APPENDIX G
TRAFFIC FORECAST MEMO

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Monroe Connector/Bypass Meeting

MEETING SUMMARY
(Final)

Date: October 9, 2013
1:00 PM to 3:00 PM
Conference Call

Project: STIP R-3329/R-2559 Monroe Connector/Bypass

Attendees:

John Sullivan, FHWA
Brian Gardner, FHWA
Scott Jones, FHWA
George Hoops, FHWA
Scott Slusser, NCDOJ
Jennifer Harris, NCDOT - PDEA
Jamal Alavi, NCDOT – TPB
Rick Baucom, NCDOT – Div 10
Spencer Franklin, HNTB
Bradley Reynolds, HNTB
Jill Gurak, Atkins
Jenny Noonkester, Atkins
Carl Gibilaro, Atkins
Ken Gilland, Michael Baker Eng.
Lorna Parkins, Michael Baker Eng.
Scudder Wagg, Michael Baker Eng.
Nancy Scott, The Catena Group
Michael Wood, The Catena Group
Tim Savidge, The Catena Group

Purpose

The primary purpose of this meeting was to discuss the development of the traffic forecast and the use of different socio-economic data sets and how they would alter the results of the traffic forecast with members of the FHWA headquarters' offices.

Issue

In their November 30, 2012 letter SELC asserted the alternatives analysis for the Monroe Connector/Bypass was based on a fundamentally flawed set of traffic forecasts. They stated forecasts for both "Build" and "No Build" scenarios were based on a single set of socio-economic data. SELC theorized this approach produced "No Build" forecasts for U.S. 74 which were dramatically overstated, almost double the true forecast, because the model presented a situation in which the traffic generated by both the Toll Highway and existing U.S. 74 was squeezed onto U.S. 74 alone.

Discussion

Based on this comment, NCDOT requested HNTB to prepare a traffic forecast summary memorandum for the purpose of answering this issue. NCDOT and FHWA experts reviewed the memorandum and this meeting provided these individuals with an opportunity to meet and discuss this document.

Mr. Gardner noted that along with his review of the NEPA materials, he also reread the 4th Circuit Court decision and believes that the analysis appropriately covers areas outlined in the decision.

Mr. Gardner noted that due to the number of different data sets, the information can read like a "travelogue", making it hard for the reader to see what was used for the analysis. He recommended making salient facts easily accessible and the organization of information clear. He recommended making

the discussion of induced travel effects and the Build vs. No-Build analysis provided in the quantitative ICE easily accessible to the reader.

Mr. Gardner asked how local traffic vs. through traffic was addressed in the traffic impact analysis and upon review of the letter to Mayor Paxton (October 24, 2012) found the explanation included to have adequately addressed this issue.

FHWA commented that the quantitative ICE report does a good job of discussing the limitations of the travel demand model and distinguishing how modeling was performed for this ICE analysis in order to ensure project effects are accounted for in the build scenario.

Mr. Gardner asked why we decided it was appropriate to add vs. reallocate induced growth within the Future Land Use Study Area (FLUSA). Mr. Wagg noted that the choice to not reallocate growth within the FLUSA was the same choice made in the original Quantitative ICE in 2009. Based on discussions with agencies at that time, the study team had noted that if a reallocation approach was used then growth would be shifted away from western parts of the FLUSA, including sensitive watersheds such as Goose Creek. The study team and the resource agencies felt that a more conservative approach (in terms of estimating potential cumulative effects to sensitive watersheds) would be to add growth instead of reallocating growth. In other words, by adding rather than merely reallocating growth (even though reallocation would have been appropriate under the circumstances) the model essentially predicts a worst-case scenario in terms of overall growth in the study area and in terms of growth near Goose Creek, the most environmentally sensitive area within the study area. Mr. Franklin clarified that in the traffic analysis, growth was added to test the potential impacts of increased traffic associated with induced growth effects. Mr. Gardner believed that this methodology was appropriate for the reasons noted.

Mr. Gardner would like the Monroe Connector/Bypass Traffic Forecast Summary (June 20, 2013) to include a graphic to supplement the discussion about how all the different traffic models were used. He suggested something similar to Table 4 and Figure 6 from the updated quantitative ICE report. Ms. Harris suggested reviewing the applicability of using the flow chart from the NCDOT's Transportation Planning Branch website that helps determine whether an updated traffic forecast should be prepared (https://connect.ncdot.gov/projects/planning/TPB%20Systems%20Planning/Requesting%20an%20Updated%20Traffic%20Forecast.pdf). Mr. Franklin agreed that HNTB will develop and add the graphic to the traffic forecast memo to support the discussion of how various traffic forecasts were used.

Ms. Harris asked Mr. Gardner if he was comfortable with the analysis presented in the traffic forecast memo in support of the conclusion that an updated traffic forecast is not required. Mr. Gardner found that the Traffic Forecast Summary presented a reasonable and defensible approach to evaluating how changes in socioeconomic data related to indirect and cumulative effects affect the traffic forecast for the Monroe Connector/Bypass project. Mr. Gardner also found the conclusions reached to be reasonable in light of the information presented. FHWA requested that the Traffic Forecast Summary (June 20, 2013) be included in the appendix of the Draft Supplemental Final EIS in order to ensure assumptions regarding the modeling is adequately disclosed to the public.

FHWA asked if it was documented somewhere why the travel time to employment factor was not included in the Land Use Allocation Model (LUSAM) by the MPO. Mr. Wagg explained that the MPO found that this variable was not useful. Mr. Wagg will look for documentation between Baker and the MPO that explains the decision to exclude that factor. Mr. Wagg will add it to Appendix A of the updated quantitative ICE report and footnote it in the text.

FHWA stated that a clear explanation of how all the various models were used is critical. FHWA asked whether we need to re-do the traffic analysis to account for all the noted recent improvements to US 74. Mr. Franklin commented that we have real-time travel information and the current condition demonstrates a need for the project. FHWA stated that if there is a documented current need for the project, there is no need for future traffic analysis to prove project need. The forecasts are only used to show that conditions will worsen in the future. FHWA agreed that additional future traffic analyses were not needed to document the present need for the project.

NCDOT asked if the participants believe we have appropriately addressed questions about local vs. through traffic. Mr. Gardner reiterated that the letter to Mayor Paxton (October 24, 2012) is sufficient. Origin/destination data is included in the travel demand model and that model covers diversions. The benefit to US 74 is consistent with diversion projected to the bypass, with an expected diversion rate of between 14-27 percent.

Conclusion:

Mr. Gardner thought that the analysis and conclusions reached regarding the use of one set of socio-economic data set for the evaluation of both build and no build alternatives was reasonable and appropriate under the particular circumstances of this case, particularly in light of the results of the sensitivity testing performed to determine whether data generated from the indirect and cumulative effects analysis ought to be used to re-run traffic forecasting. He noted that the propriety of using one set of socio-economic data must be analyzed on a case by case basis and emphasized that the decision here should not be interpreted as a blanket statement that it is always appropriate to do so.

Mr. Gardner believed that the forecasts were used appropriately and the conclusions drawn from them were reasonable.

Action Items:

- HNTB will add a graphic or some other clarification to the traffic forecast memo to support the discussion of how various traffic forecasts were used.
- HNTB will provide the project team with a summary of their meeting with NCDOT TPB in which agreement was reached that the traffic forecast did not need to be updated.
- Meeting minutes will be developed identifying recommendations and conclusions reached. They will be circulated to Mr. Gardner to confirm that he agrees with the findings presented.
- Mr. Wagg will include correspondence from the MPO explaining why the travel time to employment factor was excluded from LUSAM in Appendix A of the quantitative ICE report and add a footnote in the text.
- Mr. Alavi agreed to help develop a graphic that shows how forecast data is created from raw model data.
- Atkins will include the traffic forecast memo in an appropriate appendix of the Draft Supplemental Final EIS.

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Final Memorandum

To: Jennifer Harris, PE

Date: November 8, 2013

From: Spencer Franklin, PE, PTOE

Project #: R-3329, R-2559

Subject: Monroe Connector/Bypass Traffic Forecast Summary

At the request of the North Carolina Turnpike Authority (NCTA), HNTB prepared this traffic forecast summary memorandum for the purpose of answering the following six questions:

1. What traffic forecasts were developed during the Monroe Connector/Bypass project development process and what were they used for?
2. Are the current No-Build traffic forecasts still valid for the purpose they were used?
3. Are the current Build traffic forecasts still valid for the purpose they were used?
4. How would the Monroe Connector/Bypass affect traffic volumes on the US 74 corridor?
5. How could changes in socioeconomic data affect the traffic forecast for the Monroe Connector/Bypass project?
6. How could changes in socioeconomic data related to indirect and cumulative effects affect the traffic forecast for the Monroe Connector/Bypass project?

This memorandum summarizes the traffic forecasts and references historical traffic data, socioeconomic data and Metrolina Regional Model (MRM) data developed throughout the Monroe Connector/Bypass project development process to aid in answering the questions above.

1. What traffic forecasts were developed during the Monroe Connector/Bypass project development process and what were they used for?

Table 1, on the following page, provides a listing and description of each traffic forecast and traffic and revenue study developed during the Monroe Connector/Bypass project development process. Following the table are descriptions of the use(s) of each forecast or study.

Table 1 – Summary of Monroe Connector/Bypass Project Traffic Forecasts

	Document Name	Prepared By, Date	Forecast Years	Forecast Scenarios	Model Version and SE Data	Used in NEPA Documents
Traffic Forecasts						
A	*Traffic Forecast for the No-Build Alternatives for NCDOT State TIP Project No. R-3329 and NCDOT State TIP Project No. R-2559, Monroe Connector/Bypass Study*	Martin/Alexiou/Bryson (MAB), June 2008	2007, 2030	2007 & 2030 No-Build	MRM05 and 2005 SE data (SE_*Year*_taz2934)	Yes
B	*Technical Memorandum for TIP Projects R-2559 & R-3329 US74 Upgrade Scenario*	Wilbur Smith Associates (WSA), June 2008	2035	2035 Upgrade Existing Build Non-Toll & Toll	MRM06 and 2005 SE data (SE_*Year*_taz2934)	Yes
C	*Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass*	WSA, September 2008	2008, 2035	2008 & 2035 No-Build, Build Non-Toll & Build Toll	MRM06 and 2005 SE data (SE_*Year*_taz2934)	Yes
Traffic Forecast Interpolations, Extrapolations and Redistributions						
D	*Monroe Connector/Bypass Alternative 3A 2013 AADT Build Toll Scenario*	HNTB, January 2009	2013	2013 Build Toll	MRM06 and 2005 SE data (SE_*Year*_taz2934).	No
E	*2035 Build Toll Forecast, Segment 2 (Alternative 3A)*	HNTB, July 2009	2035	2035 Build Toll	MRM06 and 2005 SE data (SE_*Year*_taz2934).	Yes
F	*NCDOT STIP Project R-3329 & R-2559 Revised Monroe Connector Bypass No-Build Traffic Forecast Memorandum*	HNTB, March 2010	2008, 2035	2008 & 2035 No-Build	MRM06 and 2005 SE data (SE_*Year*_taz2934).	Yes
G	*Monroe Connector / Bypass Year 2025 Build Toll Alternative 3A Traffic Volume Projections*	HNTB, August 2010	2025	2025 Build Toll	MRM06 and 2005 SE data (SE_*Year*_taz2934).	No
Traffic & Revenue Studies						
H	*Monroe Connector/Bypass 2009 Update to Preliminary Study*	WSA, April 2009	2014 thru 2054	2014 thru 2054 Build Toll	Modified MRM06 and modified 2008 Interim SE data (SE_*Year*_081119_MUMPO_interim)	No
I	*Proposed Monroe Connector/Bypass Comprehensive Traffic and Revenue Study, Final Report*	WSA, October 2010	2015 thru 2055	2015 thru 2055 Build Toll	Modified MRM06 and modified 2008 Interim SE data (SE_*Year*_081119_MUMPO_interim)	No

For reference, **Table 2** and **Table 3** provide an estimated daily traffic volume comparison, by segment, of the No-Build and Build traffic forecasts, respectively, prepared during the Monroe Connector/Bypass project development process.

1.1 Traffic Forecasts

Project-Level traffic forecasts were developed for No-Build, Improve Existing, and Build scenarios. These forecasts are based on data including, but not limited to, traffic counts, historic travel trends, the MUMPO Long-Range Transportation Plan (LRTP), the MRM, and existing road network operations. It is important to note that the forecasts are not based solely on any single data source but are based on the review, comparison, and synthesis of different sources of data. These individual data sources are not intended to be traffic forecasts and do not include the level of detail ultimately developed in the traffic forecast. For example, the MRM does not include all the roadways within the study area. Therefore, those roadways are included in the traffic forecast through analyzing traffic counts or other available data sources. Another example of source data are Annual Average Daily Traffic (AADT) volumes, which are developed by annualizing traffic counts collected at one point in time. The following list describes the uses of each traffic forecast developed in the project development process:

A. *Traffic Forecast for the No-Build Alternatives for NCDOT State TIP Project No. R-3329 and NCDOT State TIP Project No. R-2559, Monroe Connector/Bypass Study*

   This forecast is used in the Draft Environmental Impact Statement (EIS) as follows:
   - *Existing and Year 2030 No-Build Traffic Operations Technical Memorandum,* completed in March 2008
   - Considered as part of the technical analysis that went into the development of the Draft EIS

   This forecast is used in the Final EIS as follows:
   - Considered as part of the technical analysis that went into the development of the Final EIS

   Ultimately this document was updated by the *NCDOT STIP Project R-3329 & R-2559 Revised Monroe Connector Bypass No-Build Traffic Forecast Memorandum* (**Table 1, F**).

B. *Technical Memorandum for TIP Projects R-2559 & R-3329 US 74 Upgrade Scenario*

   This forecast is used in the Draft EIS as follows:
   - *STIP Projects R-3329/R-2559 Upgrade Existing US 74 Alternatives Study*, completed in March 2009
   - Considered as part of the technical analysis that went into the development of the Draft EIS

C. *Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass*

   This forecast is used in the Draft EIS as follows:
   - *Final Air Quality Technical Memorandum for the Monroe Connector Bypass* completed in February 2009
   - *Final Traffic Noise Technical Memorandum* completed in March 2009
   - *Year 2035 Build Traffic Operations Technical Memorandum* completed in February 2009
   - Considered as part of the technical analysis that went into the development of the Draft EIS

This forecast is used in the Final EIS as follows:

- Considered as part of the technical analysis that went into the development of the Final EIS

The No-Build forecast was ultimately updated in the document *NCDOT STIP Project R-3329 & R-2559 Revised Monroe Connector Bypass No-Build Traffic Forecast Memorandum* (**Table 1, F**). Additional discussion is included in **Attachment A** (*Monroe Bypass No-Build Traffic Forecast Summary Memorandum*).

1.2 Traffic Forecast Interpolations, Extrapolations or Redistributions

Traffic forecast interpolations, extrapolations, or redistributions of the original traffic forecasts were developed to state, analyze, or confirm traffic forecast volumes for conditions or years not included in the initial traffic forecasts. This approach uses the original accepted forecasts and base data assumptions to mathematically calculate traffic estimates and redistributions of traffic for conditions not included or known at the time of the initial forecast. This methodology is appropriate because the differences being considered do not change the original forecast, assumptions, methodology or base data. The interpolation and extrapolation process is a method for developing new data points for years not considered in the base forecast but within the range of volumes established by the base forecast. The redistribution process was used to evaluate a minor change in the frontage road configuration at the western terminus of the project. Examples of these differences include different interchange forms and service road connection points. The geometric differences analyzed were minor to the point of not changing the base forecast assumptions or data. The following list describes each traffic forecast's uses and the interpolations, extrapolations, or redistributions necessary for that forecast:

D. *Monroe Connector/Bypass Alternative 3A 2013 AADT Build Toll Scenario*

This 2013 Build Forecast was developed to represent the opening year traffic volumes for inclusion on the April 2009 Monroe Connector/Bypass public hearing maps. This traffic forecast was not used in any project analysis. This forecast was developed through interpolation of the 2008 and 2035 Build forecasts from the *Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass* (**Table 1, C**).

E. *2035 Build Toll Forecast, Segment 2 (Alternative 3A)*

This 2035 Build forecast redistributed forecasted volumes from the *Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass* (**Table 1, C**) to account for a minor change in the frontage road configuration at the western terminus of the project.

This forecast is used in the Final EIS as follows:

- *Final Addendum to Year 2035 Build Traffic Operations Technical Memorandum* completed in November 2009
- *Addendum Final Traffic Noise Technical Memorandum* completed in February 2010
- Considered as part of the technical analysis that went into the development of Final EIS

F. *NCDOT STIP Project R-3329 & R-2559 Revised Monroe Connector Bypass No-Build Traffic Forecast Memorandum*

This forecast was used to confirm the Draft EIS analysis of existing and design year no-build conditions and is referenced in the Final EIS Errata. The updated 2008 and 2035 No-Build forecasts were prepared due to No-Build forecast discrepancies in the *Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass* (**Table 1, C**). Additional discussion is included in **Attachment A** (*Monroe Bypass No-Build Traffic Forecast Summary Memorandum*).

G. *Monroe Connector / Bypass Year 2025 Build Toll Alternative 3A Traffic Volume Projections*

This forecast was provided to the Design-Build teams during construction procurement. The Design-Build teams were given an option of designing the project to the 2035 traffic forecast volumes and phase constructing the project based on the 2025 year traffic forecast volumes. Ultimately, the Design-Build teams did not choose the option of phase constructing using the 2025 year traffic forecast volumes.

1.3 Traffic and Revenue Studies

A Traffic and Revenue Study is not a project-level traffic forecast, it is a revenue forecast. The purpose of a Traffic and Revenue Study is to analyze the potential project revenue associated with the proposed toll road. Therefore, these studies are developed as part of the project financing efforts and are developed differently than a NEPA traffic forecast. Two of the major differences in a Traffic and Revenue Study are the socioeconomic data used and the travel demand model used. The project level forecasts are based on the socioeconomic data and the travel demand model as developed and approved by the Metropolitan Planning Organization (MPO). The Traffic and Revenue Study uses socioeconomic data developed by an independent economist. The Traffic and Revenue Study modifies the travel demand model including the traffic analysis zone structure, link properties, link connections, and value of time assumptions. These socioeconomic data and travel demand model assumptions and modifications are very conservative so as not to overstate the projects revenue potential. It would be inappropriate to use the same set of assumptions in the development of the NEPA analysis because it could potentially lead to the under design of the facility and the under quantification of the project's impacts. The following list describes the uses of the Traffic and Revenue Studies developed during the project development process:

H. *Monroe Connector/Bypass 2009 Update to Preliminary Study*

This preliminary traffic and revenue forecast is an update to the *Monroe Connector Preliminary Traffic and Revenue Study* issued in October 2006. These traffic and revenue forecasts were developed to support the project financing efforts. The *Monroe Connector/Bypass 2009 Update to Preliminary Study* (**Table 1, H**) is referenced in the Final EIS.

I. *Proposed Monroe Connector/Bypass Comprehensive Traffic and Revenue Study, Final Report*

This final traffic and revenue forecast was developed to support the project financing efforts and was not used in any analysis to support the NEPA process. (Note: A Draft Final Report was issued in August 2010). **Table 4** list Monroe/Connector Bypass estimated 2015, 2020 and 2030 weekday traffic volumes.

2. Are the current No-Build traffic forecasts still valid for the purpose they were used?

The current 2008 and 2035 No-Build forecast from the document *NCDOT STIP Project R-3329 & R-2559 Revised Monroe Connector Bypass No-Build Traffic Forecast Memorandum* (**Table 1, F**) was used to confirm the analysis of 2007 existing and 2030 design year no-build conditions used in the Draft EIS. The analysis was confirmed by quantitatively demonstrating 2035 forecast volumes were higher than 2030 No-Build volumes and qualitatively concluding US 74 operations would worsen with higher 2035 No-Build forecast volumes.

To determine if the current No-Build traffic forecast is still valid, it is necessary to reasonably determine if an updated No-Build forecast is expected to have lower, equal or higher forecast volumes. If forecast volumes are expected to be equal to or higher than the current No-Build forecast used in the 2007 existing and 2030 design year analysis, then it is reasonable to conclude an updated No-Build forecast would not change the conclusions in the Draft EIS. The following information was used to validate the 2007/2030 No-Build traffic forecasts:

- 2012 NCDOT Annual Average Daily Traffic (AADT) volumes,
- Latest current version of the Metrolina Regional Travel Demand Model, MRM11v1.1,
- 2009 socioeconomic (SE) data,
- Existing US 74 corridor travel time runs,
- Current 2008 and 2035 No-Build forecasts.

Based on a meeting with NCDOT Transportation Planning Branch (TPB) on March 21, 2013 and the document *Guidelines to Determine When to Request an Updated Traffic Forecast*[1] (NCDOT TPB, February 24, 2009), the current No-Build traffic forecasts meet the guidelines that indicate the existing forecast is valid and an updated forecast is not warranted. All of these guidelines are met since no new alternatives have been identified, the current let date of the project is less than the Future Forecast Year plus 20 years, the study area is not experiencing growth not previously considered in the forecast, and the traffic forecast is not five years older than the Base Year.

2.1 <u>2012 NCDOT AADT Volumes</u>

Existing traffic volumes are a primary factor in determining base year forecast volumes, such as were used for the 2007 No-Build forecast. For this reason, 2007 and 2012 NCDOT AADT's were compared along the US 74 corridor to determine if an updated base year traffic forecast would be expected to have higher volumes than the current 2007 No-Build forecasts. Over the five year period from 2007 to 2012, average volumes along the US 74 corridor cumulatively grew approximately zero percent, based on available AADT data. Based on historical AADT growth trends, it is reasonable to conclude that an updated base year forecast (i.e. 2013) would generally be equal to the 2007 No-Build Forecast. 2007 and 2012 NCDOT AADT volumes are listed in **Table 5**.

It is appropriate to compare cumulative corridor changes in terms of vehicle miles traveled (VMT) and individual segment volume and percent changes. Individual segment traffic volumes include higher degrees of variability inherent in specific traffic

[1] https://connect.ncdot.gov/projects/planning/Pages/ProjectLevelTrafficForecasting.aspx

data base on the placement of traffic counting equipment, daily, monthly and seasonal variations in data collection, weather and other factors. Corridor VMT considers the entire corridor, volumes and distance of each corridor segment and calculates VMT based on multiplying daily segment volumes times segment length. For the purposes of this memo, comparing overall corridor VMT and percent changes is more appropriate in identifying general trends in traffic patterns. Monroe Connector/Bypass and US 74 segment distances used to calculate VMT for all tables are shown on **Table 7**.

2.2 Comparison of 2030 No-Build MRM05 to 2035 No-Build MRM11v1.1 Model Data

The Metrolina Regional Travel Demand Model, referred to as the MRM, is the primary tool for evaluating existing and future travel in the Metrolina Region at the planning level. For project-level traffic forecasting, the MRM is just one tool and associated raw model outputs are just one piece of data used in the forecasting process. The MRM is continually updated through the Metrolina Region planning process. The initial No-Build traffic forecast (**Table 1, A**) was prepared using MRM05. Since then three model versions have been developed, in order of release date: MRM06, MRM08 and MRM11. MRM11v1.1, the most current available model version, was used in this memorandum for the purpose of evaluating the traffic forecasting process used to develop the initial No-Build traffic forecast (**Table 1, A**). This model version includes all the projects as shown in the 2035 Long Range Transportation Plan. A 2035 No-Build MRM11v1.1 model was developed by removing the Monroe Connector/Bypass links.

The raw travel demand model daily volume assignment for the 2030 No-Build forecast (**Table 1, A**), based on the MRM05 and 2005 SE data, was compared to 2035 No-Build raw model daily volume assignment from the most current model MRM11v1.1. The 2009 SE data was used to evaluate how changes in raw model output data may affect an updated future year No-Build traffic forecast. Raw model output is an important factor in developing traffic forecasts by, but not limited to, determining growth rates from base year to future year scenarios, traffic volume orders of magnitude, volume trends along facilities and future year volumes for new location facilities. Based on a comparison of cumulative 2030 to 2035 No-Build raw model daily volumes along the US 74 corridor, the 2035 No-Build increases 17 percent over the five year period, corresponding to a three percent annual growth rate. Raw model daily assignment volumes range from 23,000 to 70,300 and 21,200 to 101,600 for 2030 MRM05 with 2005 SE data to 2035 MRM11v1.1 with 2009 SE data, respectively. Based on this comparison, an updated future year No-Build forecast (i.e. 2035) would reasonably be expected to have volumes equal to or greater than the 2030 No-Build forecast. Thus, an updated No-Build traffic forecast would not change the conclusions in the Draft EIS. **Table 5** lists raw model daily volume assignment and VMT percent change for both scenarios.

2.3 US 74 Corridor Travel Time Runs

The US 74 corridor from I-485 to Elm Street in Marshville is approximately 22.5 miles in length and includes 30 signalized intersections, multiple unsignalized intersections, and multiple driveway access points. 2012 NCDOT AADT volumes range from 23,000 to 57,000 and are projected to increase to a new range from 31,600 to 89,100 based on 2035 No-Build forecast volumes (**Table 1, F**). This means that 2012 NCDOT AADT volumes would increase in the range of 9,800 to 33,300 vehicles per day (vpd) (or between 20 percent to 81 percent) along the US 74 corridor. See **Table 6** for the

comparison of 2012 NCDOT AADT and 2035 No-Build forecast volumes. This growth in US 74 traffic volumes will negatively impact corridor operations by increasing congestion, reducing travel speeds, and increasing travel times. 2013 existing travel time runs were collected in March 2013 along the US 74 corridor. Per the *US 74 Corridor Travel Time Comparison* memorandum (HNTB, October 24, 2013), "US 74 average corridor travel speeds are limited to less than 50 mph, even during off-peak periods and free-flow conditions with very little to no congestion". These travel time runs reflect existing conditions and account for all US 74 highway improvements implemented between 2007 and the present. The 2013 travel time runs verify that US 74 does not operate as a high speed facility.

Based on 2012 NCDOT AADT's and Metrolina Regional Model results (MRM11v1.1) that utilize the most recent 2009 socioeconomic data, an updated base year and future year forecast would reasonably be expected to have equal to or higher forecast volumes than the current no-build forecasts used in the analysis of existing and design year no-build conditions. In addition, 2013 existing travel time runs along the US 74 corridor verify US 74 does not operate as a high speed facility. Comparison of 2035 No-Build traffic volume increases to 2012 AADT's also realistically demonstrate that additional future congestion will continue to decrease operating speeds along the US 74 corridor, further impairing the ability to provide high speed mobility. Therefore, it is reasonable to conclude that updated No-Build forecasts would not change the conclusions in the Draft EIS. Based on this assessment of all available information, the current No-Build traffic forecasts are still valid for the purpose they were used.

3. Are the current Build traffic forecasts still valid for the purpose they were used?

The Build forecast used in the NEPA analysis is titled *Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass* (**Table 1, C**) and contained 2008 and 2035 Build Scenario data. This forecast utilized the Metrolina Regional Travel Demand Model, MRM06, and 2005 socioeconomic (SE) data. The validity of the 2035 Build forecasts were assessed by comparing the 2030 MRM06 raw model daily volume assignment with 2030 and 2035 Build raw model daily volume assignments utilizing MRM11v1.1 and 2009 SE data.

The regional model, such as the Metrolina Regional Model, is used as a tool in the development of traffic forecasts and raw model daily volumes are just one of the many pieces of data used to develop traffic forecast volumes. It is important to note that a travel demand model (TDM) is not an exact measure of existing or future traffic volumes but is a tool to generally measure impacts of growth and development and help forecast travel characteristics at the planning-level. The TDM employs a mathematical approach to understanding how changes in land use, population, and area employment will impact the transportation system. The Metrolina Regional Model encompasses multiple counties in two states and was developed and calibrated as a tool to evaluate existing and future travel demands on a regional basis. Raw model volumes for specific roadway links can be extracted from the regional model but inherently have levels of variability compared to existing and traffic forecast volumes. The accuracy of raw model volumes to existing and future conditions is based on a variety of factors: existing and future roadway network detail, calibration parameters, accuracy of future land use, population, area employment estimates, and other factors. Therefore, it is not appropriate to directly compare raw model daily volumes to balanced traffic forecast volumes. General comparisons of raw model daily

volumes from the Build Scenario models can be used as validation of the results from previous Build Scenario forecasts, since those forecasts use model results as one of the factors in developing the forecast.

Based on a meeting with NCDOT Transportation Planning Branch (TPB) on March 21, 2013 and the document *Guidelines to Determine When to Request an Updated Traffic Forecast* [2] (NCDOT TPB, February 24, 2009), the current Build traffic forecasts meet the guidelines that indicate the existing forecast is valid and an updated forecast is not warranted. All of these guidelines are met since no new alternatives have been identified, the current let date of the project is less than the Future Forecast Year plus 20 years, the study area is not experiencing growth not previously considered in the forecast, and the traffic forecast is not five years older than the Base Year.

The following three comparisons can be made to address the current validity of the previous Build Scenario traffic forecast results. Comparative results are shown in **Table 7**.

3.1 Comparison of 2030 Build Scenario Model Data from MRM06 to MRM11v1.1

Since the 2035 WSA Build Scenario forecast (**Table 1, C**) was developed with the use of the (then current) 2030 MRM06 (with 2005 SE data), the raw model daily volume assignment data from a run of MRM06 was compared to a model run using the most current MRM11v1.1 (with 2009 SE data). It is important to note that both model scenarios included the Monroe Connector/Bypass. For the new location Monroe Connector/Bypass facility, MRM11v1.1 assigns higher traffic (8 percent to 30 percent) to the western portion of the Bypass than MRM06. Conversely, MRM11v1.1 has lower projected daily assignments (9 percent to 27 percent decreases from MRM06) in the central and eastern portions of the project. Along the existing US 74 corridor, there is some variability between the two model results, with a general trend of higher daily assignment in MRM11v1.1 (29 of 31 segments have higher volumes). In many cases, -Y- Line model volumes (the route intersecting the Monroe Connector/Bypass) are lower in MRM11v1.1 than MRM06. However, direct comparisons of individual -Y- Line volumes directly north and south of the Monroe Bypass includes too much individual variability to provide reasonable comparisons.

For raw model assignment, it is appropriate to consider cumulative changes on the corridor in terms of vehicle miles traveled (VMT) and changes on individual segments, as previously discussed in **Section 2.1**. Examining corridor VMT presents overall and regional traffic differences that more appropriately account for the inherent variability of individual links based on different segment lengths, characteristics, loading points and the impact of centroid connectors within the model. Potential reasons for variability along individual segments are different socioeconomic growth assumptions, different model networks and link characteristics, and different model methodologies for trip distribution and assignment. To compare -Y- Line VMT, a segment distance of 0.5 miles for each -Y- Line north and south of the Monroe Connector/Bypass was determined to account for ramp offsets, laneage tie-ins and grade changes. By using the same segment distance for all -Y- Lines, all facility segments were calculated similarly to determine VMT. Based on the overall corridor, cumulative VMT changes equate to a 7 percent decrease along the Monroe Connector/Bypass, a 19 percent

[2] https://connect.ncdot.gov/projects/planning/Pages/ProjectLevelTrafficForecasting.aspx

increase along the US 74 corridor and a 24 percent decrease cumulatively for -Y- Line locations.

Overall corridor VMT results indicate that, even with an updated model network (MRM11v1.1), SE data (2009), and methodology, the Monroe Connector/Bypass is still generally attracting similar levels of demand as MRM06 and 2005 SE data used in the 2030 Build forecast. In addition, the updated model is predicting more demand for the existing US 74 corridor. Thus, it is reasonable to conclude that the MRM11v1.1 assigns similar magnitudes of raw travel demand model daily volume assignment to the Monroe Connector/Bypass and US 74 compared to MRM06.

3.2 Comparison of 2030 and 2035 Build Scenario Model Data from MRM11v1.1

The next necessary comparison is to compare Build Scenario model data from the 2030 MRM 11v1.1 model to results from a 2035 MRM11v1.1 model run. This comparison was made using the methodology previously described in **Section 2.2**. These results are shown in **Table 7**. The data between the two model runs is based on the same set of 2009 SE data, and shows a high degree of consistency. All 2035 segment daily traffic assignments exceed the 2030 MRM11v1.1 results. On the new location Monroe Connector/Bypass facility, volumes increase from 7 percent to 11 percent and are expected to range between 21,600 and 67,400 in 2035. On the existing US 74 facility, volumes increase from 5 percent to 15 percent between the 2030 and 2035 model runs. Individual -Y- Line facilities show increases between 4 percent and 57 percent between 2030 and 2035 model runs. Overall, cumulative VMT changes equate to a 9 percent increase along the Monroe Connector/Bypass, a 7 percent increase along the US 74 corridor and a 7 percent increase cumulatively for -Y- Line locations. These increases are not expected to impact the interchange footprints for the Monroe Connector/Bypass facility.

The conclusion that can reasonably be drawn from this data is that traffic volumes are expected to increase for all study area facilities between the 2030 and 2035 time periods. Thus, 2030 Build Scenario forecast results might reasonably also be expected to demonstrate increases in traffic volumes along the Monroe Connector/Bypass Facility, existing US 74, and project study area -Y- Lines. This would further substantiate the viability of and need for the project.

3.3 Comparison of 2035 Build MRM11v1.1 to 2030 Build MRM06 Model Data used in the Build Scenario Traffic Forecast

As a final comparison, the 2035 MRM11v1.1 daily traffic assignment data was compared to the original 2030 MRM06 data used in the development of the 2030 Build Scenario forecasts. Along the new Monroe Connector facility, 2035 MRM11v1.1 assignments are higher than 2030 MRM06 data on the western portion of the project, but are still less (between 1 percent and 19 percent smaller) than the 2030 MRM06 data on the eastern portion of the project. US 74 corridor results are higher (for 30 of 31 segments) and have a greater variance range (3 percent to 90 percent increases) for the 2035 MRM11v1.1 results compared to the 2030 MRM06 results. -Y- Line data results have six segments showing increased daily assignment, seven segments showing decreased assignment, and one segment unchanged between 2035 data and 2030 data. Based on the overall corridor, cumulative VMT changes equate to a 1 percent increase along the Monroe Connector/Bypass, a 27 percent increase along the US 74 corridor and an 18 percent decrease cumulatively for -Y- Line locations. Similar to assessments made

previously, potential reasons for the variability include the different SE data sets, different model networks and network characteristics, and model distribution and assignment methodologies employed in the two MRM versions. Even with the variability of the results, the overall trend along the new location facility shows consistently increasing volumes from east to west between the two model data sets. The model run comparison also shows the potential traffic volume growth between 2030 and 2035 along existing US 74 even with the Monroe Connector facility. It is reasonable to conclude that a traffic forecast for the Build Scenario that utilizes the latest MRM11v1.1 network and 2009 SE data in a similar manner to which they were employed for the 2008 and 2035 Build Scenario forecast would produce results that are at least to the same magnitude, if not greater (based on the data examined in these three comparisons), than the original 2008 and 2035 Build Scenario forecast data. Comparative results are shown in **Table 7**.

The differences between MRM06 and MRM11v1.1 raw model daily volume assignment, and the current Build traffic forecasts indicate that the magnitude of traffic along the Monroe Connector/Bypass and US 74 would still show the need for the project, and benefits to the existing US 74 corridor from the project, as currently supported by the Build forecast utilized in the project development process.

4. How would the Monroe Connector/Bypass affect traffic volumes on the US 74 corridor?

Three separate scenarios were analyzed to assess the effects that the Monroe Connector/Bypass may have on projected traffic volumes on existing US 74.

4.1 Comparison of the Traffic Forecast Used in the NEPA Document

Table 8 compares data from the 2035 No-Build (**Table 1, F**) and 2035 Build (**Table 1, C**) Traffic Forecast Scenarios along the existing US 74 corridor. The results show a reduction in traffic along the corridor in the range of 600 to 34,200 vehicles per day from the No-Build to Build Scenario. This equates to a range of 1 percent to 54 percent, with an average reduction of 30 percent for overall corridor VMT.

4.2 Comparison of the 2030 MRM06 Model Results

Since the MRM06 (utilizing 2005 SE data) was used in the development of the 2008 WSA Traffic Forecast that is included in the NEPA documentation, comparisons of No-Build and Build 2030 raw model daily volume assignments are included in **Table 9**. The travel demand model is the primary source of making estimates of traffic diversion and network traffic flow changes to/from existing facilities onto a new alignment facility such as the Monroe Connector/Bypass. The only difference in the two travel demand models is the inclusion of the Monroe Connector/Bypass links.

As shown in **Table 9**, construction of the Monroe Connector/Bypass caused 2030 daily traffic assignments to reduce along US 74 in the range of 4,800 to 21,900 vehicles per day. This resulted in percentage reductions of 11 percent to 51 percent of daily traffic along the corridor from 2030 No-Build data, and an average percent reduction of 31 percent for the overall corridor VMT.

4.3 Comparison of the 2035 MRM 11v1.1 Model Results

Utilizing the most current MRM11v1.1 travel demand model, with updated 2009 SE data and network information, a third comparison of No-Build/Build traffic volumes was made for the year 2035. The only difference in the two travel demand models is the inclusion of the Monroe Connector/Bypass links. As shown in **Table 9**, and similar to results in the previous two comparisons, 2035 daily traffic assignments along the existing US 74 corridor are reduced for every segment, with a range of 5,300 vpd to 25,100 vpd. The percentage of volume reduction is between 11 percent and 45 percent, with an average percent reduction of 19 percent for the overall corridor VMT.

Summarizing the three comparisons to forecast and travel demand model results made above, the effect of the Monroe Connector/Bypass is that, in every case, traffic volumes are expected to decline along the existing US 74 corridor for every corridor segment in the project study area, as some traffic will divert to the new facility and thus reduce congestion and improve traffic operations along the existing corridor with the construction of the Monroe Connector/Bypass.

5. How could changes in socioeconomic data affect the traffic forecast for the Monroe Connector/Bypass project?

Various regional socioeconomic forecasting processes and updates have occurred over the last decade in association with updated versions of the Metrolina Regional Model. **Table 10** summarizes the various socioeconomic data, file name, model version and final forecast year. **Section 4.0** of the *Monroe Connector/Bypass Indirect and Cumulative Effects Technical Report (Baker, May 2013)* provides a detailed review of socioeconomic forecast data.

Table 10 – Metrolina Regional Model Socioeconomic (SE) Data Versions

SE Data (Forecast) Name	TAZ File Name	Associated Model Version	Final Forecast Year
2005 SE Data	SE_*Year*_taz2934	MRM 05 v1.0 MRM 06 v1.0 MRM 06 v1.1	2030
2008 SE Data	SE_*Year*_081024	MRM 08 v1.0	2035
2008 Interim Data	SE_*Year*_081119_MUMPO_interim	None	2035
2009 SE Data	SE_Year_091028	MRM 09 v1.0 MRM 11 v1.0 MRM 11 v1.1	2035

The Metrolina Regional Model, MRM11v1.1, was used as the base model to evaluate raw model daily volume assignment for 2035 No-Build and Build conditions utilizing 2005, 2008 Interim and 2009 socioeconomic data. MRM05 and MRM06 were also utilized in their respective traffic forecasts, as previously listed in **Table 1**. MRM08 and MRM09 were not specifically utilized for traffic forecasts in the project development process. 2008 socioeconomic data was not evaluated or compared in this memorandum, since it was not used in any traffic forecast or traffic and revenue study. Referencing 2005 SE data raw model daily vehicles miles traveled (VMT) as the baseline, 2008 Interim and 2009 SE data VMT along the US 74 corridor increased 5 percent for the No-Build and 2 to 3 percent and 5 percent along the Monroe Bypass and US 74 for the Build, respectively. Changes in raw

model daily vehicles miles traveled are to be expected and appropriate when comparing various socioeconomic data which are based on a variety of different information, assumptions, time periods and horizon years. This comparison shows that even while differences existing between various socioeconomic data, the resulting VMT are generally consistent (within 5 percent along US 74 for the No-Build and within 2 to 3 percent along the Monroe Bypass for the Build). **Table 11** lists raw model daily volume assignment for segments along the Monroe Connector/Bypass project and US 74 corridor for No-Build and Build conditions with 2005, 2008 Interim and 2009 SE data.

Based on a direct comparison of 2005 SE, 2008 Interim and 2009 SE data, the socioeconomic data sets have relatively similar volume assignments and corridor vehicle miles traveled within 2 to 3 percent and 5 percent for the Monroe Connector/Bypass and US 74 corridor, respectively. It is reasonable to conclude that the differences between the three sets of socioeconomic data would not substantially change the traffic forecast.

6. How could changes in the socioeconomic data related to indirect and cumulative effects affect the traffic forecast for the Monroe Connector/Bypass project?

Based on the *Monroe Connector/Bypass Indirect and Cumulative Effects Technical Report (Baker, May 2013)*, socioeconomic data was developed for a 2030 Build RPA (Recommended Preferred Alternative) scenario. This forecast of socioeconomic data is referenced as 2009 ICE data. The most current version of the Metrolina Regional Model, MRM11v1.1, was run with one set of socioeconomic data (2009 SE data) for the 2030 No-Build scenario and two sets of socioeconomic data (2009 SE data and 2009 ICE data) for the 2030 Build scenario. The only difference between the two Build model runs was the change in socioeconomic data. The raw model daily volume assignment along the Monroe Connector/Bypass and US 74 corridor were compared for each model run (**Table 12**). Vehicle miles traveled (VMT) and vehicle hours traveled (VHT) were compared for each model run (**Table 13**).

The raw travel demand model daily volume assignment comparison between the two Build model runs shows little variability in the results (**Table 12**). When comparing the Monroe Connector/Bypass project links as a whole, the corridor VMT difference is less than five percent, with no individual link having a difference of greater than ten percent or 3,300 vehicles per day (vpd). When comparing the US 74 corridor as a whole, the daily bi-directional volume difference is less than three percent, with 24 out of 30 individual links having a difference of less than five percent or 2,800 vpd. The eastern terminus of the project, from E. Franklin Street to the Monroe Connector/Bypass terminus, projects daily bi-directional volume differences greater than ten percent or 1,800 vpd to 4,700 vpd.

The raw travel demand model daily volume assignment comparison between the No-Build and each of the two Build model runs shows the similar variability in the results (**Table 12**). When comparing the US 74 corridor as a whole, the daily bi-directional volume differences between the No-Build and the two Builds vary greatly. In the Build scenarios, all US 74 segment volumes are projected to decrease and corridor VMT decreases between 18 to 21 percent compared to the No-Build scenario. The raw travel demand model daily volume assignment clearly shows that US 74 traffic volumes and corridor VMT is expected to be less with construction of the Monroe Connector/Bypass.

The VMT and VHT values were compared between Union County, Mecklenburg County, and the entire MRM11v1.1 model network (**Table 13**). The change in VMT and VHT in Union County is 3 percent and 4 percent, respectively, while changes in Mecklenburg County and across the MRM network are zero percent. Based on these minor network assignment changes between 2009 SE data and 2009 ICE data, it is reasonable to conclude the changes in SE data would not substantially change existing or future Build traffic forecast results.

Conclusions

1. **Question** – What traffic forecasts were developed during the Monroe Connector/Bypass project development process and what were they used for?

   Answer – Detailed listing of the traffic forecasts prepared during the Monroe Connector/Bypass project development process and uses are included on pages 1-5.

2. **Question** – Are the current No-Build traffic forecasts still valid for the purpose they were used?

   Answer – Yes. Based on the assessment of 2012 NCDOT AADT volumes, the Metrolina Regional Travel Demand Model, MRM11v1.1, utilizing 2009 socioeconomic data, existing US 74 corridor travel time runs, and current 2008 and 2035 No-Build forecast information, the No-Build traffic forecasts are still valid for the purposes they were used.

3. **Question** – Are the current Build traffic forecasts still valid for the purpose they were used?

   Answer – Yes. The differences between MRM06 and MRM11v1.1 raw model daily volume assignment, and the Build traffic forecasts indicate that the magnitude of traffic along the Monroe Connector/Bypass and US 74 would still show the need for the project, and benefits to the existing US 74 corridor from the project, as currently supported by the Build forecast utilized in the project development process.

4. **Question** – How would the Monroe Connector/Bypass affect traffic volumes on the US 74 corridor?

   Answer – When comparing Build and No-Build Traffic Forecast Scenarios and 2030 MRM06 and 2035 MRM11v1.1 raw model network assignment data, the Build volumes are lower than the No-Build for every segment along the US 74 corridor for the forecast results and model run results.

5. **Question** – How could changes in socioeconomic data affect the traffic forecast for the Monroe Connector/Bypass project?

   Answer – Based on a direct comparison of 2005 SE, 2008 Interim and 2009 SE data, the socioeconomic data sets have relatively similar volume assignments with cumulative corridor volumes within two percent and five percent for the Monroe Connector/Bypass and US 74 corridor, respectively. It is reasonable to conclude that the differences between the three sets of socioeconomic data would not substantially change the traffic forecast.

6. **Question** – How do changes in the socioeconomic data related to indirect and cumulative effects affect the traffic forecast for the Monroe Connector/Bypass project?

   Answer – Changes in SE data cause relatively minor changes in traffic volumes in the MRM model runs. Based on the comparison of 2030 Build MRM11v1.1 model runs using 2009 SE data and 2009 ICE SE data, the volume changes and percent changes are not substantial. The change in VMT and VHT in Union County is 3 percent and 4 percent respectively, while changes in Mecklenburg County and across the MRM network are approximately zero percent. These variations in raw model daily volume assignment will not affect the conclusions of the traffic forecasting development process.

Table 2 – US 74 Corridor No-Build Traffic Forecast Volumes

		Comparison Type	No-Build Traffic Forecast Volumes (Sec. 1)					
		Year	2007	2008	2008	2030	2035	2035
		Scenario	No-Build	No-Build	No-Build	No-Build	No-Build	No-Build
		Classification	Forecast	Forecast	Forecast Update	Forecast	Forecast	Forecast Update
	ID #	Source	MAB, June 2008	WSA, Sept. 2008	HNTB, March 2010	MAB, June 2008	WSA, Sept. 2008	HNTB, March 2010
US 74 Segments	1	I-485 to Stallings Rd	61,800	74,200	62,900	84,200	140,200	89,100
	2	Stallings Rd to Indian Trail Rd. North	60,000	72,000	60,900	81,600	134,300	86,300
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	53,600	62,500	54,200	66,600	123,400	69,400
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	51,800	63,300	52,500	68,600	123,500	72,300
	5	Faith Church Rd. to Sardis Church Rd.	53,800	63,800	54,300	65,400	124,500	67,900
	6	Sardis Church Rd. to Chambers Dr.	47,600	54,900	48,500	67,200	116,500	71,500
	7	Chambers Dr. to N. Rocky River Rd.	41,000	52,800	46,400	62,400	112,800	67,100
	8	N. Rocky River Rd. to Fowler Secrest Rd.	41,400	45,100	45,300	55,200	101,800	58,200
	9	Fowler Secrest Rd. to Rolling Hills Dr.	47,600	47,600	48,100	60,200	106,500	62,900
	10	Rolling Hills Dr. to Round Table Rd.	45,400	45,400	46,000	59,800	102,100	62,900
	11	Round Table Rd. to Williams Rd.	44,800	45,400	45,400	59,400	102,100	62,600
	12	Williams Rd. to Hanover Dr.	47,000	47,200	47,700	63,000	105,600	66,500
	13	Hanover Dr. to Dickerson Blvd.	58,200	57,600	58,700	69,600	121,300	72,100
	14	Dickerson Blvd. to Secrest Shortcut Rd.	56,600	56,000	56,700	59,200	110,700	59,800
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	61,600	61,300	61,700	64,400	120,900	65,000
	16	Secrest Shortcut Rd. to Concord Ave.	61,600	61,300	61,700	64,400	120,900	65,000
	17	Concord Ave. to US 601	61,800	61,500	62,000	66,200	121,400	67,200
	18	US 601 to Stafford St.	58,200	57,000	58,800	71,800	116,200	74,800
	19	Stafford St. to Boyte St.	58,000	56,800	58,500	70,600	116,200	73,300
	20	Boyte St. to NC 200	56,400	56,100	56,900	67,400	115,300	69,800
	21	NC 200 to Walkup Ave.	49,600	48,500	50,200	63,800	95,300	66,900
	22	Walkup Ave. to S. Sutherland Ave.	42,600	42,000	43,100	54,800	87,300	57,500
	23	S. Sutherland Ave. to Venus St.	40,400	40,600	40,900	52,000	85,400	54,500
	24	Venus St. to E. Franklin St.	36,600	40,300	37,100	47,000	83,800	49,300
	25	E. Franklin St. to US 601 / N. Medical Center Campus	46,200	48,400	46,700	58,000	101,400	60,600
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	31,200	34,600	31,500	38,200	77,800	39,700
	27	S. Secrest Ave. to S. Bivens Rd.	29,600	33,400	30,000	39,000	75,300	41,000
	28	S. Bivens Rd. to Bivens St.	29,200	33,400	29,600	37,600	75,300	39,400
	29	Bivens St. to Austin Chaney Rd.	28,600	32,900	29,100	40,200	74,300	42,700
	30	Austin Chaney Rd. to Forest Hills School Rd. North	24,400	26,600	24,800	33,000	51,700	35,900
	31	Forest Hills School Rd. North to Marshville	19,400	22,700	19,800	29,400	44,200	31,600

Table 3 – Monroe Bypass Build Traffic Forecast Volumes

		Comparison Type	Build Traffic Forecast Volumes (Sec. 1)	
		Year	2008	2035
		Scenario	Build Toll	Build Toll
		Classification	Forecast	Forecast
Facility	ID #	Source	WSA, Sept. 2008	WSA Sept. 2008
US 74	1	I-485 to US 74 Frontage Road	73,400	115,000
US 74 / Monroe Bypass	2	US 74 Frontage Rd to US 74 / Monroe Bypass Split	71,900	95,600
Frontage Road	3	McKee Rd to Stallings Rd	n/a	19,500
Monroe Bypass Segments	1	US 74 to Indian Trail-Fairview Rd	17,500	48,200
	2	Indian Trail-Fairview Rd to Unionville-Indian Trail Rd	18,200	51,200
	3	Unionville-Indian Trail Rd to Rocky River Rd	18,500	52,300
	4	Rocky River Rd to US 601	15,900	46,600
	5	US 601 to NC 200 (Morgan Mill Rd)	12,300	35,200
	6	NC 200 (Morgan Mill Rd) to Austin Chaney Rd	8,600	24,800
	7	Austin Chaney Rd to Forest Hills School Rd	8,400	19,600
	8	Forest Hills School Rd to US 74	8,400	16,400
US 74 Segments	2	Stallings Rd to Indian Trail Rd. North	56,400	67,400
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	40,600	51,300
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	41,400	51,400
	5	Faith Church Rd. to Sardis Church Rd.	41,900	52,400
	6	Sardis Church Rd. to Chambers Dr.	32,300	38,200
	7	Chambers Dr. to N. Rocky River Rd.	30,200	34,500
	8	N. Rocky River Rd. to Fowler Secrest Rd.	24,500	28,800
	9	Fowler Secrest Rd. to Rolling Hills Dr.	27,700	33,500
	10	Rolling Hills Dr. to Round Table Rd.	25,500	29,100
	11	Round Table Rd. to Williams Rd.	25,500	29,100
	12	Williams Rd. to Hanover Dr.	27,300	32,300
	13	Hanover Dr. to Dickerson Blvd.	37,700	48,000
	14	Dickerson Blvd. to Secrest Shortcut Rd.	36,100	37,400
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	41,400	47,600
	16	Secrest Shortcut Rd. to Concord Ave.	41,400	47,600
	17	Concord Ave. to US 601	41,600	48,100
	18	US 601 to Stafford St.	42,600	57,200
	19	Stafford St. to Boyte St.	42,400	56,900
	20	Boyte St. to NC 200	41,600	56,000
	21	NC 200 to Walkup Ave.	40,000	54,500
	22	Walkup Ave. to S. Sutherland Ave.	33,500	46,500
	23	S. Sutherland Ave. to Venus St.	32,100	44,000
	24	Venus St. to E. Franklin St.	31,800	42,400
	25	E. Franklin St. to US 601 / N. Medical Center Campus	39,900	60,000
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	26,100	36,600
	27	S. Secrest Ave. to S. Bivens Rd.	24,900	34,100
	28	S. Bivens Rd. to Bivens St.	24,900	34,100
	29	Bivens St. to Austin Chaney Rd.	24,400	33,100
	30	Austin Chaney Rd. to Forest Hills School Rd. North	19,700	26,100
	31	Forest Hills School Rd. North to Monroe Bypass	13,700	20,700

Table 4 – Monroe Connector/Bypass Traffic and Revenue Estimated Traffic Volumes

		Comparison Type	Build Estimated Traffic Volumes (Sec. 1.3)		
		Year	2015	2020	2030
		Scenario	Build	Build	Build
		Model Version	MRM06	MRM06	MRM06
		Socioeconomic Data	2008 Interim	2008 Interim	2008 Interim
		Classification	Traffic & Revenue	Traffic & Revenue	Traffic & Revenue
Facility	ID #	Source	WSA, Oct. 2010	WSA, Oct. 2010	WSA, Oct. 2010
US 74	1	I-485 to US 74 Frontage Road	72,200	77,800	92,600
US 74 / Monroe Bypass	2	US 74 Frontage Rd to US 74 / Monroe Bypass Split	40,600	45,800	58,400
Frontage Road	3	McKee Rd to Stallings Rd	33,400	35,100	35,900
Monroe Bypass Segments	1	US 74 to Indian Trail-Fairview Rd	29,000	33,600	45,600
	2	Indian Trail-Fairview Rd to Unionville-Indian Trail Rd	31,600	35,200	43,600
	3	Unionville-Indian Trail Rd to Rocky River Rd	29,200	32,400	40,200
	4	Rocky River Rd to US 601	25,800	28,400	35,600
	5	US 601 to NC 200 (Morgan Mill Rd)	24,600	27,200	32,800
	6	NC 200 (Morgan Mill Rd) to Austin Chaney Rd	15,200	17,200	22,600
	7	Austin Chaney Rd to Forest Hills School Rd	10,200	11,800	15,600
	8	Forest Hills School Rd to US 74	9,200	10,800	14,200

Table 5 – US 74 Corridor AADT and No-Build Model Data Comparisons

		Comparison Type	NCDOT AADT (Sec. 2.1)		Raw Model Daily Volume (Sec. 2.2)	
		Year	2007	2012	2030	2035
		Scenario	n/a	n/a	No-Build	No-Build
		Model Version	n/a	n/a	MRM05	MRM11
		Socioeconomic Data	n/a	n/a	2005	2009
		Classification	AADT	AADT	Raw Model	Raw Model
	ID #	Source	NCDOT	NCDOT	Model	Model
US 74 Corridor Segments	1	I-485 to Stallings Rd	58,000*	57,000*	70,300*	101,600*
	2	Stallings Rd to Indian Trail Rd. North	53,000	53,000	65,600	90,300
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	50,000	51,000	49,500	65,500
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	49,000	48,000	54,000	66,400
	5	Faith Church Rd. to Sardis Church Rd.	n/a	n/a	58,100	56,900
	6	Sardis Church Rd. to Chambers Dr.	43,000	44,000	58,100	47,400
	7	Chambers Dr. to N. Rocky River Rd.	36,000	37,000	59,500	46,100
	8	N. Rocky River Rd. to Fowler Secrest Rd.	n/a	n/a	47,900	45,300
	9	Fowler Secrest Rd. to Rolling Hills Dr.	36,000	38,000	50,900	38,100
	10	Rolling Hills Dr. to Round Table Rd.	n/a	n/a	50,900	38,100
	11	Round Table Rd. to Williams Rd.	n/a	n/a	54,700	43,100
	12	Williams Rd. to Hanover Dr.	n/a	n/a	54,700	49,200
	13	Hanover Dr. to Dickerson Blvd.	n/a	n/a	54,700	49,200
	14	Dickerson Blvd. to Secrest Shortcut Rd.	47,000	50,000	40,000	66,400
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	n/a	n/a	44,000	71,500
	16	Secrest Shortcut Rd. to Concord Ave.	n/a	n/a	44,000	71,500
	17	Concord Ave. to US 601	53,000	55,000	44,000	73,200
	18	US 601 to Stafford St.	54,000	51,000	57,400	69,300
	19	Stafford St. to Boyte St.	n/a	n/a	57,400	67,100
	20	Boyte St. to NC 200	52,000	50,000	53,100	66,400
	21	NC 200 to Walkup Ave.	47,000	47,000	54,100	68,200
	22	Walkup Ave. to S. Sutherland Ave.	38,000	33,000	54,100	66,800
	23	S. Sutherland Ave. to Venus St.	n/a	n/a	54,100	65,500
	24	Venus St. to E. Franklin St.	n/a	n/a	54,100	66,400
	25	E. Franklin St. to US 601 / N. Medical Center Campus	n/a	n/a	54,100	75,500
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	27,000	27,000	32,200	41,500
	27	S. Secrest Ave. to S. Bivens Rd.	25,000	24,000	35,000	48,300
	28	S. Bivens Rd. to Bivens St.	24,000	25,000	33,200	36,500
	29	Bivens St. to Austin Chaney Rd.	24,000	26,000	30,200	37,700
	30	Austin Chaney Rd. to Forest Hills School Rd. North	24,000	23,000	25,800	30,700
	31	Forest Hills School Rd. North to Marshville	n/a	n/a	23,000	21,200
		Corridor VMT	706,610	710,230	876,001	965,940
		% Change in VMT	~0%		10%	
		VMT Annual Growth Rate	~0%		2%	

* US 74 Corridor Segment ID #1 not included in US 74 corridor VMT calculations to provide consistent No-Build and Build corridor comparisons.

Table 6 – US 74 Corridor AADT and No-Build Traffic Forecast Comparison

		Comparison Type	NCDOT AADT and No-Build Traffic Forecast Volumes (Sec. 2.3)			
		Year	2012	2035	Traffic Volume Increase from 2012 AADT to 2035 No-Build Forecast	Percent Volume Increase from 2012 AADT to 2035 No-Build Forecast
		Scenario	n/a	No-Build		
		Classification	AADT	Forecast Update		
	ID #	Source	NCDOT	HNTB, March 2010		
US 74 Segments	1	I-485 to Stallings Rd	57,000	89,100	**32,100**	**56%**
	2	Stallings Rd to Indian Trail Rd. North	53,000	86,300	**33,300**	**63%**
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	51,000	69,400	**18,400**	**36%**
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	48,000	72,300	**24,300**	**51%**
	5	Faith Church Rd. to Sardis Church Rd.	n/a	67,900	n/a	n/a
	6	Sardis Church Rd. to Chambers Dr.	44,000	71,500	**27,500**	**63%**
	7	Chambers Dr. to N. Rocky River Rd.	37,000	67,100	**30,100**	**81%**
	8	N. Rocky River Rd. to Fowler Secrest Rd.	n/a	58,200	n/a	n/a
	9	Fowler Secrest Rd. to Rolling Hills Dr.	38,000	62,900	**24,900**	**66%**
	10	Rolling Hills Dr. to Round Table Rd.	n/a	62,900	n/a	n/a
	11	Round Table Rd. to Williams Rd.	n/a	62,600	n/a	n/a
	12	Williams Rd. to Hanover Dr.	n/a	66,500	n/a	n/a
	13	Hanover Dr. to Dickerson Blvd.	n/a	72,100	n/a	n/a
	14	Dickerson Blvd. to Secrest Shortcut Rd.	50,000	59,800	**9,800**	**20%**
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	n/a	65,000	n/a	n/a
	16	Secrest Shortcut Rd. to Concord Ave.	n/a	65,000	n/a	n/a
	17	Concord Ave. to US 601	55,000	67,200	**12,200**	**22%**
	18	US 601 to Stafford St.	51,000	74,800	**23,800**	**47%**
	19	Stafford St. to Boyte St.	n/a	73,300	n/a	n/a
	20	Boyte St. to NC 200	50,000	69,800	**19,800**	**40%**
	21	NC 200 to Walkup Ave.	47,000	66,900	**19,900**	**42%**
	22	Walkup Ave. to S. Sutherland Ave.	33,000	57,500	**24,500**	**74%**
	23	S. Sutherland Ave. to Venus St.	n/a	54,500	n/a	n/a
	24	Venus St. to E. Franklin St.	n/a	49,300	n/a	n/a
	25	E. Franklin St. to US 601 / N. Medical Center Campus	n/a	60,600	n/a	n/a
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	27,000	39,700	**12,700**	**47%**
	27	S. Secrest Ave. to S. Bivens Rd.	24,000	41,000	**17,000**	**71%**
	28	S. Bivens Rd. to Bivens St.	25,000	39,400	**14,400**	**58%**
	29	Bivens St. to Austin Chaney Rd.	26,000	42,700	**16,700**	**64%**
	30	Austin Chaney Rd. to Forest Hills School Rd. North	23,000	35,900	**12,900**	**56%**
	31	Forest Hills School Rd. North to Marshville	n/a	31,600	n/a	n/a

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Table 7 – 2030 and 2035 Build Model Data Comparisons

			Comparison Type	Travel Demand Model Raw Daily Volume Assignment					
			Year	2030	2030	Percent Change from 2030 MRM06 to 2030 MRM11 (Sec. 3.1)	2035	Percent Change from 2030 MRM06 to 2035 MRM11 (Sec. 3.3)	Percent Change from 2030 MRM11 to 2035 MRM11 (Sec. 3.2)
			Scenario	Build	Build		Build		
			Model Version	MRM06	MRM11		MRM11		
			Socioeconomic Data	2005	2009		2009		
			Classification	Raw Model	Raw Model		Raw Model		
Facility	**ID #**		**Source**	**Model**	**Model**		**Model**		
US 74	1	I-485 to US 74 Frontage Road	n/a	91,300	125,400	**37%**	134,000	**47%**	**7%**
US 74 / Monroe Bypass	2	US 74 Frontage Rd to US 74 / Monroe Bypass Split	n/a	89,800	109,500	**22%**	116,500	**30%**	**6%**
Frontage Road	3	McKee Rd to Stallings Rd	n/a	n/a	7,700	n/a	8,600	n/a	**12%**
			Distance (miles)						
Monroe Bypass Segments	1	US 74 to Indian Trail-Fairview Rd	2.24	47,900	62,500	**30%**	67,400	**41%**	**8%**
	2	Indian Trail-Fairview Rd to Unionville-Indian Trail Rd	2.26	49,000	52,900	**8%**	56,800	**16%**	**7%**
	3	Unionville-Indian Trail Rd to Rocky River Rd	1.51	52,400	47,200	**-10%**	50,800	**-3%**	**8%**
	4	Rocky River Rd to US 601	3.77	48,300	44,100	**-9%**	47,700	**-1%**	**8%**
	5	US 601 to NC 200 (Morgan Mill Rd)	1.76	48,800	39,500	**-19%**	43,100	**-12%**	**9%**
	6	NC 200 (Morgan Mill Rd) to Austin Chaney Rd	4.06	44,600	32,500	**-27%**	36,000	**-19%**	**11%**
	7	Austin Chaney Rd to Forest Hills School Rd	1.79	25,900	22,600	**-13%**	24,800	**-4%**	**10%**
	8	Forest Hills School Rd to US 74	0.92	23,200	20,000	**-14%**	21,600	**-7%**	**8%**
		Corridor VMT and % Change in VMT		***813,920***	***757,407***	***-7%***	***822,161***	***1%***	***9%***
US 74 Segments	2	Stallings Rd / Monroe Bypass to Indian Trail Rd. North	1.27	47,200	61,400	**30%**	65,200	**38%**	**6%**
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	0.68	37,500	48,200	**29%**	51,900	**38%**	**8%**
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	0.80	35,700	50,100	**40%**	53,700	**50%**	**7%**
	5	Faith Church Rd. to Sardis Church Rd.	0.60	38,500	45,800	**19%**	48,200	**25%**	**5%**
	6	Sardis Church Rd. to Chambers Dr.	1.16	33,100	37,300	**13%**	39,800	**20%**	**7%**
	7	Chambers Dr. to N. Rocky River Rd.	1.37	34,900	35,800	**3%**	38,300	**10%**	**7%**
	8	N. Rocky River Rd. to Fowler Secrest Rd.	1.17	25,400	36,200	**43%**	38,400	**51%**	**6%**
	9	Fowler Secrest Rd. to Rolling Hills Dr.	0.78	25,400	29,400	**16%**	31,300	**23%**	**6%**
	10	Rolling Hills Dr. to Round Table Rd.	0.31	30,500	29,400	**-4%**	31,300	**3%**	**6%**
	11	Round Table Rd. to Williams Rd.	0.36	38,600	35,200	**-9%**	37,400	**-3%**	**6%**
	12	Williams Rd. to Hanover Dr.	0.22	38,600	41,600	**8%**	43,900	**14%**	**6%**
	13	Hanover Dr. to Dickerson Blvd.	0.32	38,600	41,600	**8%**	43,900	**14%**	**6%**
	14	Dickerson Blvd. to Secrest Shortcut Rd.	0.27	38,600	53,300	**38%**	56,700	**47%**	**6%**
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	0.07	31,100	56,200	**81%**	59,200	**90%**	**5%**
	16	Secrest Shortcut Rd. to Concord Ave.	0.26	31,100	56,200	**81%**	59,200	**90%**	**5%**
	17	Concord Ave. to US 601	0.33	35,900	57,800	**61%**	60,900	**70%**	**5%**
	18	US 601 to Stafford St.	0.40	50,900	57,100	**12%**	60,400	**19%**	**6%**
	19	Stafford St. to Boyte St.	0.24	48,600	55,000	**13%**	57,500	**18%**	**5%**
	20	Boyte St. to NC 200	0.57	46,100	54,300	**18%**	57,500	**25%**	**6%**
	21	NC 200 to Walkup Ave.	0.23	44,900	55,200	**23%**	59,300	**32%**	**7%**
	22	Walkup Ave. to S. Sutherland Ave.	0.53	45,900	54,600	**19%**	58,000	**26%**	**6%**
	23	S. Sutherland Ave. to Venus St.	0.26	44,900	52,700	**17%**	56,100	**25%**	**6%**
	24	Venus St. to E. Franklin St.	0.19	45,000	53,100	**18%**	56,700	**26%**	**7%**
	25	E. Franklin St. to US 601 / N. Medical Center Campus	0.14	54,500	60,600	**11%**	65,200	**20%**	**8%**
	26	US 601/Metro Medical Ctr Campus to S. Secrest Ave.	1.30	26,700	30,400	**14%**	32,500	**22%**	**7%**
	27	S. Secrest Ave. to S. Bivens Rd.	0.38	31,100	37,000	**19%**	40,100	**29%**	**8%**
	28	S. Bivens Rd. to Bivens St.	1.94	24,800	26,000	**5%**	28,500	**15%**	**10%**
	29	Bivens St. to Austin Chaney Rd.	0.29	25,400	27,300	**7%**	30,000	**18%**	**10%**
	30	Austin Chaney Rd. to Forest Hills School Rd. North	2.00	18,400	19,800	**8%**	22,700	**23%**	**15%**
	31	Forest Hills School Rd. North to Monroe Connector/Bypass	0.50	10,300	10,600	**3%**	11,600	**13%**	**9%**
		Corridor VMT and % Change in VMT		***614,335***	***729,912***	***19%***	***782,051***	***27%***	***7%***
-Y- Lines	1	Indian Trail-Fairview Rd (North of Monroe Bypass)	0.50	17,000	21,500	**26%**	23,000	**35%**	**7%**
	2	Indian Trail-Fairview Rd (South of Monroe Bypass)	0.50	11,000	7,400	**-33%**	8,000	**-27%**	**8%**
	3	Unionville-Indian Trail Rd (North of Monroe Bypass)	0.50	15,000	14,000	**-7%**	15,000	**0%**	**7%**
	4	Unionville-Indian Trail Rd (South of Monroe Bypass)	0.50	21,000	12,800	**-39%**	14,100	**-33%**	**10%**
	5	Rocky River Rd (North of Monroe Bypass)	0.50	16,000	12,100	**-24%**	12,700	**-21%**	**5%**
	6	Rocky River Rd (South of Monroe Bypass)	0.50	14,000	17,800	**27%**	18,600	**33%**	**4%**
	7	US 601 (North of Monroe Bypass)	0.50	49,000	20,700	**-58%**	21,700	**-56%**	**5%**
	8	US 601 (South of Monroe Bypass)	0.50	43,000	18,000	**-58%**	18,800	**-56%**	**4%**
	9	NC 200 (Morgan Mill Rd) (North of Monroe Bypass)	0.50	19,000	14,700	**-23%**	16,100	**-15%**	**10%**
	10	NC 200 (Morgan Mill Rd) (South of Monroe Bypass)	0.50	12,000	18,500	**54%**	19,800	**65%**	**7%**
	11	Austin Chaney Rd (North of Monroe Bypass)	0.50	8,400	10,300	**23%**	11,400	**36%**	**11%**
	12	Austin Chaney Rd (South of Monroe Bypass)	0.50	14,000	14,000	**0%**	15,600	**11%**	**11%**
	13	Forest Hills School Rd (North of Monroe Bypass)	0.50	1,400	700	**-50%**	1,100	**-21%**	**57%**
	14	Forest Hills School Rd (South of Monroe Bypass)	0.50	1,600	2,100	**31%**	2,500	**56%**	**19%**
		Corridor VMT and % Change in VMT		***121,200***	***92,300***	***-24%***	***99,200***	***-18%***	***7%***

* US 74 Corridor Segment ID #1 not included in US 74 corridor VMT calculations to provide consistent No-Build and Build corridor comparisons.

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Table 8 – Effects of the Monroe Connector/Bypass on US 74 Traffic Forecast Volumes

		Comparison Type	Traffic Forecast Volumes (Sec. 4.1)			
		Year	2035	2035	Traffic Volume Reduction Due to Build Scenario	Percent Volume Reduction on US 74 in Build Scenario
		Scenario	No-Build	Build Toll		
		Classification	Forecast Update	Forecast		
	ID #	Source	HNTB, March 2010	WSA Sept. 2008		
US 74 Segments	2	Stallings Rd to Indian Trail Rd. North	86,300	67,400	**-18,900**	**-22%**
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	69,400	51,300	**-18,100**	**-26%**
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	72,300	51,400	**-20,900**	**-29%**
	5	Faith Church Rd. to Sardis Church Rd.	67,900	52,400	**-15,500**	**-23%**
	6	Sardis Church Rd. to Chambers Dr.	71,500	38,200	**-33,300**	**-47%**
	7	Chambers Dr. to N. Rocky River Rd.	67,100	34,500	**-32,600**	**-49%**
	8	N. Rocky River Rd. to Fowler Secrest Rd.	58,200	28,800	**-29,400**	**-51%**
	9	Fowler Secrest Rd. to Rolling Hills Dr.	62,900	33,500	**-29,400**	**-47%**
	10	Rolling Hills Dr. to Round Table Rd.	62,900	29,100	**-33,800**	**-54%**
	11	Round Table Rd. to Williams Rd.	62,600	29,100	**-33,500**	**-54%**
	12	Williams Rd. to Hanover Dr.	66,500	32,300	**-34,200**	**-51%**
	13	Hanover Dr. to Dickerson Blvd.	72,100	48,000	**-24,100**	**-33%**
	14	Dickerson Blvd. to Secrest Shortcut Rd.	59,800	37,400	**-22,400**	**-37%**
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	65,000	47,600	**-17,400**	**-27%**
	16	Secrest Shortcut Rd. to Concord Ave.	65,000	47,600	**-17,400**	**-27%**
	17	Concord Ave. to US 601	67,200	48,100	**-19,100**	**-28%**
	18	US 601 to Stafford St.	74,800	57,200	**-17,600**	**-24%**
	19	Stafford St. to Boyte St.	73,300	56,900	**-16,400**	**-22%**
	20	Boyte St. to NC 200	69,800	56,000	**-13,800**	**-20%**
	21	NC 200 to Walkup Ave.	66,900	54,500	**-12,400**	**-19%**
	22	Walkup Ave. to S. Sutherland Ave.	57,500	46,500	**-11,000**	**-19%**
	23	S. Sutherland Ave. to Venus St.	54,500	44,000	**-10,500**	**-19%**
	24	Venus St. to E. Franklin St.	49,300	42,400	**-6,900**	**-14%**
	25	E. Franklin St. to US 601 / N. Medical Center Campus	60,600	60,000	**-600**	**-1%**
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	39,700	36,600	**-3,100**	**-8%**
	27	S. Secrest Ave. to S. Bivens Rd.	41,000	34,100	**-6,900**	**-17%**
	28	S. Bivens Rd. to Bivens St.	39,400	34,100	**-5,300**	**-13%**
	29	Bivens St. to Austin Chaney Rd.	42,700	33,100	**-9,600**	**-22%**
	30	Austin Chaney Rd. to Forest Hills School Rd. North	35,900	26,100	**-9,800**	**-27%**
	31	Forest Hills School Rd. North to Marshville	31,600	20,700	**-10,900**	**-34%**
Corridor VMT, VMT Reduction and % Change in VMT			***1,095,695***	***760,460***	***-335,235***	***-31%***

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Table 9 – Effects of the Monroe Connector/Bypass on US 74 Travel Demand Model Assignment

		Comparison Type	Travel Demand Model Raw Output Assignment							
		Year	2030	2030	Assignment Reduction Due to Build Scenario (Sec. 4.2)	Percent Reduction on US 74 in Build Scenario (Sec. 4.2)	2035	2035	Assignment Reduction Due to Build Scenario (Sec. 4.3)	Percent Reduction on US 74 in Build Scenario (Sec. 4.3)
		Scenario	No-Build	Build			No-Build	Build		
		Model Version	MRM06	MRM06			MRM11	MRM11		
		Socioeconomic Data	2005	2005			2009	2009		
		Classification	Raw Model	Raw Model			Raw Model	Raw Model		
	ID #	Source	Model	Model			Model	Model		
US 74 Segments	2	Stallings Rd / Monroe Bypass to Indian Trail Rd. North	62,600	47,200	**-15,400**	**-25%**	90,300	65,200	**-25,100**	**-28%**
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	51,800	37,500	**-14,300**	**-28%**	65,500	51,900	**-13,600**	**-21%**
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	49,600	35,700	**-13,900**	**-28%**	66,400	53,700	**-12,700**	**-19%**
	5	Faith Church Rd. to Sardis Church Rd.	51,000	38,500	**-12,500**	**-25%**	56,900	48,200	**-8,700**	**-15%**
	6	Sardis Church Rd. to Chambers Dr.	50,600	33,100	**-17,500**	**-35%**	47,400	39,800	**-7,600**	**-16%**
	7	Chambers Dr. to N. Rocky River Rd.	52,600	34,900	**-17,700**	**-34%**	46,100	38,300	**-7,800**	**-17%**
	8	N. Rocky River Rd. to Fowler Secrest Rd.	42,600	25,400	**-17,200**	**-40%**	45,300	38,400	**-6,900**	**-15%**
	9	Fowler Secrest Rd. to Rolling Hills Dr.	47,300	25,400	**-21,900**	**-46%**	38,100	31,300	**-6,800**	**-18%**
	10	Rolling Hills Dr. to Round Table Rd.	47,300	30,500	**-16,800**	**-36%**	38,100	31,300	**-6,800**	**-18%**
	11	Round Table Rd. to Williams Rd.	55,700	38,600	**-17,100**	**-31%**	43,100	37,400	**-5,700**	**-13%**
	12	Williams Rd. to Hanover Dr.	55,700	38,600	**-17,100**	**-31%**	49,200	43,900	**-5,300**	**-11%**
	13	Hanover Dr. to Dickerson Blvd.	55,700	38,600	**-17,100**	**-31%**	49,200	43,900	**-5,300**	**-11%**
	14	Dickerson Blvd. to Secrest Shortcut Rd.	43,400	38,600	**-4,800**	**-11%**	66,400	56,700	**-9,700**	**-15%**
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	48,400	31,100	**-17,300**	**-36%**	71,500	59,200	**-12,300**	**-17%**
	16	Secrest Shortcut Rd. to Concord Ave.	48,400	31,100	**-17,300**	**-36%**	71,500	59,200	**-12,300**	**-17%**
	17	Concord Ave. to US 601	47,300	35,900	**-11,400**	**-24%**	73,200	60,900	**-12,300**	**-17%**
	18	US 601 to Stafford St.	61,700	50,900	**-10,800**	**-18%**	69,300	60,400	**-8,900**	**-13%**
	19	Stafford St. to Boyte St.	59,500	48,600	**-10,900**	**-18%**	67,100	57,500	**-9,600**	**-14%**
	20	Boyte St. to NC 200	57,100	46,100	**-11,000**	**-19%**	66,400	57,500	**-8,900**	**-13%**
	21	NC 200 to Walkup Ave.	56,200	44,900	**-11,300**	**-20%**	68,200	59,300	**-8,900**	**-13%**
	22	Walkup Ave. to S. Sutherland Ave.	57,000	45,900	**-11,100**	**-19%**	66,800	58,000	**-8,800**	**-13%**
	23	S. Sutherland Ave. to Venus St.	58,700	44,900	**-13,800**	**-24%**	65,500	56,100	**-9,400**	**-14%**
	24	Venus St. to E. Franklin St.	59,000	45,000	**-14,000**	**-24%**	66,400	56,700	**-9,700**	**-15%**
	25	E. Franklin St. to US 601 / N. Medical Center Campus	68,500	54,500	**-14,000**	**-20%**	75,500	65,200	**-10,300**	**-14%**
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	38,500	26,700	**-11,800**	**-31%**	41,500	32,500	**-9,000**	**-22%**
	27	S. Secrest Ave. to S. Bivens Rd.	41,600	31,100	**-10,500**	**-25%**	48,300	40,100	**-8,200**	**-17%**
	28	S. Bivens Rd. to Bivens St.	39,900	24,800	**-15,100**	**-38%**	36,500	28,500	**-8,000**	**-22%**
	29	Bivens St. to Austin Chaney Rd.	39,500	25,400	**-14,100**	**-36%**	37,700	30,000	**-7,700**	**-20%**
	30	Austin Chaney Rd. to Forest Hills School Rd. North	30,700	18,400	**-12,300**	**-40%**	30,700	22,700	**-8,000**	**-26%**
	31	Forest Hills School Rd. North to Monroe Connector/Bypass	21,200	10,300	**-10,900**	**-51%**	21,200	11,600	**-9,600**	**-45%**
		Corridor VMT, VMT Reduction and % Change in VMT	***888,016***	***614,335***	***-273,681***	***-31%***	***965,940***	***782,051***	***-183,889***	***-19%***

Table 11 – Effects of the Socioeconomic Data on Travel Demand Model Assignment

		Comparison Type	Travel Demand Model Raw Assignment (Sec. 5)									
		Year	2035	2035	2035	Percent Change from SE 2005 to SE 2008 Interim	Percent Change from SE 2005 to SE 2009	2035	2035	2035	Percent Change from SE 2005 to SE 2008 Interim	Percent Change from SE 2005 to SE 2009
		Scenario	No-Build	No-Build	No-Build			Build	Build	Build		
		Model Version	MRM11	MRM11	MRM11			MRM11	MRM11	MRM11		
		Socioeconomic Data	2005	2008 Interim	2009			2005	2008 Interim	2009		
		Classification	Raw Model	Raw Model	Raw Model			Raw Model	Raw Model	Raw Model		
Facility	**ID #**	Source	Model	Model	Model			Model	Model	Model		
US 74	1	I-485 to US 74 Frontage Road	n/a	n/a	n/a	n/a	n/a	124,700	131,800	134,000	**6%**	**7%**
US 74 / Monroe Bypass	2	US 74 Frontage Rd to US 74 / Monroe Bypass Split	n/a	n/a	n/a	n/a	n/a	110,500	116,000	116,500	**5%**	**5%**
Frontage Road	3	McKee Rd to Stallings Rd	n/a	n/a	n/a	n/a	n/a	8,300	8,100	8,600	**-2%**	**4%**
Monroe Bypass Segments	1	US 74 to Indian Trail-Fairview Rd	n/a	n/a	n/a	n/a	n/a	62,900	66,800	67,400	**6%**	**7%**
	2	Indian Trail-Fairview Rd to Unionville-Indian Trail Rd	n/a	n/a	n/a	n/a	n/a	55,700	56,700	56,800	**2%**	**2%**
	3	Unionville-Indian Trail Rd to Rocky River Rd	n/a	n/a	n/a	n/a	n/a	49,800	50,800	50,800	**2%**	**2%**
	4	Rocky River Rd to US 601	n/a	n/a	n/a	n/a	n/a	47,100	47,300	47,700	**0%**	**1%**
	5	US 601 to NC 200 (Morgan Mill Rd)	n/a	n/a	n/a	n/a	n/a	41,700	42,800	43,100	**3%**	**3%**
	6	NC 200 (Morgan Mill Rd) to Austin Chaney Rd	n/a	n/a	n/a	n/a	n/a	35,100	35,900	36,000	**2%**	**3%**
	7	Austin Chaney Rd to Forest Hills School Rd	n/a	n/a	n/a	n/a	n/a	24,300	24,700	24,800	**2%**	**2%**
	8	Forest Hills School Rd to US 74	n/a	n/a	n/a	n/a	n/a	21,800	21,600	21,600	**-1%**	**-1%**
		Corridor VMT and % Change in VMT	***n/a***	***n/a***	***n/a***	***n/a***	***n/a***	***798,994***	***817,970***	***822,161***	***2%***	***3%***
US 74 Segments	1	I-485 to Stallings Rd	92,100*	98,800*	101,600*	**7%***	**10%***	n/a*	n/a*	n/a*	n/a*	n/a*
	2	Stallings Rd to Indian Trail Rd. North	82,300	88,500	90,300	**8%**	**10%**	61,000	64,600	65,200	**6%**	**7%**
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	60,000	64,600	65,500	**8%**	**9%**	48,500	51,800	51,900	**7%**	**7%**
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	60,700	66,300	66,400	**9%**	**9%**	49,600	53,600	53,700	**8%**	**8%**
	5	Faith Church Rd. to Sardis Church Rd.	53,100	57,200	56,900	**8%**	**7%**	45,400	48,300	48,200	**6%**	**6%**
	6	Sardis Church Rd. to Chambers Dr.	46,500	47,500	47,400	**2%**	**2%**	39,700	40,200	39,800	**1%**	**0%**
	7	Chambers Dr. to N. Rocky River Rd.	45,200	46,200	46,100	**2%**	**2%**	38,100	38,600	38,300	**1%**	**1%**
	8	N. Rocky River Rd. to Fowler Secrest Rd.	46,600	45,600	45,300	**-2%**	**-3%**	40,300	38,800	38,400	**-4%**	**-5%**
	9	Fowler Secrest Rd. to Rolling Hills Dr.	38,500	38,300	38,100	**-1%**	**-1%**	31,700	31,700	31,300	**0%**	**-1%**
	10	Rolling Hills Dr. to Round Table Rd.	38,500	38,300	38,100	**-1%**	**-1%**	31,700	31,700	31,300	**0%**	**-1%**
	11	Round Table Rd. to Williams Rd.	43,300	49,100	43,100	**13%**	**0%**	37,500	43,900	37,400	**17%**	**0%**
	12	Williams Rd. to Hanover Dr.	49,500	49,100	49,200	**-1%**	**-1%**	43,800	43,900	43,900	**0%**	**0%**
	13	Hanover Dr. to Dickerson Blvd.	49,500	49,100	49,200	**-1%**	**-1%**	43,800	43,900	43,900	**0%**	**0%**
	14	Dickerson Blvd. to Secrest Shortcut Rd.	66,400	66,300	66,400	**0%**	**0%**	57,000	56,900	56,700	**0%**	**-1%**
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	71,400	71,400	71,500	**0%**	**0%**	59,600	59,400	59,200	**0%**	**-1%**
	16	Secrest Shortcut Rd. to Concord Ave.	71,400	71,400	71,500	**0%**	**0%**	59,600	59,400	59,200	**0%**	**-1%**
	17	Concord Ave. to US 601	72,900	73,100	73,200	**0%**	**0%**	61,200	61,100	60,900	**0%**	**0%**
	18	US 601 to Stafford St.	67,000	69,200	69,300	**3%**	**3%**	58,100	50,900	60,400	**-12%**	**4%**
	19	Stafford St. to Boyte St.	65,000	67,000	67,100	**3%**	**3%**	56,100	58,100	57,500	**4%**	**2%**
	20	Boyte St. to NC 200	63,800	66,300	66,400	**4%**	**4%**	55,200	57,600	57,500	**4%**	**4%**
	21	NC 200 to Walkup Ave.	66,200	67,900	68,200	**3%**	**3%**	57,000	59,500	59,300	**4%**	**4%**
	22	Walkup Ave. to S. Sutherland Ave.	64,800	66,400	66,800	**2%**	**3%**	55,700	58,000	58,000	**4%**	**4%**
	23	S. Sutherland Ave. to Venus St.	62,800	65,300	65,500	**4%**	**4%**	53,100	56,000	56,100	**5%**	**6%**
	24	Venus St. to E. Franklin St.	63,100	66,200	66,400	**5%**	**5%**	53,300	56,600	56,700	**6%**	**6%**
	25	E. Franklin St. to US 601 / N. Medical Center Campus	71,400	75,400	75,500	**6%**	**6%**	60,700	65,100	65,200	**7%**	**7%**
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	38,900	41,400	41,500	**6%**	**7%**	29,600	32,400	32,500	**9%**	**10%**
	27	S. Secrest Ave. to S. Bivens Rd.	45,000	48,300	48,300	**7%**	**7%**	36,600	40,000	40,100	**9%**	**10%**
	28	S. Bivens Rd. to Bivens St.	33,900	36,300	36,500	**7%**	**8%**	25,700	28,300	28,500	**10%**	**11%**
	29	Bivens St. to Austin Chaney Rd.	35,000	37,600	37,700	**7%**	**8%**	27,200	30,000	30,000	**10%**	**10%**
	30	Austin Chaney Rd. to Forest Hills School Rd. North	27,600	30,900	30,700	**12%**	**11%**	17,800	21,200	22,700	**19%**	**28%**
	31	Forest Hills School Rd. North to Monroe Bypass	19,900	21,200	21,200	**7%**	**7%**	10,200	11,700	11,600	**15%**	**14%**
		Corridor VMT and % Change in VMT	***921,342***	***965,324***	***965,940***	***5%***	***5%***	***743,793***	***778,388***	***782,051***	***5%***	***5%***

* US 74 Corridor Segment ID #1 not included in US 74 corridor VMT calculations to provide consistent No-Build and Build corridor comparisons.

Table 12 – Effects of Indirect and Cumulative Effects Socioeconomic Data on Travel Demand Model Assignment

		Comparison Type	Travel Demand Model Raw Assignment (Sec. 6)					
		Year	2030	2030	Percent Change from 2030 NB 2009 SE to 2030 B 2009 SE	2030	Percent Change from 2030 NB 2009 SE to 2030 B 2009 ICE	Percent Change from 2030 B 2009 SE to 2030 B 2009 ICE
		Scenario	No-Build	Build		Build		
		Model Version	MRM11	MRM11		MRM11		
		Socioeconomic Data	2009	2009		2009 ICE		
		Classification	Raw Model	Raw Model		Raw Model		
Facility	**ID #**	**Source**	**Model**	**Model**		**Model**		
US 74	1	I-485 to US 74 Frontage Road	n/a	125,400	n/a	125,600	n/a	0%
US 74 / Monroe Bypass	2	US 74 Frontage Rd to US 74 / Monroe Bypass Split	n/a	109,500	n/a	109,700	n/a	0%
Frontage Road	3	McKee Rd to Stallings Rd	n/a	7,700	n/a	8,100	n/a	5%
Monroe Bypass Segments	1	US 74 to Indian Trail-Fairview Rd	n/a	62,500	n/a	63,100	n/a	1%
	2	Indian Trail-Fairview Rd to Unionville-Indian Trail Rd	n/a	52,900	n/a	54,400	n/a	3%
	3	Unionville-Indian Trail Rd to Rocky River Rd	n/a	47,200	n/a	48,600	n/a	3%
	4	Rocky River Rd to US 601	n/a	44,100	n/a	46,300	n/a	5%
	5	US 601 to NC 200 (Morgan Mill Rd)	n/a	39,500	n/a	42,400	n/a	7%
	6	NC 200 (Morgan Mill Rd) to Austin Chaney Rd	n/a	32,500	n/a	35,800	n/a	10%
	7	Austin Chaney Rd to Forest Hills School Rd	n/a	22,600	n/a	23,800	n/a	5%
	8	Forest Hills School Rd to US 74	n/a	20,000	n/a	20,400	n/a	2%
		Corridor VMT and % Change in VMT	***n/a***	***757,407***	***n/a***	***793,567***	***n/a***	***5%***
US 74 Corridor Segments	1	I-485 to Stallings Rd	83,500*	n/a*	n/a*	n/a*	n/a*	n/a*
	2	Stallings Rd to Indian Trail Rd. North	83,500	61,400	-26%	61,400	-26%	0%
	3	Indian Trail Rd. North to Unionville Indian Trail Rd. West	60,300	48,200	-20%	48,400	-20%	0%
	4	Unionville Indian Trail Rd. West to Faith Church Rd.	61,700	50,100	-19%	50,200	-19%	0%
	5	Faith Church Rd. to Sardis Church Rd.	54,000	45,800	-15%	46,100	-15%	1%
	6	Sardis Church Rd. to Chambers Dr.	44,500	37,300	-16%	38,100	-14%	2%
	7	Chambers Dr. to N. Rocky River Rd.	42,200	35,800	-15%	35,500	-16%	-1%
	8	N. Rocky River Rd. to Fowler Secrest Rd.	42,900	36,200	-16%	37,300	-13%	3%
	9	Fowler Secrest Rd. to Rolling Hills Dr.	42,900	29,400	-31%	30,300	-29%	3%
	10	Rolling Hills Dr. to Round Table Rd.	40,900	29,400	-28%	30,300	-26%	3%
	11	Round Table Rd. to Williams Rd.	46,700	35,200	-25%	35,900	-23%	2%
	12	Williams Rd. to Hanover Dr.	62,600	41,600	-34%	42,000	-33%	1%
	13	Hanover Dr. to Dickerson Blvd.	62,600	41,600	-34%	42,000	-33%	1%
	14	Dickerson Blvd. to Secrest Shortcut Rd.	62,600	53,300	-15%	54,700	-13%	3%
	15	Secrest Shortcut Rd. to Secrest Shortcut Rd.	68,000	56,200	-17%	56,900	-16%	1%
	16	Secrest Shortcut Rd. to Concord Ave.	68,000	56,200	-17%	56,900	-16%	1%
	17	Concord Ave. to US 601	69,500	57,800	-17%	58,600	-16%	1%
	18	US 601 to Stafford St.	65,800	57,100	-13%	57,900	-12%	1%
	19	Stafford St. to Boyte St.	63,700	55,000	-14%	55,800	-12%	1%
	20	Boyte St. to NC 200	62,900	54,300	-14%	55,100	-12%	1%
	21	NC 200 to Walkup Ave.	63,300	55,200	-13%	56,300	-11%	2%
	22	Walkup Ave. to S. Sutherland Ave.	62,200	54,600	-12%	55,600	-11%	2%
	23	S. Sutherland Ave. to Venus St.	61,600	52,700	-14%	54,200	-12%	3%
	24	Venus St. to E. Franklin St.	62,000	53,100	-14%	55,200	-11%	4%
	25	E. Franklin St. to US 601 / N. Medical Center Campus	70,200	60,600	-14%	63,400	-10%	5%
	26	US 601/Metro Medical Center Campus to S. Secrest Ave.	38,800	30,400	-22%	33,400	-14%	10%
	27	S. Secrest Ave. to S. Bivens Rd.	44,900	37,000	-18%	41,400	-8%	12%
	28	S. Bivens Rd. to Bivens St.	33,800	26,000	-23%	29,300	-13%	13%
	29	Bivens St. to Austin Chaney Rd.	34,700	27,300	-21%	31,900	-8%	17%
	30	Austin Chaney Rd. to Forest Hills School Rd. North	27,800	19,800	-29%	24,500	-12%	24%
	31	Forest Hills School Rd. North to Monroe Bypass	19,400	10,600	-45%	12,400	-36%	17%
		Corridor VMT and % Change in VMT	***918,517***	***729,912***	***-21%***	***760,974***	***-17%***	***4%***

* US 74 Corridor Segment ID #1 not included in US 74 corridor VMT calculations to provide consistent No-Build and Build corridor comparisons.

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Table 13 – 2030 Build VMT and VHT Comparison

	2030 Build (with Monroe Connector/Bypass)				2009 SE Data vs. 2009 ICE Data	
	with 2009 SE Data		with 2009 ICE Data			
COUNTY	**TOTAL VMT**	**TOTAL VHT**	**TOTAL VMT**	**TOTAL VHT**	**% CHANGE in VMT**	**% CHANGE in VHT**
Mecklenburg County	44,747,461	1,664,994	44,745,210	1,665,283	**0%**	**0%**
Union County	9,612,887	302,260	9,948,279	315,582	**3%**	**4%**
MRM Network	105,856,112	3,494,897	106,207,332	3,508,645	**0%**	**0%**

VMT – Vehicle Miles Traveled
VHT – Vehicle Hours Traveled

Attachment A

INTEROFFICE CORRESPONDENCE

To
Spencer Franklin, PE
North Carolina Turnpike Authority

From
Craig Scheffler, PE
HNTB North Carolina, PC

Cc
Bradley Reynolds, PE
HNTB North Carolina, PC

Subject
Monroe Bypass No-Build Traffic Forecast Summary

Date
11/8/13

Per direction from NCTA, HNTB staff reviewed traffic forecast documentation related to the proposed Monroe Bypass project. Specifically, information related to the decision-making process for updating No-Build forecasts originally provided by Wilbur Smith Associates (WSA) in July 2008 is presented below.

As part of the initial traffic forecasting process for the Monroe Bypass project, WSA conducted initial planning-level forecasts of traffic for Build scenario conditions as part of their *Preliminary Traffic and Revenue Study* (WSA, October 11, 2006). These forecasts were updated and refined in the *Traffic Forecast for TIP Projects R-3229 & R-2559 Monroe Connector/Bypass* (WSA, September 19, 2008) to produce year 2008 and 2035 Build Toll project-level traffic forecasts for use in traffic analyses, preliminary project alternatives analysis and design. The WSA September 2008 document also included year 2008 and 2035 No-Build forecasts and notes that "The two No-Build scenarios forecasted in this document are updates of previously prepared forecasts for this project (2007 and 2030)." (Page 3). This statement references the Martin-Alexiou-Bryson (MAB) forecast document *Traffic Forecasts for the No-Build Alternatives for NCDOT State TIP Project No. R-3329 and NCDOT State TIP Project No. R-2559, Monroe Connector/Bypass Study* (MAB, June 2008).

The 2030 No-Build traffic forecasts were the primary forecasts used in traffic analyses, and project alternative analysis. The 2030 No-Build forecast volumes showed significant congestion in the US 74 corridor and the need for the project. The only purpose of the 2035 No-Build was to confirm an assumption that the traffic volumes on existing US 74 will stay the same or increase from 2030 to 2035 if no roadway improvements took place. Because the traffic forecasts for year 2035 for the No-Build Alternative were greater than the year 2030 forecasts, FHWA and NCTA determined that it was not necessary to update the operational analyses for the No-Build alternative from 2030 to 2035. For the Draft EIS, the results of that 2030 analysis were assumed to be representative of conditions in 2035.

The general methodology described in both forecast documents (by WSA and MAB) is similar, though the results from the two forecasts are very different when comparing No-Build Alternative daily traffic flows along US 74 through the project study area. Even though the base and future forecasts years are different between the two documents (2007 versus 2008 and 2030 versus 2035, MAB versus WSA, respectively), that difference should not produce the degree of variability presented in forecasted Average Annual Daily Traffic (AADT) for the No-Build Scenarios.

The primary concern with the WSA No-Build forecasts was clearly evident in the 2035 No-Build daily volume estimates in the range of 100,000-140,000 AADT for the US 74 corridor from I-485 (highest forecast data) to NC 200 in Monroe. However, all historical trend line data extrapolations and 2030 model run results (extrapolated to 2035) indicated the magnitude of 2035 No-Build AADT would be less than 100,000 vehicles per day on sections of US 74 in the project study area. For reference, the MAB 2030 No-Build forecast results through this section of the study area are in the range of 60,000-70,000 vehicles per day. Even if some elements of the forecasting approach, data sets, and methodology might have been different between the two forecasts, the results – particularly for a No-Build scenario where reliance on travel demand model output for a new location facility is not needed – should not have shown such large variance.

The second concern related to the WSA No-Build forecasts involves a screenline comparison to the Build forecasts in the project study area. Realistically, the combination of forecasted traffic volumes of a Build scenario new location facility (Monroe Bypass) and paralleling existing facility (US 74) should at least be equal to or greater than a No-Build scenario (US 74 without Monroe Bypass). A new location facility improves network access, increases network capacity, and is expected to divert a portion of trips from existing facilities, resulting in a redistribution of traffic and net gain across project study corridor screenlines. A comparison of the WSA No-Build and Build forecasts for both 2008 base year and 2035 future year conditions did not follow this expected pattern. Screenline comparisons of WSA Scenario 3A – Toll forecasts to the No-Build forecasts produced net decreases of east-west traffic through the project study area of 20,000-30,000 vehicles per day, which is contrary to the expected results as described in the previous paragraph.

Due to the two major discrepancies with the July 2008 WSA No-Build forecasts for the Monroe Bypass, HNTB prepared updated 2008 and 2035 No-Build forecasts which addressed these items. These updated forecasts produced reliable results that were consistent with MAB's No-Build 2007 and 2030 forecasts and methodology with realistic No-Build daily volume results when compared to Build – Toll scenarios across project study area screenlines. The updated No-Build forecasts are documented in *Revised Monroe Connector/Bypass No-Build Traffic Forecast Memorandum* (HNTB, March 2010).