

Henderson County
TRANSPORTATION ADVISORY COMMITTEE
March 21st, 2018

The Transportation Advisory Committee held a Regularly Called Meeting on November 15th, 2017 at 4:00 p.m. in the King Street Meeting Room at 100 North King Street, Hendersonville. Meeting attendance was as follows:

Voting Member	Present	Not in Attendance
Renee Kumor, Chair at-large	√	
Beau Waddell, Vice-Chair at-large		√
John Bryant, at-large		√
Joe Sanders, at-large	√	
Mike Edney, Henderson County Commissioner		√
Bill Lapsley, Henderson County Commissioner	√	
Steve Caraker, City of Hendersonville		√
John Dockendorf, Village of Flat Rock	√	
Brian Caskey, Town of Mills River	√	
Eddie Henderson, Town of Fletcher		√
George Banta, Town of Laurel Park	√	
Autumn Radcliff, Planning Director (Commissioner's Alternate)	√	
Brian Burgess, Transportation Planner	√	
Jeff Wells, (Town of Mills River Alternate)	√	

Also present were Lyuba Zuyeva, FBRMPO Director, and Tristan Winkler, FBRMPO Senior Transportation Planner.

Mrs. Kumor called the meeting to order at 4:00 p.m.

Discussion

Approval of Agenda. Agenda was approved unanimously.

Public Comment. Mrs. Kumor opened the floor for public comment. Citizens expressed concerns on the current NCDOT projects on the Balfour Parkway project, as well as the Kanuga to White St. project. Information provided by citizens and board members are included in the minutes below.

Approval of Draft Minutes. Mr. Joe Sanders made a motion to approve the draft minutes from the Feb. 21st meeting. Mr. John Dockendorf seconded the motion. All members voted in favor.

Update on Revised SPOT Methodology. MPO Staff updated the on the adjustments to the SPOT Methodology effective in the 5.0 round.

Report on Laurel Park/ US64 Stakeholders Meeting. Mr. Banta explained that the meeting between Laurel Park and the US64 Stakeholders seemed to have gone well, and that he hoped communications would remain open moving forward.

Routine Updates

Municipal Representatives. Councilman George Banta provided the committee with a copy of information Laurel Park recently provided to its residents. This handout is included in the minutes below.

Councilman George Banta noted that there had been overwhelmingly favorable public input on the US64 Project from Laurel Park's recent input requests.

Councilman John Dockendorf announced that the final draft of the Highland Lake Rd. Project would be presented on Friday April, 13th at St. Johns in the Wilderness in Flat Rock.

Joe Sanders informed the committee that the Greenway Master Plan Steering Committee is looking to update and revise the current plans in effect over the coming months.

Councilman Brian Caskey informed the TAC that the public input results from the 191 Project would be prepared by April 15th. He added that Mills River Town Council had voted to approve the NC280 multi-modal path from Westfeldt Park to 191.

Staff Updates. No staff updates were given.

The meeting adjourned at 5:08pm.

Renee Kumor, Chair
Henderson County Transportation Advisory Committee

Public Comments
Henderson County Transportation Advisory Committee
March 21, 2018

*Include
in Minutes*

Good afternoon. My name is Bill Burchill. I am a 10-year resident of Henderson County living in the Foxwood Subdivision on Stoney Mountain. And, I am a retired engineer. Thank you for allowing me to provide comments to this meeting.

My comments this afternoon concern the proposed Balfour Parkway. I recently prepared an analysis of the traffic congestion conditions that the NCDOT Project Plan states will be relieved by the Balfour Parkway. Mr. Burgess has placed a copy of that analysis in your meeting handout package. I would be happy to meet with you either as a group or individually to discuss it.

The primary purpose of the Balfour Parkway stated in the Project Plan is "to improve east-west vehicular mobility in Henderson County." However, the basic premise of the Parkway, also clearly stated in the Project Plan, is to relieve "recurring congestion and excessive travel delays" due to "the volume of traffic traveling through downtown Hendersonville."

That premise is incorrect because

- (1) The traffic congestion cited in the Plan on U.S. 64, U.S. 25 Business, and N.C. 191 is due almost entirely to local traffic, not east-west through traffic, and
- (2) This congestion will not be relieved by the Balfour Parkway.

My analysis is based on ten years of observations of traffic on the roadways stated to be of concern. The conclusions of that analysis are

1. The sources of traffic congestion are readily observable and are well understood.
2. East-west through traffic is a negligible contributor to this congestion.
3. Congestion due to east-west through travel by large trucks is essentially non-existent.

I analyzed traffic conditions that exist today. I did not analyze traffic conditions in 2040, the design year of the Balfour Parkway. However, since I sent my analysis to Mr. Burgess, the NCDOT has been kind enough to give me their "Project Level Traffic Forecast" prepared in October 2016. That report provides their forecasts of traffic in the Balfour Project study area in 2040.

I conclude from an initial review of the NCDOT forecasts that the traffic congestion sources in 2040 will be unchanged from those that exist today. In fact, the report, itself, includes the statement that "there is limited development activity that would greatly alter existing traffic patterns in the future year of 2040 within the project study area."

I have submitted my analysis to the NCDOT at the points of contact identified in the Project Plan in response to their solicitation of public comments.

I also have widely distributed the analysis to County residents in neighborhoods that would be negatively impacted by the Parkway. Last Saturday I made a presentation of the analysis to 63 of those residents, some of whom are in this room.

Thank you very much for the time you have given me in this meeting. I urge you to consider carefully the conclusions that I have presented today. Again, I am available to meet with you at your convenience. Thank you.

Respectfully submitted by Bill Burchill, 31 J P Huggins Drive, Hendersonville, NC, 828-595-4399, burchill@tamu.edu

The Basic Premise of the Balfour Parkway is Incorrect !!

The basic premise of the Balfour Parkway is that **it will relieve traffic congestion “through downtown Hendersonville.”**

This is incorrect, because

- (1) The congestion cited in the Balfour Parkway Plan¹ on “U.S. 64 combined with U.S. 25 Business and N.C. 191” is **due almost entirely to local traffic, not east-west “through” traffic**, and
- (2) This congestion **will not be relieved** by a new “route for east-west travel,” i.e., the Balfour Parkway.

This is demonstrated by the discussion below.

Locations of Cited Congestion

The Balfour Parkway Plan (BPP)¹ cites three locations of congestion (see map on page 7):

U.S. 64 – 4 Seasons Blvd (highlighted in pink on map) 

U.S. 25 Business – Asheville Hwy (highlighted in green on map) 

N.C. 191 – Haywood Rd (highlighted in blue on map) 

The sources of traffic congestion in each of these segments are described below.

Congestion Descriptions

U.S. 64 – 4 Seasons Blvd

U.S. 64 – 4 Seasons Blvd has a significant level of traffic congestion at all times of business day along its length from the Ingles complex at its east end to Dana Rd near the Lowes complex at its west end. The whole length of this route is lined with a dense concentration of commercial businesses including the Blue Ridge Mall. The preponderance of traffic congestion is due to “local” traffic going to and from these businesses. Traffic is also fed onto (and removed from) this route by numerous intersecting roads from the north and the south; this contributes to the “local” traffic.

A small fraction of the traffic is “through” traffic, i.e., traffic simply passing from one end to the other following a longer route. Most of this “through” traffic is either entering/exiting I-26 or entering/exiting

¹ “Balfour Parkway, Proposed new location roadway from N.C. 191 to U.S. 64,” Henderson County, STIP Project No. R-5744, presented at Public Meeting, February 27, 2018.

downtown Hendersonville or north U.S. 25 Business – Asheville Hwy. Very little of this traffic is due to “east-west travel” continuing on (or arriving from) U.S. 64 – Chimney Rock Rd on the east or U.S. 25 Business – Asheville Hwy and N.C. 191 – Haywood Rd on the west as hypothesized by the BPP.

Finally, an essentially negligible amount of the traffic is “large truck” traffic due to “east-west travel.” The “large truck” traffic that does appear on U.S. 64 – 4 Seasons Blvd is due primarily to deliveries to the commercial businesses. This traffic minimizes its appearance by preferentially using roads behind the businesses and perpendicular to U.S. 64 – 4 Seasons Blvd or traveling off-business-hours during which traffic congestion on U.S. 64 – 4 Seasons Blvd is minimal.

U.S. 25 Business – Asheville Hwy

U.S. 25 Business – Asheville Hwy has a highly variable level of traffic congestion through the day ranging from little or none to stop-and-go traffic. The section of concern in the BPP is from the intersection with 6th Ave (points C/C’ on map on page 7) to the intersection with N.C. 191 – Haywood Rd (point E on map); this includes the sections of N Main St and N Church St which connect U.S. 25 Business – Asheville Hwy to 6th Ave. Peak congestion occurs during the time periods (1) when Hendersonville High School opens and closes, (2) when there is significant slowdown of traffic going south on U.S. 25 Business – Asheville Hwy due to traffic going south on N Church St, and (3) when there is significant slowdown of traffic going north on U.S. 25 Business – Asheville Hwy due to the concentration and timing of traffic lights on N Main St from its intersection with N King St to, and somewhat beyond, its intersection with N Church St and U.S. 25 Business – Asheville Hwy. The preponderance of traffic congestion is due to traffic traveling primarily in a north-south direction on N Main St, N Church St, and U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd.

Some of the traffic is “through” traffic, i.e., traffic simply passing from one end to the other following a longer route. Most of this “through” traffic is either entering/exiting downtown Hendersonville or north U.S. 25 Business – Asheville Hwy beyond its intersection with N.C. 191 – Haywood Rd. However, very little of this traffic is due to “east-west travel” continuing on (or arriving from) U.S. 64 – Chimney Rock Rd on the east or U.S. 25 Business – Asheville Hwy and N.C. 191 – Haywood Rd on the west as hypothesized by the BPP.

Finally, an essentially negligible amount of the traffic is “large truck” traffic due to “east-west travel.” The “large truck” traffic that does appear on U.S. 25 Business – Asheville Hwy is due to traffic to/from U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd and is not to/from N.C. 191 – Haywood Rd.

N.C. 191 – Haywood Rd

N.C. 191 – Haywood Rd has essentially no traffic congestion during most of the business day (and, none after business hours) except due to road construction or utility repairs. The only significant traffic congestion occurs during the time periods when West Henderson High School or Rugby Middle School opens and closes. The only other period of noticeably increased westbound traffic volume and localized congestion is a relatively short time around 5:00 pm when commuters travel from Hendersonville to Mills River. A similar increase in eastbound traffic does not occur during the morning commute period. Since both West Henderson High

School and Rugby Middle School are west of the locations at which the BPP would intersect N.C. 191 – Haywood Road, the BPP would have no role in reducing the traffic congestion caused by them.

An undetermined fraction of the traffic on N.C. 191 – Haywood Rd is “through” traffic traveling to/from Hendersonville to/from points west including Mills River, Brevard, and destinations further north on N.C. 191 after it first joins with and then separates from U.S. 280 in Mills River. However, very little of this traffic is due to “east-west travel” arriving from U.S. 64 – Chimney Rock Rd on the east via U.S. 25 Business – Asheville Hwy as hypothesized by the BPP. The remainder of the traffic is from/to the many locations along N.C. 191 – Haywood Rd which include numerous large residential neighborhoods.

Finally, there is essentially a negligible amount of the traffic on N.C. 191 – Haywood Rd that is “large truck” traffic due to “east-west travel.”

Observations that Demonstrate the Congestion Descriptions

The congestion descriptions previously stated are based on observations which are made every day by drivers in Hendersonville. They should be verified by DOT taking data to measure the volume² and nature of traffic at various locations as described in the Appendix.

U.S. 64 – 4 Seasons Blvd

The following observations demonstrate that the preponderance of traffic congestion on U.S. 64 – 4 Seasons Blvd is due to “local” traffic rather than “through” traffic. It is readily observed that the traffic volume anywhere in the congested length³ of U.S. 64 – 4 Seasons Blvd is much greater than the traffic volume entering or emerging from that length. This is particularly obvious when driving east on U.S. 64 – 4 Seasons Blvd past the Walmart complex and then the Ingles complex and continuing on Chimney Rock Rd. It is only slightly less obvious when driving west on U.S. 64 – 4 Seasons Blvd past Dana Rd near the Lowes complex and continuing on to 7th Ave E.

The following observations demonstrate that there is very little “through” traffic due to “east-west travel” continuing on (or arriving from) U.S. 64 – 4 Seasons Blvd on the east. It is readily observed that the volume of eastbound traffic at the east end of U.S. 64 – 4 Seasons Blvd which enters I-26 (both southward and northward) is much greater than the volume of traffic which is eastbound on U.S. 64 – Chimney Rock Rd east of the Ingles complex. Likewise, it is readily observed that the volume of westbound traffic arriving at the east end of U.S. 64 – 4 Seasons Blvd from U.S. 64 – Chimney Rock Rd east of the Ingles complex is much smaller than the volume of traffic which enters U.S. 64 – 4 Seasons Blvd from I-26 (from both the south and the north).

The following observations demonstrate that very little of any westbound “through” traffic at the west end of U.S. 64 – 4 Seasons Blvd is due to “east-west travel” continuing on U.S. 25 Business – Asheville Hwy and N.C.

² Traffic volume is defined as the number of vehicles per unit time passing a specified location.

³ The congested length of U.S. 64 – 4 Seasons Blvd is from the Ingles complex at its east end to Dana Rd near the Lowes complex at its west end.

191 – Haywood Rd. It is readily observed that most of the volume of westbound traffic at the west end of U.S. 64 – 4 Seasons Blvd continues westward on 7th Ave E at the intersection with N King St (point A on map on page 7) and then divides at either N Main St (point B on map) or N Church St (point B' on map) into traffic entering downtown Hendersonville or continues west on 7th Ave W. Likewise, it is readily observed that only a small fraction of the westbound traffic from the west end of U.S. 64 – 4 Seasons Blvd travels north on N King St (point A on map) and then northward on U.S. 25 Business – Asheville Hwy. Similarly, it is readily observed that most of the traffic from N Main St which enters U.S. 25 Business – Asheville Hwy continues northward on U.S. 25 Business – Asheville Hwy at the intersection with N.C. 191 – Haywood Rd (point D on map) with very little of it turning left onto N.C. 191 – Haywood Rd and continuing westward.

The fraction of traffic on 7th Ave E going each direction at point A on the map is indicated by the number of lanes devoted to the respective directions, i.e., 3 continuing westward on 7th Ave E and 1 turning right (northwest) on N King St. Likewise, the fraction of northbound traffic on U.S. 25 Business – Asheville Hwy going each direction at point D on the map is partially indicated by the number of lanes devoted to the respective directions, i.e., 2 continuing northward on U.S. 25 Business – Asheville Hwy and effectively 1 turning left (west) onto N.C. 191 – Haywood Rd. A better indication of the fraction of traffic from the south going each direction at point D is the duration of the traffic lights for the two directions, i.e., very long for continuing northward U.S. 25 Business – Asheville Hwy and very short for turning left (west) onto N.C. 191 – Haywood Rd.

The following observations demonstrate that very little of any eastbound “through” traffic at the west end of U.S. 64 – 4 Seasons Blvd is due to “east-west travel” coming from N.C. 191 – Haywood Rd. It is readily observed that the volume of traffic passing southward at the intersection of N.C. 191 – Haywood Rd with U.S. 25 Business – Asheville Hwy (point D on map) originating on N.C. 191 – Haywood Rd is much smaller than that originating on U.S. 25 Business – Asheville Hwy from the north. Likewise, it is readily observed that the volume of traffic turning left (east) on 6th Ave W from N Church St (coming from U.S. 25 Business – Asheville Hwy) (point C' on map) is much smaller than that coming from the west on 6th Ave W plus that coming from right turns of northbound traffic from N Main St (point C on map) and from N King St and N Grove St.

It cannot be readily observed whether any particular “large truck” traffic on U.S. 64 – 4 Seasons Blvd is due to “east-west travel” versus deliveries to businesses on U.S. 64 - 4 Seasons Blvd or deliveries to businesses elsewhere in Hendersonville. However, it is readily observed that the volume of “large truck” traffic on either U.S. 64 – 4 Seasons Blvd or U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd in either direction is much larger than on N.C. 191 – Haywood Rd in either direction. This implies that there is very little “through” traffic due to “east-west travel” of “large truck” traffic.

U.S. 25 Business – Asheville Hwy

The following observations demonstrate that southbound traffic congestion on U.S. 25 Business – Asheville Hwy is due primarily to traffic arriving from north of its intersection with N.C. 191 – Haywood Rd and continuing southward into downtown Hendersonville. It is readily observed that the preponderance of the volume of southbound traffic on U.S. 25 Business – Asheville Hwy arrives from U.S. 25 Business – Asheville Hwy north of its intersection with N.S. 191 – Haywood Rd (point D on map), not from N.C. 191 – Haywood Rd. Furthermore, it is readily observed that the preponderance of the volume of southbound traffic on N Church

St coming from U.S. 25 Business – Asheville Hwy continues south on N Church St with very little traffic turning left (east) onto 6th Ave W (point C' on map) and then on to U.S. 64 – 4 Seasons Blvd.

The following observations demonstrate that northbound traffic congestion on U.S. 25 Business – Asheville Hwy is due primarily to traffic arriving from downtown Hendersonville. It is readily observed that the preponderance of the volume of traffic on N Main St just north of its merger with N King St which continues northward on U.S. 25 Business – Asheville Hwy arrives from south of 7th Ave E on N Main St, N King St, and N Grove St with only a small fraction coming from the west end of U.S. 64 – 4 Seasons Blvd which travels north on N King St (point A on map). Furthermore, it is readily observed that the preponderance of the volume of northbound traffic on U.S. 25 Business – Asheville Hwy continues on U.S. 25 Business – Asheville Hwy to the north beyond the intersection with N.C. 191 – Haywood Rd with very little traffic turning left (west) onto N.C. 191 – Haywood Rd (point D on map).

The following observations demonstrate that very little of the “through” traffic on U.S. 25 Business – Asheville Hwy is due to “east-west travel” continuing on (or arriving from) U.S. 64 – Chimney Rock Rd on the east or N.C. 191 – Haywood Rd on the west. As has been previously observed, the preponderance of the volume of northbound traffic on U.S. 25 Business – Asheville Hwy continues on U.S. 25 Business – Asheville Hwy to the north beyond the intersection with N.C. 191 – Haywood Rd with very little traffic turning left (west) onto N.C. 191 – Haywood Rd (point D on map). Furthermore, also as previously observed, the preponderance of the volume of southbound traffic on U.S. 25 Business – Asheville Hwy arrives from U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd, not from N.C. 191 – Haywood Rd. It is also readily observed that even if the total volume of traffic on U.S. 25 Business – Asheville Hwy which is attributable to N.C. 191 – Haywood Rd were subtracted from the traffic on U.S. 25 Business – Asheville Hwy during times of peak congestion, the reduction of congestion would not be noticeable.

The following observations demonstrate that the “large truck” traffic that does appear on U.S. 25 Business – Asheville Hwy is due to traffic to/from U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd and is not to/from N.C. 191 – Haywood Rd. It is readily observed that the volume of “large truck” traffic that travels northbound/southbound on U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd (point D on map) is far greater than the volume of “large truck” traffic that travels westbound/eastbound on N.C. 191 – Haywood Rd. It is also readily observed that the type of “large truck” traffic that travels on N.C. 191 – Haywood Rd is dominated by trucks going to/from the Henderson County Solid Waste Convenience Station and Transfer Station (county landfill), the Division of Highways Henderson Complex (county maintenance station), or the Van Wingerden Greenhouse Co or associated with local construction, not transport trucks that would be involved in “through” traffic due to “east-west travel.”

N.C. 191 – Haywood Rd

The following observations demonstrate that N.C. 191 – Haywood Rd has essentially no traffic congestion during most of the business day, and that congestion which does occur at specific times is determined entirely by local conditions. It is readily observed that traffic at nearly all times travels at (or slightly above) the posted speed limits at all locations on N.C. 191 – Haywood Rd. It is readily observed that in the vicinity of West Henderson High School and Rugby Middle School congestion produced during time periods associated with school openings and closings is due to reduced speed limits in the vicinity of the schools and significant added

traffic volume going to or coming from the schools. Likewise, increased westbound commuter traffic around 5:00 pm is readily observed to produce limited congestion at the intersection with N and S Rugby Rd where intermittent lines of stopped vehicles form in response to the timing of the traffic light.

The following observations (condensed from those stated previously) demonstrate that very little of the westbound traffic on N.C. 191 – Haywood Rd is due to “east-west travel” arriving from U.S. 64 – Chimney Rock Rd on the east via U.S. 25 Business – Asheville Hwy. It is readily observed that only a small fraction of the westbound traffic from the west end of U.S. 64 – 4 Seasons Blvd travels north on N King St and then northward on U.S. 25 Business – Asheville Hwy. It is also readily observed that most of this traffic continues northward on U.S. 25 Business – Asheville Hwy at the intersection with N.C. 191 – Haywood Rd with very little of it turning left onto N.C. 191 – Haywood Rd and continuing westward.

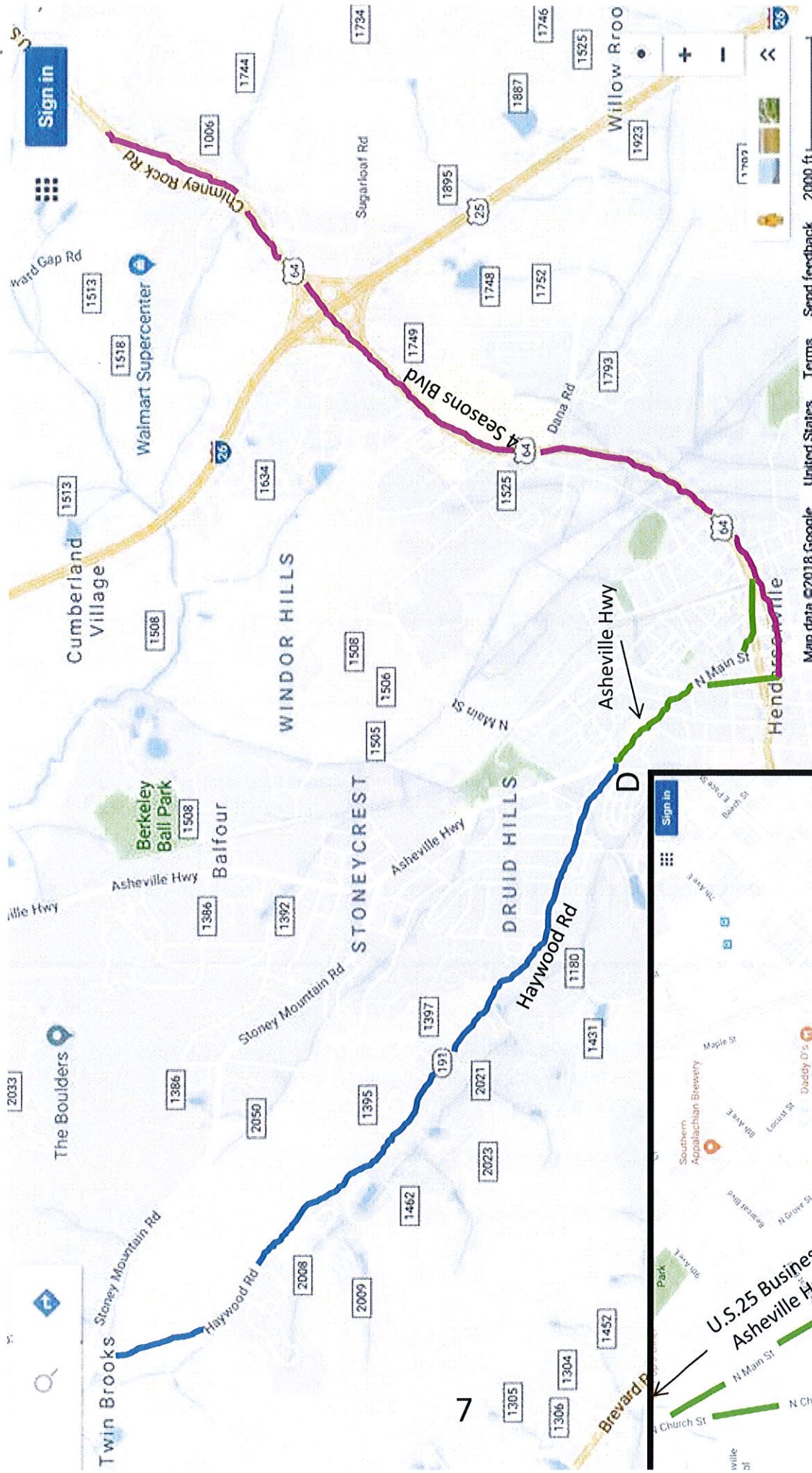
The following observations (condensed from those stated previously) demonstrate that very little of the eastbound traffic on N.C. 191 – Haywood Rd is due to “east-west travel” the eventual destination of which is U.S. 64 – Chimney Rock Rd. It is readily observed when traveling eastward on N.C. 191 – Haywood Rd and merging with U.S. 25 Business – Asheville Hwy. to the south that nearly all of the traffic continues south on S Church St with very little of it turning left (east) onto 6th Ave W (point C’ on map on page 7) in order to continue on toward U.S. 64 – 4 Seasons Blvd.

Finally, the following observations demonstrate that an essentially negligible amount of the traffic on N.C.191 – Haywood Rd is “large truck” traffic due to “east-west travel.” It is readily observed that there is a very small amount of “large truck” traffic on N.C. 191 – Haywood Rd. Furthermore, as has been previously observed, nearly all of the “large truck” traffic is associated with either the Henderson County Solid Waste Convenience Station and Transfer Station (county landfill), or the Division of Highways Henderson Complex (county maintenance station), or the Van Wingerden Greenhouse Co, or local construction.

Conclusions

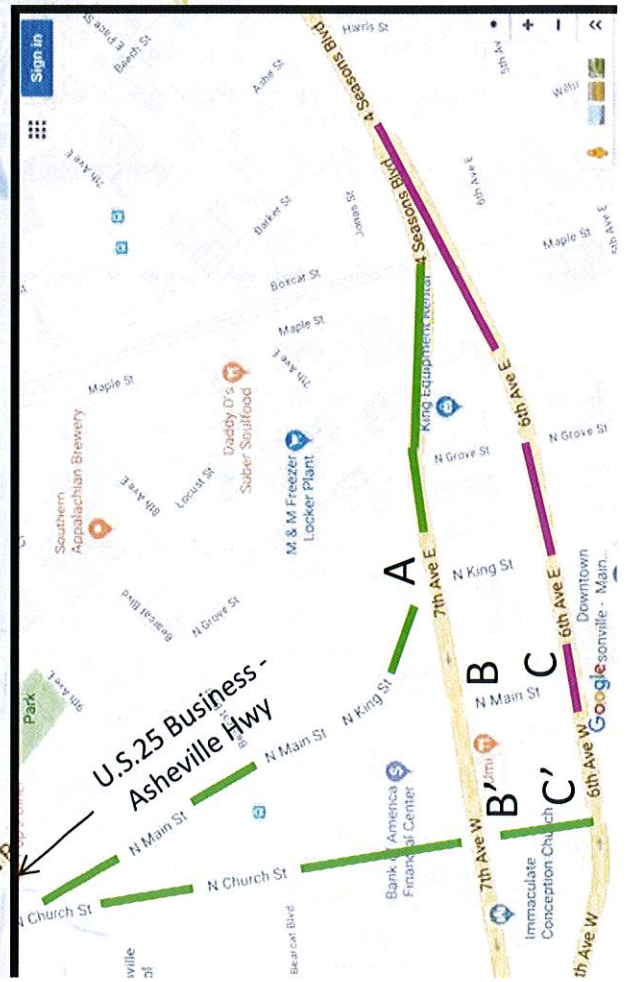
1. The sources of congestion at the three locations cited by the BPP, i.e., U.S. 64 – 4 Seasons Blvd, U.S. 25 Business – Asheville Hwy, and N.C. 191 – Haywood Rd are readily observable and are well understood.
2. East-west “through” travel in these three locations is a negligible contributor to this congestion.
3. Congestion due to east-west “through” travel by “large truck” traffic in these three locations is essentially non-existent.
4. Therefore, congestion in these three locations **will not be relieved** by a new “route for east-west travel,” i.e., the Balfour Parkway.

Prepared March 7, 2018 by
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Congested Sections of U.S. 64, U.S. 25 Business, And N.C. 191 Cited by Balfour Parkway Plan

Detail of Transition Between U.S. 64 and U.S. 25 Business



Appendix

Traffic Data that Should be Gathered by DOT to Verify the Sources of Traffic Congestion

U.S. 64 – 4 Seasons Blvd

To verify that the preponderance of traffic congestion on U.S. 64 – 4 Seasons Blvd. is due to “local” traffic rather than “through” traffic:

Data in the congested length of eastbound and westbound traffic volume at several locations including

- Just west of the Ingles complex at the east end
- Just east and just west of the Walmart complex
- Just east of the I-26 entrance/exit ramps on the east side of I-26
- Just west of the I-26 entrance/exit ramps on the west side of I-26
- Near the Blue Ridge Mall
- Just east of Dana Rd

Data of eastbound and westbound traffic volume on U.S. 64 – Chimney Rock Rd east of the U.S. 64 split which is east of the Ingles complex

Data of eastbound and westbound traffic volume on U.S. 64 – 4 Seasons Blvd midway between Dana Rd and the split with 7th Ave E and 6th Ave E

To verify that the volume of eastbound traffic at the east end of U.S. 64 – 4 Seasons Blvd which enters I-26 (both southward and northward) is much greater than the volume of traffic which is eastbound on U.S. 64 - Chimney Rock Rd east of the Ingles complex:

Data on eastbound traffic volume from U.S. 64 – 4 Seasons Blvd entering I-26 (both southward and northward)

Data on eastbound traffic volume on U.S. 64 – Chimney Rock Rd east of the U.S. 64 split which is east of the Ingles complex (ibid)

To verify that the volume of westbound traffic arriving at the east end of U.S. 64 – 4 Seasons Blvd from U.S. 64 – Chimney Rock Rd east of the Ingles complex is much smaller than the volume of traffic which enters U.S. 64 – 4 Seasons Blvd from I-26 (from both the south and the north):

Data on westbound traffic volume exiting I-26 (both from the south and the north)

Data on westbound traffic volume on U.S. 64 – Chimney Rock Rd east of the U.S. 64 split near the Ingles complex (ibid)

To verify that most of the volume of westbound traffic at the west end of U.S. 64 – 4 Seasons Blvd continues westward on 7th Ave E at the intersection with N King St and then divides at either N Main St or N Church St into traffic entering downtown Hendersonville or continues west on 7th Ave W:

Data on traffic volume on 7th Ave E between U.S. 64 – 4 Seasons Blvd and N King St

Data on traffic volume on 7th Ave E between N King St and N Main St

Data on traffic volume on 7th Ave E that turns left (south) at N Main St and at N Church St

Data on traffic volume on N Church St that turns right (west) at 7th Ave W

Data on traffic volume on 7th Ave W between N Church St and Buncombe St

To verify that only a small fraction of the westbound traffic from the west end of U.S. 64 – 4 Seasons Blvd travels north on N King St and then northward on U.S. 25 Business – Asheville Hwy:

Data on traffic volume on 7th Ave E between U.S. 64 – 4 Seasons Blvd and N King St (ibid)

Data on traffic volume on 7th Ave E between N King St and N Main St (ibid)

Data on traffic volume on N King St just north of 7th Ave E

To verify that most of the traffic from N King St and N Main St which enters U.S. 25 Business – Asheville Hwy continues northward on U.S. 25 Business – Asheville Hwy at the intersection with N.C. 191 – Haywood Rd with very little of it turning left onto N.C. 191 – Haywood Rd and continuing westward:

Data on northbound traffic volume on U.S. 25 Business – Asheville Hwy both immediately north of and immediately south of the intersection with N.C. 191 – Haywood Rd

Data on northbound traffic volume on U.S. 25 Business – Asheville Hwy which turns left (west) on N.C. 191 – Haywood Rd

To verify that the volume of traffic passing southward at the intersection of N.C. 191 – Haywood Rd with U.S. 25 Business – Asheville Hwy originating on N.C. 191 – Haywood Rd is much smaller than that originating on U.S. 25 Business – Asheville Hwy from the north:

Data on eastbound traffic volume on N.C. 191 – Haywood Rd which turns right (south) on U.S. 25 Business – Asheville Hwy

Data on southbound traffic volume on U.S. 25 Business – Asheville Hwy both immediately north of and immediately south of the intersection with N.C. 191 – Haywood Rd

To verify that the volume of traffic turning left (east) on 6th Ave W from N Church St (coming from U.S. 25 Business – Asheville Hwy) is much smaller than that coming from the west on 6th Ave W plus that coming from right turns of northbound traffic from N Main St and from N King St and N Grove St

Data on traffic volume turning left (east) on 6th Ave W from N Church St

Data on traffic volume on 6th Ave W between Buncombe St and N Church St

Data on traffic volume on 6th Ave W between N Church St and N Main St

Data on northbound traffic volume from N Main St, N King St, and N Grove St turning right onto 6th Ave E

Data on eastbound traffic volume on 6th Ave E between N Grove St and the merge with 7th Ave E to become U.S. 64 – 4 Seasons Blvd

To verify that the volume of “large truck” traffic on either U.S. 64 – 4 Seasons Blvd or U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd in either direction is much larger than on N.C. 191 – Haywood Rd in either direction:

Data on the volume of “large truck” traffic both westbound and eastbound on U.S. 64 – 4 Seasons Blvd anywhere within its length

Data on the volume of “large truck” traffic both northbound and southbound on U.S. 25 Business – Asheville Hwy immediately north of the intersection with N.C. 191 – Haywood Rd

Data on the volume of “large truck” traffic both westbound and eastbound on N.C. 191 – Haywood Rd immediately west of the intersection with U.S. 25 Business – Asheville Hwy

To determine the nature of “large truck” traffic on U.S. 64 – 4 Seasons Blvd surveys should be taken of all businesses along this route to ascertain the type and frequency of their truck deliveries. The result should be compared to data of eastbound and westbound “large truck” traffic volume at several locations in the congested length taken as specified above.

U.S. 25 Business – Asheville Hwy

To verify that the preponderance of the volume of southbound traffic on U.S. 25 Business – Asheville Hwy arrives from U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd, not from N.C. 191 – Haywood Rd:

Data on southbound traffic volume on U.S. 25 Business – Asheville Hwy both immediately north of and immediately south of the intersection with N.C. 191 – Haywood Rd (ibid)

Data on east-bound traffic volume on N.C. 191 – Haywood Rd which turns right (south) on U.S. 25 Business – Asheville Hwy (ibid)

To verify that the preponderance of the volume of southbound traffic on N Church St coming from U.S. 25 Business – Asheville Hwy continues south on N Church St with very little traffic turning left (east) onto 6th Ave W and on to U.S. 64 – 4 Seasons Blvd:

Data on traffic volume on N Church St between 7th Ave W and 6th Ave W

Data on traffic volume turning left (east) on 6th Ave W from N Church St

To verify that the preponderance of the volume of traffic on N Main St just north of its merger with N King St which continues northward on U.S. 25 Business – Asheville Hwy arrives from south of 7th Ave E on N Main St, N King St, and N Grove St with only a small fraction coming from the west end of U.S. 64 – 4 Seasons Blvd:

Data on traffic volume on N Main St between 7th Ave and the merger with N King St

Data on traffic volume on N King St between 6th Ave E and 7th Ave E

Data on northbound traffic volume on N Grove St between 6th Ave E and 7th Ave E

Data on northbound traffic volume on N Grove St which turns left (west) at 7th Ave E

Data on traffic volume on 7th Ave E between U.S. 64 – 4 Seasons Blvd and N King St (ibid)

Data on traffic volume on N King St just north of 7th Ave E (ibid)

Data on traffic volume on N Main St just north of its merger with N King St

To verify that the preponderance of the volume of northbound traffic on U.S. 25 Business – Asheville Hwy continues on U.S. 25 Business – Asheville Hwy to the north beyond the intersection with N.C. 191 – Haywood Rd with very little traffic turning left (west) onto N.C. 191 – Haywood Rd:

Data on northbound traffic volume on U.S. 25 Business – Asheville Hwy both immediately north of and immediately south of the intersection with N.C. 191 – Haywood Rd (ibid)

Data on northbound traffic volume on U.S. 25 Business – Asheville Hwy which turns left (west) on N.C. 191 – Haywood Rd (ibid)

To verify that the volume of “large truck” traffic that travels northbound/southbound on U.S. 25 Business – Asheville Hwy north of its intersection with N.C. 191 – Haywood Rd is far greater than the volume of “large truck” traffic that travels westbound/eastbound on N.C. 191 – Haywood Rd:

Data on the volume of “large truck” traffic both northbound and southbound on U.S. 25 Business – Asheville Hwy both immediately north (ibid) of and immediately south of the intersection with N.C. 191 – Haywood Rd

Data on the volume of “large truck” traffic both westbound and eastbound on N.C. 191 – Haywood Rd immediately west of the intersection with U.S. 25 Business – Asheville Hwy (ibid)

To verify that the type of “large truck” traffic that travels on N.C. 191 – Haywood Rd is dominated by trucks going to/from the Henderson County Solid Waste Convenience Station and Transfer Station (county landfill), the Division of Highways Henderson Complex (county maintenance station), or the Van Wingerden Greenhouse Co or associated with local construction, not transport trucks that would be involved in “through” traffic due to “east-west travel”:

Camera data on the truck traffic which travels N.C. 191 – Haywood Rd both within the BPP study area and further west such as near the intersection with N and S Rugby Rd

N.C. 191 – Haywood Rd

To verify that traffic at nearly all times travels at (or slightly above) the posted speed limits at all locations:

Data on traffic volume and traffic speeds in both directions at several locations on N.C. 191 – Haywood Rd from the intersection with U.S. 25 Business – Asheville Hwy to the intersection with N.C. 280 in Mills River

To verify that in the vicinity of West Henderson High School and Rugby Middle School congestion is produced during time periods associated with school openings and closings:

Data on traffic volume and traffic speeds in both directions at locations on N.C. 191 – Haywood Rd both east and west of the respective schools during posted times of reduced speed limits

Data on traffic volume entering/leaving N.C. 191 – Haywood Rd to/from the respective schools during posted times of reduced speed limits

To verify that increased westbound commuter traffic around 5:00 pm produces limited congestion at the intersection with N and S Rugby Rd:

Data on traffic volume and traffic speeds in both directions at locations east and west of the intersection of N.C. 191 – Haywood Rd with N and S Rugby Rd for about 30 minutes before/after 5:00 pm

The verification of other observations associated with westbound traffic on N.C. 191 – Haywood Rd which is due to “east-west travel” arriving from U.S. 64 – Chimney Rock Hwy, on the east via U.S. 25 Business – Asheville Hwy and eastbound traffic on N.C. 191 – Haywood Rd due to “east-west travel” the eventual destination of which is U.S. 64 – Chimney Rock Rd on the east beyond the Ingles complex is provided by data previously specified.

In general, the continuity of the data should be checked by applying Kirchoff’s Law to various nodes (intersections) along the route of concern.