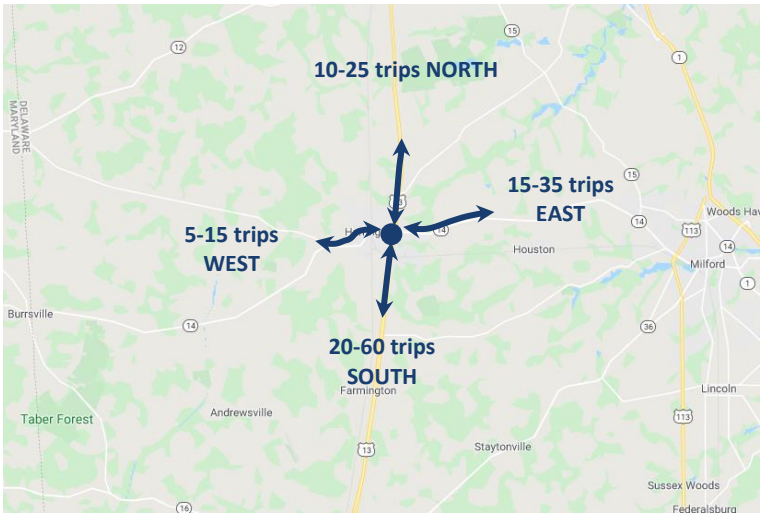
HARRINGTON TRUCK TRIP ESTIMATES

Assuming 1,500 to 2,000 rail cars annually, projected freight operations for the site could move more 200,000 tons of freight per year with an estimated truck demand of 50-130 one-way truck trips per day.

Based on anticipated site operations, coordination with DCR has estimated that potential freight activity at the site could reach 1,500 to 2,000 rail cars per year. As a quick validation, it can be assumed that rail car freight capacities will vary by type of railroad equipment (e.g. box car, flat car, gondola, hopper, tank car, etc.) but may typically range from 70-110 tons per car[5,6]. Based on these assumptions, a potential operating demand of 1,500 to 2,000 cars per year could translate to more than 200,000 tons of freight annually. Compared to the regional and county-specific freight demands above (Figure 6 and Figure 7), a new freight site that moves 200,000 tons would be a significant freight operation, but still only a small portion of the millions of annual tons that move to/from the area as a whole, implying that more than enough background demand exists for the projected site operations to come to fruition.

Assuming truck capacities of 20 to 30 tons per truck, the projected freight operations could yield a corresponding demand of approximately 7,000 to 10,000 truckloads per year. While demands to/from the site could vary based on delivery schedules, seasonal operations, or similar factors, an assumption of service for 3-5 days per week would yield 156 to 260 operating days annually. Projected operations, therefore, could range between 25 and 65 truckloads per operating day, or the equivalent of approximately 50 to 130 one-way truck trips per day. Combining these insights with the previously estimated truck distribution percentages (Figure 9) yields a potential distribution of future daily truck trips to/from the site as illustrated below (Figure 10). Coupling such insights with localized truck volume details can help to refine an assessment of the site's needs and influences relative to site access points and the surrounding roadway network or critical intersections as detailed elsewhere in this study.

Figure 10: Estimated Daily Truck Trips (based on Projected Site Operations)



[5] **Reference**: CSX, Railroad Equipment, https://www.csx.com/index.cfm/customers/resources/equipment/railroad-equipment/

[6] **Reference**: Wikipedia, DOT-111 tank car, https://en.wikipedia.org/wiki/DOT-111_tank_car

ALTERNATIVES

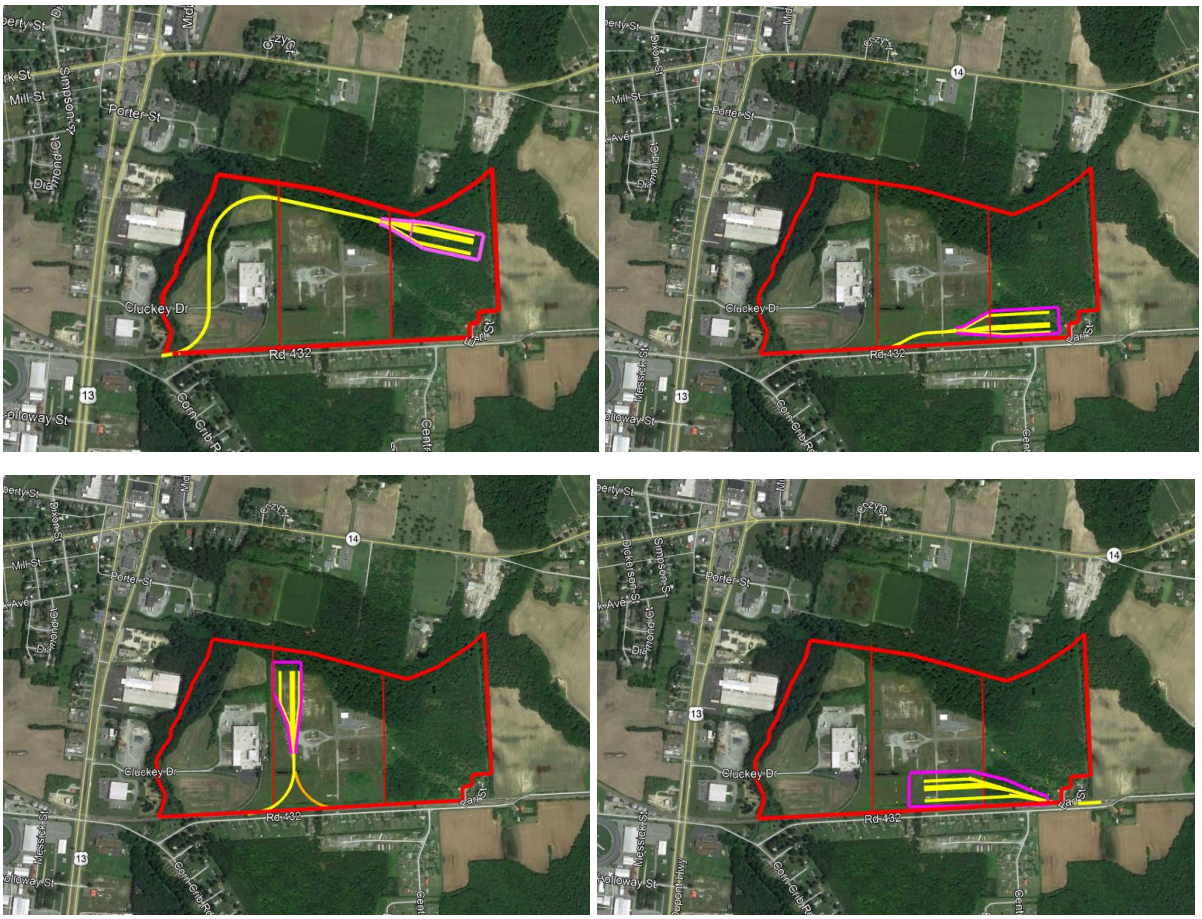
Alternatives were developed with consideration of site-specific requirements and constraints, including rail infrastructure and operations, road access, industrial park development potential, and environmental constraints.

Conceptual Rail Alternatives

A primary focus of this study is the feasibility of the multimodal freight terminal. The horizontal and vertical geometry required for railroad construction places constraints on possible terminal locations and dictates where, and in what configuration, rail-served buildings can be located on a site.

Therefore, as an initial step in the study, alternative terminal location and layout concepts were prepared for review with DCR and the City. Greater detail on the site development process is provided in the Appendix.

Figure 11: Examples of Alternative Terminal Concepts



DCR's preferred rail option was the alternative at upper right. The City desires to provide the capability for future rail access to the adjacent Schiff property to the east. Therefore, the concept was modified to add a track that can be extended into the Schiff property.

Alternatives were explored that would have rail enter the terminal site from the east. This would have the operational benefit of allowing the locomotive to pull the train from the Harrington Yard across US

13, past the terminal and then reverse to push cars into the terminal. These alternatives were not pursued further for several reasons:

- The terminal configuration alternatives that provide entry from the east without a new grade crossing (by having the terminal track depart from the main track somewhere between US 13 and Messicks Road) were not acceptable to the property owners and/or did not provide the desired capacity in the terminal.
- It is not feasible to have a new track crossing of Messicks Road to enter the proposed industrial park from the east, because DelDOT would require the closure of an existing crossing. Since there would be great difficulty with closing an existing crossing in the Harrington area it was decided to avoid that situation.
- A terminal configuration with entry from the east precludes future rail access to the adjacent Schiff property.
- A terminal configuration with entry from the west has better space for truck circulation and keeps most of the terminal facility on the City property.

DCR determined that they could serve the terminal with entry from the west either by having the locomotive push cars across US 13 or by serving the terminal when the train is heading back toward the Harrington Yard.

As the plan for industrial park lots and roadways was developed, the potential for direct rail service to industrial park buildings was analyzed. The concept site plan was modified based on the requirements of rail design for turnouts to sidetracks at buildings. Six new lots have the capability of direct rail service, in addition to the OA Newton building which is currently rail served.

Because of the large number of switches that will be involved with turnouts to the individual properties and to the terminal, DCR recommended that a new runaround track be installed north of the main line track. The runaround track would depart from the main track just east of US 13. All switches to turnouts would be located on the runaround track. The signal circuit on the main track east of US 13 that activates the crossing gates and flashers is 930 feet from the edge of the US 13 crossing. By having all switching movements from the runaround track, the US 13 grade crossing gates and flashers will be activated only when the train is crossing US 13. In addition, switch problems or maintenance will not affect operations of the main line track.

The railroad right-of-way width is 66 feet. The right of way appears wide enough to accommodate the addition of a runaround track.

Vehicle and Truck Access

Primary access to the industrial park and multimodal terminal will be via the intersection of US 13 and Clukey Drive. Clukey Drive will be extended as a public street into the site and will serve all the individual parcels as well as the multimodal terminal.

An existing private road that is built to City standards currently connects SR 14 to the Latham property. As described later in this report, that road cannot now be used for access to the industrial park and multimodal terminal, but it could become a second vehicle and truck access in the future.

The possibility for site access from Messicks Road was examined but was found not to be feasible at this time. It would require a new rail crossing unless the access were located east of the existing rail crossing. Access east of the crossing would be to the landlocked City parcel and would require right of way acquisition or an access easement from the Schiff property. If, in the future, Schiff Farms becomes interested in developing its property with industrial use, that property could be integrated into the industrial park and a new access could be created on Messicks Road.

Utilities

Utilities in the site vicinity are provided by the following organizations:

- Electricity: Delmarva Power
- Telecommunications: Comcast
- Gas: Chesapeake
- Water: City of Harrington
- Sewer: City of Harrington

Utilities that currently extend from US 13 along Clukey Drive are water, sewer, gas, electric, and telephone. Primary electric (25 kV) is available from a pole line in a 20-foot utility easement just north of the railroad right of way. A pole line that extends north from that easement along the OA Newton/Latham property line provides electricity to the OA Newton building. A gas line exists along the north side of the railroad right of way.

A plan for water and sewer was developed since those utilities are owned by the City and generally are built in the road right of way. Those utilities were laid out using the site plan road network that was agreed upon by the stakeholders. Additionally, the site plan was advanced to the point that lots and estimated building sizes were known before the water and sewer concept plan was developed.

It is assumed that gas, electric, and telecommunications utilities will install their facilities at their own expense and build the cost into their rates and hookup fees. They will determine the most cost-effective way to extend service to the individual lots. Easements will need to be established for utilities that want to cross proposed new terminal tracks.

Stakeholder Input

After the initial concept was drafted, a series of meetings was held between September 2020 and June 2021 with stakeholders. The Appendix shows how the site plan changed over time based on input received in these meetings. Meeting participants included the City, property owners, DCR, KEP, and the MPO. At a later stage in the study, a terminal operator joined in several meetings to review the feasibility of the plan. The terminal operator contributed recommendations that were incorporated in the plan. They concurred that there is a market for a transload terminal.

For a time, the possibility of including an additional property in the project was considered. The 36-acre property immediately east of the City's parcel is owned by Schiff Farms. Mr. TJ Schiff participated in two group meetings and talked with the City about a formal agreement to join the project. Although they ultimately did not participate, the City directed that rail and roadway should be planned to allow extension into the Schiff property in the future if it becomes desired.

In addition to the group meetings, the City coordinated privately with the Independent Bible Fellowship Church, which owns the easement for the existing driveway from the Latham property to SR 14. The City attempted to reach an agreement that would allow use of this easement by traffic to the entire development site. This did not occur in the timeframe of this study, although the City intends to continue its outreach to the Church. The access plan for the multimodal terminal is therefore phased with initial access only via Clukey Drive. Site access is discussed further in the traffic analysis section of this report.

PREFERRED ALTERNATIVE

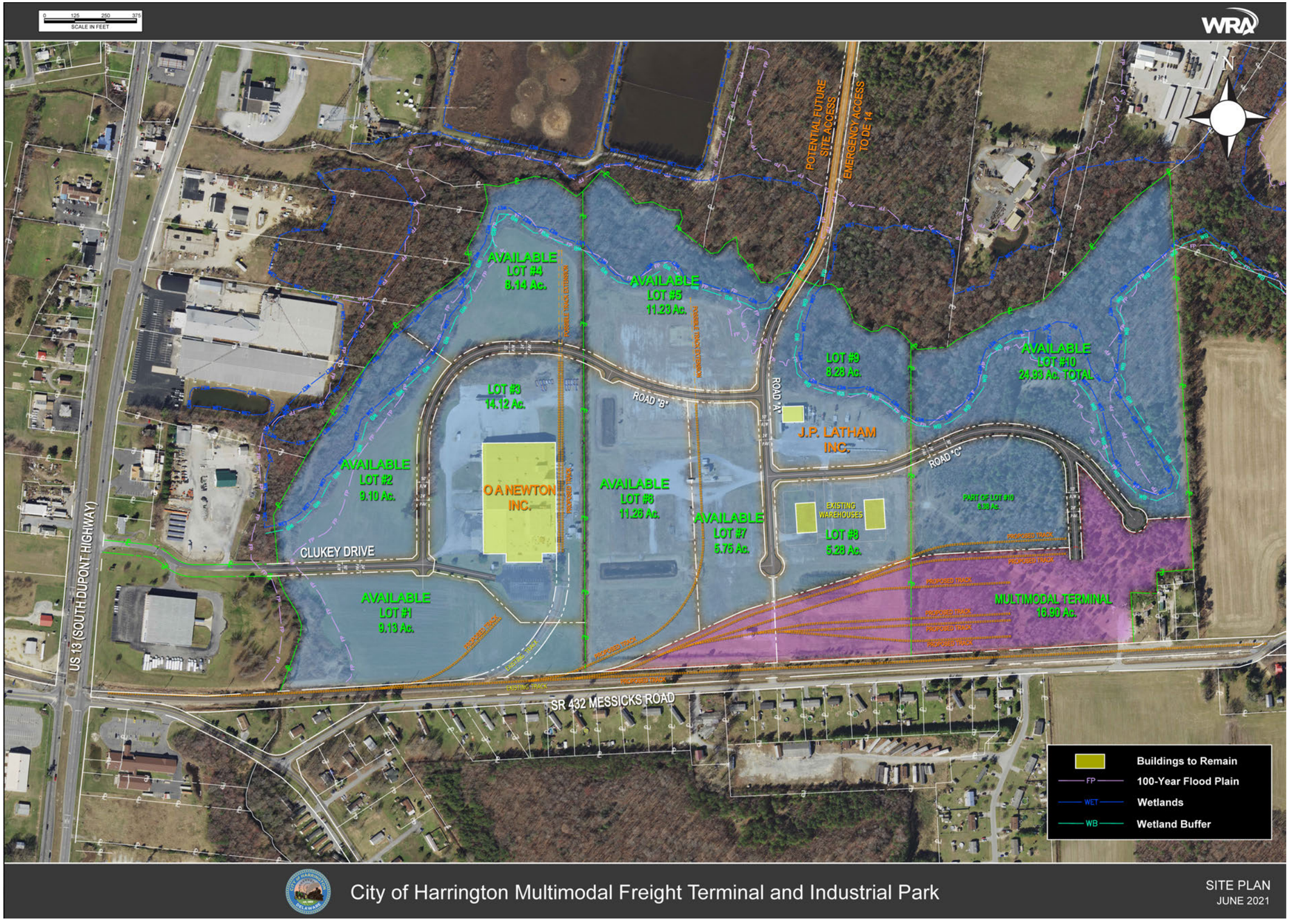
The preferred alternative consists of a multimodal freight terminal and associated industrial park spanning all three sites in the study area, with layout of lots, roadways and rail improvements as shown in Figure 12.

The freight terminal would allow customers elsewhere in southern Kent County and nearby Sussex County to ship and receive bulk commodities by rail, transloading to trucks at the terminal for the final portion of the trip. Demand is estimated at 1,500 – 2,000 rail carloads per year, resulting in more than 200,000 tons of freight and 7,000 to 10,000 truckloads per year. It consists of a 16-acre parcel along the north side of the existing DCR track on the south side of the Latham and City properties.

The industrial park consists of ten lots with areas ranging from 5 to 25 acres. Access is provided solely through an extension of Clukey Drive from the west. As described later in the study, future access north to SR 14 is desirable but not essential for development of the park. The conceptual site plan shows a potential for up to 750,000 square feet of industrial buildings, after accounting for environmental constraints and road infrastructure. Individual industrial users on certain lots can choose to construct a rail siding to their facility for direct rail service. The concept plan illustrates the feasible locations of turnouts for rail sidings. Because of the scarcity of rail-served development parcels in Kent County, it is recommended that lots with capability for direct rail service be marketed only to businesses that have a need for and would utilize rail service.

The industrial park, upon full development, could employ between 500 and 750 people.

Figure 12: Preferred Alternative



FUTURE TRAFFIC OPERATIONS

Build-Out Industrial Park Trip Generation

Trip Generation, published by the Institute of Transportation Engineers (ITE), is the industry standard for estimating the number of trips generated by various land uses. ITE's Land Use Code 110, General Light Industrial, was used for this analysis.

Table 3: Trip Generation for 750,000 Square Feet of General Light Industrial

	Average Daily Traffic	AM Peak Hour			PM Peak Hour		
		Entering	Exiting	Total	Entering	Exiting	Total
LUC 110 using peak hour formulas	2900	174	24	198	19	129	148
LUC 110 using percentage of daily traffic for peak hours *	2900	281	38	319	38	252	290

* Note: ITE performed a study of the hourly distribution of site trips for industrial land uses, which is included as Appendix A to *Trip Generation*. The study included data for 30 sites with General Light Industrial use in an urban/suburban setting. The percentage of daily traffic was 11% in the AM peak hour and 10% in the PM peak hour. Using those percentages results in higher peak hour volumes than by using the formulas. To be conservative, the traffic analysis used the higher peak hour trip generation.

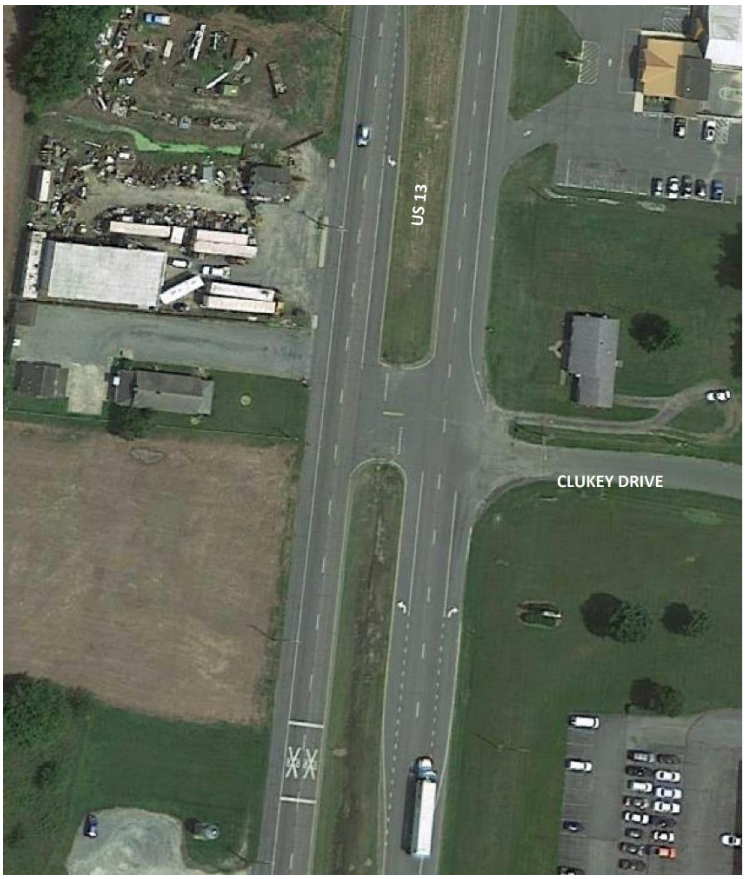
Build-Out Multimodal Freight Terminal Trip Generation

ITE did not have good comparable data for the Harrington terminal site. Trip generation is based on the daily truck trips on an operating day described in the previous section on Multimodal Freight Terminal Potential, with an estimate of daily trip percentage in the peak hours. The terminal might only be in operation 3 to 5 days per week.

Table 4: Trip Generation for Multimodal Freight Terminal

	Average Operating Day Traffic	AM Peak Hour			PM Peak Hour		
		Entering	Exiting	Total	Entering	Exiting	Total
LUC 110 using peak hour formulas	130	12	14	26	7	6	13

Clukey Drive Access Improvements



The intersection of US 13 and Clukey Drive will serve as the primary access point to the multimodal terminal and industrial park. US 13 has a southbound left turn lane and a northbound right turn lane for turns into Clukey Drive. The intersection is not curbed.

On the northeast corner is a residential property that is not occupied by the owner. The driveway for this property intersects US 13 in the radius of Clukey Drive.

The intersection is located 500 feet north of the DCR grade crossing of US 13, which has gates and overhead flashers.

Improvements are recommended for the safe and efficient operation of the intersection.

US 13 median at Clukey Drive. The DCR grade crossing of US 13 is seen just to the south.

Looking east at Clukey Drive from southbound US 13.


Looking south on US 13 from Clukey Drive.

All turn movements are now allowed. It is recommended that the intersection be physically modified to prohibit left turn exits from Clukey Drive, with all traffic exiting the site turning right, or to the north. Traffic exiting Clukey Drive that is destined to the south on US 13 will be accommodated by relocating and improving the existing U-turn median opening located 1,120 feet north of Clukey Drive. The northbound to southbound U-turn will be designed for large trucks and have a southbound acceleration lane in the median.

Figure 13: Clukey Drive Access Modifications

The modifications allow US 13 and Clukey Drive to operate safely as an unsignalized intersection. The level of service for southbound US 13 left turns is D and the level of service for Clukey Drive right turns is C in Year 2030 peak hours with full buildout of the industrial park and terminal, based on traffic volumes described in the next section.

The intersection would be curbed and have raised islands to channelize the turns. The residential property on the northeast corner would have its driveway modified to connect with Clukey Drive instead of US 13.

Figure 14: Clukey Drive Intersection

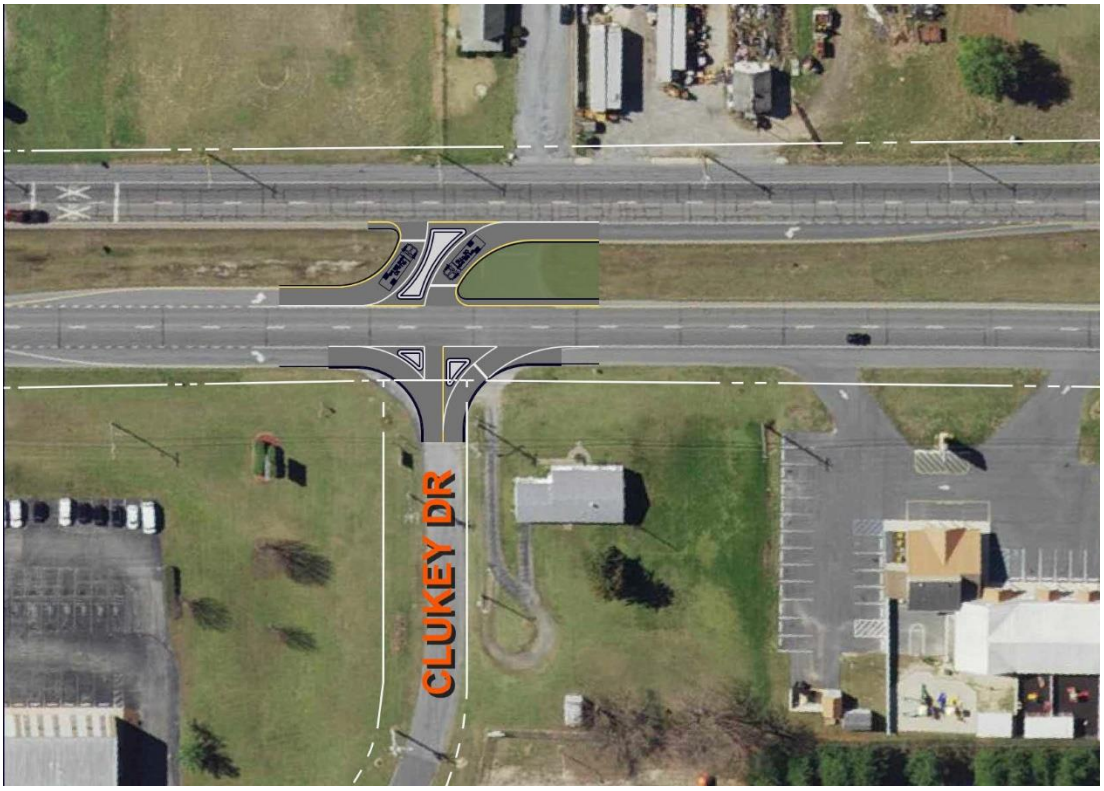


Figure 15: US 13 Median Modification for Truck U Turn and Acceleration Lane

Traffic signal control was considered at US 13 and Clukey Drive, since that would provide direct left turn exits. However, because of the following considerations, the unsignalized option described above was selected to improve safety and to minimize overall delay.

- In the initial stages of industrial park development, site volumes would not warrant a traffic signal at Clukey Drive. During this interim period, the existing median opening on US 13 would be problematic. The frequent U turns that occur here and southbound left turns entering Clukey Drive would conflict in the median with left turns exiting Clukey Drive. In addition, the median is not wide enough to allow large trucks turning left out of Clukey Drive to make a two-stage turn, i.e. to cross the northbound lanes of US 13 and wait in the median for a gap in southbound US 13 traffic.
- The proximity of a gated railroad crossing just to the south would complicate the operation of a traffic signal and might pose safety concerns associated with traffic queues.
- US 13 is part of the State of Delaware's Corridor Capacity Preservation Program, where DelDOT seeks to limit delays caused by adding traffic signals.

Future AM and PM Traffic Volumes

Future peak hour traffic volumes were calculated for the year 2030. As a first step, a growth factor was applied to existing traffic volumes. Annual growth factors were provided by DelDOT for each of the study area roadways according to its Traffic Pattern Group (TPG). Ten years of annual growth was applied to each of the study area roadways to account for background growth. It is noted that traffic volumes actually decreased in 2020 due to the pandemic. However, the annual growth was applied to pre-pandemic volumes.

Information on other proposed developments was obtained from the City of Harrington. Of several residential developments that had been proposed, only one was still actively proceeding through reviews. That development, Harmill Village, is located on the north side of SR 14 just east of the Harrington Midway Park Center. Anticipated traffic generated by that development was provided in the PLUS review letter from the Office of State Planning Coordination in February 2020.

Table 5: Trip Generation for Harmill Village

	Average Daily Traffic	AM Peak Hour			PM Peak Hour		
		Entering	Exiting	Total	Entering	Exiting	Total
61 single-family detached houses	660	12	36	48	40	23	63
119 low-rise multi-family houses	859	13	43	56	43	26	69
Total	1,519	25	79	104	83	49	132

These residential trips and the trips generated by full buildout of the multimodal terminal and industrial park were added to the background growth to obtain year 2030 peak hour volumes illustrated in Figures 16 and 17.

Figure 16: 2030 AM Peak Hour Volumes with Terminal and Industrial Park Buildout - single access at Clukey Drive

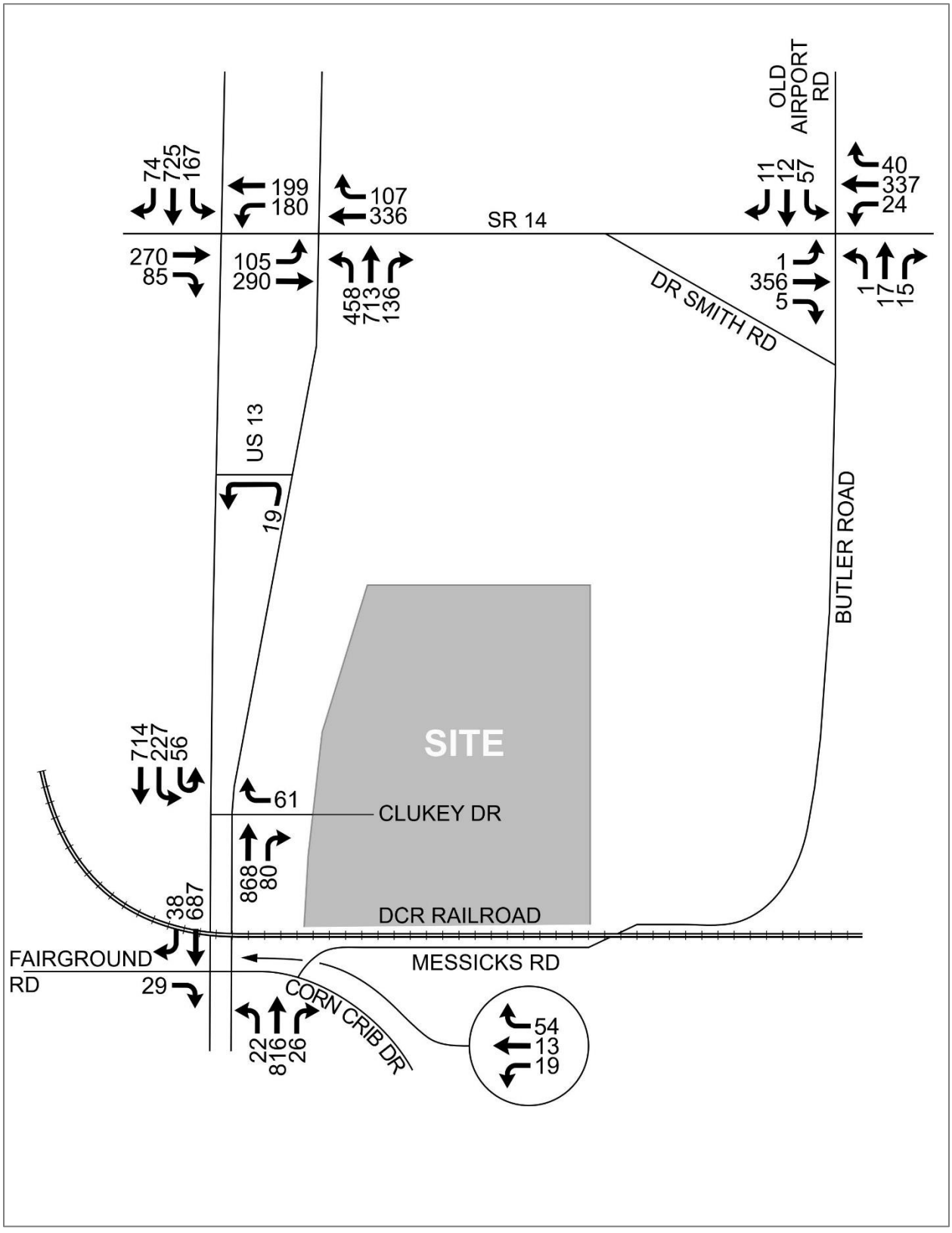
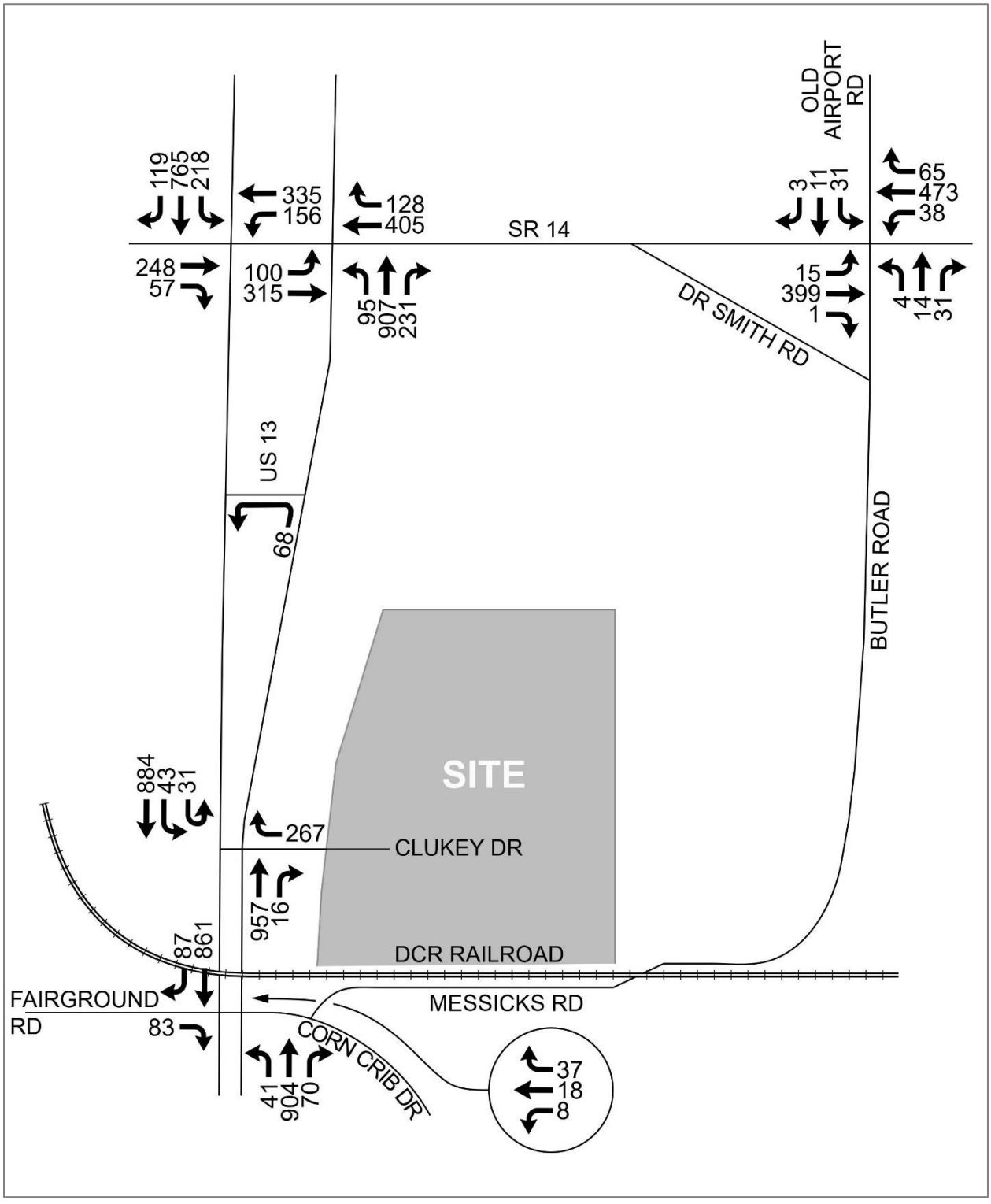


Figure 17: 2030 PM Peak Hour Volumes with Terminal and Industrial Park Buildout - single access at Clukey Drive



Anticipated Future Intersection Levels of Service

Table 6: Anticipated Future Intersection Levels of Service

Intersection	Approach	AM Peak Hour		PM Peak Hour	
		LOS	Avg. Delay (sec/vehicle)	LOS	Avg. Delay (sec/vehicle)
US 13 northbound and SR 14 (signal)	US 13 NB left	B	19.3	C	21.9
	US 13 NB through	C	25.1	C	30.4
	US 13 NB right	B	19.4	C	22.2
	SR 14 EB left	C	20.3	C	28.7
	SR 14 EB through	B	19.6	C	26.4
	SR 14 WB through	D	39.9	D	51.0
	SR 14 WB right	C	27.8	C	31.6
	OVERALL	C	26.3	C	32.4
US 13 southbound and SR 14 (signal)	US 13 SB left	C	21.4	C	24.5
	US 13 SB through	C	25.3	C	28.0
	US 13 SB right	B	18.9	C	21.8
	SR 14 EB through/right	D	36.6	D	40.1
	SR 14 WB left	D	35.6	B	19.2
	SR 14 WB through	A	9.5	B	16.3
	OVERALL	C	26.2	C	26.4
US 13 and Clukey Drive	US 13 SB left and U turn	D	27.6	D	29.5
	Clukey Drive (right turn only)	B	12.7	C	23.2
US 13 and Corn Crib Rd./ Fairground Rd.	US 13 NB left	A	9.8	B	11.2
	Corn Crib Road all movements	D	28.0	F	58.2*
	Fairground Road (right turn only)	B	11.1	B	13.0
SR 14 and Butler Rd./ Old Airport Rd.	SR 14 EB left (in shared lane)	A	8.0	A	8.7
	SR 14 WB left (in shared lane)	A	7.9	A	8.3
	Butler Rd. all movements	B	13.0	C	17.9
	Old Airport Rd. all movements	D	26.6	D	34.8

* Note: This reduction in LOS is primarily due to ten years of background growth.

Potential Access to SR 14

Future traffic from the full site buildout can be accommodated with the single access to US 13 at Clukey Drive. However, a second site access to SR 14 could be constructed in the future that would facilitate industrial park and terminal trips to and from the east on SR 14. An existing private road that is built to City standards currently connects SR 14 to the Latham property. The Independent Bible Fellowship Church, which owns the road between Brown's Branch and SR 14, allows only traffic to the Latham property in the easement agreement. Therefore, this roadway cannot serve the industrial park or multimodal terminal. As long as the current easement restrictions of the road through the church property to SR 14 are in effect, it is anticipated that there would be no access to SR 14 except for emergencies. However, it is desirable to have a second access to allow drivers to choose the most efficient route and spread the traffic. The City should seek to acquire this easement as a street right of way to allow for full access to the industrial park. It is anticipated that the church would require visual

and noise buffering along the road. Assuming that the City will succeed in reaching an agreement with the Church, this study briefly considered future traffic conditions with a full access on SR 14.

The number of vehicle trips will not change; however, the distribution would change. It is assumed that all trips to and from the east on SR 14, whether for the industrial park or the terminal, would use the SR 14 access. It is also assumed that up to half of traffic to and from the north on US 13 could switch to the SR 14 access, since half of the potential building area is located on the Latham and City properties. Traffic to and from the south would still utilize Clukey Drive. Truck traffic to and from the west is obligated to use Truck Route 14 which intersects US 13 south of the site, so those trucks will also utilize Clukey Drive. The net result is that approximately 40-45% of site traffic would utilize the SR 14 driveway, assuming all movements are permitted.

Using DelDOT's standard for auxiliary lanes as described in the Development Coordination procedures, the SR 14 access intersection would require a 265-foot right turn deceleration lane and a 120-foot left turn lane on SR 14.

Existing access from SR 14 in the Church easement (left) and at the Brown's Branch crossing (right)

SR 14 looking east at frontage of Independent Bible Fellowship Church

Another option exists for access to SR 14 through an easement owned by Amazon Steel, which is located east of the church's road. The Amazon Steel easement leads to the City property and fits well into the preferred site plan road layout. However, it would require a new bridge or culvert crossing Brown's Branch, with associated environmental permits. Right turn and left turn lanes on would also be required on SR 14.

Rail and Terminal Cost

Estimating the cost of rail improvements is challenging given the current fluctuating costs for steel and the uncertainty over when materials will be available. Some basic track components have long lead times. The terminal facility consists primarily of tracks and paving with a truck scale, small office and perimeter fencing. The facility operator typically provides the equipment that is required for servicing the tenants, and the requirements usually evolve over time.

The following assumptions were made:

- Initial paving within the terminal will be approximately 8 acres
- All rail is to be new 115RE section
- All grade crossings within the terminal will be asphalt and rubber type with heavy duty paving
- Grading includes clearing and grubbing of the entire site and general excavation to a depth of two feet
- Any required relocation of a utility in the railroad right of way will be performed by the utility at their cost

Following are the estimates for grading, paving and trackwork. These major items will comprise 85% to 90% of the rail and terminal cost. Each item has a 40% contingency applied, which is an appropriate contingency for an estimate at the planning/concept design level.

Grading: approximately $3.0 million including grading for all tracks in the terminal and the runaround track, and all clearing and grading within the terminal.

Paving: approximately $4.3 million including 8 acres of heavy-duty paving within the terminal only.

Trackwork: approximately $5.9 million including all new track and turnouts in the terminal, the runaround track, and relocation of the existing turnout to O. A. Newton to the new runaround track using the existing turnout material.

The total of the major terminal items, including contingency, is about $13.2 million. Adding 10%-15% to cover the other costs associated with the terminal, such as the truck scale, office building, site lighting, utilities, fencing, stormwater management facilities, spill containment, and storm drainage, brings the estimated total cost to approximately **$15 million.**

Roadway and Water/Sewer Infrastructure Cost

Roadway and stormwater management costs are estimated at about $3.3 million and water/sewer costs at about $2.0 million, bringing the total site improvements costs outside the terminal to approximately **$5.3 million**.

Potential Funding Sources

RAISE DISCRETIONARY GRANTS

In FY 2021, the U.S. Department of Transportation's Better Utilizing Investments to Leverage Development (BUILD) grants were renamed to Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants. Funds for FY 2021 RAISE grants will be awarded on a competitive basis for projects that will have a significant local or regional impact. The deadline for all application materials for FY 2021 was July 12; in 2022 a similar deadline is assumed for FY 2022 applications. Applications are evaluated based on merit criteria that include safety, environmental sustainability, quality of life, economic competitiveness, state of good repair, innovation, and partnership. Within these criteria, USDOT will prioritize projects that can demonstrate improvements to racial equity, reduce impacts of climate change and create good-paying jobs. Since funding requests always greatly exceed the amount of funds available, the selection process is highly competitive.

Eligible applicants for RAISE grants include state and local governments, metropolitan planning organizations (MPOs), and other political subdivisions of state or local governments. Roadway, freight rail, and intermodal projects are eligible.

Harrington is classified as "rural" for purposes of this program. For capital projects located in rural areas, the minimum award is $1 million. The primary method of grant disbursement for RAISE Grants is through reimbursements. RAISE grant recipients will not receive a lump-sum cash disbursement at the time of award announcement or obligation of funds. Instead, the recipient must pay project costs as they are incurred and submit to DOT requests for reimbursement. This means that the recipient must have access to sufficient non-RAISE funding sources to manage cash flow associated with the project.

The minimum total project cost for a project located in a rural area must be $1.25 million to meet 20% non-federal (State, local, or private) match requirements. However, most selected projects have a non-federal match of at least 50%. To be competitive, the application needs to show a high benefit-cost ratio. The maximum award for any project is $25 million. Not more than $100 million can be awarded to a single state. Planning and preconstruction activities (such as NEPA and design expenses) are eligible for RAISE grants.

INFRASTRUCTURE FOR REBUILDING AMERICA (INFRA)

INFRA is a federal discretionary grant program to fund transportation projects of national and regional significance that are in line with the Biden Administration's principles for national infrastructure projects that result in good-paying jobs, improve safety, apply transformative technology, and explicitly address climate change and racial equity. Eligible project types include a freight project that is an intermodal or rail project.

The INFRA grant application deadline for FY 2021 was March 21, 2021. In 2022 a similar deadline is assumed for FY 2022 applications.

Eligible applicants for INFRA grants include a state or group of states, a metropolitan planning organization that serves an urbanized area (as defined by the Bureau of the Census) with a population of more than 200,000 individuals, a unit of local government or group of local governments, a political

subdivision of a state or local government. The Dover/Kent County MPO is a qualifying metropolitan planning organization under these criteria.

By statute, INFRA funds must be obligated within three years of the end of the fiscal year for which they are authorized. Obligation occurs when a selected applicant enters a written, project-specific agreement with the Department and is generally after the applicant has satisfied applicable administrative requirements, including transportation planning and NEPA requirements. Because of this deadline for obligation, it is important that the application package include sufficient evidence of project milestones (including planning, NEPA, and permitting milestones) achieved and remaining, as well as financial capacity and commitment in order to support project readiness.

To maximize the value of INFRA funds, the USDOT seeks applications which leverage federal funding to attract non-federal sources of infrastructure investment.

COMMUNITY PROJECT FUNDING

Federal Community Project Funding (CPF) is a one-year appropriation that must be obligated within 12 months of enactment. The application deadline for FY 2022 has passed, but this will become an annual process (unless discontinued by Congress in the future), so next year will present a new opportunity.

Formerly referred to as earmarks, Community Project Funding is defined as any congressionally directed spending, tax benefit or tariff benefit that would benefit an entity or a specific state, locality or congressional district.[7] Since the funding is specified to a recipient, it is by nature not subject to competitive award processes. Potentially eligible projects include infrastructure, community programs, university research, hospitals, and other local initiatives.

Members of Congress will be allowed to request funding to support specific community projects as part of the annual appropriations process to fund the federal government. House members are limited to 10 requests across all the spending bills open to CPF. Funding can only be requested for nonprofits or a specific state, locality, or congressional district.

US DEPARTMENT OF AGRICULTURE RURAL DEVELOPMENT

USDA Rural Development offers loans, grants, and loan guarantees to help create jobs and support economic development and essential services in eligible areas. Harrington is an eligible area. Of the many different assistance program categories, the most applicable to this project are the Business Programs, which provide financial backing and technical assistance to stimulate business creation and growth.

One of the Business Programs, the Water & Waste Water Loan & Grant Program, can be used for drinking water, sewer, and stormwater infrastructure. The program provides long-term, low-interest loans. If funds are available, a grant may be combined with a loan.

[7] Lifting the Earmark Moratorium: Frequently Asked Questions, Congressional Research Service report, updated December 3, 2020

ECONOMIC DEVELOPMENT ADMINISTRATION (EDA)

EDA's Public Works program is intended to help communities attract new industry, encourage business expansion, and generate private sector jobs and investment through the acquisition or development of land and infrastructure improvements needed for the successful establishment of industrial or commercial enterprises. EDA investments include water and sewer systems improvements. Applicants must demonstrate a matching share of non-Federal funds. EDA evaluates project applications on how well they align with EDA's investment priorities, create or retain high-quality jobs, leverage other resources, and provide a clear scope of work with measurable project outputs.

TRANSPORTATION INFRASTRUCTURE INVESTMENT FUND (TIIF)

The TIIF was established by the State of Delaware to provide economic assistance for renovation, construction, or any other type of improvements to roads and related transportation infrastructure in order to attract new businesses to the state, or expand existing businesses in the state, when such an economic development opportunity would create a significant number of direct, permanent, quality full-time jobs.

TIIF is a mechanism to reimburse developers for offsite improvements if their developments have strategic economic importance.

A project must have at least one public endorser and expand employment in Delaware. Grants are only authorized for transportation infrastructure located within the public right of way or on public land. Funds are disbursed as reimbursement for construction of transportation infrastructure.

Eligible projects include "Any project that would construct, maintain, extend or enhance any highway, and/or road, and/or bridge" and "Any project that would construct, maintain, extend or enhance access to any transit and/or intermodal system." The access enhancements on US 13 for Clukey Drive fall into the latter category, as they enhance access to an intermodal freight terminal.

The extension of Clukey Drive and other roads internal to the industrial park may become eligible if the City acquires the right of way up front to satisfy the requirement that all TIIF projects must be located within the public right of way. Rail improvements are not eligible for TIIF grants.

TIIF does not have scheduled application deadlines. Deadlines are chosen based on a variety of factors but at least two weeks' notice is provided. The last deadline was in April 2021 and the TIIF Council meeting is in July 2021. Another deadline is likely to be established in the following few months.

CONSOLIDATED RAIL INFRASTRUCTURE AND SAFETY IMPROVEMENTS PROGRAM (CRISI)

This Federal Railroad Administration program may fund projects applicable to the Harrington terminal, i.e. projects to improve short-line or regional railroad infrastructure and projects necessary to enhance multimodal connections or facilitate service integration between rail service and other modes.

CRISI awarded $320 million for grants in FY 2020 but is not accepting applications as of now. It is unclear if this program will continue or be replaced by another program.

PUBLIC/PRIVATE PARTNERSHIP

The terminal operator might make strategic investments in the terminal, building out a small footprint, starting to become operational, generating some cash flow, and then expanding. This could accelerate the start-up of the terminal compared with waiting for grant funds.

DELDOT CAPITAL TRANSPORTATION PROGRAM (CTP)

DelDOT is currently seeking input from its County and local partners for projects to include in the FY 2023-2028 CTP. Public hearings will be conducted this September. The recommendation of the Council on Transportation will be made by the end of the year. Federal approval would occur in fall of 2022.

While projects on the CTP can take several years before construction occurs, it may be useful to get a project on the CTP as evidence of state support. This provides credibility when applying for federal grants that could accelerate implementation.

CTP funding would likely be limited to intersection improvements within the right of way of US 13.

Implementation

DCR/Carload Express has indicated that they will provide their time (design, construction services) for new rail, but no dollars toward construction. They clarified their expected role in implementation.

1) Individual sidetracks serving industrial properties, such as for Lots 1, 4, 5, 6, 7, and 10

   When a property along a branch line requests a turnout and rail service, Carload Express will typically help with the track design, getting bids from railroad approved contractors, construction management and inspections.

   They have committed to designing the tracks free of charge for the customers at the facility.

   Customers are responsible for the construction of their mainline switches. As long as they ship over 12 railcars a year, DCR will maintain the track and switches for customers that are in DCR's right of way.

   DCR offers to inspect all customer tracks each year to provide information on their condition and recommend improvements/repairs when needed.

2) Multimodal terminal

   The City has said it will retain ownership of the terminal, at least initially. For construction of the new track, Carload Express would view the City of Harrington as a new valued customer and partner and offer the same service to them as other customers.

3) Runaround track

   The runaround track that will be located wholly within the Carload Express right of way is fundamental to DCR's operations in serving both the tracks to the individual lots and the multimodal terminal. DCR will be contributing their time to help design, construct, and market the terminal. All other construction costs will be borne by other entities.

There is a gas line located north of the track that may need to be relocated for track construction. If the gas line is in the right of way, the utility company would need to relocate the line to accommodate the new track at their cost.

DCR and a prospective terminal operator have indicated they would explore what the most cost-effective manner is to phase in working/operational tracks. They may not need all the infrastructure up front, which could reduce up front capital to become operational.

Tracks to the individual lots can be built as/when required. The lead track that provides capability for future extension to the Schiff property would not have to be built initially. However, it is recommended that the four tracks in the terminal facility and the runaround track be constructed simultaneously as an early phase of site development.

The whole terminal site should be set up initially. Anything that will be buried, such as storm drains, utilities, and spill containment systems need to be installed prior to tracks and paving to avoid having to dig up areas that have already been installed and patchwork repairs. Making sure these critical parts of the infrastructure are installed first will also speed the future build-out. A temporary office trailer and a semi-portable truck scale can be installed to start up operations, but they shouldn't be located where the construction of the permanent facilities will be located. Some track and paving in the terminal may be able to be deferred, but those savings should be weighed against additional costs to rebid, remobilize and build at a later date, and also against construction interference with operations that have already begun.

Next Steps

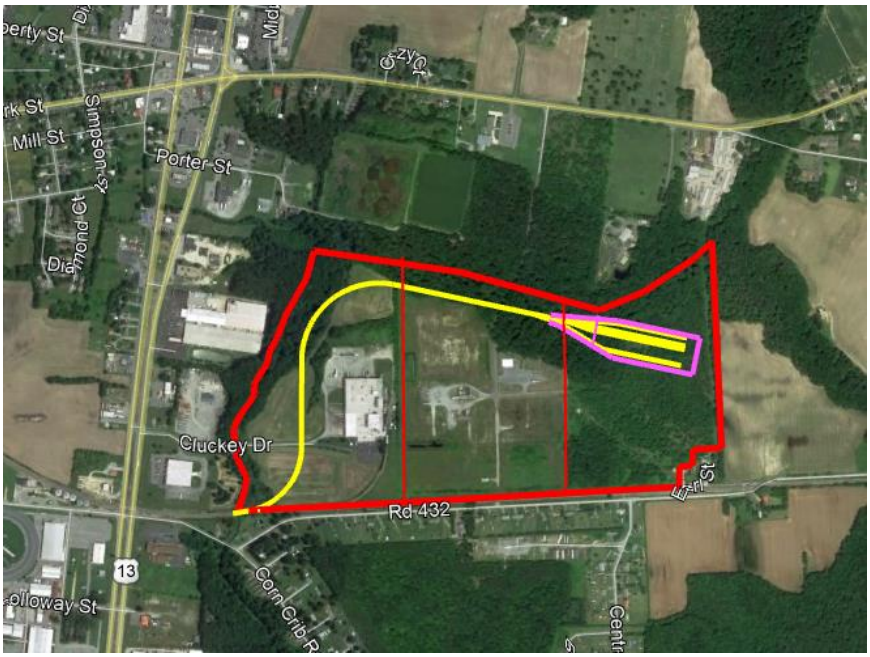
The City of Harrington has agreed to take the lead in overall coordination of activities needed to implement the multimodal terminal and industrial park. Any funding from the City for implementation is subject to the approval of City Council. Activities for implementation include approval of the study, identification of funding, and ultimately design and construction. Specific implementation steps are as follows:

- Approval of the study report by Dover/Kent County MPO
- Presentation to Harrington City Council
- Adoption of a written agreement between the City and the two other property owners
- Initiation of site subdivision approvals by the City based on the lot lines in the locally preferred site plan
- DelDOT review and approval of the initial site access plan and improvements on US 13
- Coordination with gas and electric utilities for establishment of utility easements
- Engagement of an engineer for design, pre-construction activities, and permits
- Determination of financial and other responsibilities of the City, property owners, DCR, and lot developers, and the amount of local and private resources that will be available
- Adoption of industrial park protective covenants to ensure proper use, development, and maintenance of each parcel within the industrial park
- Approval by Harrington City Council for any proposed financial commitments from the City
- Pursuit of state and federal funding opportunities for road and utility infrastructure after determining the local and private commitments.
- Phased construction of road and utility infrastructure
- Marketing of the industrial park lots; lots with potential for direct rail service should be marketed only to businesses with a need for direct rail service
- Continued negotiations with the Independent Bible Fellowship Church regarding the use of its easement for site access to SR 14; even though the Clukey Drive access can accommodate full buildout of the site, a secondary access is desirable
- Engagement of a terminal operator to advise on multimodal terminal implementation, including funding sources, and who is prepared to operate and maintain a City-owned terminal
- Pursuit of funding for design and construction of rail infrastructure

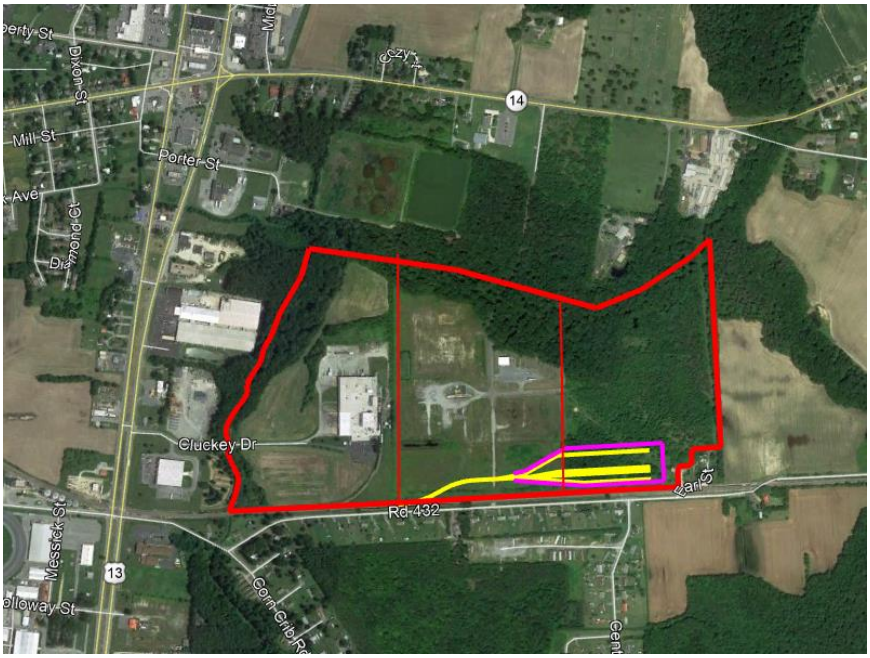
APPENDIX

Throughout the study, several alternative site layouts for the terminal were prepared and reviewed with stakeholders. Initial terminal location and layout concepts were prepared for review with DCR and the City. This appendix describes the evolution of the terminal layout.

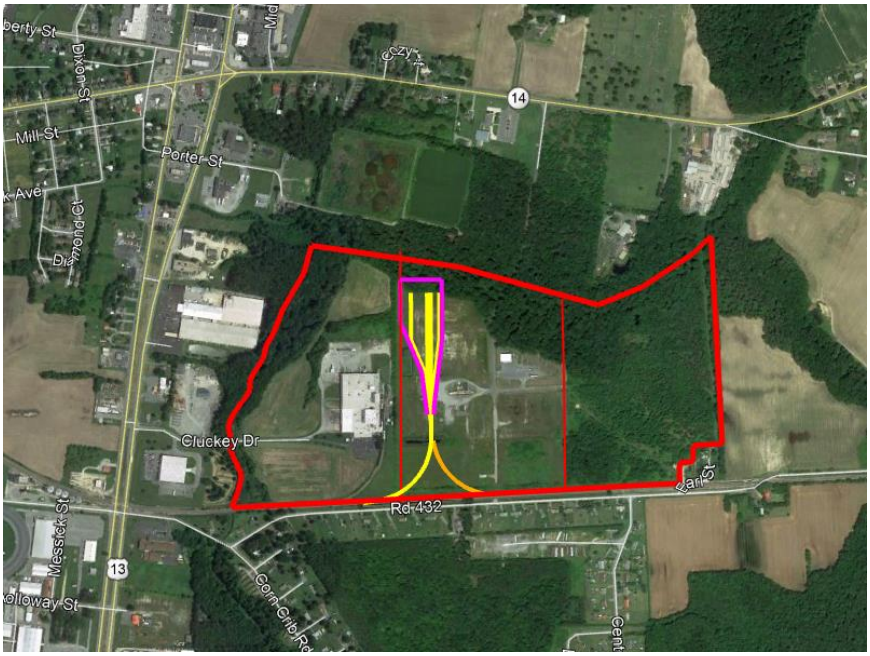
Rail Option 1



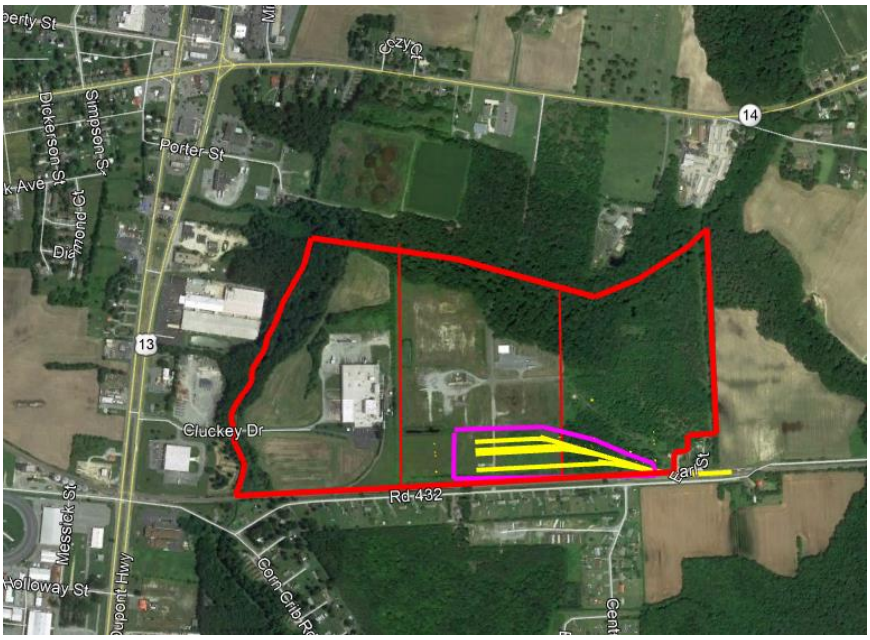
Rail Option 2



Rail Option 3



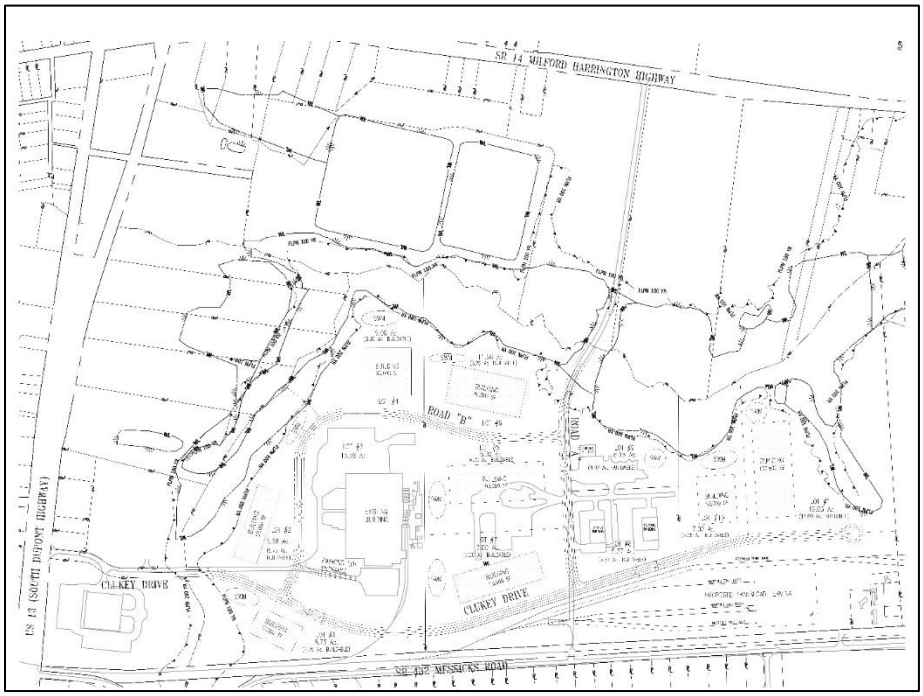
Rail Option 4



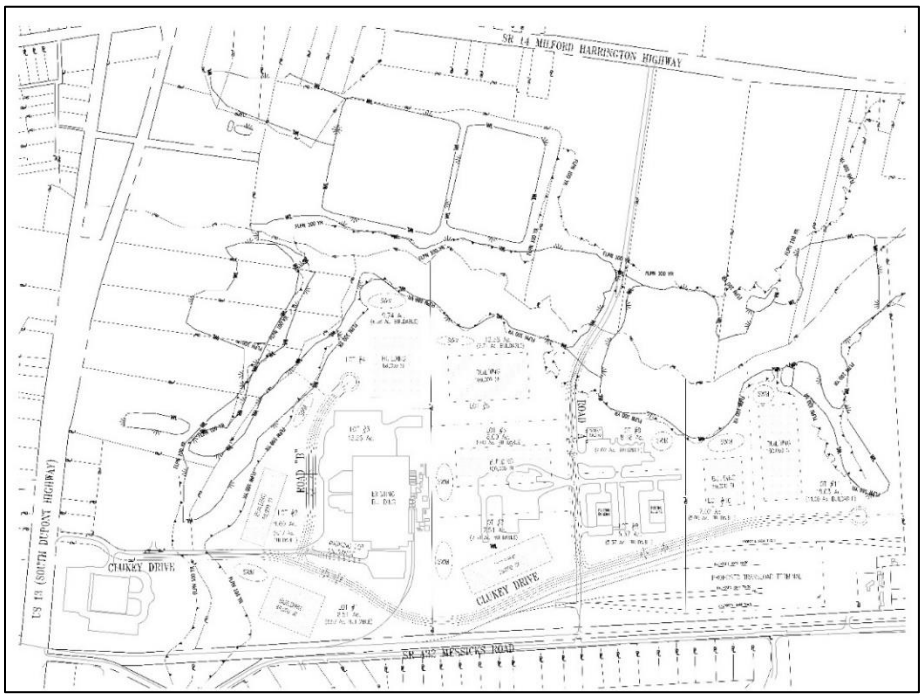
The preferred rail option was Option 2, modified to add track that can be extended in the future into the adjacent Schiff property east of the City property.

Environmental constraints were mapped, including the wetlands and floodplain along Brown's Branch. Initial road layouts and parcels were then prepared for review with property owners.

Version 1 - Clukey Drive extension hugs rail to maximize buildable site on City property.

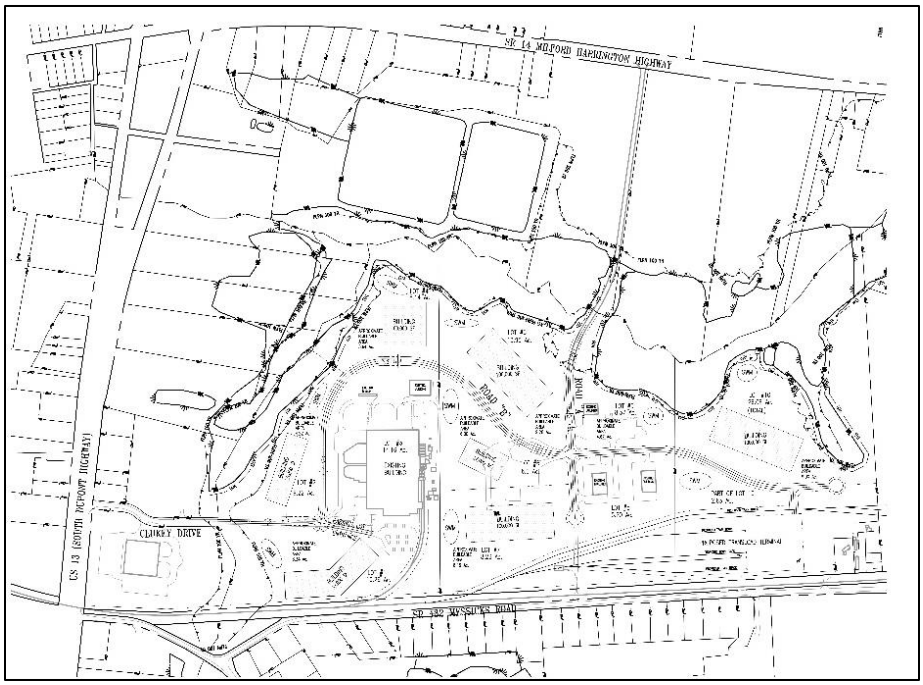


Version 1A - Alternative initial road layout for review with property owners.

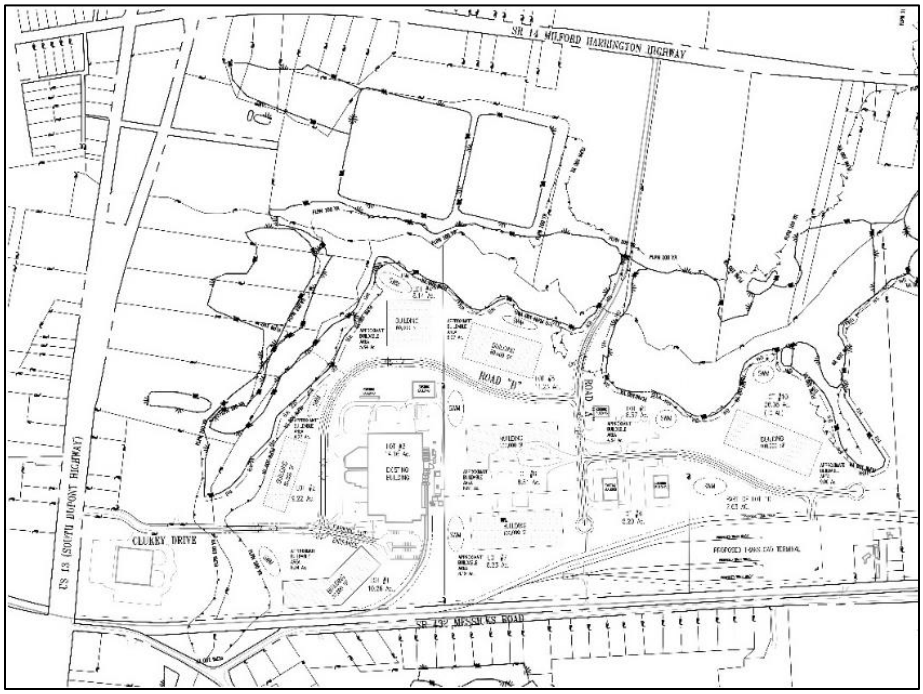


Mr. Latham preferred to use his existing east-west road.

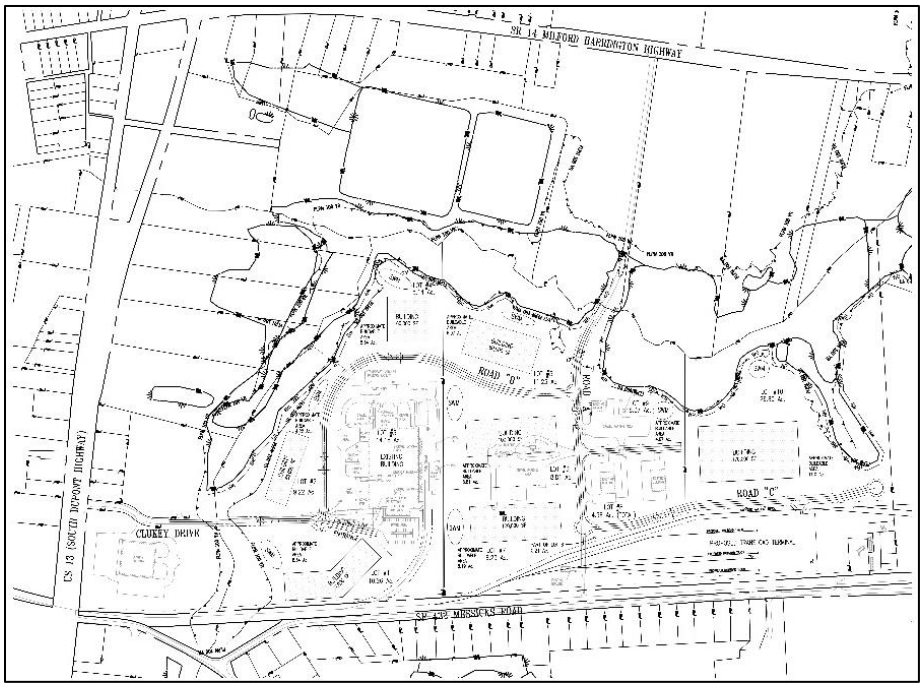
Version 2 - Option to use Latham's existing road. Extension to east divides City property.



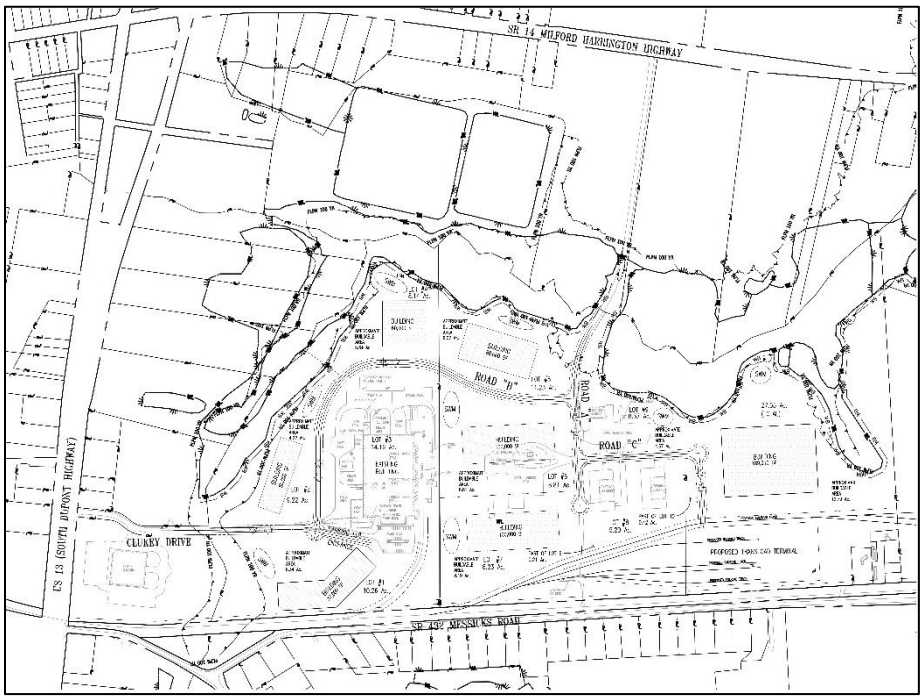
Version 2A - Alternative option to use Latham's existing road. This road layout was preferred by property owners and KEP. DCR stated the "dogleg" movement would not be a problem for trucks to the terminal.



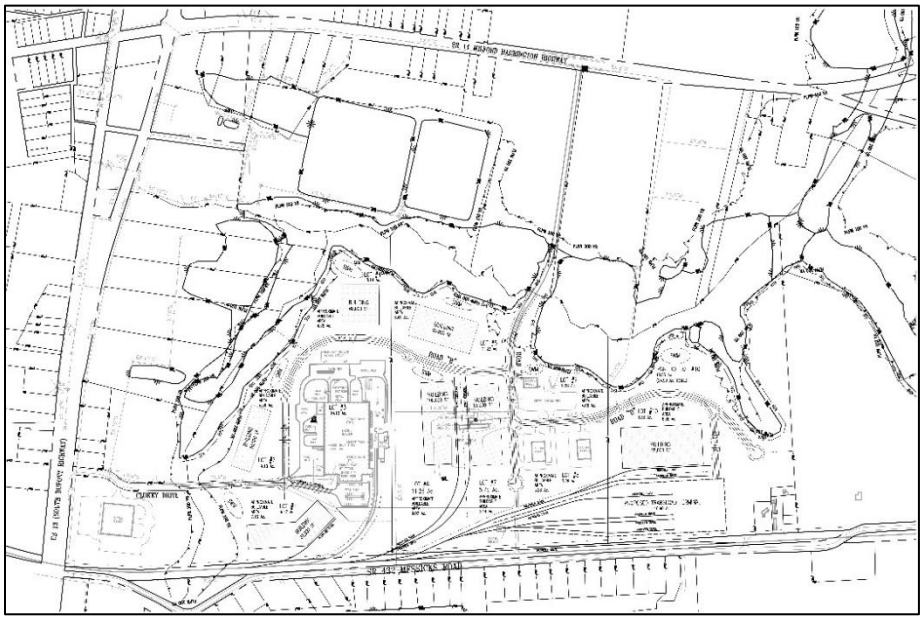
Version 2A option 1 - Intended to enlarge buildable site on City property.



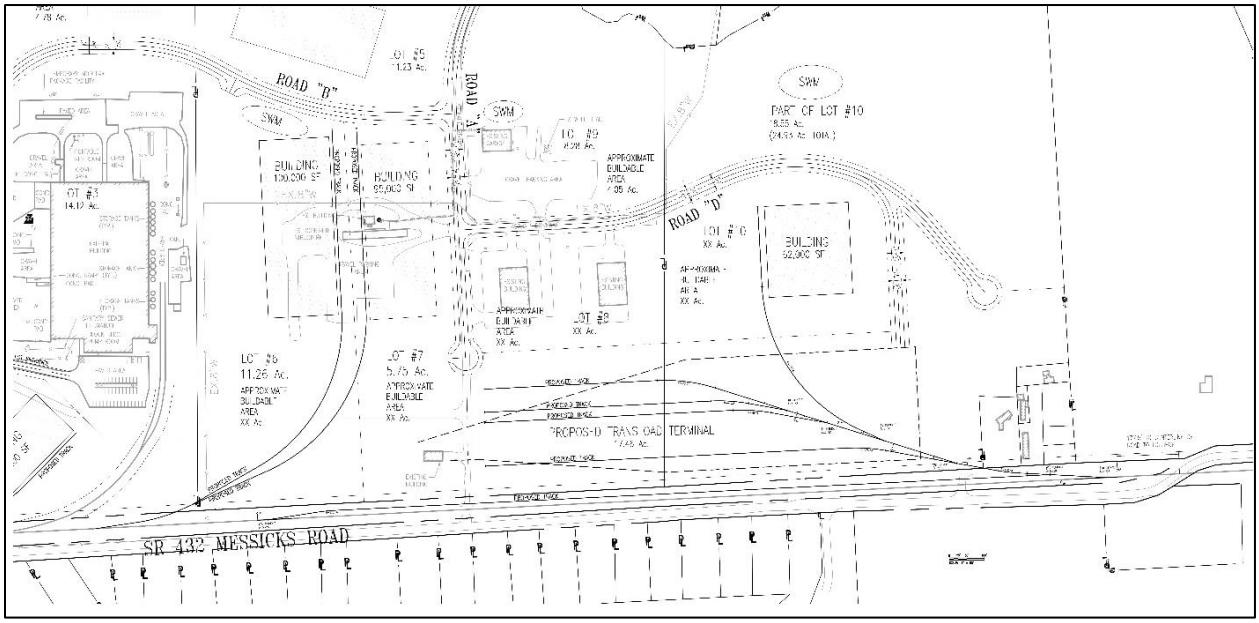
Version 2A option 2 - Another option to enlarge buildable site on City property. Property owners preferred original Version 2A; City agreed.



Version 3 - Turnouts added to extend sidings for direct service to buildings. In this alternative, Lots 6 and 7 were reconfigured to provide a lot boundary that allows a rail siding for each building.



Version 4 - DCR requested to see option with rail terminal "flipped" to enter from east. Messicks Road grade crossing and private outparcels at SE corner of City property limit the point of departure from the main line.



DOVER/KENT COUNTY MPO
METROPOLITAN PLANNING ORGANIZATION

CITY of HARRINGTON
est. 1869
DELAWARE