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Memorandum

To: Town of Southeast Planning Board
From: Ashley Ley, AICP; Anthony Russo; James Nash; Christian Thompson; Christian Michel; Bryan Zieroff; and Kevin Edwards
Date: July 20, 2018
Re: Northeast Logistics DEIS – Substantive Comments
cc: JMC, Zarin & Steinmetz

AKRF, Inc. has reviewed the June 2018 Draft Environmental Impact Statement (DEIS) prepared for the Northeast Interstate Logistics Center project. This document had previously been reviewed by AKRF for completeness. On June 14, 2018, the Town of Southeast Planning Board accepted the document as complete. The following comments comprise AKRF's substantive review of the DEIS.

EXECUTIVE SUMMARY

1. We have reviewed this material and have no substantive comments on this chapter.

DESCRIPTION OF THE PROPOSED ACTION

2. We have reviewed this material and have no substantive comments on this chapter.

LAND USE AND ZONING

3. As part of the proposed project, the Applicant proposes to rezone approximately 39 acres of the site from RC to OP-3. The Applicant proposes to maintain a buffer of RC between the proposed project and NYS Route 312. AKRF supports the retention of a buffer of RC zoning along NYS Route 312.
4. As part of the proposed project, the Applicant proposes to add "Logistics Center" as a conditional use permit use in the OP-3 Zoning District. The DEIS includes proposed conditional use permit criteria. The following are comments related to the proposed criteria:
 - a. Notwithstanding the existing regulations regarding "outside storage," in the Town Code, the proposed conditional use permit criteria should differentiate between short-term truck parking; long-term truck parking, trailer storage, and shipping container storage; and any other outside storage. Given the nature and size of the proposed use, the Town may consider limiting any outside storage to trucks and trailers, and prohibiting the outside storage of goods and materials.

- b. The site plan should be required to indicate the type, use, screening, and method of delineating the outside storage areas. Methods of delineation can include fencing, pavement marking, and other physical barriers.
- c. The Applicant should consider the length of time trucks and trailers will be located on site, and whether or not proposed condition "D" should include 138.13.C. Alternatively, the conditional use permit criteria should specifically address the length of time trucks, trailers, and shipping containers may be stored on site.
- d. As the proposed facility would be open 24-hours, the zoning should consider whether or not any truck driver services would be permissible on site as an accessory use to the Logistics Center (i.e. overnight parking and rest facilities).

TRAFFIC

AKRF provided a Traffic Impact Study (TIS) review scope to the Town of Southeast on June 20, 2018 (see Attachment A). Listed below are the items presented in the TIS review scope (shown in italics) followed by AKRF's assessments/responses based on review of the TIS.

5. *Conduct field visits during the peak hours analyzed in the TIS to observe traffic conditions and identify locations that may require improvements/mitigation measures as part of the proposed project.*
 - Field observations of traffic conditions were conducted in July, 2018. The observed traffic conditions were generally consistent with the information presented in the TIS. Additional follow-up observations of traffic conditions will be conducted in the fall of 2018.
6. *Perform spot traffic counts to confirm the accuracy of the traffic volumes presented in the TIS.*
 - Spot traffic counts were conducted at the intersection of NY 312 & the I-84 Eastbound Ramps/Independent Way Intersection during the three peak periods (AM, PM, Saturday) examined in the TIS. The traffic volumes presented in the TIS were higher than the spot counts for all three peak periods with the exception of the westbound approach volumes (225 versus 240 vehicles for the left turn movement, 517 versus 575 vehicle for the through movement, and 85 versus 93 vehicles for the right turn movement) during the AM peak hour. Additional follow-up spot counts will be conducted this intersection, along with the NY 312 and Pugsley Road intersection, in the fall of 2018.
7. *Review Existing Conditions Level-of-Service (LOS), vehicular delays, and queuing results presented in the TIS.*
 - Existing Conditions LOS and vehicular delays have been presented in the TIS in tabular form and summarized in the text; however, queueing results have not been presented in the TIS. Queue results should be presented in the text and in tabular form. Locations where queues exceed storage capacity, particularly for turning lanes, should be noted.
8. *Review "No Build" project trip generation and vehicular assignments.*
 - The applicant should provide in the Appendix relevant pages from No Build project studies, where available, which show the No Build project trip generation and/or vehicular assignments (e.g., original vehicle assignment figures from No Build project traffic studies), especially for the Crossroads 312 project.
9. *Review "No Build" LOS, vehicular delays, and queuing results presented in the TIS.*
 - No Build Conditions LOS and vehicular delays have been presented in the TIS in tabular form and generally summarized in the text. However, it is recommended that all lane groups/movements that would operate under LOS E or F be clearly listed in the text and/or highlighted in the LOS tables for easy identification.

- A meeting with NYSDOT has been scheduled for July 23, 2018 to review key components of the TIS and proposed improvement measures. Additional meetings will follow as needed.
20. *Review the TIS and where possible look to incorporate innovative (e.g., adaptive traffic signal technology) and traffic calming measure (e.g., roundabout solutions).*
- The potential for additional innovative and traffic calming measures will be discussed with NYSDOT at the July 23, 2018 meeting.

TIS TECHNICAL COMMENTS

21. Data Collection

- a. The TIS scope of work states that Saturday turning movement counts (TMC) would be conducted from 11 AM to 2 PM. The Saturday TMCs were collected from 12 PM to 2 PM. Please provide an explanation as to why the 11 AM to 12 PM period was not counted.
 - b. Locations where “No Turn On Red” signs are posted should be indicated on the Physical Inventories (PIs).
22. Existing Conditions – Please explain why the PM peak hour is 5:00 - 6:00 PM since the number of area total is higher during the 4:45 to 5:45 PM period (page 131 of Appendix). Please explain why the Saturday Midday peak hour is 12:15 - 1:15 PM since the number of area total is higher during 12:30 - 1:30 PM (page 131 of appendix).

23. No Build Conditions

- a. The source of the 1 percent growth rate utilized in the TIS should be identified (e.g., guidance from the Town, NYSDOT, etc.).
- b. The TIS should state if the NYSDOT Statewide Transportation Improvement Program (STIP) listings were consulted to determine any proposed area roadway improvement projects that should be included in the No Build condition.

24. Trip Generation

- a. A vehicle profile of the proposed trip generation should be provided which breaks down the trip generation by vehicle type/classification, including a breakdown of truck types (e.g., single-unit trucks, tractor trailers). FHWA vehicle classifications can be referenced as part of this breakdown. Estimates of vehicle arrival/departure distribution hours by type should also be provided.
- b. The TIS should reference what the proposed work shifts are and how the shifts would affect trip generation and the distribution of peak trips throughout the day.
- c. The trip generation in the TIS was based on trip generation rates presented in the 9th Edition of the ITE Trip Generation Manual for Land Use 150, “Warehouse”. The trip generation rates from the 10th Edition of the Trip Generation Manual for the same Land Use 150 “Warehouse” were lower (both daily and peak hour” when compared with the rates presented in the 9th Edition of the manual. Table 1 below presents a comparison of trip generation rates for various related warehouse uses with those utilized in the TIS.
- d. It is important to note that while the rates for LU# 155 and 156 are higher compared to the 9th Edition rates, the rates for LU# 155 and 156 are based on small sample sizes (4 or fewer studies) and should be utilized with caution. The 10th Edition rates for LU# 150 and 154 are generally based on much larger sample sizes (up to approximately 100 studies). Details regarding the proposed usage of the site should be carefully reviewed to ensure that the proper trip generation rates are applied. The trip generation numbers presented above will be discussed as part of the July 23, 2018 meeting with NYSDOT.

Table 1
Comparison of ITE Trip Generation Rates (per 1,000 SF GFA)

ITE Trip Generation Manual Edition		9th Edition	10th Edition			
ITE Land Use (Land Use #)		Warehouse (150)	Warehouse (150)	High-Cube Transload & Short-Term Storage Warehouse (154)	High-Cube Fulfillment Center Warehouse (155)	High-Cube Parcel Warehouse (156)
Daily Weekday		3.56	1.74	1.40	8.18	7.75
Daily Saturday		1.23	0.15	0.94	N.A.	N.A.
Peak Hour of Adjacent Street Traffic	AM	0.30	0.17	0.08	0.59	0.70
	PM	0.32	0.19	0.10	1.37	0.64
	Saturday	N.A.	N.A.	N.A.	N.A.	N.A.
Peak Hour of Generator	AM	0.42	0.22	0.12	0.22	0.88
	PM	0.45	0.24	0.16	0.27	0.71
	Saturday	0.13	0.05	0.12	0.20	N.A.
Notes		Rates Utilized in the TIS			Based on small number of studies – use with caution.	Based on small number of studies – use with caution.

25. Build Conditions & Proposed Improvements

- a. The TIS should state if the Applicant has committed to the implementation of the jitney service that is mentioned in the TIS.
- b. A diagram/figure should be provided in the TIS that clearly depicts the proposed changes to each segment of Pugsley Road, Fields Corner Road, and Barrett Road (e.g., ownership changes, geometric changes) to supplement the descriptions of those changes provided in the TIS.
- c. For easy reference it is recommended that the proposed signal retiming improvements be clearly listed and outlined in the TIS text (TIS pages III.B-46 through III.B-49 in Section I “Mitigation Measures”), including cycle length, timings, and phasing information.

26. Warrant Analysis

- a. AKRF questions the consideration of the NY 312 approaches to the intersection as two-lane approaches for the Warrant analysis. Each approach consists of a single through lane and a separate left or right turn lane. Based on MUTCD guidance, it appears that the volume percentages for the turn lanes would not be sufficient for considering the approaches as two-lane approaches. Please review and confirm.
- b. Please provide backup which demonstrates how the future (No Build, Build) hourly volumes presented in Table III.B-9 were developed.

27. TIS Text/Editorial Comments

- a. Page III.B-30: The LOS reference is missing from the description of the NY 312 & International Boulevard (4th line from the bottom of the page).

- b. Page III.B-31: The last sentence of the first paragraph (“Pugsley Road left turn lane is projected to operate at level of service F...”) is repeated for the second time within the paragraph. Should this sentence be located elsewhere?
- c. Table III.B-5: The Caremount Driveway approach is listed as “Southbound” (instead of “Northbound”)

28. Figures

- a. Figure 9 (Crossroads Volumes): Volumes do not balance between intersections #5 & #6 and #6 & #7. Are volumes lost/gained through additional driveways to/from the Crossroads site?
- b. Figure 12: The volumes for Intersections 1 through 4 appear identical to those shown in Figure 11. Please check and verify. Volumes do not balance between intersections #5 & #6 and #6 & #7. Are volumes lost/gained through additional driveways to/from the Crossroads site?
- c. Figures 14, 15, 16, 21, 22, and 23: The number of ‘in’ and ‘out’ trip totals shown differ slightly from those presented in the corresponding trip generation tables.
- d. Figure 32: No volumes are shown for Intersection #4.

29. Synchro

- a. Please confirm that all lane widths have been coded in correctly. For example, the southbound right turn only lane at Route 312 and Route 6 should be 11' instead of 12'.
- b. Please provide the field measurement notes for intersections where grades are coded. Otherwise remove any grade in synchro. Negative grades have the potential to improve delay and LOS results and should be supported.
- c. U.S. 6 & NY 312 Intersection: Please confirm that the correct time of day plan, including the phasing sequence, for the signal has been coded at this intersection. The Southbound through and southbound left-turn volumes are coded in reverse for the No Build Alternative, Saturday Peak Hour. Please correct.
- d. NY 312 & Pugsley Road Intersection: The Percent Heavy Vehicles are coded as 0% for the eastbound left-turn and southbound right-turn movements under No Build and Build conditions. Please verify the use of 0% for these movements as the trip distribution patterns assign 10 percent of the trips to these movements. The length of the westbound right-turn storage lane is coded differently between various conditions/time periods (e.g., 210' under No Build AM, 240' under No Build PM). Please verify all conditions for consistency.
- e. NY 312 & I-84 Eastbound Ramps/Independent Way: The widths of the northbound lanes were coded differently across between No Build PM (12') and No Build Saturday (13') conditions. Please verify for all conditions for consistency.
- f. NY 312 & I-84 Westbound Ramps: The Percent Heavy Vehicles for all new movements to/from the Crossroads development are coded as 0% under No Build and Build conditions. Should these be coded, at a minimum, as 2%?

30. Special Dimension Vehicle Access Highway Designation

- a. The Applicant should continue to keep the Town up to date on the status of the approval process for the Special Dimension Vehicle Access Highway Designation.
- b. An estimated measurement along Pugsley Road shows that access to the northern site access driveways may be in excess of one mile from the farthest I-84 ramp. A figure

should be provided which shows the measured distances from the farthest I-84 ramp, along with the existing and proposed Special Dimension Vehicles Access Highway route(s).

31. Emergency Services – Letters should be obtained from emergency services from the both the Towns of Southeast and Patterson regarding input on the permanent closure of Fields Corner Road.

VISUAL RESOURCES

32. The FEIS should include an analysis of potential visual impacts from the following locations:

- Nelson Boulevard
- Drewville Road
- NYS Route 6 as it crosses over the Middle Branch Reservoir
- Hunter's Glen
- Tilly Foster Farm

33. Addition screening between Tilly Foster Farm and the proposed project should be considered.
34. Conservation easements over the undeveloped land should be considered as a means to both protect the environmentally sensitive areas as well as to preserve the remaining open space and to ensure that the buffer remains between the proposed project and nearby residential areas.

SURFACE WATER AND WETLANDS

35. The chapter indicates that NYCDEP visited the site on 4/24/18 to inspect watercourses regulated by the DEP Watershed Rules and Regulations (Chapter 18 of 15 RCNY). Please provide DEP-validated watercourse map(s). The chapter should describe and map the perennial and intermittent stream buffers regulated by NYCDEP and indicate/quantify any encroachments or increases/decreases to impervious surface in these buffers.
36. The U.S. Army Corps of Engineers (USACE) must conduct a jurisdictional determination of wetland boundaries prior to or concurrent with permitting of the proposed 0.05 acres of wetland disturbance for the Barret Road widening. The Corps will require proper documentation of the delineation in accordance with the federal methodology (Y-87-1; ERDC/EL TR-12-1), including wetland data sheets documenting soil, vegetation, hydrology indicators at data points throughout the property. The DEIS does not contain the original wetland delineation report (2004) and considering the length of time since the original delineation and the publishing of the new Corps Regional Supplement delineation manuals (2012), the Corps (and the Town as lead agency) may recommend that the wetland boundary delineation be comprehensively re-delineated. The current delineation report (Appendix D2) did not redo the delineation but qualitatively checked the earlier boundary.
37. This chapter should disclose and quantify changes in drainage areas (acres in the pre- vs post-construction condition) so that increases/decreases in the contributing drainage areas to each onsite wetland can be determined. Of primary importance is the redirection of runoff that may adversely affect the hydrologic budget of individual wetlands.
38. The adequacy of the proposed project's stormwater management measures and plans, including their compliance with the NYS Stormwater Management Design Manual, the NYSDEC GP-0-15-002, the NYCDEP Watershed Rules and Regulations, and the Town of Southeast Code Chapter 119, has not been reviewed by this office – but is subject to review by the Town Engineer. This is of special importance considering the size of the project and its location within the NYC watershed (Middle Branch of the Croton River).
39. The Biological Assessment Report (Appendix G-1) indicates that the Town's consultant Steve Coleman and NYSDEC's Kelly McKean reconfirmed the wetland boundaries in 2018.

Correspondence to this effect and/or a signed wetland validation drawing from NYSDEC should be provided in the FEIS.

40. The project requires impact to 2.44 acres of NYSDEC and 5.37 acres Town of Southeast wetland buffers. Considering the amount of land available, reductions in this amount should be explored in the chapter. Further reasoning should be provided explaining how the wetland impact decision process, i.e. "avoidance, minimization, mitigation" can/cannot produce reduced wetland buffer impacts.
41. Wetland mitigation proposed involves invasive species removal in a portion of Wetland 4. The chapter should provide a figure showing the location and size (SF) of the proposed wetland mitigation area and the FEIS should include a detailed mitigation/planting plan. Five years of monitoring is preferred rather than the proposed 3 years. The adequacy of the proposed invasive species removal within a portion of Wetland 4 as compensation for permanent wetland loss and approximately 8 acres of Town/DEC wetland buffer disturbance should be justified/analyzed further in the FEIS.

GEOLOGY, SOILS AND TOPOGRAPHY

42. The implications of development within significant areas of onsite soil designated as Prime Farmland and development adjacent to a State-designated Agricultural District should be discussed further in the chapter. Attention should be given to characterizing the loss of these Prime Farmland soils and the adverse impacts of proposed traffic/disturbance to adjacent agricultural uses.
43. The chapter should identify the quantities of cut/fill necessary to facilitate the site plan based on the proposed grading plan.
44. The predominant soils onsite, the Paxton and Woodbridge soils, have severe limitations due to slope and/or wetness due to slow permeability of subsoil. Chapter II.D indicates that Paxton soils contain fines which "warrant additional sediment and erosion control measures which will set forth in the Final SWPPP." The FEIS should explain further and provide type(s) of applicable erosion control measures that may be used to address this unique soil constraint.
45. To avoid onsite wetlands, the four warehouse buildings, loading, and parking areas are proposed to be located on the two ridgelines (drumlins) occupying the high points of the site, at elevations of 672 feet and 690 feet. Town Code §138-12.1 *Ridgeline Protection* requires that buildings and structures not be visible above the top of the ridgeline or from adjoining properties or public rights-of-way to the maximum extent practicable. Alternative building locations are not available onsite. Therefore, minimization of ridgeline impacts, both impacts to soils from grade changes to the ridgelines and to viewsheds, would need to focus further on building size, number, height, and orientation, as well as extent of cut/fill and vegetation preservation.
46. The project should explore additional measures to reduce steep slopes disturbance, currently at 22.5 acres of disturbance to slopes 15% or greater. Reduction or re-arrangements in project footprint would be the principal means to reduce these impacts.

GROUNDWATER

47. Due to the fact that pumping-related water level drawdown effects were observed in one off-site well (Ginsberg Development Corporation Well 3 - 29.5 feet of drawdown) during the 1992 pumping test, and the well was not monitored during the 2004 pumping test, mitigation measures should include steps (i.e., hydrofracking, extending well depth) to mitigate any potential long term, site-related cumulative effects to Ginsberg Development Corporation Well 3, or any other well for that matter.

VEGETATION AND WILDLIFE

48. This chapter and the accompanying Biological Assessment Report (Appendix G-1, March/2018), present a good "big picture" of the current ecological conditions of the project site. However,

considering the size of the project site and magnitude of proposed project, more effort should be expended to document specific species of animals/plants that occupy the project site, including State/Federally listed species. The DEIS indicates that “no species-specific mammal surveys or trapping were conducted” and “amphibian and reptile surveys were not conducted”. Instead, animal use of the site is based on available habitat and opportunistic animal observations. The DEIS says “portions of these wetlands...provide ideal habitat for wetland-dependent amphibians such as frogs and salamanders.” However, few amphibian species identified onsite are listed in report tables. The DEIS makes reference to “*Carex* sp.” or “*Quercus* sp.” but the overall list of plant species identified onsite is comparatively short. Additional effort is warranted so that potentially-present NYS-listed plants known for Putnam County, e.g. featherfoil, lyre-leaf sage, rough avens, shining bedstraw, woodland agrimony and others, can be identified if present and protection measures (conservation or relocation) can be undertaken. Resource-specialist consultants (herpetologist, ornithologist, etc.) may be retained to conduct additional plant/animal surveys for the benefit site documentation and determination of potential ecological impacts.

49. Potential habitat for spotted salamander is noted and wood frogs were identified onsite. These are vernal-pool endemic species. The development guidelines and buffers provided in *Conserving Pool-Breeding Amphibians* (Calhoun and Klemens, 2002)¹ must be considered and described with reference to the proposed site plan.
50. An assessment of potential bog turtle habitat was undertaken for wetland 6 (LC-28) and suitable bog turtle habitat was found. However, no assessment is provided of bog turtle protection zones or potential impairment of life movements due to proposed development plan, with reference to *Bog Turtle Northern Population Recovery Plan* (USFWS, 2001).
51. According to the NYNHP response letter (2.27.18), northern long-eared bat (*Myotis septentrionalis*) winter hibernaculum is documented 4 miles from project site. The USFWS 4d rule for northern long-eared bat prohibits tree removal between June 1 –July 31. The Biological Assessment Report (Appendix G-1) indicates that the applicant will follow the additional optional tree removal restriction period of April 1 – October 31. This extended tree-cutting prohibition period is not indicated in the DEIS chapter text.
52. The Biological Assessment Report indicates that “the site was noted to be outside of the habitat range for Indiana bat”. However, Putnam County is in Indiana bat range as mapped by the USFWS. The Indiana Bat Project Review Sheet (USFWS NY Field Office, March 2018) requires clearing of potential roost trees from Oct 1 to March 31 only, which if followed would extend the applicant’s proposed tree removal restriction period for an additional month, the month of October.
53. Correspondence/coordination with the NYSDEC and USFWS on potential impacts to listed species is required, and must be made part of the SEQRA record. Documentation of potential impacts to federally-listed species must follow the USFWS’s 7-Step Project Review process: <https://www.fws.gov/northeast/nyfo/es/section7.htm>.
54. With of 80 acres of meadow and 32 acres of forest area, project mitigation is inadequate. Additional conservation and restoration measures should be explored, including restoration of portions of the existing upland field community now dominated by invasive species, i.e. portions that will be outside of the proposed limit-of-disturbance.
55. The DEIS indicates several NYS-listed species are potentially present but no discussion of impacts to these species are described – including: American kestrel (*Falco sparverius*) NYS endangered,

¹ Calhoun, A. J. K. and M. W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.

Coopers hawk (*Accipiter cooperii*) NYS special concern, eastern box turtle (*Terrapene carolina carolina*) NYS special concern, and spotted turtle (*Clemmys guttata*) NYS special concern.

56. Potentially present forest area-sensitive birds were identified onsite, including: eastern wood peewee, red-eyed vireo, wood thrush, ovenbird, scarlet tanager, black and white warbler, veery, black-throated green warbler, etc. Impacts of forest fragmentation resulting from the proposed project on these species is not discussed. Similarly other species may be adversely affected by clearing of old field habitat, including Yellow-billed cuckoo (*Coccyzus americanus*), a bird species that is in steep decline. The DEIS should discuss animal species rarity for those known or suspected to occur and should analyze potential adverse impacts to these species from site development.
57. Figure III.G.2: Vegetative Communities Impact Table, shows the LOD line outside of property boundary. What is the impact acreage, and habitat type, of this additional area?
58. Page III.G-14 indicates that the majority of site disturbance (84.5 acres) is to the successional old field/shrubland vegetative community, 29.6 acres of disturbance is proposed to the woodland transitional areas, and 5.9 acres of disturbance to the former farm vegetative community. However, the Project Description chapter indicates 133.2 acres of overall disturbance (a larger area) of which 61.2 acres would be impervious surface and 72 acres would remain pervious. (p. II-28). At p. II-29 the project description says 57 acres of impervious surface, a smaller area than the previous page. Please revisit the DEIS's overall disturbance calculations as necessary to resolve discrepancies.
59. The DEIS indicates the project will employ "dark sky friendly lighting". This must be explained further (hours, fixture types, lumens, etc.) with reference to potential impacts to plants/animals and with appropriate academic citations to support conclusions.

TAX ANALYSIS

60. The text in 2.a. Existing Property Tax Condition notes that there are five non-homestead parcels on the property. Table III H-1 shows only four non-homestead properties. Based on an examination of Appendix H-1, parcel 45-1-5.3 is a non-homestead parcel but is incorrectly listed as a homestead parcel in Table III.H-1. This is also relevant since the incorrectly labeled parcel appears to be the parcel that is valued the highest of all parcels at \$741,115.
61. The "Anticipated Impacts" section should include an estimation of the municipal costs of the proposed development.
62. The description of the PILOT should have an estimate of the amount that the applicant will pay each year of the PILOT or over the total span of 10 years. If this is unknown, it can be estimated based on the assessed value of comparable facilities in the Town. The difference between what the Applicant would pay in taxes without the PILOT should be compared to the taxes that would be paid under the PILOT. The total approximate value of the IDA inducement should be quantified including the PILOT, sales tax exemptions or any other benefits provided by the IDA inducement. Additionally any development or processing fees for IDA inducement should be quantified. Once the above is quantified, the net fiscal impact of the proposed development should be estimated.
63. The inputs used for the IMPLAN modeling should be more clearly identified and described. It appears that project construction costs are used as inputs to model impacts for the construction phase and that the applicant's job and related wage estimates are the basis for modeling operational impacts. However, this is not clearly explained in text or tables. Additionally, the reasoning and sources used to develop inputs should be outlined and explained. For the construction cost estimate, please clarify if this is for hard costs, soft costs, or both.
64. The level of reliability of IMPLAN modeling at the zip code level should be noted. The data IMPLAN uses at the zip code level is an estimation based on County Business Patterns (CBP) data. CBP zip code data only provides the number of firms, thus IMPLAN estimates the number of

employees associated with each firm. Additionally, CBP data does not cover the Construction Industry at the zip code level and instead uses NAICS 22- Utilities as a proxy.

65. IMPLAN warns that when using zip code-level data, much of the total economic impact may be lost due to leakage. The geography of Putnam County may have been a more prudent geography to use especially as this tax analysis involves Putnam County taxes.
66. The rationale for the jobs estimate of 665 jobs (page III.H-18) during the operations phase provided by the Applicant should be detailed. Compare this estimate to known and accepted industry estimates for jobs per square foot.
67. When discussing the median wages for the types of jobs the proposed development is projected to create on page III.H-19, please compare these wages to median incomes in the Town of Southeast and/or Putnam County to provide context.
68. The FEIS should clarify when discussing total, direct, indirect, and induced economic impacts.
69. The presumed input of construction costs is incorrectly listed as a direct output in Table III.H-5.
70. There is a discrepancy between the text and Table III H-5. The text indicates that there are 150 indirect jobs and 69 induced jobs; while Table III H-5 indicates that there are 68 indirect jobs and 150 induced jobs. It is unclear if the table or the text is correct.
71. The chapter also mentions that the development will be “phased” (page H III-2, second paragraph). The chapter should provide an indication of the development timeframe and when impacts will be realized.
72. The sales tax analysis should identify sources and assumptions for sales tax assessment.

COMMUNITY SERVICES

73. The discussion of the Police Department’s capacity should indicate how the police department’s response times compare to industry standard measures of police performance.
74. The discussion of the Fire Department’s capacity should indicate if the response time to the site of 13-18 minutes is typical, above average, or below average for a rural/suburban area. For example, the National Fire Protection Association set a standard response time of no more than 10 minutes for a suburban area and no more than 14 minutes for a rural area.
75. JMC was unable to obtain data on “the number and nature of police, fire, and EMS calls” to the site. A study of emergency service calls from similar warehouse/logistics facilities or research on how industrial and warehouse uses compare to other land uses in terms of calls for service would be useful in estimating future conditions. Other information that could help bolster this discussion is whether warehouse and logistics work is more or less dangerous than other professions.
76. The discussion of the donation of Lot 5 to Putnam County’s Tilly Foster Farm should clarify if this land will be under conservation easement like the rest of Tilly Foster Farm.
77. Land donation to a municipality or public agency is considered land acquisition. The FEIS should clarify that the land donations are part of the discretionary actions being reviewed under this environmental review.

UTILITIES

78. No comments. Please refer to the comment regarding the wells under “Groundwater.”

CULTURAL RESOURCES

79. As reported in the DEIS, the Phase 1A Archaeological study prepared by the Applicant’s consultant recommended that Phase 1B testing be performed on portions of the site not previously studied. This report was submitted to the New York State Office of Parks, Recreation, and Historic Preservation

(OPRHP) which in turn issued a letter of “No Effect” for the project, indicating that in their opinion no further testing was warranted. AKRF’s archaeologist reached out to OPRHP to confirm this recommendation in an email dated March 27, 2018. OPRHP responded in a letter dated April 4, 2018, confirming that based on the topography and previous studies, no further testing was warranted and that the Proposed Project “has a low potential to contain historic properties (architectural and archaeological sites).” Copies of this correspondence can be found in Appendix I-2. As such, the DEIS sufficiently documents that the Proposed Project is unlikely to result in any significant adverse impacts to historic or archaeological resources and AKRF has no further substantive comments on this chapter.

NOISE

80. Noise monitoring locations 6 and 7 are first introduced on page III.L-9, separately from the other locations. Since they are subsequently treated the same as the other locations, it would be better to treat them the same as the other 5 locations by including them in all areas of the chapter (i.e., Pages III.L-8, Table III.L-9, Table III.L-11, etc.).
81. Indicate the duration of the noise measurements. As stated in Section 96-5.D.1 of [the Code of the Town of Southeast,] sound measurements shall be taken at the property line for twenty-minute durations.
82. In Table III.L-5, a unit should be specified for the reported L1, L10, and L90 noise levels. If it is dB(A), this should be made explicit, as with the L_{eq} and L_{max} values in the table.
83. Pages III.L-13/14 state that “the volume of construction traffic is less than the operational traffic.” Explain/clarify why construction traffic would not produce a greater amount of noise due to construction trucks as compared to normal vehicular traffic.
84. Page III.L-18 indicates that the traffic noise analysis was conservative by comparing build conditions to existing conditions. However, the discussion after Table III.L-10c seems to compare build conditions to no build conditions.
85. Indicate the enforcement mechanism to ensure that if Building #4 is developed as a cold storage facility, a more detailed noise analysis will be performed.
86. In the “Operation – On-site Trucks” section of the chapter, a reference L_{max} noise level of 75 dBA is presented for truck operations. A reference for this emission level should be provided, or the emission level for Flatbed Trucks as provided by FHWA and presented in Table III.L-7 should be used instead.
87. Further detail/clarification should be presented on the measured HVAC noise levels from “other similar facilities” used in the “Operation – On-site HVAC” section of the chapter. This should include a description of the similar facility/facilities, methodology for noise level measurements, measured noise levels, and description of any adjustments made to apply the measured levels to this analysis.

AIR QUALITY

88. The FEIS should include definition of PM2.5 and PM10.
89. The FEIS should include time averaging periods for each pollutant.
90. The FEIS should remove rescinded SO2 annual NAAQS threshold and monitored concentration from Table III.N-1 and update table footnotes.
91. The FEIS should include SO2 3-hour NAAQS threshold and monitored concentration into Table III.N-1 and update table footnotes.
92. The FEIS should include discussion of stationary air quality sources, if any, that would be introduced/changed in the Future without the Proposed Project from the Existing Conditions.

93. NYSDOT's mobile source screening guidance does not assess the potential air quality conditions in the Future without the Proposed Project, nor was the guidance used to assess the air quality conditions. The FEIS should provide this information.
94. Page III.N-4 indicates that "The volume of cars and trucks (including heavy equipment) will be less than that during the operation of the facility." The air quality analysis should reference where this has been determined.
95. The FEIS should include definition of "*de minimis*" as it relates to the threshold for air quality impacts.
96. Per EPM Chapter 1.1 Section 15, include discussion of the duration of construction work, its schedule and the type of work being done.
97. Include discussion of emissions from on-site construction equipment. Comparison to the operational air quality assessment is not sufficient as there will be no such sources in the Future with the Proposed Project.
98. Page III.N-5 states, "Because all traffic passing the site (i.e. not just that associated with the construction) can re-suspend the deposited material, this "secondary" source of emissions may be more important than all the dust sources actually within the construction site." It is unclear from the discussion that this is the case. The FEIS should provide more rationale.
99. Particulate matter is both a primary and principal pollutant of concern with vehicular exhaust emissions. Per NYSDOT guidance (EPM Chapter 1.1 Section 8), include discussion of PM and whether quantitative hot-spot analysis is warranted.
100. Page III.N-6 states, "Since ozone and smog formation is a low process with occurs outside the primary impact area of the project, these pollutants are reviewed only on a regional (mesoscale) basis, not a local (microscale) basis." The DEIS did not include a review of regional impacts. The FEIS should include a discussion why a regional analysis is not warranted.
101. The FEIS should include a complete description of the LOS Screening, Capture Criteria Screening, and Volume Threshold Screening per EPM Chapter 1.1 Section 9(A)(i). The DEIS discussion does not make clear that intersections that fail LOS Screening are screened for each of the Capture Criteria and for those that fail one of the Capture Criteria are screened using the Volume Threshold Screening methodology.
102. Per EPM Chapter 1.1 Section 9(A)(I-2), if any of the capture criteria is met, the intersection is subject to further screening using the Volume Threshold Screening methodology. All five capture criteria should be assessed at intersections that have failed the LOS Screening.
103. The traffic volume increase criteria does not consider if an exceedance represents the time period with the highest total traffic volumes. Per EPM Chapter 1.1 Section 9(A)(I-2), Intersection 5 is subject to further screening using the Volume Threshold Screening methodology.
104. It is unclear what on-site vehicle operations would be included as part of the Proposed Project (i.e. surface parking lot, parking garage, internal roadways). The FEIS should include a description of on-site vehicle operations with available relevant information (i.e. dimensions, exhaust points, number of vehicles anticipated to be operating, etc.).
105. Natural gas emissions from on-site fuel combustion is not insignificant; therefore an assessment of the air quality impacts should be done. Assessment should include discussion of nearby receptor locations, emissions intensity, and any equipment technology included as part of the project.

HAZARDOUS MATERIALS

106. The DEIS includes a description of assessments and remedial action activities completed in 2004, including:

- a. Removal of a 550-gallon fuel oil UST and dispenser pump adjacent to former farmhouse maintenance shed; and
- b. A concrete pit beneath the floor of the maintenance shed, which was found to contain debris and oily water.

Additional data, including descriptions, maps, and soil endpoint sampling locations and laboratory analytical results, should be provided to confirm the environmental condition of the soil after the removals, and that appropriate testing and laboratory parameters were consistent with NYSDEC requirements.

107. The DEIS indicated that remedial activities in 2005 included removal of 100 yards of debris, removal of an abandoned tank, drums, and containers, and the removal of stained soil, and that follow up soil testing revealed no residual soil impacts. Additional data and descriptions, including maps, reports, laboratory analytical results, should be provided to confirm that appropriate testing and selected laboratory parameters were consistent with NYSDEC requirements.

CONSTRUCTION

108. The FEIS should include a discussion of potential air quality impacts associated with off-site vehicle operations. Discussion should include available relevant information (i.e. number of work vehicles, number of heavy-duty trucks, references to any traffic comparison to the operational traffic analysis.)
109. The FEIS should include a discussion of emissions from on-site construction equipment. Comparison to the operational air quality assessment is not sufficient as there will be no such sources in the Future with the Proposed Project.

ALTERNATIVES

110. The FEIS should consider an alternative that shifts the buildings so that the peaks of the ridgelines could be preserved.
111. The FEIS should consider an alternative that shifts the parking and loading areas to front on Pugsley Road so that the proposed buildings provide a buffer between the trucks and the Hunters Glen and Twin Brooks developments.

REQUIRED CHAPTERS

112. We have reviewed this material and have no substantive comments on this chapter.

ATTACHMENT A



Environmental, Planning, and Engineering Consultants

34 South Broadway
Suite 401
White Plains, NY 10601
tel: 914 949-7336
fax: 914 949-7559
www.akrf.com

Memorandum

To: Town of Southeast Planning Board
From: Ashley Ley and Anthony Russo
Date: June 20, 2018
Re: Northeast Interstate Logistics Center Traffic Impact Study Review
cc: JMC

To facilitate the Planning Board's State Environmental Quality Review Act (SEQRA) review of the Northeast Interstate Logistics Center project, AKRF will be reviewing and providing substantive comments on the Draft Environmental Impact Statement (DEIS). AKRF's substantive comments and recommendations will be presented in a memorandum to the Planning Board during the public comment period on the DEIS so they may be addressed in the Final Environmental Impact Statement (FEIS) and Statement of Findings.

As part of this review, AKRF will be conducting an independent evaluation of the Traffic Impact Study (TIS) prepared by the Applicant's consultant, JMC. In response to questions raised at the last Planning Board meeting, AKRF has prepared the following scope of work for the TIS independent peer review. In addition, the TIS is being provided to the New York State Department of Transportation (NYSDOT) which will also conduct a peer review and provide comments to the Planning Board as part of the SEQRA process.

AKRF's independent review of the TIS will include the following tasks:

1. Conduct field visits during the peak hours analyzed in the TIS to observe traffic conditions and identify locations that may require improvements/mitigation measures as part of the proposed project.
2. Perform spot traffic counts to confirm the accuracy of the traffic volumes presented in the TIS.
3. Review Existing Conditions Level-of-Service (LOS), vehicular delays, and queuing results presented in the TIS.
4. Review "No Build" project trip generation and vehicular assignments.
5. Review "No Build" LOS, vehicular delays, and queuing results presented in the TIS.
6. Review "Build" project trip generation and vehicular assignments.
7. Review "Build" LOS, vehicular delays, and queuing results presented in the TIS.

8. Review proposed mitigation measures to ensure all project related impacts have been identified and satisfactorily mitigated.
9. Review the most recent three years of crash data to determine if there are any high accident locations that require ameliorative measures to improve safety conditions within the study area.
10. Review on-site vehicular (auto and truck) and pedestrian circulation.
11. Review the site plan to ensure ADA and parking requirements are satisfied.
12. Review project site driveway conditions to ensure sight distance requirements are satisfied.
13. Utilizing the Synchro files as provided by the Applicant, run SIMTRAFFIC to ensure the proposed roundabout works and there are no significant queuing problems with the adjacent intersections (including the I-84 ramp intersections).
14. Review the proposed roundabout plans to ensure that from a traffic perspective, the design satisfies traffic engineering standards.
15. As necessary, set up meetings with the Town, NYSDOT, and the Applicant to review the key components of the TIS and proposed improvement measures.
16. Review the TIS and where possible look to incorporate innovative (e.g., adaptive traffic signal technology) and traffic calming measure (e.g., roundabout solutions).

ATTACHMENT B

In evaluating the overall performance of TWSC intersections it is important to consider measures of effectiveness in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single measure of effectiveness for the worst movement only, such as delay for the minor-street left turn, users may make less effective traffic control decisions.

DETERMINING INTERSECTION CONTROL TYPE

Determination of an appropriate control for an intersection, either signal control or a form of stop control, can be accomplished by integrating information from several sources. Traffic signal warrants, LOS analyses, accident data, and public complaints form the basis for a decision to signalize an intersection or to use stop control. Three documents, among others, are available to assist the traffic engineer in this assessment: the MUTCD, the ITE *Traffic Engineering Handbook* (TEH) (12), and the HCM.

The MUTCD provides a set of warrants for determining the appropriate conditions for signalization, two-way stop control, and all-way stop control. The following 11 signal warrants are provided in the MUTCD: minimum vehicular volume, interruption of continuous traffic, minimum pedestrian volume, school crossings, progressive movement, accident experience, systems, combination of warrants, 4-h volumes, peak-hour delay, and peak-hour volume. Although only one of these warrants must be met before a signal is recommended, traffic engineers should ideally consider all these aspects in making a decision concerning an intersection control type. This set of warrants represents guidance based on collective professional consensus accumulated over many decades. Practicing traffic engineers can refer to these warrants whenever issues concerning decisions on intersection control types arise.

The TEH points out that traffic signals do not always increase safety and reduce delay. Therefore, it may also be appropriate to consider all-way stop control. The TEH cites the following warrants for all-way stop control (from the MUTCD):

1. As an interim measure that can be installed quickly while arrangements are being made for a warranted traffic signal;
2. When an accident problem, as indicated by five or more reported accidents in a 12-month period, is of a type that can be corrected using a multiway stop and less restrictive controls have not been successful; and
3. For the following minimum traffic volumes: (a) the total vehicle volume entering the intersection from all approaches averages at least 500 veh/h for any 8 h of an average day, and (b) the combined vehicular and pedestrian volume from minor streets averages at least 200 units/h for the same 8 h with an average delay to minor-street traffic of at least 30 s/veh during the maximum hour [but when the 85th-percentile approach speed of the major-street traffic exceeds 40 mi/h, minimum volume warrants are 70 percent of the requirement in (a)].

Concerning traffic signal warrants, the TEH states:

Traffic signals that are appropriately justified, properly designed, and effectively operated can be expected to achieve one or more of the following:

1. To effect orderly traffic movement through an appropriate assignment of right-of-way,
2. To provide for the progressive flow of a platoon of traffic along a given route,
3. To interrupt heavy traffic at intervals to allow pedestrians and cross-street traffic to cross or to enter the main-street flow,
4. To increase the traffic handling ability of an intersection, or
5. To reduce the frequency of occurrence of certain types of accidents.

The analyses available in the HCM may be valuable inputs to the determination of control types. Several sources should be synthesized in arriving at a decision.

The HCM references the TEH to define an accident as 5+ in a 12-MO. period

ATTACHMENT C



Department of
Transportation

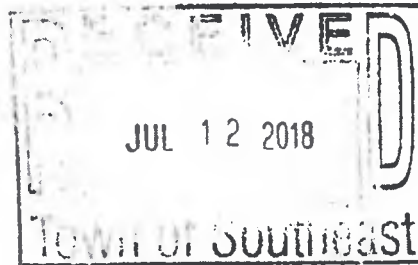
ANDREW M. CUOMO
Governor

PAUL A. KARAS
Acting Commissioner

LANCE MacMILLAN, P.E.
Acting Regional Director

July 3, 2018

Southeast Planning Board
67 Main Street
Brewster, NY 10509



Re: NYS DOT SEQR # 17-234
Northeast Interstate Logistics Center
Route 312 & Pugsley Road
Town of Southeast, Putnam County

Dear Planning Board.

New York State Department of Transportation (NYS DOT) has reviewed the subject project documents on behalf of the project applicant. The submission is lacking a Drainage Report and one will be necessary to move forward with this project. There are design issues with the roundabout that will need to be addressed. Additional comments are provided in the enclosed report.

Please respond to our comments by revising and resubmitting project documents as appropriate. Please note we have attempted to make this review as comprehensive as possible. However, any additional submission may require further review and additional comments.

Thank you for giving us the opportunity to review this project. If you have any questions or concerns, please feel free to contact me.

Very truly yours,

Frank J. Schumaci, IE
Region 8 Permits Unit

Enclosure

Initial Proposal Review dated May 11, 2018

Northeast Interstate Logistics Center

SEQR # 17-234

Town of Southeast

Putnam County

The following comments result from the review of the project submission dated August 31, 2017.


- 1) The proposed action involves additional traffic and has minor impact on the state transportation system.
- 2) It is anticipated that a Highway Work Permit will be required as part of the proposed action.
- 3) The applicant is encouraged to review the permit process and all required HWP forms on the NYSDOT website (<https://www.dot.ny.gov/index>) Please submit the PERM 33-COM as part of the submission.
- 4) Please submit subsequent plans and documents for this project as well as those for any future development proposals in DIGITAL (.pdf) FORMAT –CD, DVD or Thumb drive.
- 5) It is suggested that the applicant address all mentioned concerns and resubmit the proposal for our review and comments.
- 6) Sidewalk must comply with current ADA requirements. The values shown on the table “Critical Elements for the Design, Layout and Acceptance of Pedestrian Facilities” shall be used to ensure that pedestrian facilities in the public right of way are ADA compliant. Please refer to Engineering Directive ED15-004 below. The applicant will need to provide inspection services as indicated.
 - **Engineering Directive ED15-004 - Design, Construction and Inspection of Pedestrian Facilities in the Public Right of Way**
The values shown on the table “Critical Elements for the Design, Layout and Acceptance of Pedestrian Facilities” shall be used to ensure that pedestrian facilities in the public right of way are ADA compliant. Please refer to engineering directive ED15-004. When submitting proposed permit projects for NYSDOT review, the applicant’s engineer will need to include a letter or statement within the transmittal letter that the submitted design is compliant with ED15-004 and all other applicable codes, standards, and specifications. The applicant will also need to provide inspection services as indicated. In particular, the applicant’s engineer will perform the required pre-pour concrete form inspection, completed construction inspection, and submit a signed, sealed document confirming compliance with ED15-004 and all other applicable codes, standards, and specifications. In instances where nonstandard features cannot be avoided a justification form will need to be completed under the process promulgated under the Highway Design Manual Chapter 2 (Refer to Exhibit 2-15A).
- 7) All proposed work within the NYSDOT Right-of-Way requires a Highway Work Permit (HWP). A detailed engineering review is necessary and required for issuance of a HWP. Please note that any proposed changes to the existing property plan, use, or traffic operations may necessitate an updated access configuration for the proposed project. The HWP applicant should be directed to contact the local NYSDOT-HWP Engineer to initiate a review process. Please contact:
Gregory V. Bentley Sr., P.E.
Regional Highway Work Permit Coordinator
NYS Department of Transportation

4 Burnett Boulevard
Poughkeepsie, NY 12603
(845) 473-3396

- 8) Depending upon the size of the proposed improvement or impact to the NYSDOT Right-of-Way, additional engineering details may be required. These details may include a Traffic Impact/Accident Study, SYNCHRO analysis for all affected highways/intersections, Site Plan (SP), Accident Counter-measures/Mitigation, Highway Improvement Plan (HIP), and/or other submissions as directed by the Permit Engineer
- 9) Lead Agency approval under SEQR is required in advance of permitting
- 10) Provide a sight distance matrix including design speed, posted speed, required sight distance and sight distance provided for each type of turning movement, deficiency (if any with support for variance). Labeled and dimensioned sight line triangles need to be shown on plans
- 11) The applicant is required to satisfactorily complete the Smart Growth Prescreening Tool required under the NYS Smart Growth Public Infrastructure Policy Act (SGPIPA).
- 12) Please reference our SEQR Number 17-234 on all future correspondence regarding this project.
- 13) Please send future submissions shall be electronic (PDF) with copies to the Poughkeepsie office of the following:

Gregory V. Bentley Sr., P.E.
Regional Highway Work Permit Coordinator
NYS Department of Transportation
4 Burnett Boulevard
Poughkeepsie, NY 12603
(845) 473-3396

Site Specific Permit Comments

- 1 Looks like two distinct design concept plans -- neither one having been approved, or having provided the minimum information concerning drainage impacts to the state highway, resultant from either work proposal. Please provide drainage studies. Any erosion control necessary?
2. What do the arrows that appear on both roundabout sheets,  coming in from east then again heading south represent?
3. What is the status of converting Pugsley Road into an access highway?
4. What is the status of converting Barrett Road into a private road or access highway?
5. Turning diagrams show that a WB-67 will only be able to traverse the roundabout under only the most ideal scenarios with a driver maneuvering through the roundabout flawlessly. Please include turning diagrams for the largest tandem trailer you anticipate utilizing this

development.

6. The Build volumes do not appear to correctly account for the trip generation associated with land use code 150. The build volumes should be the value derived from adding the no build volume to the primary volumes turning diagrams provided in the TIS or justify why your reducing the housing volumes from the warehouse volumes
7. Will Barrett Road southbound approaching the development tie into the proposed roundabout?
8. It's unclear what is happening with the previously approved 143 single family homes mentioned in the TIS. Is this part of the project? NYSDOT does not see anything currently existing at this location on Google Earth nor plans to build them. Why are the volumes from the residential homes being subtracted from the warehouse values as shown in row C of Table III.B-6? If the 143 single family homes are not part of the project, please remove from trip generation tables and adjust no build and build volumes accordingly.
9. Please provide sight distance diagrams for any impacted intersection resulting from this development.
10. Please provide typical sections for impacted roadway segments resulting from this development.
11. Work zone traffic control plans are missing, please provide.

Synchro:

1. At the intersection of Route 312 at Caremount Dwy, Route 312 westbound is one lane existing however Synchro models have this segment of road modeled as two lanes.
2. Signal timing input in Synchro at the intersection of Route 312 at I84 Westbound ramp does not match signal timing used in the field, please correct for existing and no build models.
3. Signal timing input in Synchro at the intersection of Route 312 at International Blvd does not match signal timing used in the field, please correct for existing and no build models.

Roundabout Design:

1. While the capacity analysis does favor the roundabout it truly wasn't a direct comparison. The signal design doesn't have 2 thru lanes for 312 in either direction while the roundabout does. The signal option can easily be revised to allow for 2 thru lanes in either direction on 312 – the lane drop lengths will need to be a little longer out the exits because of the higher operating speeds. Also, the roundabout design can not have 2 through lanes on 312 WB and 2 lefts from Pugsley Road – it creates a crossing conflict because of the leg geometry. The fix for this if the roundabout is still preferred is to only have 1 left turn lane from Pugsley – this will still work but lower the operational gap between the roundabout and signal option. Since Pugsley is only “busy” for a few times throughout the day the signal – once improved a bit – could be the overall better option. The roundabout will slow down 312 thru traffic 24/7 while the signal timing can drastically favor 312 outside of the peak hours – We just don't know if the roundabout traffic calming effect is desired or not. The imbalanced volumes could favor the signal once revised, the safety aspect could favor the roundabout

(although safety doesn't seem to be an issue here as of now) and the grade issue should favor the signal option.

Three Lane Roundabout Design submission:

We re-ran the analysis and have a few recommendations/comments for the signal and roundabout option:

- SIGNAL
 - The WB 312 lanes could be thru only in left lane and thru-right in right lane – this will help with the ROW impact in the corner
 - The signal operation with 2 thru lanes E & W works quite well

- ROUNDABOUT
 - The 3/2 lane configuration is a bit much for this site – and still provides poor LOS for SB in 2023 PM
 - The roundabout greatly improves by utilizing a metering signal to stop WB for 10 to 15 seconds every minute to allow SB to move
 - If the metered roundabout is considered worthy of further investigation it is possible for SB lefts to be in just 1 lane which will address the lane conflict issue and not need 3 lanes

Overall – there is still an issue with the amount of traffic leaving this intersection EB heading for the signal at Independent Way. The 2023 PM volumes have around 1650 heading EB on 1 lane after the lane drop just east of the intersection in question. 1650 is too high for the 1 lane to carry – the result will be cars backing into the intersection – whether it is a roundabout or a signal. 2 lanes EB from this intersection to the signal at Independent Way should be considered.

End of Report