

DATE: August 11, 2026

TO: Benton County Board of Commissioners

FROM: Kelly Sandow P.E.
Sandow Engineering

RE: LU-25-067 Northside Church- Response to August 4, 2026, Testimony



Sandow Engineering would like to provide the following additional information and response to questions and comments raised at the Benton County Board of Commissioners meeting held on August 4, 2026.

Item #1: Clarification of why different methods for estimating the Northside Church trip levels have been provided.

Response:

Sandow Engineering provided a Sunday trip generation and parking demand estimate for the previously contemplated Phase 1 and Phase 2 for Northside Church (Sandow Engineering Transportation Analysis Northside Church dated May 30, 2025). As stated in the May 2025 report, a "Local Trip Generation Study" was prepared consistent with the standards and methodologies found within the ITE Trip Generation Handbook. The cluster of data points found within ITE Land Use 560-Church are for church sites with sizes between 5,000 sf and 21,000 sf, with limited data points above 21,000 sf. The previously proposed Phase 1 and Phase 2 Northside Church would have had approximately 73,611 square feet. Additionally, the description of Land Use 560-Church is a facility that houses "...an assembly hall or sanctuary. It may also house meeting rooms, classrooms... dining, catering, or event facilities". The ITE data description is not explicit on the inclusion of sites that contain all the previously proposed uses on site. The ITE data is not representative of larger church sites that contain ancillary buildings/areas, larger gathering spaces outside of the main worship area, a larger number of separate classrooms, etc. Using a trip rate based on smaller churches will provide an overestimation of trips when considering the ancillary areas not used for regular services. Therefore, a local study was prepared using churches with similar types of uses and sizes (50,000 sf-197,000 sf). Preparing a local trip study is completely acceptable and recommended by ITE when professional judgment determines that the data within the ITE Manuals may not be representative of the actual proposed use. The local trip study was focused on data collection, evaluation, and estimates for the Sunday peak hour of service, as that is the highest demand for the proposed use.

Subsequent to that local study, Northside Church reduced its footprint from 73,611 sf over two phases to a 28,557 sf building with two ancillary buildings (total 32,820 sf on site) to be completed in one phase. Additionally, Benton County had requested trip generation data for hours outside of the Sunday peak hour of service. The reduction of building square footage and removal of some of

the ancillary uses placed the proposed Northside Church in line with the range of data within the cluster and better aligned with the description of the churches studied for the ITE Trip Generation Manual rates. Therefore, it was determined to be appropriate to use the ITE Trip Generation rates for the revision to the site.

As described in the following detailed response, a second local trip generation study was prepared for churches that more aligned with the updated building size and site use, to respond to Benton County's requirements to use churches in the Albany and Corvallis area that are more rural in location to account for the limited trips that will occur from biking or walking due to not being within walking distance to more urban areas, and to address the difference in professional judgement by DKS and Sandow Engineering on which is the more appropriate independent variable to use for this site.

Item #2: The trip generation estimate provided by DKS vs the trip estimates provided by Sandow Engineering.

Response:

Both DKS and Sandow Engineering used the ITE Trip Generation Manual and selected the same land use (Land Use Code 560 – Church). The difference between the two analyses is not the methodology, but the engineering judgment used in selecting the most appropriate independent variable from those provided by ITE. The ITE methodology specifically requires engineers to evaluate the available data and determine which variable most appropriately represents the proposed development.

The original trip generation estimates by Sandow Engineering followed the ITE Trip Generation methodology. This methodology requires the engineer to review the data provided, make a decision on the appropriate data set to use, then determine if the trip data is reasonable and accurately represents the trips reasonably assumed to be generated by the site. This process requires professional engineering judgment in evaluating the available data and determining which dataset most appropriately represents the proposed development. This process is as follows:

1. Select the appropriate ITE land use code. This is done by reading the land use description. Sandow Engineering and DKS both selected Land Use "560- Church". This land use is described as a facility where public worship services are held, and may contain assembly areas, meeting rooms, classrooms, event facilities, daycare, and extended programs during the week. This land use fits the description of the proposed Northside Church.
2. Select the appropriate "independent variable". The independent variable is the unit of measure for determining trips. Three independent variables are provided using attendees, building square footage, or the number of seats provided in the assembly area.
 - **Attendees:** Trip rate is provided based on the number of attendees for only the AM weekday and AM peak hour, and there is only one data point. There is no

data provided for any other time period. There is a very small sample size and limited time frames. This variable is not appropriate to use. Sandow Engineering and DKS are in agreement on this decision.

- **Seats:** Trip rate is provided based on the number of seats provided in the main gathering area for weekday ADT, weekday AM peak hour, weekday PM peak hour, and Saturday peak hour, and Sunday peak hour for most of the data time frames. The seat-based datasets contain limited observations for several time periods, including only a single study site for Sunday ADT and weekday ADT. In addition, those study sites are substantially larger than the proposed Northside Church.
- **Building square footage:** Trip rate is provided based on the building's square footage for the weekday ADT, weekday AM peak hour, weekday PM peak hour, and Saturday peak hour, and Sunday peak hour for most of the data time frames. The data points are from churches close in size to the Northside Church (5 ksf-20 ksf). There are 6 data points for weekday peak hour and 10 for the Sunday peak hours. The number of data points and the data points being from churches similar in size make this data viable to use. The square footage includes the entire building area, which may be used simultaneously as the main gathering area.

3. Determine if the data is reasonable for the proposed use.

DKS's estimate used the number of seats as the independent variable. Sandow Engineering chose to use the building square footage based on the following rationale:

- a) The building will contain the larger sanctuary/gathering area for the main services as well as other classroom and small gathering spaces. The smaller gathering areas will have adults who have driven to the site but spend the service time outside the main sanctuary (i.e., youth group leaders). Since the main sanctuary/gathering space as well as the smaller classroom areas will be occupied at the same time, the entire space is used.
- b) There is only 1 data point for Sunday ADT based on 1,000 seats. This data point has a rate of 2.21 trips per seat. Applied to the 500 Northside seats, this results in an ADT of 1,105 vehicle trips. This does not pass the reasonability test. At the 2.21 trips per seat rate, it would require that each seat is occupied by a person who drove alone. When in reality, church attendees commonly arrive in carpools and family groups; therefore, one occupied seat does not equate to one vehicle trip. To test the reasonability, assume 500 seats are full, the vehicle occupancy is between 1.5-2.5 people/vehicle, resulting in 200-330 vehicles per service; each vehicle makes 2 trips (1 in, 1 out), resulting in an ADT of 400-660. The ITE rate is substantially higher than the expected range of all-day trips on Sunday.

Additionally, the weekday ADT using a per-seat calculation is estimated at more than 400 trips. This trip generation level would require full service of the entirety of the 500 seats being filled during the weekday. The proposed Northside Church operations do not include large services during the weekday. Typical weekday services will consist of smaller bible study groups.

The fact that two engineers reach different conclusions when applying the ITE Trip Generation methodology does not indicate that either analysis is incorrect. The ITE methodology expressly requires professional judgment when selecting the most appropriate independent variable.

Additionally, regardless of what ITE independent variable is selected, the ITE data for this land use is limited as there are no rates/data provided for all the time periods needed to establish the ADT and DHV according to Benton County's request. To fill in the gaps from the ITE manual and to further remedy the issue of what independent variable to use, Sandow Engineering completed a local trip generation study using three comparable churches identified by Benton County staff. That study found that the estimated trip generation for Northside Church is nearly identical whether building square footage or sanctuary seating is used as the independent variable. Accordingly, the selection of the independent variable does not materially affect the estimated traffic generation or the conclusions of the traffic analysis.

Item #3: What is DHV and how it is applicable to this application

Response:

Design Hour Volume (DHV) is a planning traffic volume used to evaluate roadway operations during a representative high-demand traffic period. The objective of DHV is to represent traffic conditions that occur with sufficient frequency to support sound transportation planning and engineering decisions without designing facilities based on infrequent or exceptional traffic conditions. The DHV is not intended to represent the single highest hourly traffic volume experienced on the roadway, as designing to the highest hour would overbuild the transportation system for normal operating conditions. Therefore, the appropriate DHV is typically established jurisdictionally on the specific traffic characteristic and system planning objectives.

The opposition testimony (including Greenlight Engineering's letter) correctly cites ODOT's use of the 30th highest traffic hour in establishing DHV, but incorrectly implies that Benton County follows ODOT's DHV methodology. As per the Benton County Transportation System Plan (TSP), Benton County does not specifically define what they consider the DHV time period.

For this application, Benton County specifically required ADT and DHV measurements on Powers Avenue to be based on traffic data collected over a seven-day period during the school year. Sandow Engineering collected the Powers Avenue traffic data consistent with that direction. The resulting data capture weekday and weekend traffic conditions and provide the representative peak-hour traffic information necessary to determine the existing DHV for Powers Avenue.

Accordingly, the DHV analysis provided for this application was developed using the data collection period specifically required by Benton County for Powers Avenue.

Item #4: Northside Church trips will require Powers Avenue to be reclassified to a higher functional classification

Response: The opposition testimony implies that the projected traffic volumes associated with the proposed church require Powers Avenue to be reclassified from a Primary Local Road to a higher functional classification. This interpretation treats the projected ADT and DHV values identified in Table 7 of the Benton County Transportation System Plan (TSP) as mandatory thresholds that automatically determine roadway functional classification. That is not how the TSP establishes functional classification.

The TSP identifies both projected Average Daily Traffic (ADT) and projected Design Hour Volume (DHV) as traffic volume characteristics associated with the typical roadway cross-section standards. Table 7 identifies a projected ADT of less than 700 vehicles per day and a projected DHV of less than 100 vehicles per hour for a Primary Local Road. However, these traffic volume values are not identified in the TSP as automatic triggers requiring a change in functional classification. Rather, Table 7 is specifically titled “Typical Roadway Cross-Section Standards,” and the TSP states that application of these standards is subject to the judgment of the County Engineer.

The relationship between traffic volumes and functional classification is also demonstrated by the ADT and DHV criteria themselves. A Primary Local Road has a projected ADT of less than 700 vehicles per day and DHV of less than 100 vehicles per hour. A Minor Collector has a higher projected ADT of less than 1,000 vehicles per day but has the same projected DHV of less than 100 vehicles per hour. Therefore, exceeding 100 vehicles during a peak hour does not automatically result in a roadway becoming a Minor Collector, since the Minor Collector standard has the same DHV criteria.

The TSP establishes functional classification based on how a roadway functions within the transportation system. The TSP states that roadways are classified based on the type of vehicular travel they are intended to serve and that the functional classification system balances local access and regional connectivity. Local Roads are intended to provide access to adjacent properties and discourage through traffic. Minor Collectors serve internal traffic within an area and minor traffic generators, while Major Collectors carry traffic between neighborhoods or between neighborhoods and arterials.

The proposed church does not change the function of Powers Avenue. Powers Avenue will continue to provide access to the properties located along the roadway and will not become a through route or provide a new connection between neighborhoods or other roadways. The proposed church does create a higher traffic volume during the Sunday service period, but that concentrated peak does not change the overall function of Powers Avenue within the transportation system.

Additionally, the standards provided in Table 7 are typical roadway cross-section standards and do not limit the County to only those improvements identified in the table. The TSP specifically states

that application of the roadway cross-section standards is subject to the judgment of the County Engineer. Therefore, maintaining Powers Avenue as a Local Road does not preclude Benton County from requiring additional traffic or safety improvements where appropriate to accommodate the proposed development. The roadway classification establishes the applicable roadway design framework; it does not establish the maximum level of improvement that can be required.

This is consistent with the approach taken by Benton County for this application. Powers Avenue remains functionally classified as a Local Road, while Conditions of Approval P-12 and P-13 require additional roadway improvements to address the traffic generated by the proposed church. The need for improvements beyond the minimum Primary Local Road cross-section does not, by itself, require Powers Avenue to be reclassified to a higher functional classification.

Accordingly, the projected ADT and DHV are appropriately considered in determining the roadway design and improvements necessary to accommodate the additional traffic generated by the proposed church. They are not, however, independent thresholds that automatically require Powers Avenue to be reclassified. The proposed development does not change the function of Powers Avenue, and Powers Avenue will continue to function as a Local Road.

Item #5: From Sean Malone's letter dated August 4, 2026, "this record omits the transportation documentation typically associated with the applicant's conclusions" and implies a more comprehensive traffic evaluation is required.

Response:

Sean Malone's testimony and the Greenlight Engineering report identify analyses that are commonly included in a full Traffic Impact Analysis, including intersection level of service, queueing, crash history, and other operational evaluations. However, the scope of a transportation analysis is not determined by a standard list of analyses that must be completed for every development. The appropriate level of analysis is based on the characteristics and magnitude of the proposed development, the surrounding transportation system, the applicable approval criteria, and the scope established by the reviewing jurisdiction.

Benton County staff did not require a full Traffic Impact Analysis for this application. Rather, through its review of the application, County staff identified the specific transportation information necessary to evaluate the proposed development. Sandow Engineering was requested to provide a sight distance evaluation at the proposed site driveway, roadway traffic volume data to determine the appropriate street classification and roadway cross-section elements, and parking information to determine parking demand associated with the previously requested parking variance. Sandow Engineering provided the requested transportation information, as well as supplemental analyses in response to subsequent questions raised during review of the application.

The roadway traffic analysis was specifically focused on the functional classification and roadway design requirements for Powers Avenue. The Benton County TSP establishes roadway classifications based upon the function of the roadway and the traffic volumes anticipated for each

classification, including ADT and DHV. Therefore, the analysis of existing and projected traffic volumes directly addresses the criteria used to determine whether the roadway continues to function within its adopted classification and what roadway cross-section is appropriate for the projected traffic volumes.

Detailed intersection operational analyses such as level of service and queueing serve a different purpose. Those analyses are used to evaluate the operational performance of specific intersections and movements. Similarly, crash analyses are used to identify and evaluate existing crash patterns or specific safety concerns. Benton County did not identify these analyses as necessary to determine the roadway classification or roadway improvement requirements applicable to this development and were therefore not included within the scope of the transportation analysis.

BCC 52.125(2) requires a finding that the proposed use does not impose an undue burden on public improvements, facilities, utilities, or services available to the area. The transportation analysis provides evidence directly responsive to that criterion by quantifying the traffic generated by the proposed development, evaluating the resulting traffic volumes on Powers Avenue, identifying the roadway design requirements associated with those volumes, and evaluating sight distance at the proposed access. The scope of the transportation analysis was therefore proportional to both the applicable approval criterion and the transportation issues identified by Benton County through its review of the application.

The applicant has agreed to the conditions of approval from Benton County to address the impact of the added vehicle trips on Powers Avenue between the site driveway and Scenic Road, mitigating impacts and improving safety proportional to the associated impacts. Applicant's acceptance of condition of approval P-12 (road improvements to Powers Ave NW) and P-13 (security of road improvement) meet or exceed the Applicant's proportionate share of the impacts on Powers Ave NW.