HOYLE TANNER

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August 15, 2025

Mr. Eric Slosek
Public Works Director
Town of Amherst
22 Dodge Road
Amherst, NH 03031

Re: On-Call Engineering and Surveying Services
Task Order # 6 – Christian Hill Road - Jacobson Farm Subdivision – Impacts Review
Hoyle Tanner Project No. 23.919101.06

Dear Eric:

The Town of Amherst, NH (Town) retained Hoyle, Tanner & Associates, Inc. (Hoyle Tanner) to complete a review the potential impacts of Transfarmations, Inc. proposed Jacobson Farm Subdivision off Christian Hill Road. Specifically, Hoyle Tanner has reviewed the following:

1. Impact on pavement conditions of Christian Hill Road
2. Site distances along Christian Hill Road
3. Need for improvements at the following intersections:
    a. Foundry Street / Boston Post Road
    b. Christian Hill Road/Foundry Street/Davis Lane
    c. Davis Lane/Main Street

This review was based on a site visit on July 17, 2025 and material provided by the town, including the following:

1. Jacobson Farm Subdivision Plan – 11/4/24 – Meridian Land Services, Inc.
2. Traffic Impact and Site Access Study – May 2020 - Stephen G. Pernaw & Co., Inc.
3. Traffic Impact and Site Access Study – ADDENDUM ONE – 2/21/2023 – Stephen G. Pernaw & Co., Inc.
4. Traffic Impact and Site Access Study – ADDENDUM TWO – 5/10/2023 – Stephen G. Pernaw & Co., Inc.
5. Response to NRPC Comments Re: Addendum One -7/17/2023 - Stephen G. Pernaw & Co., Inc.
6. Response to NRPC Comments Re: Addendum Two -7/17/2023 - Stephen G. Pernaw & Co., Inc.
7. Amherst Village Traffic Circulation Study - April 2022 - Nashua Regional Planning Commission

Findings

General Notes

- In several locations, the subdivision plans refer to the new roadway as Hillside Road, however, there are some locations in the plan set that refer to it as Jake's Hill Road. For the remainder of this report, we refer to Hillside Road.
- Based on documents reviewed, the previously submitted development plan (dated 12/13/2019) was updated to the plan dated 11/4/25, which was provided to Hoyle Tanner and which reducing the proposed residential units from 60 to 37.

Summary of Recommendations

Please see the sections below for further discussion, but the following is a summary of our recommendations based on our review of the available information and our site visit:

1. **Pre-construction the condition of Christian Hill Road be documented through video or photos and that post-construction, Christian Hill Road be reviewed and any cracked/damaged pavement be repaired through patching, crack sealing or other appropriate means to prevent further damage by water infiltration.**
2. **Clear vegetation on the north side of Christian Hill Road, just east of the proposed Hillside Road to obtain the Intersection Sight Distance and that the town obtain an easement for sight distance from the developer at this location, allowing future clearing of vegetation.**
3. **Stop sign be installed on Hillside Road.**
4. **Clear vegetation and one large tree (see Photos 4) on the north side of Christian Hill Road, just east of the proposed Farmside Road to obtain the minimum Stopping Sight Distance and that the town obtain an easement for sight distance from the developer at this location, allowing future clearing of vegetation.**
5. **Stop sign be installed on Farmside Road.**
6. **The developer perform a sight distance analysis, utilizing CADD files with accurate vertical and horizontal layout, for the eastern driveway of Lot 5-148-3, similar as was done on sheets SD-1 and SD-2 for Hillside and Farmside Roads.**
7. **Vegetation, just south of Davis Lane, on the west side of Main Street, be cleared to improve the sight distance from the Davis Lane stop sign to facilitate the left-hand turn on to Main Street.**

1. Traffic Impacts on pavement condition of Christian Hill Road

Christian Hill Road is a two-lane Class V paved road, owned and maintained by the Town of Amherst, with a current ADT of 620 vehicles AWDT (Average Weekeday Daily Traffic - average from the Pernaw 2020 traffic study). Based on the traffic study the Jacobson Farm Subdivision will increase traffic volume by 15% (based on original study of adding 60 unit, not the reduced 37 units). The proposed subdivision

proposes 37 residential dwellings and a CSA (Community Supported Agriculture) business. In the area of the proposed subdivision, Christian Hill Road shows some signs of pavement cracking in the wheel paths and at the center line. Some spot repairs and crack sealing have been performed in the past. However, Christian Hill Road is for the most part in good condition. See Photos 1 through 3.

Based on the Traffic Impact and Site Access Study, it is anticipated that the traffic volume will increase by 15% to the current 620 vehicles AWDT on Christian Hill Road, however, it is our opinion that this level of increase in light vehicle traffic will not have a significant impact on the required maintenance or condition of the road. What is unknow is the impact that construction vehicle traffic will have on Christian Hill Road. **Recommend that pre-construction the condition of Christian Hill Road be documented through video or photos and that post-construction, Christian Hill Road be reviewed and any cracked/damaged pavement be repaired through patching, crack sealing or other appropriate means to prevent further damage by water infiltration.**

2. Site Distance

On July 17, 2025 Hoyle Tanner conducted a site visit to review the sight distances conditions along Christian Hill Road. Specifically, the three new planned intersections noted below were reviewed. This section of Christian Hill Road is a Class V road with a posted speed limit of 30 MPH and is fairly flat with slight vertical undulations. See the notes below for each intersection. The proposed driveway locations along Christian Hill Road were not reviewed.

Intersection Sight Distance (ISD) is addressed in the AASHTO 2018 7th Edition Policy on Geometric Design of Highways and Streets, Section 9.5. See comments below, but it is assumed that all three of the intersections reviewed will be stop controlled on the minor roadway (road intersecting with Christian Hill Road). Therefore, each intersection falls under Section 9.5.3 Intersection Control, Case B1 and B2. The desired sight distance is the "Intersection Sight Distance" to allow unimpeded flow of traffic on the Christian Hill Road, while the minimum required would be the "Stopping Sight Distance".

AASHTO Section 9.5.3 - For 30 MPH Speed Limit:

- Case B1—Left turn from stop on minor road (Table 9-7)
  - Intersection Sight Distance of 335 LF
  - Stopping Sight Distance of 200 LF
- Case B2—Right turn from stop on minor road (Table 9-9)
  - Intersection Sight Distance of 290 LF
  - Stopping Sight Distance of 200 LF

While the direction of Christian Hill Road changes, it generally runs east/west and thus for the purposes of the following discussions the direction of the road is referred to as east or west and the sides of the road are referred to as north or south.

Christian Hill Road & proposed Hillside Road

- During our site visit this intersection location was easily/accurately identifiable in the field based on NET&T utility pole 16 7 shown on the subdivision plans.

- Plan Sheet SD-1 details the sight distances for the Hillside Road / Christian Hill Road intersection. The sheet notes that the required sight distance of 335 feet is available looking both east and west, however see notes below.
- Looking east - It is noted that looking east from Hillside Road, the sight distance line does cross lots 5-148-10 and 5-1348-11 due to the curvature in Christian Hill Road. Based on our 7-17-25 site visit, there currently is a significant amount of vegetation on those lots that impede line of sight required to achieve the required the Intersection Sight Distance. Stopping Sight Distance is adequate. While this vegetation will most likely be cleared during development, if plantings are placed along the roadway the sight line will become blocked. **Recommend clearing vegetation on the north side of Christian Hill Road, just east of the proposed Hillside Road to obtain the Intersection Sight Distance and that the town obtain an easement for sight distance from the developer at this location, allowing future clearing of vegetation.**
- Looking west – Intersection Sight Distance confirmed to be adequate.
- There is no indication in the subdivision plans that a stop sign is being installed on Hillside Road. **Recommend a stop sign be installed on Hillside Road.**

Christian Hill Road & Farmside Road

- During our site visit this intersection location was easily and fairly accurately located due to the proximity of the existing house/driveway on Lot 5-184-6.
- Plan Sheet SD-2 details the sight distances for the Farmside Road / Christian Hill Road intersection. The sheet notes that the required sight distance of 335 feet is available looking both east and west, however see notes below.
- Looking east - there is a bend in the road, with heavy vegetation on the north side of the road that obscures the sight line. While based on current vegetation blocking sight line and it not clear that the sight line analysis shown on the plans takes this into account. **Recommend clearing vegetation and one large tree (see Photos 4) on the north side of Christian Hill Road, just east of the proposed Farmside Road to obtain the minimum Stopping Sight Distance and that the town obtain an easement for sight distance from the developer at this location, allowing future clearing of vegetation.**
- Looking west – sight visit confirmed Intersection Sight Distance is adequate.
- There is no indication in the subdivision plans that a stop sign is being installed on Hillside Road. Stop signs should be installed. **Recommend a stop sign be installed on Farmside Road.**

Christian Hill Road & Lot 5-148-3 driveways.

- During our site visit the locations of these two driveways was approximated due to the lack of clearly identifiable objects in the field that could be compared to the subdivision plans.
- No sight distance analysis was shown on the plans for these two driveways.
- Looking east –
    - Eastern driveway – As noted, the exact location of this driveway was not evidently clear based on the site visit. It appears that Stopping Site Distance is adequate, but

Intersection Sight Distance may not be achievable based on the vertical and horizontal nature of the road in this area. **Recommend that the developer perform a sight distance analysis, utilizing CADD files with accurate vertical and horizontal layout, for the eastern driveway of Lot 5-148-3, similar as was done on sheets SD-1 and SD-2 for Hillside and Farmside Roads.**

  - Western driveway – Intersection Sight Distance confirmed to be adequate.
- Looking west –
  - Eastern driveway - Intersection Sight Distance confirmed to be adequate.
  - Western driveway – Intersection Sight Distance confirmed to be adequate.
- It is noted that the installation of stop signs are called out on plan sheet DP-1 & DP-7, for the two driveways at Lot 5-148-3.

3. Traffic Impacts at Intersections

Hoyle Tanner has reviewed the available traffic studies/amendments and conducted a site visit at each of the following noted intersections. Our findings are noted below.

- **Foundry Street / Boston Post Road**

  The Amherst Village Traffic Circulation Study - April 2022 by the Nashua Regional Planning Commission (NRPC Study) does address regional growth, and through model adjustment factors in potential additional traffic from the Transfarmations development, and other planned developments, that could impact this intersection. Specifically estimating a significant growth of 40% in traffic volume (AWDT) on Foundry Street by 2045 (NRPC Study page 24, Table 11). While this predicts Level of Service "D" in 2045 for traffic traveling east on Foundry Street, the predicted worst case scenario delay is only just over 30 seconds for AM peak traffic (NRPC Study page 32, Table 15). It is noted that the RPC study anticipated 60 additional units due to subject development, which has been scaled down to 37 units and that not all regional growth is due to the subject development.

  In reviewing the traffic study and amendments by Stephen G. Pernaw & Co., Inc., specifically Amendment Two, an estimate of impact on this intersection is show. Addendum Two, adjusts for the reduced number of units to be added by the Transfarmations development, and indicates that for the AM peak eastbound traffic (worst case for Foundry Street), that additional traffic due to the subject development will only add approximately five seconds to the delay (Addendum Two, Table 3 and Table 4 Conclusions, Page 8).

  The Pernaw study information also indicates that there is officer control at this intersection at both the AM and PM hours. This office control is not factored into the traffic analysis but will help relieve the anticipated delays.

  Based on the available information, we conclude that any delays at this intersection are during limited hours. The proposed development does not significantly add to current or projected

delays, and are not significant enough (due to limited time of day) to warrant modifications to this intersection. Furthermore, if the traveling public perceive the delay to be an inconvenience, they will find an alternative route (e.g. Davis Lane) to bypass the subject intersection. The overall volume at the subject intersection is low enough that if a few travelers bypass the intersection, it will not add significant enough volume to other roads/intersections to create operational delay significant enough to warrant intersection improvements.

- **Christian Hill Road/Foundry Street/Davis Lane**

  The Amherst Village Traffic Circulation Study - April 2022 by the Nashua Regional Planning Commission (NRPC Study) does not address this intersection specifically. The traffic study by Stephen G. Pernaw & Co., Inc. (Pernaw) does identify this intersection and the projected impacts to it in both build and no build conditions in 2021 and 2031. In both the AM and PM peak hours, for all years and conditions, the level of service does not drop below a B and the delay for all scenarios does not exceed 10.5 seconds (Pernaw Study, Table 9, Page 35).

  Addendum 2 from Pernaw identifies that the TransFarmation Development has reduced to 37 units, from 60. Addendum 2 does not address this intersection specifically but concludes that the number of vehicles on Foundry Street in both directions at the AM, School, and PM peak hours decreases when the number of units decreases (Addendum Two, Table 2, Page 8). The impacts to this intersection are primarily from the TransFarmations development, with negligible impact from the Clearview development (Pernaw Study, Traffic Volume Increases, Page 28). We can reasonably conclude that the impacts to this intersection will be less than what was identified in the original Pernaw Study, now that there will only be 37 units.

  Given that the original Pernaw Study identified a delay increase no greater than 1 second between no-build and build scenarios, and the reduction in units in the TransFarmation Developments since that study, we conclude that the developments will not add any significant delays to this intersection.

- **Davis Lane/Main Street**

  The Amherst Village Traffic Circulation Study - April 2022 by the Nashua Regional Planning Commission (NRPC Study) does not address this intersection specifically. The traffic study by Stephen G. Pernaw & Co., Inc. (Pernaw) does identify this intersection and the projected impacts to it in both build and no build conditions in 2021 and 2031. In both the AM and PM peak hours, for all years and conditions, the level of service does not drop below a B and the delay for all scenarios does not exceed 11.5 seconds (Pernaw Study, Table 9, Page 35).

  Addendum 2 from Pernaw identifies that the TransFarmations Development has reduced to 37 units, from 60. Addendum 2 does not address this intersection specifically, but identifies that there is an overall reduction in trip generation from the reduction in units (Addendum Two, Table 1, Page 5). The traffic volume increases at this intersection come from both the TransFarmations Development and the Clearview Development, so a reduction in trips generated by TransFarmations will at least slightly decrease the impacts to this intersection (Pernaw Study, Traffic Volume Increases, Page 28).

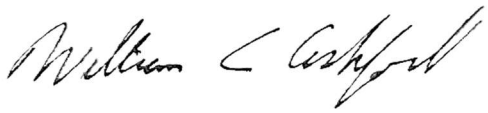
Given that the original Pernaw Study identified a delay increase no greater than 0.1 seconds between no-build and build scenarios, and the reduction in units in the TransFarmations Developments since that study, we conclude that the developments will not have add any significant delays to this intersection.

During our site visit on 7/17/25, it was noted that at this intersection, when at the Davis Lane stop sign, the sight line looking south on Main Street was impeded by shrubs/bushes. See Photo 5. Thus, drivers must pull out into the Main Street southbound lane to see south prior to being able to turn onto northbound Main Street. **It is recommended that the vegetation, just south of Davis Lane, on the west side of Main Street, be cleared to improve the sight distance from the Davis Lane stop sign to facilitate the left-hand turn on to Main Street.**

The findings of this letter are based on the documentation provided by the town and on our site review conducted on July 17, 2025. Hoyle Tanner did not perform a technical review of the subdivision plans for conformance with Town standards, nor did we provide a technical review of the traffic study documents. Our review was limited to an overview of the documents noted above to provide an engineering opinion on the impacts of the Jacobson Farm Subdivision, at the locations and as noted above.

Should you require additional information, please contact me at 603-460-5178 or via email at washford@hoyletanner.com.

Sincerely,
Hoyle, Tanner & Associates, Inc.



Project Manager

Photo 1: Christian Hill Road – Existing cracking at center line

Photo 2: Christian Hill Road – Previously patched center line cracking

Photo 3: Christian Hill Road – Previously sealed cracking

Photo 4: Christian Hill Road – Looking west – Large tree impeding sight line for Farmside Road

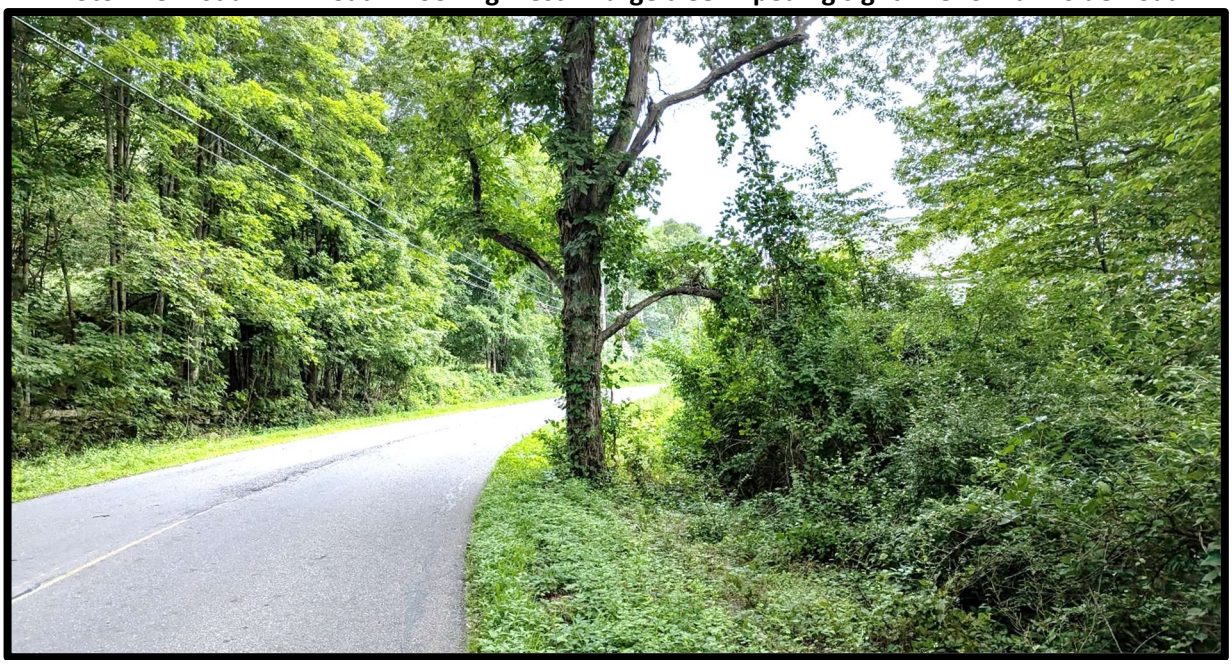


Photo 5: Davis Lane @ Stop Sign - Looking south – Shrubs/tree impeding sight line