

**Transportation Impact Study
Proposed Masa Santa Residential Development
Adams Township, Butler County, Pennsylvania**

EXECUTIVE SUMMARY

Project Description

The proposed project is located along the western side of Hesperheide Road (T-350) and southern side of Norwegian Spruce Drive (T-991) in Adams Township, Butler County, Pennsylvania. The development is proposed to consist of approximately 51 single-family homes and 83 multi-family units (townhomes).

This report analyzes the impact of this project on the traffic operations of the adjacent roadway network under:

- Existing Year 2018 Conditions
- Opening Year 2019 Without and With Development Conditions
- Design Year 2024 Without and With Development Conditions

Existing and Future Without Development Conditions

A linear growth rate of 0.81% was obtained from a representative of the Southwestern Pennsylvania Commission (SPC) for Adams Township. This rate was applied to the Existing Year 2018 Condition peak hour traffic volumes to develop the Opening Year 2019 and Design Year 2024 Without Development Condition traffic volumes.

Trip Generation and Distribution

Trip Generation

The Institute of Transportation Engineers' (ITE) *Trip-Generation Manual*, 10th Edition, was used to determine the trip generation rates associated with the proposed development (specifically, ITE Land Use Code #210 - *Single-Family Detached Housing* and ITE Land Use Code #220 - *Low-Rise Multifamily Housing*). These rates were then utilized to determine the additional trips anticipated to be generated by the proposed development during a typical weekday and during the AM and PM peak hours, which are summarized as follows:

- 1,148 additional vehicles during a typical weekday (574 entering and 574 exiting)

- 81 additional vehicles during the AM peak hour (19 entering and 62 exiting)
- 103 additional vehicles during the PM peak hour (65 entering and 38 exiting)

Trip Distribution

The trip generation data, the distribution of traffic on the adjacent roadway network, and the location of the proposed development were all used to assign the site-generated traffic to the study area roadway network.

List of Study Intersections

The study area for this project includes four (4) existing intersections and two (2) proposed intersections:

- Route 228 (SR 0228) with Adams Ridge Blvd. (T-940)
- Adams Ridge Blvd. (T-940) with Club Side Drive (T-970)
- Adams Ridge Blvd. (T-940) with Adams Pointe Blvd. (T-971)
- Adams Ridge Blvd. (T-940) / Hespenheide Road (T-350) with Norwegian Spruce Drive (T-991)
- Hespenheide Road (T-350) with Site Road A
- Norwegian Spruce Drive (T-991) with Site Road B

Conclusions and Recommendations

The proposed Masa Santa residential development in Adams Township, Butler County, Pennsylvania is not anticipated to impact traffic operations in the study area. The following is a summary of the results and recommended improvements at each of the study intersections:

Route 228 (SR 0228) with Adams Ridge Blvd. (T-940)

- Impacts to this intersection will be minor with increases in average overall intersection delay of less than 6.0 seconds per vehicle during the AM and PM peak hours.
- No roadway improvements are recommended.

Adams Ridge Blvd. (T-940) with Club Side Drive (T-970)

- Impacts to this intersection will be minor with increases in average overall intersection delay of less than 2.0 seconds per vehicle during the AM and PM peak hours.
- No roadway improvements are recommended.

Adams Ridge Blvd. (T-940) with Adams Pointe Blvd. (T-971)

- No impacts to this intersection are projected during the AM and PM peak hours.
- No roadway improvements are recommended.

Adams Ridge Blvd. (T-940) / Hespenheide Road (T-350) with Norwegian Spruce Drive (T-991)

- Impacts to this intersection will be negligible with increases in average overall intersection delay of less than 1.0 second per vehicle during the AM and PM peak hours.
- No roadway improvements are recommended.

Hespenheide Road (T-350) & Site Road A

- Construct a full access site road (Site Road A) along the western side of Hespenheide Road (T-350), as depicted on the site plan.
- Provide clear sight lines at the proposed site roads by way of on-site clearing and grading, as necessary.
- No roadway improvements are recommended.

Norwegian Spruce Drive (T-991) & Site Road B

- Construct a full access site road (Site Road B) along the southern side of Norwegian Spruce Drive (T-991), as depicted on the site plan.
- Provide clear sight lines at the proposed site roads by way of on-site clearing and grading, as necessary.
- No roadway improvements are recommended.

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1.0 INTRODUCTION / PROJECT SUMMARY

David E. Wooster and Associates (Wooster) has completed a Transportation Impact Study (TIS) to determine the impacts to traffic operations resulting from the construction of a proposed residential development located along the western side of Hesperheide Road (T-350) and southern side of Norwegian Spruce Drive (T-991) in Adams Township, Butler County, Pennsylvania. The development is proposed to consist of approximately 51 single-family homes and 83 multi-family units (townhomes).

A site location map is shown on **Figure 1** and a preliminary Site Plan can be seen on **Figure 2**, both of which have been included in the Figures section at the end of this report. The opening year of the proposed development is assumed to be 2019. As such, this report analyzes the impact of this project to the traffic operations of the adjacent roadway network under:

- Existing Year 2018 Conditions
- Opening Year 2019 Without and With Development Conditions
- Design Year 2024 Without and With Development Conditions

Traffic volumes have been developed for each scenario, capacity analyses have been performed, and the results have been reported in terms of both Level-of-Service (LOS) and average delay per vehicle. The capacity analyses results contained in this report were performed using Synchro Software Version 10 (Synchro).

2.0 DATA COLLECTION

2.1 *Turning Movement Counts*

Turning movement counts were performed at the existing study intersections on a typical weekday (Tuesday through Thursday) between the hours of 7:00 a.m. and 9:00 a.m. and between the hours of 4:00 p.m. and 6:00 p.m. These times were chosen because they typically reflect the morning (AM) and evening (PM) peak hours for vehicular traffic. The counts were performed in September 2018.

Summaries of the turning movement counts can be found in **Appendix A** at the end of this report. This information was then utilized to determine the Existing Year 2018 Condition peak hour traffic volumes, which can be seen graphically on **Figure 3a**.