

# TRANSPORTATION RECOMMENDATIONS

**Subject: Hydraulic Road / US 29 Small Area Plan – Transportation Planning Element: Project Status Report**

**Date: 04/03/2018**

## ***Introduction***

At the time of this writing (April 3, 2018), the transportation planning process is still underway in the Hydraulic Road / US 29 area. A preliminary recommendation was recently identified and the study team is now refining the concept to meet the expectations of the established Advisory Panel. While the Advisory Panel settles on the final details of the preferred alternative over the next 4-6 weeks, draft technical documentation will be prepared which describes the planning process undertaken for the study. Until that technical information is reviewed and approved by the Advisory Panel for publication, the following sections provide highlights of the key transportation planning activities that have taken place to arrive at this point in the process.

## ***Study Area***

The multimodal study area for the transportation planning element is shown in Figure 1 and has been limited to the roadways, intersections and modes shown. A quantitative analysis was conducted for the roadway links highlighted in purple while a qualitative discussion was provided for the roadways indicated with green highlighting. Michael Baker worked with VDOT, the City of Charlottesville, Albemarle County and the Advisory Panel to agree on the definition of the future no-build transportation network. For example, anticipated projects such as the removal of the traffic signal at US 29 and Lenox Ave. should be considered as being in place since this planning exercise is intended to look several decades into the future.

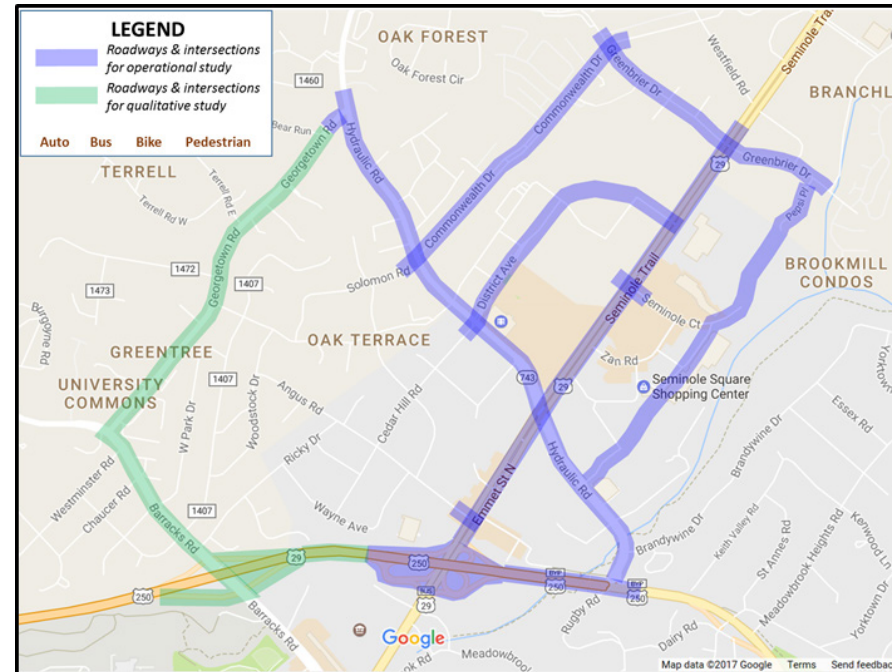


Figure 1

## ***Hydraulic Planning Advisory Panel***

The Hydraulic Advisory Panel (the Panel) is a collection of officials and staff from the City and County as well as representatives of local businesses and the environmental community. The Panel has been supported by the Technical Team that includes VDOT and consultant staff. Kimley-Horn and Associates helped advise the staff concerning land-use development while Michael Baker International led the transportation component. With the information from the Technical Team, the Panel has already agreed upon future land-use and is currently finalizing on the transportation recommendations for the area.

### ***Existing Conditions***

A combination of vehicle counts and location based travel pattern data were acquired and analyzed to understand the intensity and distribution of traffic within and through the study area. The vehicle count information was used to create AM and PM peak VISSIM models to analyze the roadway network highlighted in Figure 1. The location based data was used to analyze the larger travel patterns and determine percentages of traffic with an origin or destination within the study area and those that did not. All of this existing conditions information was shown to the Panel for their input and feedback to best replicate the existing conditions. This information allowed the Panel and Technical Team to identify areas of need and begin developing project ideas for the transportation scenarios.

### ***Future Traffic Forecasting***

The future analysis year for the transportation improvements was established as 2045. Traffic forecasting for the future conditions is based on two components. As the study area is bisected by US 29 and connects to US 250, the area experiences a considerable number of pass-through trips to and from outside geographic areas. Through location based trip analyses, these pass-through trips were isolated during the existing conditions analysis and grown at an annual rate of 1%. The existing trips derived from land-use that will change in the future were removed. Using the updated land-use, trip generation for the AM and PM peak hours using the ITE Trip Generation Manual. In order to account for internal capture and movement between the sub-areas within the study area, the ITE process for estimating mixed-use trip generation was used. The trips generated from the land-use were then combined with the pass-through trips to create the total traffic input into the traffic modeling. With consideration for planning, growth and the 2045 transportation build year, an estimate of 75% of the total land-use

development was used. Depending on the future scenario (i.e. No-Build, Scenario 1, etc.) traffic movements were distributed based of available movements, amount of traffic and logical routing.

### ***Transportation No-Build Conditions (Year 2045)***

The No-Build condition was based on the existing conditions transportation network, with limited modifications, and the traffic forecasting for the year 2045 as discussed above. This scenario was analyzed based on the AM and PM peak periods in VISSIM. The assumed modifications to the transportation network included optimizing the signal timings based on updated intersection volumes and the removal of the signal at US 29 and Lenox Ave. Additional minor changes such as additional turn-lanes or expansion of side-street approaches were included on a limited basis under the assumption that re-development in the vicinity would minimally require the work. The No-Build condition, rather than the existing condition, has been the primary basis of comparison when evaluating the different transportation scenarios presented to the panel.

### ***Alternative Development***

At the onset of the study, the goal was to present multiple options to the Panel for consideration. Ultimately three scenarios were presented and analyzed in VISSIM for the AM and PM peak hours. While the overall transportation plan includes recommended improvements at numerous locations, the differentiator between the three scenarios was the improvements at the intersection of US 29 and Hydraulic Rd. This intersection became the focal point as it was evident from the modeling the impacts it has on the entire network. Below are the three separate intersection concepts that were presented to the panel:

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- Scenario 1 – Grade Separated Intersection
- Scenario 2 – Continuous Flow Intersection
- Scenario 3 – Grade Separated Roundabout

As mentioned above, the deficiencies shown within the transportation network in the existing and No-Build conditions also led to multiple project ideas that became common elements throughout the three scenarios. The project ideas listed below are the same for each of the three scenarios listed above. It remains possible that additional projects or modifications will occur while further developing the preferred alternative.

- Hydraulic Rd. & District Ave. – Replace traffic signal with roundabout
- Hydraulic Rd. & Hillsdale Ave. – Replace traffic signal with roundabout
- Zan Rd. Area – Provide grade separated pedestrian / bicycle / vehicle connection over US 29
- Angus Rd. – Provide grade-separated intersection and signalized southbound US 29 U-turn (no left turns to / from Angus Rd.)
- Extend Hillsdale Dr. from Hydraulic Rd. to Holiday Dr.
- Relocate the westbound US 29 on- / off- ramps to the Hillsdale Dr. extension
- US 250 & Hydraulic Rd. – Extend eastbound US 250 left-turn lane

### ***Outreach and Screening***

As with the land-use component, public outreach is a key factor

for the Panel. In response to this, the Technical Team and Thomas Jefferson Planning District Commission engaged in three events to inform the public and receive comment. Two neighborhood meetings were held in venues near the study on February 21st and 22nd, 2018. Included in these meetings was a brief overview presentation, information boards and open forum discussion on the three transportation scenarios. On March 8th, 2018 the Technical Team organized a Citizen Information Meeting at Charlottesville High School. This meeting included a 15-minute overview video on the process and each scenario, information boards and open forum discussion with the Technical Team and Panel members. Attendees were asked to fill out a comment sheet created by VDOT or provide feedback to the Technical Team later.

While public outreach is a primary factor for the Panel, there are other factors involved in selecting the preferred alternative of the three scenarios. The Technical Team presented multiple iterations or criteria and with the Panel's input, settled on the categories below. The categories were ranked based on technical data or panel discussion and consensus. Weighting of the categories was not included in the initial evaluation and ultimately was not needed. The criteria evaluation and discussion of public input lead to the selection of a preferred alternative.

- Travel time along US 29 through the study area
- Potential Right-of-Way impacts
- High-level construction cost
- Business access impacts
- Vehicle safety benefit
- Initial driver familiarity
- Pedestrian and bicycle accommodations
- Land-use interaction



### ***Preferred Alternative***

Based on the aforementioned quantitative and qualitative criteria and review of the public input, the Panel endorsed Scenario 1 – Grade Separated Intersection as the preferred transportation alternative. This scenario performed well in all measures evaluated in the Smart Scale process and received the most support publicly. A conceptual representation of the intersection improvement at US 29 and Hydraulic Rd. is shown in Figure 2. A conceptual representation of the transportation network for the study area is shown in Figure 3. This may not be the ultimate configuration of this alternative as the Technical Team and Panel will work to find right-sized solutions in response to Panel concerns and public feedback.



Figure 2

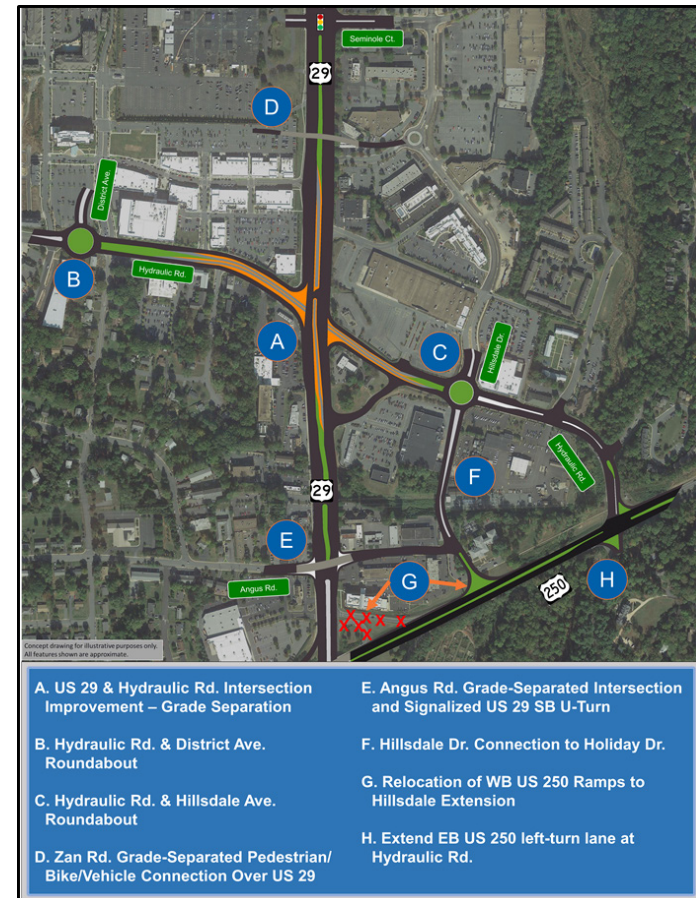


Figure 3

### ***On-going Activities / Next Steps***

Following the selection of Scenario 1 as the preferred Alternative, the Technical Team and Panel will work throughout April to finalize the elements that will be included in the final transportation recommendations. Once the final elements are selected, a determination will be made on which projects to prioritize for the current round of Smart Scale and the proposed schedule for the remaining projects. This process will include additional VISSIM modeling and a closer look at costs and right-of-way impacts. The Technical Team will then work with the localities and TJPDC to select projects for Smart Scale creation and submission. A more thorough and concise documentation of the process will be completed later in the process.