



**pennsylvania**  
DEPARTMENT OF TRANSPORTATION

**Date:** 09/22/2016  
**Subject:** Highway Occupancy Permit Application No. 112807 Returned For Revisions  
**To:** Wal-Mart Real Estate Business Trust  
2001 SE 10th Street  
Bentonville, AR 72716  
**From:** PennDOT Engineering District 5-0  
1002 Hamilton Street  
Allentown, PA 18101

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Melissa Maupin, District Permit Manager, at (610)871-4167.

## **Response Comments**

**Date:** 09/22/2016

**Application Number:** 112807

## **Form Letter Notes**

(1) \* Upon resubmission, the applicant's engineer should put together a letter that repeats each Department comment, describes how each comment has been addressed, and where each can be found in the plan set.

\* Additional comments may follow upon review of the resubmitted application.

\* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review.

## **General**

- (1) Be sure to include a discussion of any changes to the TIS that are not identified in the responses to comments at the beginning of the response letter.
- (2) As a reminder, an Access Covenant will be required to limit SR 0145 access to proposed Road. No additional site access to SR 0145 will be permitted. The Department requires an Exhibit A be attached to the Access Covenant. This is a plot plan, drawn from the HOP plans and/or ROW plans depicting the property frontage to be affected by the access covenant. Typically, the frontage to be affected is depicted with a line described as Limit of Covenant on the plot-plan diagram. A sample has been provided for you in the Attachments section.
- (3) As previously requested, revise the concept plan to show back-to-back left turn lanes between Birch and the proposed signalized intersection to maximize the storage lengths and eliminate the need for gore striping. It is noted that the concept plan was revised to provide less gore area, however, revise the plan to eliminate the gore area. Also revise the Overall Site Plan to match.
- (4) Please continue to provide Township review comments and/or approvals with your resubmission. In particular, the Department would like Township's position on the roundabout alternative as well as feedback on the potential realignment of Birch Drive through the site to align opposite Washington and also serve at the site access (in lieu of the proposed new access).

## **Application**

- (1) As a reminder, please provide proof of ownership in the form of a deed or agreement of sale to verify that the Highway Occupancy Permit application for the proposed driveway is in the name of

the current property owner.

### **Transportation Impact Study/Transportation Impact Assessment**

- (1) The roundabout versus signal evaluation in the TIS should include a concept plan of the roundabout that dimensions and labels all aspects of the roundabout. Provide an explanation on the advantages and disadvantages for the roundabout and signalization for the particular location, and include the municipality's comments and preference. The arguments in the TIS against the roundabout alternative are not acceptable: fuel trucks can be accommodated by roundabouts, and site marketability and assumed customer preference are not valid arguments against the roundabout option.
- (2) The Department will require the 450-foot eastbound left turn lane along SR 0145 at the proposed access per Publication 46 lane length requirements. A two-way center left turn lane pattern should be provided for the access at the end of the left turn lane.
- (3) Synchro has fields for adjusted critical and follow up headways, not base critical and follow up headways. This means that to use the Publication 46 default headways properly, these values must be adjusted prior to being entered into Synchro. Base Synchro does not adjust base headways. Therefore, the base critical headways must be adjusted for heavy vehicles and grade, and the base follow-up headways must be adjusted for heavy vehicles. Refer to HCM2010, Equations 19-30 and 19-31. Provide calculations for the headway values used in the analyses.
- (4) Revise the control type at the intersection of Best Ave. (SR 0145) & Maple St./K-Mart Access to be Semi-Actuated / Uncoordinated in lieu of Pretimed per the permit plan.
- (5) Revise the memory for the main street at all signalized intersections to be minimum recall during all scenario analyses.
- (6) Add a column to all Table 2 95th Percentile Queue Matrices summary tables to show the required length per Publication 46 calculations for quick comparison purposes. If lanes weren't required per Publication 46, note this as such. These results should be readily available in the tables and/or narrative.
- (7) Upon approval of the TIS, provide a revised signal permit plan for any intersection where retiming is proposed. Timing should reflect the opening year condition.
- (8) Provide additional discussion and supporting information on how the site generated traffic was distributed in the narrative. The TIS states that the distribution was based on existing traffic patterns and location of the major roadways and site access. However, it appears that existing traffic volumes for all three peak hours analyzed indicate a more even distribution of traffic from all major roadways.

- (9) Provide more detail regarding the proposed development sizes and phasing in the Executive Summary and Introduction.
- (10) Distribute traffic volumes from the other development along SR 248 at the intersection with Maple Drive.
- (11) All Township comments on the TIS must be addressed to the satisfaction of the Township.
- (12) Revise the improvement listed for the northbound left turn lane at the intersection of Best Ave. (SR 0145) & Main Street (SR 4022) to reflect that it is being lengthened from 150 to 325 rather than being newly constructed.
- (13) Level of service (LOS) drops occur as a result of the proposed development. The applicant is responsible for mitigating the following traffic impacts attributable to the proposed development to no-build levels of service.

Main Street (SR 4022) & Washington Street 2024 NBL/R PM (C 19.3 to E 40.1)

Main Street (SR 4022) & Washington Street 2029 NBL/R PM (C 22.3 to F 54.2)

Best Ave. (SR 0145) & Main St. (SR 4022) 2024 NBL PM (B 16.9 to C 32.0)

Best Ave. (SR 0145) & Main St. (SR 4022) 2029 NBL PM (B 19.5 to D 42.8)

Best Ave. (SR 0145) & Main St. (SR 4022) 2029 NBL SAT (B 15.2 to C 27.1)

All alternatives must be explored (i.e. signalization, turning lanes, etc.) to mitigate these LOS drops. If the required improvements are determined to be impractical or infeasible, following are three opportunities for the applicant to pursue:

Condition 1, Marginal LOS Degradation Local Land Use and Transportation Plan, is applicable when the overall intersection LOS within range of LOS B to LOS C for rural areas, and LOS B to LOS D for urban areas.

Condition 2, Significant LOS Degradation Alternative Transportation Plan, is applicable when the overall intersection LOS below LOS C for rural areas and below LOS D for urban areas.

Condition 3, Design Waiver LOS: Given the many mitigation alternatives available to applicants, the Department will grant a very small percentage of these waivers.

Refer to Step 11 of the Departments Policies and Procedures for Transportation Impact Studies, dated January 28, 2009, for the requirements for each of these conditions.

- (14) Provide required Intersection Sight Distance (ISD) for combination trucks at the intersection of Riverview Drive (SR 0145) & Birch Drive in addition to the passenger vehicle calculations. Ensure available sight distances were obtained at a distance of 15 feet from the edge of the traveled way for Intersection Sight Distance calculations.
- (15) Utilize 2019 opening year volumes for the conflict factor calculations. Also, remove right turn volumes from the conflict factor calculations where the right turn movement is channelized and

revise the number of opposing lanes to 1.

- (16) Ensure all signal warrant analyses in the Signal Warrant Study and Appendix R use the correct number of lanes for moving traffic on the major and minor street approaches. Specifically, revise the number of lanes for the major and minor street approaches at the intersection of Riverview Drive (SR 0145) & Birch Drive to 1 lane in lieu of 2 lanes.
- (17) Clearly indicate the analysis year (opening year) in the Traffic Signal Warrant Analysis Workbook summary sheets for all signal warrant analyses in the Signal Warrant Study and Appendix R.
- (18) Appendix R indicates that Warrant 3 (Peak Hour) is applicable at the intersections of Riverview Drive (SR 0145) & Birch Drive and Main Street (SR 4022) & Washington Street. Warrant 3 (Peak Hour Volume Warrant) is not applicable or satisfied since the proposed development is not an unusual case such as an office complex, manufacturing facility or industrial complex which attract or discharge a large amount of vehicles over a short period of time. Revise the signal warrant analyses in Appendix R to include appropriate warrants such as the 8 and 4-hour warrants.
- (19) Include the full signal warrant investigation for the proposed signal in Appendix R rather than as a separate report, and include a discussion on the results in the narrative of the TIS. (This will also need to be included in the formal Signal Design Report if and when completed.)

The signal warrant report indicates that Warrant 3 (Peak Hour) and Warrant PA-1 (ADT Volume Warrant) are applicable and satisfied at the intersection of Riverview Drive (SR 0145) & Washington Drive / Site Access 1. Warrant 3 (Peak Hour Volume Warrant) is not applicable or satisfied since the proposed development is not an unusual case such as an office complex, manufacturing facility or industrial complex which attract or discharge a large amount of vehicles over a short period of time. Revise the report accordingly.

- (20) It is acceptable, for this isolated case, that Synchro 8 Percentile results were tabulated at the intersections with separate channelized right-turn lanes (proposed signalized intersection of Riverview Drive (SR 0145) & Washington Drive / Site Access 1 and existing signalized intersection of Best Avenue (SR 0145) & Maple Street / K-Mart Access) due to the results (no delay) at the right turn movements. Include the reasoning for this in the Capacity/Level-of-Service Analysis section of the report.
- (21) Include the homogeneous reports for the segments of all State Roads included in the crash analysis and provide a summary of the segment crash rates compared to the homogeneous rates for all segments studied. Also, include a copy of the PennDOT cover letter or email for the crash reports in the Crash Summary Report.
- (22) The crash analysis of the intersections studied includes calculation of the intersections crash rate

per million entering vehicles. The homogeneous report gives crash rates in crashes per million vehicle miles, including the page labeled intersection. Million entering vehicles (MEV) and million vehicle miles (MVM) are not comparable crash rates. Please remove comparisons of crash rates with different units. Instead, provide a crash diagram for any intersection with 5 or more crashes over the 5 year period. Include discussion of any patterns and any measures that could be taken to correct safety issues.

- (23) On the cover of the Crash Summary Report, include the following statement exactly: Confidential Traffic Engineering and Safety Study: This document is the property of the Commonwealth of Pennsylvania Department of Transportation. The data and information contained herein are part of a traffic engineering and safety study. This safety study is only provided to those official agencies or persons who have responsibility in the highway transportation system and may only be used by such agencies or persons for traffic safety-related planning or research. This document and information are confidential pursuant to 75 PA C.S. §3754 and 23 U.S.C. §409 and may not be published, reproduced, released or discussed without the written permission of the Pennsylvania Department of Transportation. Refer to Publication 46, page 11.1-11, for guidance.
- (24) Ensure all turn lane analyses use the correct number of approach lanes in the analyses. For example, turn lane warrants at all intersections in this study should be analyzed on two-lane roadways, not four-lane roadways.
- (25) Although the westbound left turn lane on SR 248 at the intersection with Maple Drive is warranted during PM and SAT peak hour existing conditions, the proposed development adds traffic to the intersection during Phase 1 and satisfies warrants during the AM peak hour. Therefore, the westbound left turn lane on SR 248 should be constructed by the applicant.
- (26) Provide a legible copy of the site plan in the TIS.