



**WELLS + ASSOCIATES**

## MEMORANDUM

**TO:** Packie E. Crown  
Bowman Consulting Group

**FROM:** Michael J. Workosky, PTP, TOPS  
Michael J. Buelow, E.I.T.  
Wells + Associates, Inc

**DATE:** October 26, 2009

**SUBJECT:** Catholic Diocese of Arlington Loudoun Property (Corpus Christi Parish)  
Response to OTS and VDOT Comments;  
Loudoun County, Virginia

### Introduction

This memorandum summarizes the responses to the Loudoun County Office of Transportation Services (OTS) and Virginia Department of Transportation (VDOT) comments related to the Catholic Diocese of Arlington (CDA) Loudoun Property (Corpus Christi Parish). The property is located on the east side of Goshen Road (VA Route 616) and south of John Mosby Highway (U.S. Route 50) in the Dulles South region of Loudoun County, Virginia.

The comments provided by OTS and VDOT are related to the Catholic Diocese of Arlington Loudoun Property Traffic Impact Analysis, dated February 24, 2009 and are summarized below:

### **OTS Comments and Responses (July 6, 2009):**

#### Transportation Comments

- I. Regarding the February 24, 2009 traffic study:
  - a. Weekday daily (ADT) trip generation figures should be provided for the church and school uses.

#### ***Response a: The ADT's are provided in the updated traffic study.***

- b. Further explanation/clarification is necessary regarding the rationale for excluding existing Sunday daily (ADT) volumes from the report. The study (pg. 19) states that calculating these volumes would be "difficult".

***Response b: The accepted method for calculating the Average Daily Traffic (ADT) for weekday conditions applies a 10 percent "k" factor to the two-way, PM peak hour volume. Since existing ADT information for Sundays is not available, it is unknown if 10 percent would be the***

**appropriate k factor for the Sunday ADT calculation. Therefore, these volumes were excluded in the updated traffic report. Further explanation is provided in the updated traffic study.**

- c. Further explanation/clarification is necessary regarding the methodology used to factor/convert the weekday PM peak hour for school trips to weekday PM peak hour for commuter trips. The traffic impact of the school during the PM peak hour should be indicated.

**Response c: The ITE Trip Generation Manual does not provide rates for trips generated by a K-8 school during the weekday PM commuter peak hour. Therefore, Wells + Associates derived a rate by comparing similar uses and data collected by W+A, and is indicated in the traffic study for PM peak hour conditions. Further clarification and derivation of this rate is included as an appendix in the updated traffic study.**

- d. The study (pg. 13) indicates that a traffic signal warrant study is currently under VDOT review for a new signal at the intersection of Route 50 and the future Westport Boulevard. OTS is not in receipt of this study and it should be provided for review under separate cover. It is noted that the signal warrant analysis included in the traffic study (Appendix V, provided as Attachment 24) is a summary table based on Figure 2-10 of the Manual of Traffic Control Devices (MUTCD) warrant study that is required by VDOT for installation of traffic signal on existing roads.

**Response d: Since submission and review of the traffic signal warrant study referenced above could not be verified, this reference has been deleted from the traffic report.**

- e. The traffic study assumes that all off-site road improvements between the site and Route 50 will be constructed “by others” as part of the adjacent Westport and Marrwood subdivisions. OTS staff notes that both of these developments have only received preliminary subdivision approvals and therefore it is not assured that these sites will be developed as assumed.

**Response e: The phase one improvements assumed the extension of Marrwood Drive to Goshen Ridge Drive to serve the property. The updated traffic study continues to assume that Phase 2 of the project will move forward only after the planned roadway improvements by Westport and others made.**

- f. Further explanation/clarification is necessary regarding the methodology used to determine the distribution of site-generated trips, particularly with respect to the differences assumed between Sunday and weekday trips.

**Response f: Trip distributions for the church were determined in conjunction with the CDA based on the anticipated parish boundaries. The current boundaries are as follows:**

**Including the Southwestern portion of Loudoun County beginning at New Rd. (Route 600) and Bull Run, then follow along Loudoun County Line Southeast toward the Fairfax County line. Then north along Fairfax County Line, West along John S. Mosby Highway (U.S. Route 50), Southwest on Lenah Road (Route 600), West on New Road (Route 600), returning to the Loudoun County Line and Bull Run junction.**

**Subsequent to a review of these boundaries, W+A used engineering judgment and knowledge of the area to determine the distributions of church based site generated traffic. The weekday distributions reflect those presented in the approved Arcola (Boyd) School traffic report since they are needed to analyze the AM and PM peak hours.**

- g. The traffic study references the future extension of Marrwood Place as connecting with the Stone Ridge development. This is true only as far east as Route 659 Relocated (Northstar Boulevard) as the pending Stone Ridge rezoning application (ZMAP 2006-0011) proposes to relocate the roadway on the east side of Northstar Boulevard (Millstream Drive) to turn south and connect with Tall Cedars Parkway (in order to avoid a major floodplain crossing). The traffic study (and the vicinity map on the cover sheet of the plan set) should be revised to reflect this scenario.

**Response g: Acknowledged. The previously prepared and updated traffic study does not assume the future extension of Marrwood Drive to Northstar Boulevard. The text of the report has been modified to reflect and clarify this comment. Plan set revisions will be addressed by the applicant.**

2. OTS recommends that the traffic signal and associated turn lanes at the intersection of Route 50 and Westport Boulevard (Intersection 1) are installed and operational prior to occupancy of the church (the Applicant should be responsible for the traffic signal warrant study referenced in Comment #1d above should the study not be previously completed by others). Such intersection improvements would serve to benefit the safe and orderly operation of the road network, including traffic generated by the church use, and would be more consistent with driver expectations on a four-lane divided roadway such as Route 50 than would the presence of traffic control personnel. Signalization and related road improvements would also allow for consistent traffic control during all church events, including services at times other than on Sundays, which may generate comparable traffic volumes as Sunday services.”

**Response 2: The applicant proposes to reduce the phase one (2012) development size of the church from 1,200 seats to 335 seats. This reduction dramatically reduces the impact to the U.S. Route 50/Goshen Road/Fleetwood Drive intersection, and can be adequately accommodated by the existing road network. The future Phase 2 development provides for the expansion of the church to 1,200 seats including a parish center and the construction of a 200-student school and convent/rectory by 2015. The buildout of the site will occur subsequent to improvements made by others that include the realignment of the intersection and installation of turn lanes and a new traffic signal. The construction of Phase 2 is also dependant on the financial ability of the parish (CDA) to move forward with the construction.**

3. Should it be determined that traffic control personnel be utilized at the intersection of Route 50 and existing Goshen Road (Intersection 1) on an interim basis until ultimate road improvements including a traffic signal are in place, OTS recommends that only sworn law enforcement personnel be utilized to provide such traffic control functions. If this option is pursued, discussions with the Loudoun County Sherriff's Office should be initiated to determine its position on this issue, including the extent/duration to which traffic control functions should be provided.

**Response 3: The reduction in the phase one (2012) development size of the church from 1,200 seats to 335 seats reduces the impact to the U.S. Route 50/Goshen Road/Fleetwood Drive intersection and can be adequately accommodated by the existing road network. Thus, temporary traffic control personnel are no longer suggested or required.**

4. The Applicant should coordinate with other parties in the area (i.e., the developers of the Westport and Marrwood subdivisions) to effect, to the extent possible, the construction of the ultimate planned road network (i.e., Westport Boulevard and realigned Goshen Road (Marrwood Place)) between Route 50 and the site prior to the time the church opens for use.

Regardless of the scope of implementation of these ultimate improvements, the traffic signal referenced in Comment #2 above (at Intersection 1) should be configured to accommodate the ultimate alignment of the road network (i.e., Westport Boulevard) with minimal modifications.

**Response 4: Coordination with other developers in the area is ongoing to insure appropriate configuration and phasing of road improvements. Notwithstanding as indicated above, the applicant has revised the traffic analysis to determine the level of traffic that can be accommodated by the existing road network. The applicant is willing to limit Phase I development accordingly.**

5. The existing construction plan approval for Marrwood Place (CPAP 2008-0106) extends south to the proposed northern site entrance (opposite future Goshen Ridge Place). Construction of Marrwood Place to the eastern property line, to include a paved temporary cul-de-sac, is necessary to be in place and open to traffic prior to occupancy of the church uses.

**Response 5: See applicant's response letter.**

6. A sidewalk along the site frontage should be depicted on the SPEX plat and provided at the time of construction of Marrwood Place and/or site development. The sidewalk should be consistent with the five (5)-foot sidewalk depicted along the west side of Marrwood Place in CPAP 2008-01 06 as well as the sidewalk/sidewalk reservation area conditioned as part of the approved development for The Boyd School (SPEX 2008-0021/STPL 2008- 0051).

**Response 6: The applicant has revised the SPEX Plat to show the location of the sidewalk along their property frontage. See applicant's response letter.**

7. Marked crosswalks across both site entrances and Marrwood Place should be provided at the time of construction of Marrwood Place and/or site development.

**Response 7: As requested, the SPEX Plat has been revised to show marked crosswalks. See applicant's response letter.**

8. Discussions regarding a fair-share contribution toward the future extension of Marrwood Drive to Northstar Boulevard and/or other transportation improvements are necessary. OTS staff is available to meet with the Applicant regarding this matter.

**Response 8: See applicant's response letter.**

9. OTS staff requests to be included in any meetings between VDOT and the Applicant regarding these applications.

**Response 9: Acknowledged.**

#### **VDOT Comments (John Bassett, June 18, 2009)**

10. At a minimum, (Future) Marwood Drive should be constructed to the easterly property line.

**Response 10: See applicant's response letter.**

11. Related to comment # 3: Prefer that (Future) Marrwood Drive have right of way dedicated and be designed and constructed (or equivalent monetary contribution provided) to Future Route 659 Relocated.

**Response 11: See applicant's response letter.**

12. This applicant's Traffic Impact Analysis (TIA) assumes that improvements at Route 50 (turn lanes and traffic signalization) to be in place "by others". Should these improvements not be in-place by the opening of the church then this applicant should be responsible for design/installation/construction of same, specifically,:

- (a) Intersection of Route 50 and Goshen Road - Traffic signalization. This is to include warrant analysis.
- (b) Intersection of Route 50 and Goshen Road – Add westbound left turn lane
- (c) Intersection of Route 50 and Goshen Road – Add eastbound right turn lane.

**Response 12: Construction of Phase 2 of the site development is not proposed to be occupied prior to the improvements proffered by Westport and/or other adjacent development projects.**

13. Sufficient on-site parking should be provided to prevent overflow parking problems on (Future) Marrwood Drive.

**Response 13: The site has been designed to provide parking that meets or exceeds the County's zoning ordinance requirements. See applicant's response letter.**

14. Proposed Emergency Access entrance should be properly signed and controlled with bollards & chain or gated, etc.

**Response 14: The applicant will work with fire and rescue to provide traffic controls for the emergency access. See applicant's response letter.**

15. Is (Future) Marrwood Drive of sufficient capacity (typical section) to support the projected site generated trip volume?

**Response 15: The projected weekday ADT is expected to be approximately 350 vehicles. This volume of daily traffic can be adequately accommodated by the proposed typical road section that matches the existing Goshen Road section to the west.**

16. For illustrative/informational purposes, please draw and clearly label the (approximate) alignment of Future Route 659 Relocated onto plan sheets 2 and/or 3 of 3.

**Response 16: See attachment to the applicant's response letter.**

17. Depending upon the resolution to some of the above noted comments, we recommend the County consider pursuing a monetary contribution from this applicant to be applied to area transportation improvements, especially if the Route 50 improvements are done "by others" and/or to be applied towards extending (Future) Marrwood Drive to Future Relocated Route 659 and/or the improvements (turn lanes and possibly traffic signalization) that will/may be required at that street connection.

**Response 17: See applicant's response letter.**

18. We have concerns regarding the applicant's proposal to use traffic control personnel on Route 50 in the interim period until the intersection improvements/traffic signalization are in place at the Route 50/Goshen Road intersection. Given the nature of Route 50 in this area, i.e., high traffic volumes including fairly high percentage of trucks, relatively high operation speeds and violation of driver expectancy we do not endorse this concept. Also, a field review revealed there to be a potential vertical sight distance problem looking to the west at oncoming eastbound Route 50 traffic. Given these factors, we reiterate comment # 5 (#12 in this document) above due to safety as well as operational aspects.

**Response 18: The reduction in the phase one (2012) development size of the church from 1,200 seats to 335 seats reduces the impact to the U.S. Route 50/Goshen Road/Fleetwood Drive intersection and can be adequately accommodated by the existing road network. Thus, temporary traffic control personnel are no longer suggested or required.**

**Additional VDOT Comments (Cina Dabestani)**

19. The Missing Legends on figures 2-2, 2-4, and 2-5.”

**Response 19: The legends associated with the above figures are part of larger Loudoun County adopted maps and are provided in the updated traffic report.**

20. This study does not appear to take into consideration that US 50 is a heavy vehicle route and recent data shows that 15% of traffic is made up of heavy trucks.

**Response 20: The weekday analyses reflect the recommended 15 percent heavy vehicle factor for through traffic on U.S. Route 50.**

21. Assuming 2% regional growth until 2015 is not documented as how this study has arrived at such number. Missing supporting documentation.

**Response 21: The 2 percent regional growth rate has been utilized in the recently approved Arcola School (Boyd School) study and is in addition to 20 other background developments. The 2 percent growth rate is also illustrated on the VDOT Chapter 527 Scoping form included in the appendix of the updated traffic study.**

**It is noted that a review of the traffic forecasts indicates that the aggregate growth rate for U.S. Route 50, when accounting for both regional growth and background development, is approximately 8.0 percent per year.**

**Additional VDOT Comments (Alex Faghri)**

22. Please verify that the southernmost access point to the site has sufficient sight distance. Include a discussion in the TIA regarding sight distance at access points.

**Response 22: The updated TIA includes discussion on site distance as it relates to the site entrances. In addition, sight distance of the access points has been addressed on the revised SPEX Plat.**

23. Trip distribution at the two access points can be viewed differently than what has been indicated in the study. Majority of vehicles may use the northern most access point to get to the site. In

this case a left turn lane is warranted. Please provide left turn lane warrant assuming majority of the vehicles accessing the site would use the first access point.

**Response 23: The updated study distributes traffic to the site entrances based on the parking layout. It appears that the majority of traffic would utilize the northern most entrance, and is reflected in the updated report. A review of the left turn lane warrant does not indicate the need for a separate turn lane, as documented in the updated traffic study.**

24. Synchro analysis show 95th percentile queue lengths in 2015 Total Future Sunday operates beyond capacity for the westbound left turn from Rt. 50 onto southbound Goshen Road. The left turn lane and taper should be long enough to accommodate traffic generated by the site. Please recommend Rt. 50 WBL expansion as part of your recommended improvements.

**Response 24: The conceptual design plan indicates that the westbound left turn lane is planned to be extended to provide approximately 300 feet of storage as part of the realignment of Route 50/Westport Boulevard /Goshen Road intersection by the Westport development. The revised TIA indicates that this length of turn lane would adequately accommodate the anticipated queue with the buildout of the parish and school uses.**

Questions regarding this document should be directed to Wells + Associates.