

Stevens Technical Services, Inc. 14531 FM 529, Suite 160 Houston, TX 77095

(713) 828-4742 http://www.stevens-technical.com

TECHNICAL MEMORANDUM

Autumn Ranch Subdivision Traffic Impact Analysis Scoping Memorandum

DATE: July 27, 2022

TO: Ryan Vogler, PE Vogler & Spencer Engineering, Inc.

COPY TO: City of Angleton

FROM: Charles R. Stevens Jr., PE, PTOE CEO/Principal, Stevens Technical Services, Inc.

FOR MORE INFORMATION:

Name: Charles R. Stevens Jr., PE, PTOE Phone: (713) 725-5841 (cell) Email: charlie@stevens-technical.com

DISCUSSION:

Stevens Technical Services, Inc. (STS) was tasked to conduct an independent review of the proposed land plan, site characteristics, and potential current/future transportation impacts for the proposed Autumn Ranch Subdivision in Angleton, Texas (see Figure 1). STS understands that this traffic engineering memorandum is required to submit a subdivision master plan to the City of Angleton (City).

What did we do?

- Reviewed City municipal code section 23-25.
- Review of City Mobility Plan.
- Drive-by field visit of proposed site.
- Reviewed aerial for nearby traffic generators and existing roadway network.
- Studied subdivision plan and determined potential traffic patterns.
- Calculated the number of AM and PM Peak Hour Trips.
- Developed proposed Traffic Impact Analysis (TIA) Scope for City Approval.



Figure 1. Site Map of Autumn Ranch

Existing Conditions

The proposed site is adjacent on the north side of County Road (CR) 220, or Coale Road, starting at the intersection of CR 220 and CR 220c (see Figure 2). CR 220 is a two-lane highway with 12 ft lanes and varying shoulder widths including an 8ft shoulder in the eastbound direction and 4ft shoulder in the westbound direction. CR 220c is a two-lane highway with approximately 9ft lanes and 1ft shoulders.

Photographs of the intersection can be found in Appendix A.



Figure 2. Existing Roadway Network

Proposed Development

Autumn Ranch is a 171-acre subdivision proposing 110 single-family residential lots.

LOT SUMMARY		
1 Ac.	62 LOTS	56%
3/4 Ac.	48 LOTS	44%
TOTAL 110 LOTS		
Figure 3 Autumn Banch Lot Summary		

Figure 5. Autumn Ranch Lot Summary

Proposed Transportation Improvements

Autumn Ranch will provide ingress/egress through the construction of a major collector functional class roadway along the development frontage that aligns with the current City Mobility Plan's extension of Gifford Road. This roadway will create a 4-legged intersection between CR 220, CR 220c and future Autumn Ranch Road (see Figure 4).



Figure 4. Autumn Ranch Subdivision Land Plan

Trip Generation

STS calculated AM and PM Peak hour trips based on the subdivision lot summary provided. It has been assumed that each lot will restrict construction to one single family home. Utilizing the ITE Trip Generation Manual (10th Edition + Supplemental), STS found the following:

PM Peak Calculated Trip Ends: Average Rate: 110 (Total), 70 (Entry), 40 (Exit) Fitted Curve: 117 (Total), 75 (Entry), 42 (Exit)

AM Peak Calculated Trip Ends: Average Rate: 84 (Total), 22 (Entry), 62 (Exit) Fitted Curve: 88 (Total), 23 (Entry), 65 (Exit)

Does Autumn Ranch need a TIA?

According to City Code of Ordinances (Section 23-25 – B.1) a TIA is required for:

"Development that generates more than 100 peak hour trips (PHT)."

The Autumn Ranch subdivision trip generation calculations exceed the 100 peak hour trip threshold by 10 trips based on the average rate method. Based on language within the City Code of Ordinance 23-25-B.1 the development will require a TIA.

What should be done to determine potential impact?

Although the TIA is required, the traffic impacts should be minor and limited to the intersection of CR 220/CR220c/Future Autumn Ranch Road. The following TIA scope should determine the need for any additional operational improvements:

<u>TIA Study Area</u>: TIA should include internal and adjacent intersections of public roadways within ¹/₄ mile of the development boundary.

<u>Existing/Background Conditions:</u> Determine the existing, and known proposed, background traffic, not created or associated with traffic that would be generated by the proposed development. This may also include distribution of future trips along the proposed Gifford Rd. Extension.

<u>Project (Build-out) Conditions:</u> Calculate projected traffic volumes to be present after a project is completed.

<u>Trip Distribution</u>: Present existing and anticipated trip distribution of the percentage estimates per turning movement from the proposed development.

<u>Trip Generation Summary:</u> Provide a trip generation summary that summarizes existing and anticipated trip generation characteristics an entire day; including A.M. and P.M. peak periods, rates, and all assumptions used to calculate the number of anticipated trips.

<u>Traffic Operations:</u> Determine existing, background, and anticipated Level-of-Service (LOS), turn lane warrant study (typically according to TxDOT Roadway Design Manual); and 95th percentile traffic queuing for turn lane sizing purposes (if needed).

Summary

The traffic impact of the proposed Autumn Ranch Subdivision should be limited to the primary subdivision entrance at CR 220/CR220c & Future Autumn Ranch Road intersection. The proposed TIA scope should provide the required results necessary to mitigate impact.

Appendix A

Intersection Photographs

CR 220 (Coale Rd.) at CR 220c



Figure A1. CR220/Coale Rd. Westbound Approach



Figure A2. CR220/Coale Rd. Eastbound Approach



Figure A3. CR 220c Northbound Approach



Figure A4. CR220/Coale Rd. Westbound Approach at Intersection



Figure A5. CR220/Coale Rd. Eastbound Approach at Intersection



Figure A6. CR 220c Northbound Approach at Intersection



Figure A7. CR 220c Southbound View at Intersection