

Appendix B

Pending Impacts on the Area

Over time, the following will affect the operation of Bannister Road and the attractiveness of the area for development.

1. Upgrades to the I-435 interchanges at East Red Bridge Road, Hickman Mills Road that will improve aesthetics and accessibility from the south.
2. The Highway 71/Bannister Road ramp intersections are close to saturation and therefore limit the number of additional vehicles that can pass through the interchange. Consequently, traffic volumes to and from Highway 71 and Bannister Road will be constrained unless Bannister Road is widened to six or eight through lanes plus turn lanes or the signals are replaced with roundabout interchange. A roundabout intersection is favored as it would create a true gateway into the area while improving traffic flow and reduce crashes.
3. Development on the north side of Bannister Road would most likely use the proposed roundabout at Bannister Road and Marion Park Drive as a logical access point to Bannister Road increasing traffic volumes through the roundabout. Any significant increase in traffic from the north may cause a problem in the AM peak when drivers from the development wish to exit the development and go to Highway 71 or I-435 assuming there is no reduction in traffic as major roadworks in the area are completed. A simple fix is to retain the two-lane roundabout design and add metering signals to the east approach and maybe the west approaches. During the peak 15 minutes, or so, of the peak hour, the metering signals would stop eastbound, or westbound traffic, to allow drivers from the north or south to turn onto or cross Bannister Road. This technique is common practice in Australia as it reduces the road construction costs used during the peak traffic flows as needed. It is the same principle as freeway ramp metering. There the ramp metering signs only operate for short time periods and only when needed. There is metering at a two-lane roundabout in Clearwater Beach that only operates around 9.00 PM at night when there is a surge to the bars on the beach, before lunch and dinner on Saturdays as drivers head to or leave the beach. They do not operate at peak hours.

If the development on the north side of Bannister Road, opposite Marion Park Drive, is to generate a significant volume of traffic and the Highway 71 ramp intersections are improved to greatly increase their capacity then this roundabout may have to be enlarged to three lanes or Bannister Road widened to six or eight lanes if signals are retained. To illustrate the point a comparison of roundabout and signalized intersection performance is shown in the table below. Because the type and mix of development to the north is unknown, the following volumes were used as an example to illustrate the differences between a roundabout and signalized intersections. Vehicles added to the north leg are as follows, 50 left, 110 through, and 125 right turn vehicles. The results of the increased traffic is shown in the table below.

	AM Peak			PM Peak		
	LOS	Delay	Max Queue	LOS	Delay	Max Queue
Roundabout	B	19.5	429 (E)	A	8.8	357 (W)
Signals	D	35.7	804 (E)	C	22.0	732 (W)

Notes:

1. The roundabout has eight (8) entry lanes.
2. Signalized intersection has fifteen (15) entry lanes.
3. Even with almost twice the number of entry lanes, the signalized option is less efficient than the roundabout.
4. A standard four-phase signal system was used with a 110-second cycle time.