July 1, 2019

East Whiteland Township Board of Supervisors
East Whiteland Township Planning Commission.
Municipal Building
209 Conestoga Road
Frazer, PA 19355

Re: Focus: Traffic
Additional Comment & Expert Review Regarding Development Proposal for Bishop Tube site by Constitution Drive Partners

Dear East Whiteland Township Supervisors and Planning Commission members,

The Delaware Riverkeeper Network would like to submit an additional set of comments to inform your review of the proposed Bishop Tube development proposal. This review was conducted by experts in transportation.

With regards,

Maya K. van Rossum
the Delaware Riverkeeper

Attachment:
Review by Mark L. Stout Consulting, July 24, 2019

Cc:
Cosmo Servidio Regional Administrator, EPA Region III
Patrick Patterson, Regional Director, PADEP Southeast Regional Office
Brian O'Leary, Executive Director, Chester County Planning Commission
Senator Andy Dinniman
Senator Daylin Leach
Representative Kristine Howard
Congresswoman Chrissy Houlahan

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To: Maya van Rossum, the Delaware Riverkeeper
From: Mark L. Stout
Project: Bishop Tube development
Subject: Traffic and accessibility analysis, preliminary report
Date: 24 June 2019

At your request, I have reviewed the traffic and accessibility issues associated with the proposed Bishop Tube development in East Whiteland Township, Pennsylvania, and offer you my preliminary findings.

I have been joined in this analysis by Patricia Ott, managing member of MBO Engineering, a respected and experienced traffic and safety engineer. For your convenience, I summarize our professional qualifications at the end of this memorandum.

The principal documents we reviewed for this analysis are:

- Malin Road Development, Revised Preliminary Land Development Plan, Taylor Wiseman & Taylor, October 2018 ("the Plan") and
- Letter from ARRO Consulting, Inc. to East Whiteland Township, dated 14 January 2019, recommending revisions to the Revised Preliminary Land Development Plan ("ARRO letter").

For the purposes of this report we have assumed that the revisions proposed in the ARRO letter are included in the project.

We also reviewed the Traffic Impact Analysis by F. Tavani and Associates, Inc., dated 25 August 2015, but as we understand that a revised traffic impact analysis will be submitted (as recommended by Comment #9 in the ARRO letter) we are not commenting on the 2015 document.

We conducted a field visit to the area on 11 March 2019. The weather was mild and clear at the time, although there was considerable runoff from snowmelt from a snowstorm earlier in the week. All photographic images in this memorandum were taken during that visit.

Internal circulation

Our comments on the internal circulation plan are based solely on the documents reviewed.

We note the following characteristics of the circulation plan for the neighborhood:

- Sidewalks – The Revised Preliminary Land Development Plan specifies a sidewalk only on one side of the street throughout the neighborhood (Sheet 6). No justification is offered. Lack of full sidewalk coverage is an impediment to good pedestrian circulation.
- Parking – The Plan allocates 2 parking spaces per home (presumably parking on the driveway rather than a garage, but we do not have housing plans). There are also 15 public parking spaces spread across the neighborhood at 3 locations. None of these, however, is located near Road C. Anyone wishing to use a public parking space for a destination on Road C would have to park near Road A or Road B and walk. No parking is to be permitted in the streets (Sheet 4, General Note 9). We believe it is unreasonable to expect that a "no street parking" ban will be enforced or enforceable.
- Recreation areas – The Plan does not reserve any space for "open space, parks, playgrounds and play fields" as called for by the Township Code at §175-40 but instead intends to make an "in lieu" payment (Sheet 4, General Note 21). In addition to being an obvious flaw in the design of an isolated neighborhood with a likely high population of children, we note that from a transportation point of view this means that the streets would serve as playgrounds as well as trafficways.
- Bicycle facilities – There is no apparent Township requirement to provide bike trails or other bicycle facilities and nothing in the Plan to suggest that they would be provided. We note that there would likely be a large population of youth bicyclists in the neighborhood.
- Permeable surfaces – Although not strictly a transportation issue, we should point out that we saw no reference to the potential use of permeable surfaces for driveways or sidewalks, which could pose challenges to the overall drainage situation in the neighborhood.

The combination of these factors suggest crowded street conditions in the neighborhood, with many potential conflicts among street users.

We also note that the ARRO letter (Comment #55) recommends installation of a "STOP" sign at Road A with Road C. We would like clarification on the need for this traffic control device as traffic traveling east on Road A has an "All Traffic Must Turn Right" (R3-7-1R) sign. Therefore the STOP is unnecessary. Additionally, with the installation of the R3-7-1R sign on Road A, the traffic in Units 14-17 would technically be violating the law by not keeping right, unless they used Road B or C, a much longer route to get to their homes.

Malin Road

The pavement on Malin Road between the overpass and Lancaster Avenue appears to be in overall good condition, although there is no sidewalk and only some curbing.

The pavement on Malin Road south of the overpass appears to be in overall fair to poor condition. There is evidence of alligator cracking (figure 1), delamination (figure 2), and failure at the edge of the pavement (figure 3). There is some curbing, but no sidewalk.

There is some underground drainage on Malin Road, as evidenced by two drainage inlets at the low point near the overpass (figures 4 and 5) and one inlet uphill on the south side. However on a field visit during a spring day with runoff from snowmelt we observed sheet flow from the elevated portions of the road on the south side (figure 6) and ponding at several points (figure 7).

The Plan appears to indicate (and the ARRO letter implies) that the developer would improve Malin Road, to include widening, paving, drainage improvements, curbing, sidewalks, signing, and lighting. ARRO Comment #18 states that Malin Road must be upgraded to meet the width requirements of §175-31 of the Township Code. However, it is not clear what "street type" ARRO is assuming. This is important, as width requirements vary by street type in the Code. Malin Road is now classified as a Local Road on the official Functional Classification Map. This classification appears to be inappropriate for planning purposes, as Malin Road would be the sole access roadway for the proposed neighborhood. Old Lancaster Road and North Warren Avenue, which provide similar access to the General Warren neighborhood, are classified as "Minor Collectors." The Code requires a minimum right-of-way of 60' (36' paved cartway, two 12' shoulders) for a collector road. The Plan (Sheet 4) appears to provide for only a 40' right-of-way.

The ARRO letter makes no reference to the requirement that the developer meet township construction standards (§175-34) or other relevant standards. In this regard, we are concerned that a mere resurfacing of Malin Road could well lead to early pavement failure.

The full length of Malin Road, from the south end of the Bishop Tube property to the intersection with Lancaster Avenue, is substandard. There is no sidewalk on the western side of the roadway north of the railroad overpass (proposed new sidewalk shown on Sheet 4) to provide a safe pedestrian route. It should be noted that construction of that portion of sidewalk, while improving pedestrian safety, would reduce the cartway width and exacerbate vehicle conflict possibilities.

Our preliminary comments could be revised following an independent engineering study done to determine an appropriate reconstruction plan for Malin Road.

In addition, we note that the south side of the overpass offers an easy route for anyone wishing to climb from the roadway to the railroad tracks (figure 8). Given the potential for youth of varying ages living in the proposed development, this should be considered an "attractive nuisance" for public safety purposes.

Railroad overpass structural issues

All vehicular traffic in and out of the proposed Bishop Tube housing development would be funneled through the railroad overpass over Malin Road to the intersection of Malin Road and Lancaster Avenue. Both the structural condition and the geometric limitations of that structure are therefore of critical importance in reviewing the accessibility of the proposed development.

The overpass carries a Norfolk Southern freight rail line on an east-west alignment parallel to U.S. Route 30. According to the date inscribed on the bridge, it was constructed in 1915.

A visual examination in March 2019 revealed some apparent structural issues.

The bottom edge of the bridge's superstructure exhibits some damage on the northern elevation (figure 9). This damage is possibly due to impact, although some spalling also appears higher up on the superstructure (also shown on figure 9). Although the developer's engineering drawings show a clearance of 13' 6", a "low bridge 12' 10" sign is mounted on the bridge. Even if 13' 6" is an accurate measurement, there is still a risk of occasional damage from overheight vehicles, which could be exacerbated if the roadway under the bridge were to be resurfaced without careful attention to its profile.

The under side of the bridge deck shows signs of concrete spalling and efflorescence (see figures 10 and 11), suggesting that there could be structural deficiency issues.

For purposes of this report we have not contacted the railroad to review their most recent bridge inspection report to ensure that the bridge is structurally sound or to ascertain whether they have in place a repair plan to alleviate the risk of falling concrete debris.

We have also not investigated whether this is an historic bridge in need of special treatment to preserve both its structural and historic integrity.

Railroad overpass geometric issues

As noted above, the railroad overpass over Malin Road forms the sole entrance and exit to the proposed Bishop Tube development. The design of this structure and the roadway beneath it present several problems for accessibility to the development.

First, the width of the roadway under the overpass is already substandard (approximately 23' 2 ¼"), where a 36' cartway is the minimum width requirement for a collector road under §175-31 of the Township Code. The cartway width (the portion of the roadway available for use by motor vehicles) would be reduced under the developer's plan to 19' 3" in order to accommodate a pedestrian walkway protected by a Jersey barrier (Plan Sheet 24). Although a 19' 3" cartway can accommodate two passenger vehicles reasonably comfortably, it could cause potential conflict when the tanker trucks that routinely use Malin Road approach the underpass (see figures 12, 13, and 14 for typical tanker truck traffic). The chance of conflict may be increased by the fact that tanker truck drivers who have been accustomed to using Malin Road as an industrial road may not easily adjust to operating in slower, mixed traffic. In practice, passenger vehicles will likely stop, or even reverse, when faced with an oncoming tanker truck. At peak hours this could lead to queuing of vehicles on either the north or south side of the underpass. Chronic queuing at this location could increase pressure for opening the Emergency Access Road to general traffic.

Second, the Plan appropriately calls for a pedestrian walkway protected by a Jersey barrier and railing under the overpass (Sheet 24). In order to keep the existing concrete curb (figure 15) in place (presumably for structural reasons), without reducing the cartway width even further, the design in the Plan would build the walkway over the curb, at a height approximately 32" above the surface of the road (figure 16). This raises design issues for accessible ramps between grade level and the level of the walkway and for a safe railing system in the underpass.

Third, we are also concerned about bicycle traffic. Given the proposal for a residential, family-oriented community, it is highly likely that there would be youth cyclists throughout the neighborhood, including at this location. Youth cyclists, in particular, may not have adequate situational awareness to be prepared for oncoming tanker trucks operating at or above the posted speed limit.

There does not appear to be a comprehensive program of safety signing, striping, and lighting in place to reduce the chance of crashes on Malin Road.

Emergency Access Road

The Revised Preliminary Land Development Plan shows construction of an Emergency Access Road connecting Road A in the proposed Bishop Tube development to Village Way in the General Warren neighborhood. The only existing access to the proposed Bishop Tube neighborhood is from Lancaster Road via Malin

Road, which has led to the proposal for an additional, alternative access for emergency vehicles.

We offer the following comments on the proposed Emergency Access Road:

1. The 14 January ARRO review letter recommends that the EAR be "designed and constructed as a permanent connection" (Comment #15) and that the preliminary design for the connection be shown on the plans. Until those preliminary design plans are available, our comments must be somewhat limited.
2. The EAR could well become the preferred route into the neighborhood for emergency vehicles coming from the Malvern Fire Company on East King Street, which would traverse the residential streets of the General Warren neighborhood to get there. In the event of an incident on the Malin Road side of the neighborhood – which must be planned for given the large number of vehicles carrying flammable liquids traveling on Malin Road – the EAR and the streets of the General Warren neighborhood would provide the sole emergency access.
3. The proposed EAR was observed to be in a wetland area with a stream running through the area as well as runoff from the roadway (Village Way) funneling into the stream (figures 17, 18, and 19). A wetland delineation line is shown on Plan Sheet 5. Stream encroachment and wetland impacts would be serious issues for any construction in this area.
4. It is not clear that the proposed barrier system would be sufficient to prevent ordinary traffic from using the connection while allowing emergency vehicles to do so. The proposed swing gates shown at both ends of the EAR (Plan Sheet 21) – assuming they are approved by the local emergency services agencies – would not fully prevent access by nonemergency users, including bicycles and pedestrians, wishing to travel between the Bishop Tube and General Warren neighborhoods.
5. If the EAR is constructed to "permanent" design standards, and if traffic by foot and bicycle becomes common, there could well be at some time a strong sentiment among residents of the new neighborhood for opening the EAR to normal, everyday vehicular traffic – especially if the Malin Road underpass proved to be a significant bottleneck. This in turn would lead to appreciably more traffic, higher speeds, and more potential conflict between automobiles and pedestrians and cyclists in the General Warren neighborhood.

<u>Team qualifications</u>

As mentioned earlier, I am providing for your convenience a summary of our team's professional qualifications.

Mark Stout is an independent transportation consultant and is a nationally recognized expert in land use and transportation, climate change and transportation, transportation finance, capital programming, and transportation policy and legislation. His clients include state transportation departments, national

and state nonprofit and advocacy groups, and metropolitan planning organizations. Dr. Stout previously served more than 25 years with the New Jersey Department of Transportation. As Assistant Commissioner for Planning and Development he was responsible for the divisions of planning, capital programming, project development, local aid, aeronautics, freight services, and environmental resources. His work in Pennsylvania has included assisting the program of the Delaware Riverkeeper Network to preserve historic one-lane bridges in Upper Bucks County, helping the Lancaster County metropolitan planning organization establish a Smart Growth funding program, and providing strategic advice to 10,000 Friends of Pennsylvania. He has also served as a legislative assistant in the U.S. Congress. Dr. Stout holds a BA in political science from Washington University in St. Louis and a PhD in political science from the London School of Economics. His website (and Smart Transportation blog) can be found at www.mlstoutconsulting.com.

As the Managing Member of MBO Engineering, Patricia Ott brings over 30 years of experience in traffic and safety engineering from the public sector dealing with federal, state, county and local agencies and organizations providing leadership and management to challenging traffic and safety issues. Her current work includes supporting the New Jersey Department of Transportation Highway Safety Improvement Program; intersection improvements throughout New Jersey; and research on the Towards Zero Deaths National Strategy. As the Director of Traffic Engineering and Safety at NJDOT, Ms. Ott was responsible for the management and oversight of the work programs of the Bureaus of Traffic Engineering and Investigations, Traffic Signal and Safety Engineering, Transportation Data Development, and Safety Programs. She has developed and managed the New Jersey Strategic Highway Safety Plan; developed and implemented numerous safety programs; managed federal safety funding; facilitated safety task forces; and brought many traditional and non-traditional safety professionals together to reduce crashes and save lives on New Jersey's roadways.

Images

Figure 1, Malin Road, alligator cracking

Figure 2, Malin Road, pavement delamination

Figure 3, Malin Road, pavement failure

Figure 4, Malin Road, drainage inlet

Figure 5, Malin Road, drainage inlet

Figure 6, Malin Road, sheet flow

Figure 7, Malin Road, ponding

Figure 8, potential climbing routes from Malin Road to the railroad tracks

Figure 9, apparent impact damage and concrete spalling on the northern elevation of the railroad overpass

Figure 10, under side of railroad overpass, concrete spalling and efflorescence

Figure 11, under side of railroad overpass, concrete spalling and efflorescence

Figure 12, tanker truck at the railroad overpass

Figure 13, tanker truck at the railroad overpass

Figure 14, tanker truck at the railroad overpass

Figure 15, concrete curb in overpass

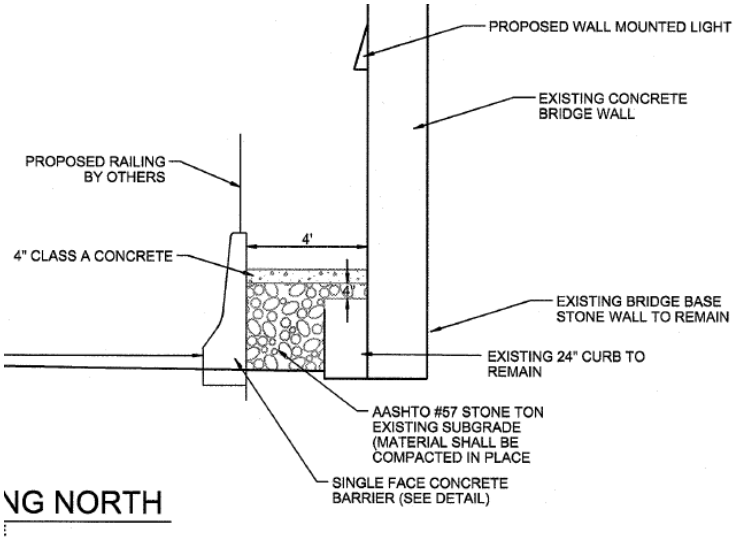

Figure 16, underpass walkway design, excerpt from Sheet 24, Revised Preliminary Land Development Plan

Figure 17, looking from Village Way to route of proposed Emergency Access Road

Figure 18, route of proposed Emergency Access Road – note marshy terrain

Figure 19, runoff from Village Way draining toward Bishop Tube property