Summary of Concerns and Responses for the Proposed Fairview & Chapel Hill Roundabout

1. Concern: The speeds through the roundabout will make it unsafe for pedestrian and bicyclists and will make it difficult for drivers to enter the intersection from Fairview Estates.

   Response: The geometry of roundabouts provides for slow entry speeds and consistent speeds through the roundabout by using deflection. The geometry and movement through the roundabout also produce gaps such that vehicles on each leg will have gaps to enter the roundabout. As can be seen with the existing roundabout at Forum Boulevard and Green Meadows Road, the subdivision on the south is able to enter during rush hour traffic due to the gaps between the vehicles as they are approaching the roundabout and the gaps created as various legs yield to conflicting movements.

   The geometry and speed of the roundabout results in fewer and less severe collisions. The severity of a collision is determined largely by the speed and angle of impact. A roundabout changes the geometry of the roadway in a way that forces drivers to slow down and alter their direction. Four-way stop and signalized intersections relies on driver's obedience of traffic control devices to eliminate collisions and the most severe collisions occur when there is a violation of the traffic control device designed to separate conflicts by time. With roundabouts these severe types of crashes (right-angle, left-turn, and head-on) are unlikely to occur.

   A pedestrian crossing a leg of the 4-way stop intersection faces six potential vehicular conflicts, each coming from different movements and different directions for those movements. A conflict point is any location in the intersection where vehicles' paths merge, diverge, or cross. These are the most likely locations for collisions to occur. A pedestrian crossing a leg of a roundabout will face two potential vehicular conflicts and each conflict point will be at a separate time from only one direction. For the roundabout the first potential conflict will be coming from the left, with a refuge on the median island, before facing the other potential conflict, which will be coming from the right.

   The vehicular speeds are lower and the crosswalks are set back at the roundabout to allow drivers more time to react to pedestrians while merging into or out of the roundabout which reduces the consequences of error. With the crosswalks set back, the driver concentrating on merging into the roundabout will be past the crosswalk, and thus while the driver is looking left he/she will not need to worry about a pedestrian on their right. Whereas a driver approaching the leg will have a full view of the leg including any pedestrians waiting at either side of the crosswalk giving the driver time to yield prior to the crosswalk for the pedestrian to cross.

   Bicyclists using the roundabout will have two options. With the slower traffic the bicyclist can merge into the travel lane and cycle through the roundabout as would a vehicle. A cyclist may access the sidewalk with a curb ramp provided at each leg to utilize the sidewalk through the roundabout.

   For reference are a couple links from the Federal Highway Administration (FHWA) about roundabouts: FHWA Highway Safety Programs/Roundabouts and Roundabouts with Pedestrians and Bicycles.

2. The intersection being located at the top of the hill will makes it less safe/Winter weather will make the roundabout less easy to navigate compared to the existing 4-way stop because of the hill.

   The westbound approach is at an approximate 8% grade on Chapel Hill Road. This can be problematic for queuing vehicles during winter weather conditions. A roundabout will allow vehicles to more easily keep moving slowly instead of coming to a complete stop on the hill as would be required with a 4-way stop or signal.

   The roundabout at the Blue Ridge Road and Garth Avenue has a similar configuration whereas it is located at an entrance to a subdivision and the Garth Avenue northbound approach is at an approximate 7% grade. Finally, MoDOT designs include roundabouts at the top of exit ramps such as the roundabouts at the Highway 63 and Route H interchange (Airport exit) and the roundabouts at the Highway 63 and Route Y interchange (Ashland exit).

   During winter weather the City will plow the roundabout while plowing both Fariview Road and Chapel Hill Road. For traveling up the hill approaching the roundabout, the driver will only need to yield to traffic coming from their left within the circle of the roundabout and the driver will be able to vary their speed such that they will not need to stop prior to entering the intersection. Whereas, with the existing 4-way stop, the driver is required to stop at the stop sign even during winter weather.

3. Concern: The landscape and wall at Fairview Estates entrance needs to be maintained or replaced.

   Response: Public Works will work with the Fairview Estates Homeowners Association to put back a landscaped entrance and wall where it will be disturbed. Also, the island in the middle of the roundabout will be able to be landscaped.

4. Concern: The roundabout needs to be bigger than a mini roundabout.

   Response: The diameter of the proposed roundabout is 110 feet. The diameter of the mini roundabout at Fairview and Rollins is 60 feet. Existing roundabouts within the City that are similar diameter to the proposed roundabout include the Garth Avenue/Blue Ridge Road roundabout (100-foot diameter), the Bearfield Road/Old Highway 63 roundabout (105-foot diameter), the Green Meadows Road/Carter Lane roundabout (120-foot diameter), and the Buttonwood Drive/Providence Access roundabout (120-foot diameter).

5. Concern: The existing traffic delays do not warrant an improvement/Traffic delay not worth the cost of the improvement.

Response: The traffic at this intersection is anticipated to increase as the City grows to the south and southwest. The estimated existing traffic delay during the afternoon peak traffic period for westbound Chapel Hill Road is 89 seconds with an overall average delay at the intersection of 50 seconds. It is projected that if the intersection remains as a 4-way stop and traffic grows at an estimated 1.5% rate, the delay in 20 years during the afternoon peak traffic period for westbound Chapel Hill Road will be 5.6 minutes with an overall average delay at the intersection of 3 minutes.

Public Works completes intersection improvement projects utilizing a 10-year Capital Improvement Program (CIP) plan. The improvement at the intersection of Chapel Hill Road and Fairview Road is included in this current CIP plan for 2016-2025. It is not anticipated to include this intersection in the project list for the upcoming 10-year CIP plan which is from 2026-2035. Therefore, improvements to the intersection would not be visited again until developing the project list for the 2036-2045 CIP plan. Fiscally construction costs have been increasing and the estimated cost of construction of this roundabout has increased since it was originally proposed in 2016. It is anticipated that construction cost will keep rising increasing the construction cost of this project in the future.

6. Concern: This project was voted down in 2016.

Response: A public hearing for the Chapel Hill and Fairview improvement project was held at the June 20, 2016 City Council meeting to discuss the proposed roundabout for the intersection. At the public hearing many residents voiced concerns about the roundabout and Council voted not to move forward with final plans. At the public hearing the Ward 4 Councilman, Mr. Thomas, directed staff to complete a detailed study of the congestion issues at the Chapel Hill and Fairview intersection and also to complete a safety evaluation of the existing Rollins Road and Fairview Road mini-roundabout.

Completion of the two intersection studies were put on hold until 2022 in order to allow additional road improvement projects in the area to be completed and then to allow traffic to even-out after the improvements were completed. These road improvement projects included the construction of the roundabout at Forum & Green Meadows (2019), the road widening along Forum between Green Meadows and Nifong (2020), the road widening along Nifong between Providence and Willowcreek (2020-2021), the roundabout at Nifong & Sinclair (2020), and the roundabout at Nifong and Old Mill Creek (2020).

A local engineering firm, Allstate Consultants, was hired in February of 2022 to complete the traffic study at each intersection. The objectives of the study were to analyze the existing and anticipated traffic flow through the intersections and to evaluate options for traffic control and/or geometric improvements to reduce the intersection delay and improve safety. Allstate Consultants completed the field study in March of 2022 and finalized the report in May of 2023.

In a council report at the October 23, 2023 City Council meeting, staff provided the traffic study information to Council for consideration. Staff requested Council acceptance of the report and requested Council authorization to hold a second interested parties meeting and a second public hearing for the proposed improvements at the Chapel Hill and Fairview intersection. Council authorized staff to move forward with the public improvement process.

7. Concern: There is not enough room to fit the improvement.

   Response: Extensive street right of way already exists on the northwest corner of the intersection from the previous configuration of the intersection prior to it becoming reconfigured as a 4-way stop. Some additional street easements and temporary construction easements will be needed for construction of the project.

8. Concern: The intersection is not a safety/collision concern.

   Response: The traffic study does state that the intersection does not have a significant history of numerous or serious crashes. The safety benefits are that of a roundabout versus a signal-controlled intersection. At the first interested parties meeting and public hearing, some residents were requesting construction of a traffic signal to improvement the flow of traffic over the roundabout. The roundabout provides safety benefits over the traffic sign in the form of reduced conflict points and reduced speeds due to the physical nature of the control. As discussed previously, there is also the pedestrian and bicycle safety benefits with the reduced speeds, refuge islands, set back crosswalks, and fewer conflict points.

   It should also be noted that neighborhoods to the north of the intersection experience cut-through traffic because the intersection does not operate effectively. A properly operating intersection with reduced delay time will encourage drives to remain on the main roads instead of utilized the subdivision to avoid the intersection.

9. Concern: There will be a loss of property value.

   Response: As part of the easement acquisition process needed for the construction of the improvements, the City uses a state certified appraiser to determine the value of the easements. The appraisal process includes considering compensation for tree/landscape loss and proximity damages. These values are summarized for the property owner in a waiver valuation/payment estimate prepared by the appraiser and is used as the basis of the City's compensation offer to the property owner.

10. Concern: This is the only roundabout with a dead-end subdivision on it.

    Response: In Columbia, there are three subdivision that the only exist onto an external road is through a roundabout. The subdivision on the north side of the Nifong Boulevard and Sinclair

Road roundabout, the subdivision on the south side of the St. Charles Road and Lake of the Woods Road roundabout, and the subdivision on the north side of the St. Charles Road and Battle Avenue roundabout only have access out through the roundabout. There are also quite a few roundabouts internal in subdivisions that dead-end streets connected directly to the roundabout. These include the Vancouver Circle and Cascades Drive roundabout, the Chelan Circle and Cascades Drive roundabout, the Phillips Farm Road and Ponderosa Street roundabout, and the Stone Mountain Parkway and Dumas Drive roundabout.

11. Concern: Parking for the preschool located at the northeast corner of the intersection creates a traffic hazard that will be aggravated with a roundabout.

    Response: The existing preschool does not have on-site parking and therefore, parents park along the street to drop off and pick up their children. For construction of the roundabout, the City will likely need to acquire a permanent street easement and a temporary construction easement from the preschool. Staff will work with the preschool during the easement acquisition process to discuss alternatives for parking including relocation of the driveway approach on the property.

    It is anticipated that the roundabout will slow down traffic around the intersection. The biggest complaint voiced was that traffic coming up the hill on Chapel Hill Road and then turning right onto Fairview Road speeds once it turns right at the stop sign. Drivers tend to speed to make up for time lost during the delay created with the stop and go process to pass through the intersection. The roundabout will reduce this delay time, thus also reducing the driver's urge to speed to make up for lost time. Also, with the layout of the roundabout, parking on street for the preschool will be farther north away from the intersection providing drivers time to see and react to any conflicts prior to encountering the parked vehicles.

12. Concern: The traffic study was not shared with residents/The traffic study is not correct.

    Response: Allstate Consultants was hired to complete the traffic study. The objectives of the study were to analyze the existing and anticipated traffic flow through the intersection and to evaluate options for traffic control and/or geometric improvements to reduce the intersection delay and improve safety. Allstate completed the field study in March 2022 and finalized the report in May 2023. Both of the engineers with Allstate Consultants who completed the traffic study are registered Professional Engineers (PE) and have the Professional Traffic Operation Engineers (PTOE) certification.

    The traffic study was included on the BeHeardCoMo webpage for the project. A link to the project webpage was included in the letter sent to the property owners notifying them of the interested parties meeting. The webpage was also referenced in the City's press release. Finally, three paper copies of the traffic study were available that the interested parties meeting for citizens to review.