

**Monroe Connector/Bypass**  
STIP Project Nos. R-2559 & R-3329

**Public Hearing**  
December 9, 10 and 11, 2013



Welcome to the public hearing for the Monroe Connector/Bypass project.

# Agenda

- Purpose of Hearing
- Project Purpose, Description, & History
- Litigation
- Recent Activities
- Schedule
- Public Comments

## Purpose of the Hearing

- Present the project overview
- Review Preferred Alternative hearing map
- Receive comments on Environmental Document

2<sup>nd</sup> round of public hearings. Maps have not changed since May 2009 Hearings. Focus tonight is on receiving input on new information presented in environmental document.

## **Copies of the maps and DSFEIS have available at:**

- NCDOT Division 10 office, Albemarle;
- Monroe Planning Department;
- Indian Trail Planning Department;
- Monroe Library, 316 East Windsor Street;
- Edwards Memorial Library, Marshville;

Nov 18<sup>th</sup>

Federal Register publication Nov 22. 45 day comment period.

## **Copies of the maps and DSFEIS have available at:**

- CRTPO/Charlotte-Mecklenburg Planning Department;
- Stallings Planning Department;
- Matthews Branch Library;
- Union West Library, Indian Trail; and
- Online:

<http://www.ncdot.gov/projects/monroeconnector/>

# Public Participation

- Your input is vital!
- Verbal comments will be recorded tonight.
- Written comments/questions can be mailed or emailed to Mr. Jamille Robbins or Ms. Jennifer Harris (addresses listed in handout).



# What is done with my input?

## Post-Hearing Meeting

- Following 45-day comment period
- All spoken and written issues are discussed
- Summary of the meeting is available to the public

## Project Purpose

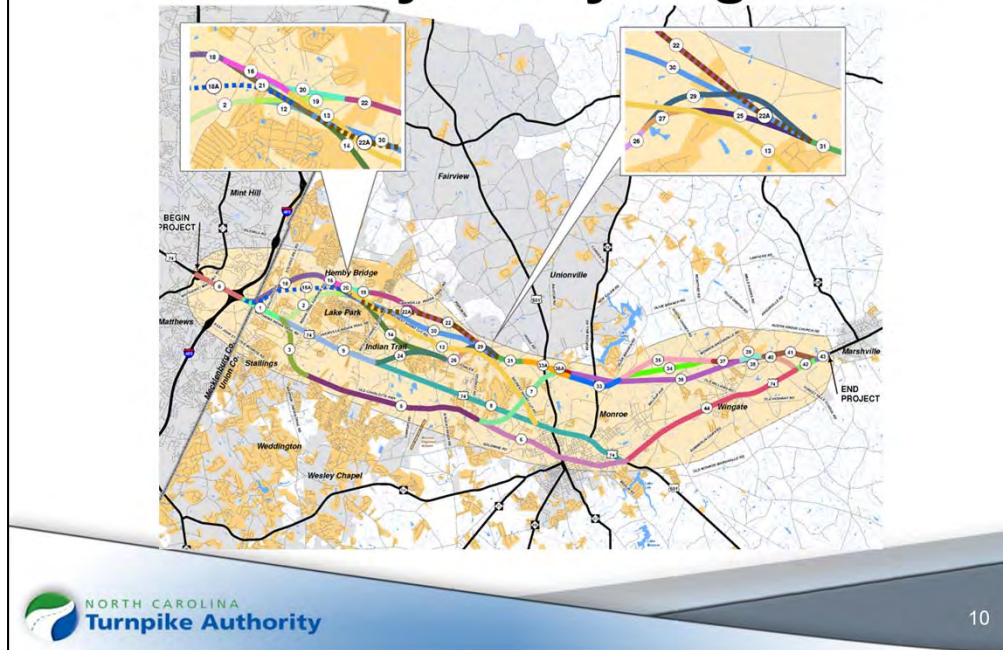
“The purpose of the project is to improve mobility and capacity within the project study area by providing a facility for the US 74 corridor from near I-485 in Mecklenburg County to between the towns of Wingate and Marshville in Union County that allows for high-speed regional travel consistent with the designations of the North Carolina Strategic Highway Corridor (SHC) program and the North Carolina Intrastate System, while maintaining access to properties along existing US 74.”



# Project Description

The proposed Monroe Connector/Bypass would be a controlled-access toll road extending from US 74 near I-485 in Mecklenburg County to US 74 between the towns of Wingate and Marshville in Union County, a distance of approximately 20 miles.

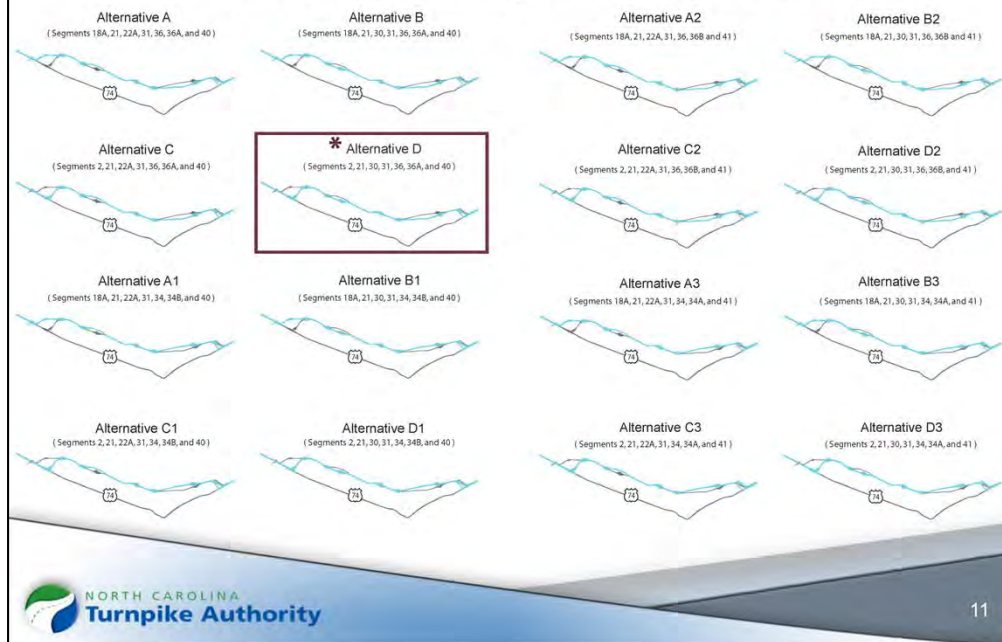
# Preliminary Study Segments



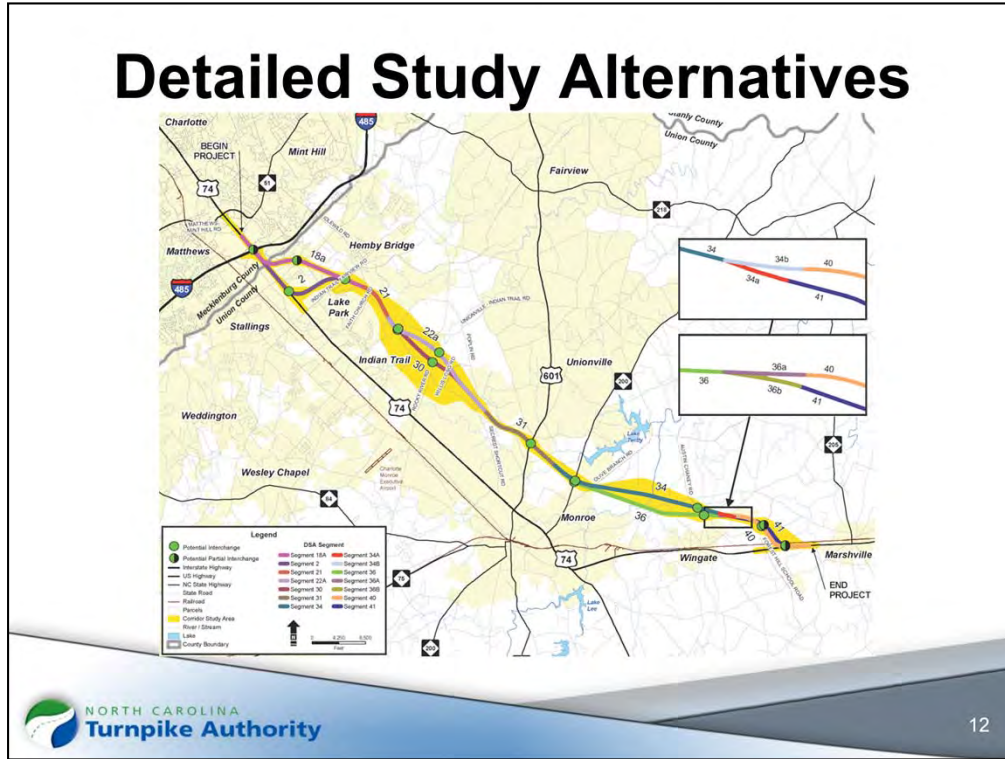
Preliminary Corridor Segments were identified which included both new location alignments and existing roadway segments. These segments were developed taking into consideration the previously studied corridors, route continuity, known natural and human environmental features, along with public and agency input.

25 preliminary study alternatives were developed and evaluated. Estimated impacts for these Preliminary Study Alternatives were compared and used in the identification of the 16 detailed study alternatives evaluated in the Draft EIS.

# Detailed Study Alternatives

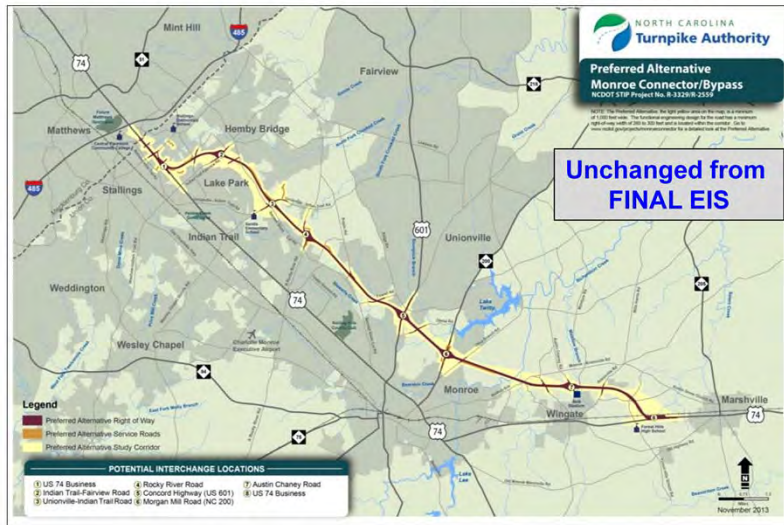


# Detailed Study Alternatives



Segments shown in this figure were combined to develop the 16 endpoint-to-endpoint detailed study alternatives. These Detailed Study Alternatives were evaluated in the Draft EIS to reveal the potential effects each would have on the environment. Additional evaluation completed as part of the Final EIS identified DSA D as the preferred alternative and this still holds true today.

# Preferred Alternative



- The identification of Detailed Study Alternative D as the Preferred Alternative is unchanged from the Final EIS but maps showing all the detailed study alternatives considered are available here this evening. A selected Alternative will be identified as part of the Record of Decision.
- Also unchanged is the purpose which is to improve mobility and capacity within the project study area by providing a facility that allows for high-speed regional travel
- Preferred Alternative follows existing US 74 for approx. one mile from just east of I-485 to east of Stallings Road
  - For this segment, the toll road is 6 lanes wide and elevated on retained fill, with one-way frontage roads of 2 to 3 lanes on each side, for a total of 10-12 lanes.
- From east of Stallings Road, the Preferred Alternative proceeds eastward on new location to the project terminus at existing US 74 between the towns of Wingate and Marshville
  - For this segment, the Preferred Alternative has four lanes and 70-foot median. (NOTE: the median width may be reduced during final design, which would reduce the footprint of the project.)
- The Preferred Alternative includes 8 interchanges. Full interchanges are located at US 74 at the western end of the project, Indian Trail-Fairview Road, Unionville-Indian Trail Road, Rocky River Road, US 601, NC 200, and Austin Chaney Road. Partial interchanges are located at Forest Hills School Road and US 74 at the

eastern end of the project.

Preferred Alternative is unchanged from the Final EIS

- Purpose is to improve mobility and capacity within the project study

- A design-build construction contract was awarded October 2010

- Project financing already secured:

  - \$233,920,000 in State Annual Appropriation Bonds (*Repaid with GAP funding*)

  - \$77,000,000 in STIP funding

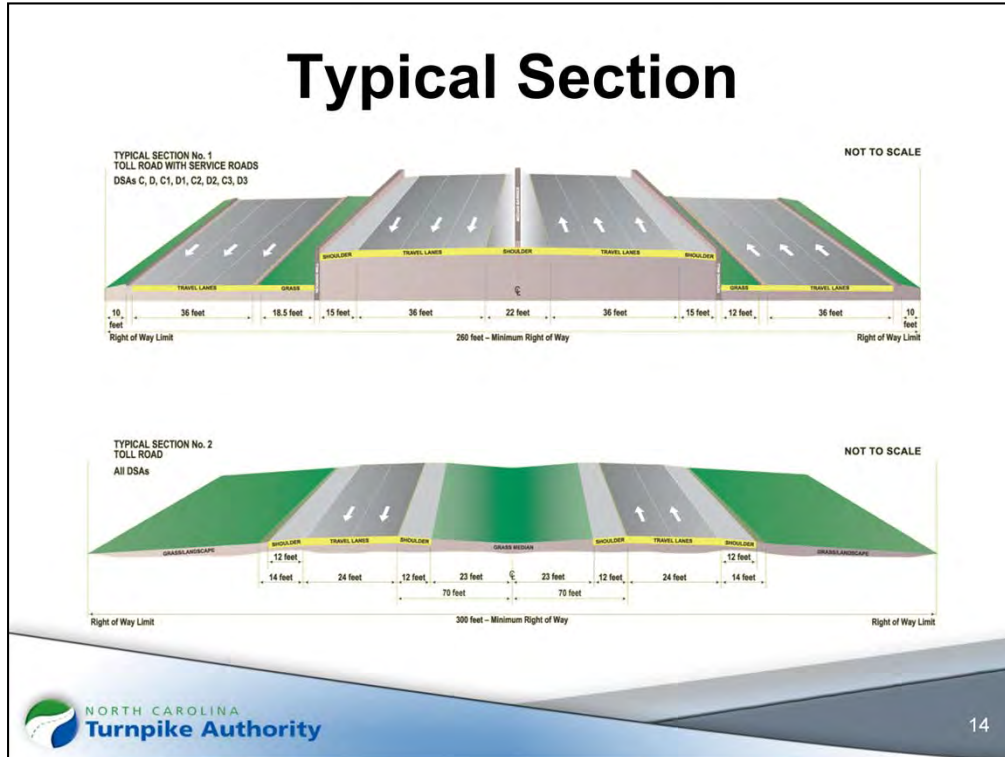
  - \$10,000,000 in Senior Lien Turnpike Revenue Bonds (*Repaid with Toll revenues*)

  - \$214,505,000 in State Annual Appropriation Revenue Bonds (*Repaid with GAP funding*)

  - \$145,535,000 in GARVEE bonds.



# Typical Section



The design criteria and typical roadway cross-section are influenced by the type of facility required to fulfill the project's purpose and need. A four-lane, median-divided, controlled-access toll road was assumed for this project with a proposed design speed is 70 mph. Two 12-foot lanes are proposed for each direction of travel, separated by a 70-foot median. This median width is consistent with the *NCDOT Roadway Design Standards Manual*, and would allow for a future widening to three 12-foot travel lanes in each direction without having to provide a concrete median barrier or purchasing any additional right of way. The total right of way is proposed to be a minimum of 300 feet, but would be greater around interchanges.

The project is being developed as a Design-Build project. Through this process, the design and design criteria will be re-evaluated to determine if any cost savings could be realized through activities such as reduction of the median width or the overall right of way. Any changes to these criteria will be implemented only if they will result in a net reduction in costs or impacts without loss of service. For instance, it is likely that a reduction in median width and/or reduction in paved shoulder widths will be considered.

# Map Review

Overview Map PDFs



# Project History

- January 2007 – FHWA issues Notice of Intent to prepare an Environmental Impact Statement (EIS) for the Monroe Connector and Monroe Bypass projects combined
- June 2007 – Citizens Informational Workshops
- April 2009 – Draft EIS (including Recommended Alternative)
- May 2009 – Public Hearings
- May 2010 – Final EIS (including Preferred Alternative)
- August 2010 – Record of Decision (including Selected Alternative)
- November 2010 – Legal challenge filed against project

While the Monroe Connector and Monroe Bypass projects have been discussed and studied for a very long time, the current study has been underway for the last 7 years. This slide highlights some of our past activities including the original Record of Decision, or project approval, which was received in August 2010. In November 2010 – the Southern Environmental Law Center brought suit against the FHWA and NCDOT on behalf of three environmental groups regarding the project’s environmental documentation, alleging that the study did not comply with the requirements of the National Environmental Policy Act (NEPA).

# Project History

- October 2011 – Federal District Court rules in favor of NCDOT and FHWA
- November 2011 – Design-build construction contract awarded
- May 2012 – 4<sup>th</sup> US Circuit Court of Appeals overturned the lower court's decision
- May 2012 – Construction and ROW activities suspended
- June 2012 – NCDOT holds public workshops to provide updates on the project status
- July 2012 – FHWA rescinded the Record of Decision

October 24, 2011 - FHWA and NCDOT prevail in a federal District Court decision. SELC files an appeal to the 4<sup>th</sup> US Circuit Court of Appeals.

A design-build construction contract was awarded in November 2011. Design team held public meeting – December 2011

May 3, 2012 – A Three-judge panel of the court overturned the lower court's decision, ruling that "the Agencies failed to take the required 'hard look' at environmental consequences" and remanded the case "so that the Agencies and the public can fully (and publically) evaluate the 'no-build' data."

June 15, 2012 – NCDOT filed a petition for rehearing, seeking a review by the full circuit court of the legal analysis arising out of technical data/facts that NCDOT believes the higher court panel misunderstood.

June 18-19, 2012 – NCDOT holds community workshops to provide a summary of the legal proceedings and updates on the right of way and construction process.

June 29, 2012 – NCDOT petition for rehearing was denied

July 3, 2012 – In response to the Circuit Court's opinion, FHWA rescinds the ROD.

- Project financing already secured:

\$233,920,000 in State Annual Appropriation Bonds (*Repaid with GAP funding*)

\$77,000,000 in STIP funding

\$10,000,000 in Senior Lien Turnpike Revenue Bonds (*Repaid with Toll revenues*)

\$214,505,000 in State Annual Appropriation Revenue Bonds (*Repaid with GAP funding*)

\$145,535,000 in GARVEE bonds.

# Litigation

- Full opinion can be found at:
  - <http://isysweb.ca4.uscourts.gov> and search for Monroe Connector

The last paragraph of the opinion summarizes the findings of the Appeals court.

## • Appeals Court ruling **DOES** say:

- NCDOT failed to disclose the underlying assumptions in the socioeconomic projections used.
- Therefore NCDOT failed to take the required “hard look” at environmental consequences.

Note that the previous litigation is over. The project will not go back before a judge unless additional litigation is filed.

## Recent Activities

- NCDOT and FHWA have been working to address the Circuit Court's concerns
- Additional field reviews, environmental studies, and coordination
- Prepared Draft Supplemental Final EIS and supporting analyses
- Draft Supplemental Final EIS signed on November 8, 2013 and distributed for public and agency review
- Public hearings to receive comments

To address the concerns raised in the Circuit Court's opinion, NCDOT and FHWA re-evaluated and updated information presented in the Final EIS. All sections of the Final EIS (including the purpose and need, alternatives analysis, and impact analysis) were re-evaluated in light of current conditions in the project area and any new information that has become available since the Final EIS was published. Additional field reviews were conducted, environmental studies were updated, and there was additional coordination with resource agencies and local governments. All of this is documented in a Draft Supplemental Final EIS that was signed by FHWA on November 8 and is now available for public and agency review and comment. In addition, the Draft Supplemental Final EIS and supporting documentation specifically disclose and evaluate the critical assumptions of the no-build data used in the analysis. We are here tonight to answer your questions and receive your comments on the Draft Supplemental Final EIS.

## Topics Evaluated

- Purpose and Need
- Traffic
- Alternatives Analysis
- Socioeconomic Characteristics
- Community Resources
- Land Use and Transportation Plans
- Noise
- Air Quality
- Farmland
- Utilities
- Hazardous Materials
- Floodplains and Floodways
- Historic Resources
- Soils
- Natural Communities and Wildlife
- Streams and Wetlands

This presentation has focused on the updated ICE analysis since that was a key concern raised by the Circuit Court opinion, but it is important to keep in mind that all sections of the Final EIS were evaluated and updated in light of current conditions and any new information that has become available.

This list includes items that were evaluated as part of the Draft Supplemental Final Environmental Impact Statement.

-Reconfirmed Purpose and Need for the project

- which is to improve mobility and capacity within the project study area by providing a facility that allows for high-speed regional travel

-Updated existing conditions based on recent improvements in the US 74 corridor

-but reconfirmed these improvements do not satisfy the purpose and need of the project long term

-Minor updates to other sections but no changes to impacts or conclusions reported in the Final EIS

-Complete discussion presented in the Draft Supplemental Final EIS

There were minor updates to some sections to reflect current conditions in the study

area, but there were no changes to the conclusions reported in the Final EIS, including the selection of DSA D as the Preferred Alternative.

A complete discussion of all these topics is presented in the Draft Supplemental Final EIS, which is available for review on the project website and at several public review locations. We also have some hard copies available for review tonight.

## Indirect And Cumulative Effects Analysis

- Analyzes changes in the **vicinity** of the project **with and without** the proposed project
  - Qualitative versus Quantitative Analysis
- Results were central part of the prior litigation
  - the Appeals Court’s opinion focused largely on the data used as the “**no-build**” scenario

### Jamille can do this part:

The purpose of an indirect and cumulative effects analysis is to understand the impacts a project may have to the environment beyond the direct impact of building the project. So, our charge is to look at three scenarios or situations: what is the environment now, what is the environment in the future without the project (called a No-Build Scenario) and what is the environment in the future with the project (called a Build Scenario).

For most projects only a Qualitative Analysis is completed to assess the types of changes expected and the general order of magnitude of those changes. For the Monroe Connector/Bypass, the Qualitative ICE was completed in 2007 with the Draft EIS and the results showed that the most likely areas to see induced growth and impacts from indirect and cumulative effects were in central and eastern Union County. Resource agencies (such as FWS) and others requested a more detailed analysis called a Quantitative ICE to estimate the exact acreage of changes and to specify more precisely the potential impacts to the environment. Therefore NCDOT initiated the first Quantitative ICE Analysis what was completed in 2010 and included in the Final EIS.

The methods used and the results of the 2010 Quantitative ICE Analysis were critical issues in the litigation. The focus of the 4<sup>th</sup> Circuit Court of Appeals opinion



was largely on the no-build data used in the environmental analyses. To address concerns regarding the no-build data, the new Quantitative Indirect and Cumulative Effects (or ICE) analysis for the project was updated.

**Turn over to Michael Baker, Inc.**

## What is an ICE Analysis?

- An Indirect & Cumulative Effects (ICE) analysis evaluates the *indirect effects* of a project and the project-related *cumulative impacts*.
  - **Indirect effects** are caused by the action and are later in time or farther removed in distance.
    - For example, additional development that would occur only with the project.
  - **Cumulative effects** are effects on the environment, which result from the incremental impact of the action when added to other past, present, and future actions.
    - For example, total impact of additional development that would occur only with the project plus all other growth and development that would occur

### BAKER

Thank you. I want to begin by acknowledging that I am about to start explaining some of the more detailed and technical issues behind how we completed our assessment of indirect and cumulative impacts. I am going to provide a general overview and try to explain some very technical issues in the most understandable way that I can. However, some of this information is challenging to summarize this short presentation and you may find that you have questions about this study. We are trying our best to explain this because it is precisely these details that the 4<sup>th</sup> Circuit Court of Appeals said that we did not fully explain in our prior reports. Therefore we want to be as open and transparent as we can about our report, its methods and its results. We have copies of our report with us if you want more detail. We also have staff members here tonight who are standing up right now and any one of these folks are knowledgeable about the details in the ICE report that I'm summarizing. These staff members and I will be available after the presentation to answer any questions you have on the ICE report and I encourage you to talk with any of us after the presentation if you have any questions about the ICE analysis.

First, let me explain what we mean by indirect and cumulative effects. An indirect effect is one that occurs later in time and farther removed in distance than a direct impact.

So, for example, a direct effect or impact would be if a new road was built through a watershed with a protected species and the new road directly affected the habitat of that species in some way, such as filling in a wetland or adding runoff to a stream.

An indirect impact would be if a road spurred a lot of new development (that wouldn't have occurred without the road) near a protected species and the new development resulted in loss of habitat or other impacts to that species.

A cumulative impact would be if a lot of new development was expected with or without a new road and the new road spurred a additional development (that wouldn't have occurred without the road) in addition to that development already expected and the total impact of all the new development resulted in crossing a some threshold of impact such as adding too much runoff to a stream that is a habitat for a protected species.

Thus, the challenges in completing any ICE analysis include a number of issues. 1: We have to identifying possible changes that might occur far away from the roadway and that are being built by others. 2: We have to identify whether changes are occurring with or without the proposed project. 3: We have to identify these possible changes far in the future. Therefore any ICE analysis has some level of uncertainty given the uncertain nature of future actions by developers, property owners, local governments and the uncertain nature of the future of the local economy.

# Protected Species



Carolina Heelsplitter



Schweinitz's Sunflower



Smooth Coneflower



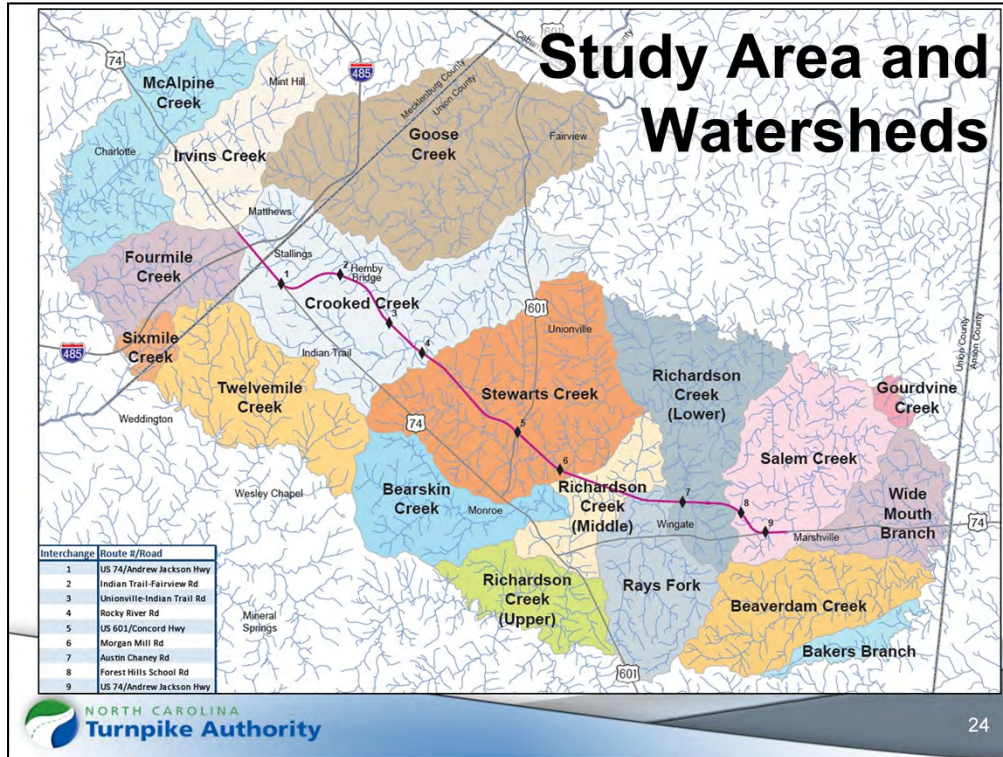
Michaux's Sumac

For any ICE report, there are certain specific issues that may be critical to the *US Fish and Wildlife Service*, *EPA*, *NC Division of Water Quality*, *NC Wildlife Resources Commission*

and other resource agencies who review the analysis or to the community that is affected by the project. Through the scoping process NCDOT conducted in 2009, the major issues identified were

- the potential impacts to protected species,**
- the general impacts to wildlife habitat**
- and the potential for loss of agricultural and forested lands.**

Here you can see the four species in our study area that are listed as Endangered Species by the FWS. As part of the general update of the environmental document additional surveys were conducted for all four species and no additional populations were found. NCDOT and FHWA are continuing to coordinating with US Fish and Wildlife Service on all issues associated with protected species.



The Quantitative ICE focused on the changes in land use between developed and undeveloped categories and focused on the results of those changes at a watershed level.

If you haven't heard that term before, a watershed is the area of land where all of the water that is under it or drains off of it goes into the same place. So, as you see in the map above, all the land colored brown is in the Goose Creek watershed; so all rain, snow, or other water that falls within that area drains through Goose Creek and eventually empties into Rocky River.

Now, why did we use watershed in our report? Well, if all the water in that area drains through that stream, then anything living in that stream is affected by what happens on the land within that watershed. So if we want to understand what may happen to water quality in these streams, we need to understand what is happening to the land in these watersheds. This is critical to assessing impacts for species like the Carolina Heelsplitter. Also, watersheds are useful for dividing up the larger study area into reasonably sized areas of analysis and allows us to report results at a level that was small enough to be useful to resource agencies and others but also large enough to reasonably manage the inherent uncertainty of projecting the location of future development. As you can imagine, predicating exactly when and where future development will occur is inherently uncertain. Watersheds provide a

reasonably sized area to estimate changes in land use when predicting out this far into the future. Also, since the entire study area covered 5 miles around the proposed project and included 202,000 acres, we needed to break that up into reasonably sized parts to report results and assess impacts. In total there are 19 watersheds within the study area.

Now the challenge we faced is that we need to estimate how much development would occur in the future (specifically the year 2030) within each of these watersheds with or without the project. Therefore, we need to determine the best available data at the appropriate scale and time frame for estimating the future growth at the watershed level or smaller, which I will discuss further in a moment.



## How Did We Analyze ICEs?

- Assessed existing land use
- Developed future land use scenarios
  - No-Build and Build Scenarios
- Assessed differences between scenarios to assess indirect and cumulative impacts

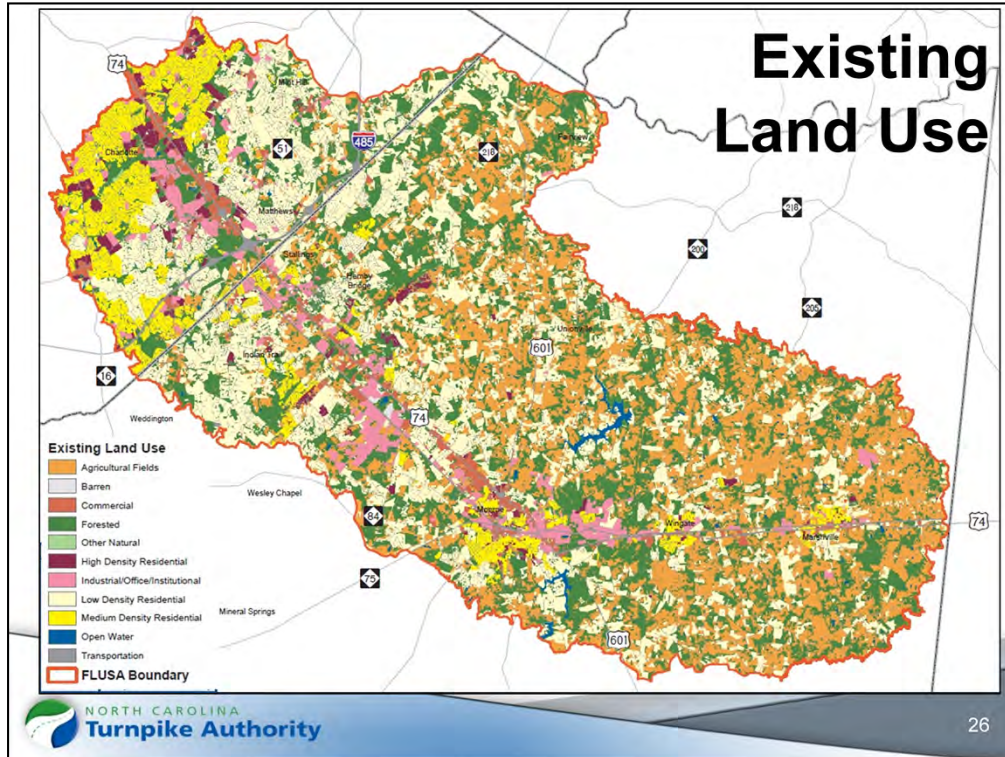
So, how did we actually analyze the possible indirect and cumulative effects. As I said previously, we had to develop at least three scenarios

An existing land use scenario

A future land use scenario without the project (the No-Build)

A future land use scenario with the project (the Build)

We then had to compare these scenarios to see the differences and assess the possible impacts of those differences.



Developing an existing land use scenario is relatively simple. Union and Mecklenburg Counties both have high quality data for all tax parcels which includes information on land use. We also have worked with recent, high quality aerial imagery to validate the land use data. With those data sets we updated our Existing Land Use Scenario to reflect conditions as of the year 2010. The previous Quantitative ICE used a 2007 base year.

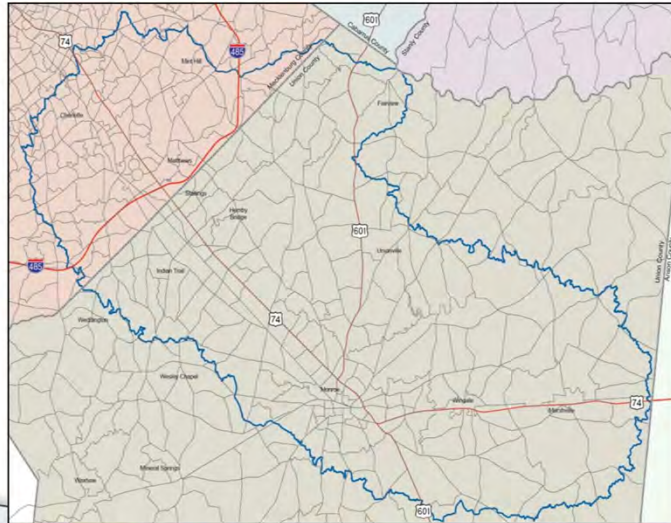


## Future Scenarios

- How to project future land use?
  - Need to project changes
    - Out to year 2030 (the design year of the project)
    - At a small geographic scale
- Metropolitan Planning Organizations (MPOs) are the only entities that develop long range forecasts at the scale needed for ICE type analyses.

Now the challenge we faced is that we need to estimate how much development would occur in the future (specifically the year 2030) within each of these watersheds with or without the project. To do that, we need to estimate how many people and how many jobs there will be in these areas to know how many homes there might be and how many stores there might be and so on. To do that we need an estimate of the future population and the future employment at a scale similar to these watersheds. It's relatively easy to estimate existing population and jobs but estimating the future is much harder. And it's even more challenging to estimate future population and jobs at such a small scale. A number research firms and government agencies develop long range projections of population or jobs at the overall county level but very few do any long range projections at levels smaller than a county. In most metropolitan areas, including this region, the Metropolitan Planning Organization, or MPO, is the only group that produces projections that meet our needs. Therefore, we needed to determine the if that is the best available data at the appropriate scale and time frame for estimating the future growth at the watershed level.

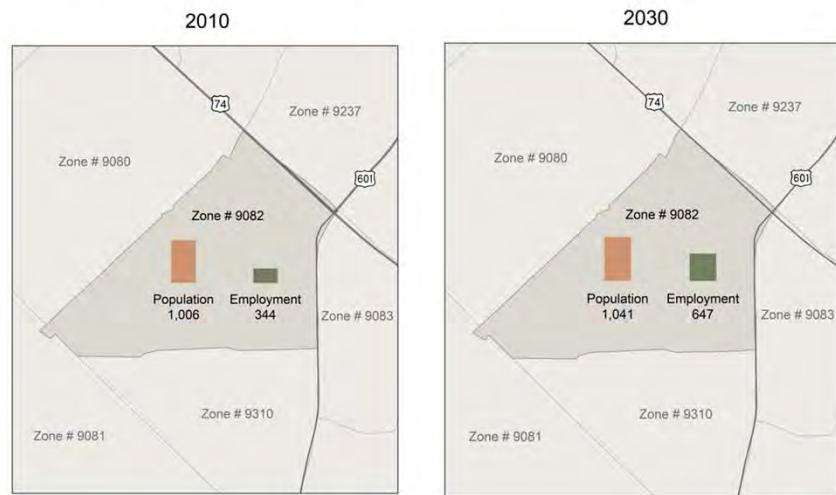
# What are the MPO Projections?



What exactly are the MPO Projections? Well, they are estimates of the existing and future population and jobs within various zones across the metropolitan region. The MPO projections include all or parts of 11 counties across both North and South Carolina. The MPO projections break the region into over 2,900 zones (which they call Traffic Analysis Zones). In this map you can see all the zones within our study area. Within our study area there are 383 zones, so the scale is much finer than the watersheds we are analyzing.

Now, for each zone, the MPO provides estimates for the existing (2010) and the future (2030) number of people and jobs within each zone. So in this example, zone number XXXX has XXX people in 2010 and XXX people in 2030. Now, it's important to note here, that as with and projection of the future these are the best estimates the MPO has but there's obviously a level of uncertainty associated with these estimates. No one has a perfect crystal ball and the MPO can only do their best to estimate the future. But, this is their best estimate and with this data we can build a good picture of how much more development is needed to provide homes and offices for these additional people and jobs. Our challenge, though, is to determine what picture is it painting. Is it a picture of the future with the Monroe Connector/Bypass or is it a picture of the future without the project.

# Example of MPO Projections



Now, for each zone, the MPO provides estimates for the existing (2010) and the future (2030) number of people and jobs within each zone. So in this example, zone number 9082 has 1,006 people in 2010 and 1,041 people in 2030. It has 334 jobs in 2010 and 647 jobs in 2030. So for this zone we see just a little population growth but a decent increase in jobs. Now, it's important to note here, that as with any projection of the future these are the best estimates the MPO has but there's obviously a level of uncertainty associated with these estimates. No one has a perfect crystal ball and the MPO can only do their best to estimate the future. But, this is their best data available that meets the needs of our study and with this data we can build a good picture of how much more development is needed to provide homes and offices for these additional people and jobs. Our challenge, though, is to determine what picture these projections are painting. Is it a picture of the future with the Monroe Connector/Bypass or is it a picture of the future without the project?

# MPO Projection Assessment

- Reviewed and assessed
  - How projections were developed
  - Pattern of growth in MPO projections
  - How other researchers have used these MPO projections for other purposes
  - What projections from other sources show
  - Demographic and other growth trends in the region

So, to assess that question and to understand if the MPO projections were even the most appropriate projections to use, we looked at the MPO projections from five different angles.

# MPO Projection Development Timeline

Development Timeline: Metrolina Regional Model Socioeconomic Projections



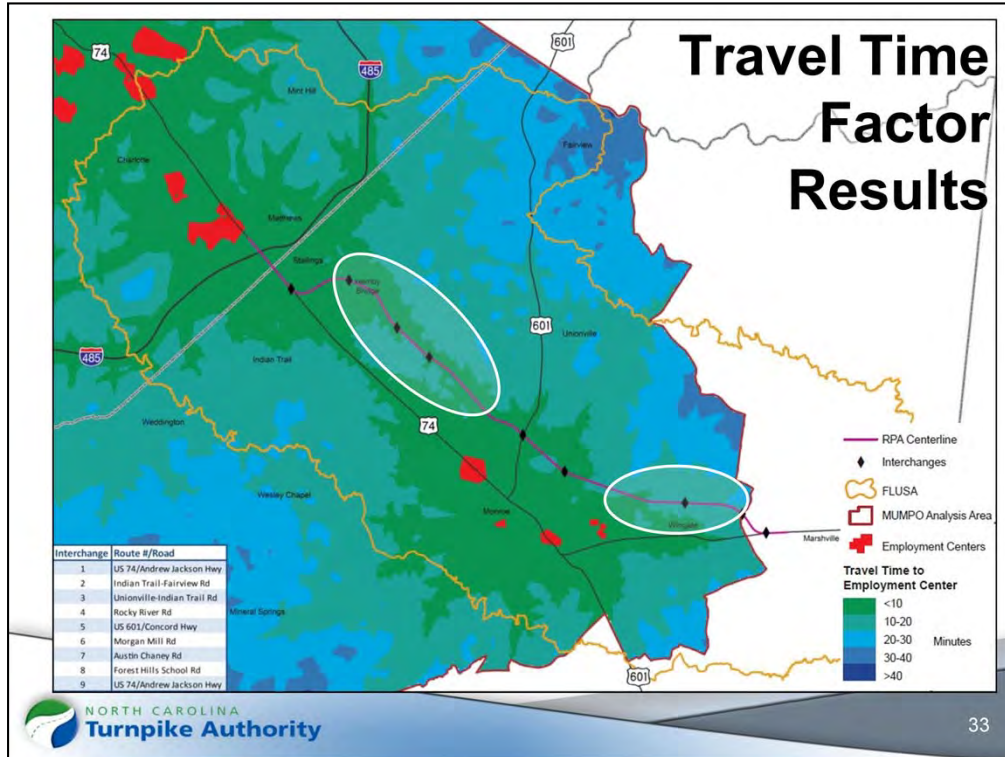
First we assessed exactly how the MPO developed their projections. As you can see in this timeline, the projections we used were most recently updated in 2010 but the actual basis for those projections were first developed starting in 2003 and have been developed and updated over a seven year period.



# MPO Projection Development

- **No influence** from the project in
  - 2008 and 2009 Adjustments (LUSAM Models)
  - 2003 Top Down Control Total Development
- **Potential influence** from the project in
  - 2004 Bottom Up Projection Development
    - Travel Time to Employment Factor

We worked with the MPO to fully understand the methods used to develop and updates their projections and to explain that in our report. Our assessment revealed that two of the major components to the projections, the LUSAM model updates and the Top Down Control projections had not influence from the project. However, our assessment did reveal the Bottom Up projections may have been influenced by the Monroe Connector/Bypass. Specifically, there were up to eight factors used in the Bottom Up process and one of those factors, the Travel Time to Employment Factor, may have been influenced by the project. This was a key issue in the litigation and the Court of Appeals decision and therefore it was an issue we wanted to fully address.



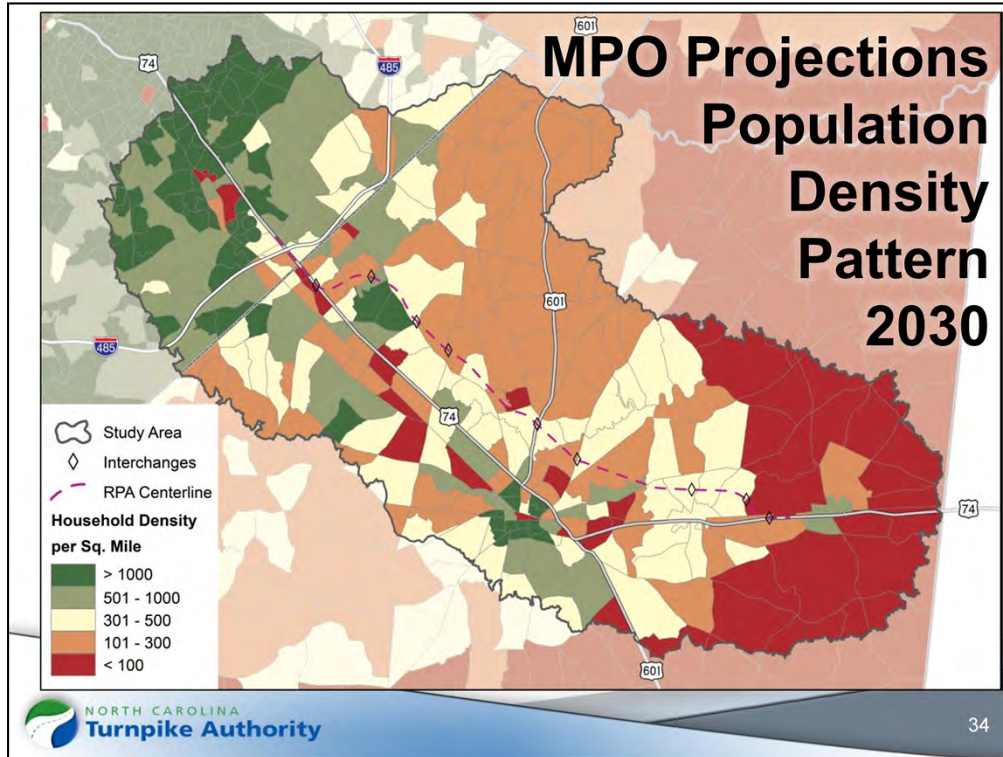
Now, this is Map 6 from the current Indirect and Cumulative Effects analysis for the project. We showed a similar figure to this at our June 2012 Public Meetings but we have since updated it to make it show all of the employment centers.

The Bottom Up Projections used a **Travel Time to Employment** factor calculated using a travel time model. Now, the travel time was calculated to the **nearest** employment center. So for example, if you look at the red blobs on the map, those are the employment centers they were calculated travel time to. So, if you lived in Wingate, the model was calculating your travel time to that red blob on the east side of Monroe, which is a major industrial area. If you lived in Stallings, it would be calculating your travel time to Matthews. Now, the key issue is that the travel time model **included** the Monroe Connector/Bypass in the roadway network when the MPO staff calculated travel times for future years. This map shows you the original results of that travel time analysis. As you can see on this map, there is a darker green area around the Monroe Connector/Bypass near Hemby Bridge. This shows that the travel time model was showing shorter travel times to employment centers from areas in western Union County due to the roadway. Most interesting, though, is if you look out in the vicinity of Wingate, the travel times do not appear to be affected by the roadway. This is because of the method they used. Since their focus was on a general assessment of how close any area was to jobs, their analysis used a simple travel time calculation to the NEAREST employment center. Since the employment centers they used are mostly along existing US 74, the

Bypass doesn't improve travel times to those places, so their method wouldn't show major improvements in travel time with the Bypass.

Now, to fully understand the influence the Bypass may have had on the MPO projections, NCDOT asked original researcher from UNCC who developed this travel time model and who completed the original projections to rerun his travel time model **without** the project in the road network. His results showed that removal of the project from travel time model had **no impact** on final population and employment projections. Basically, the travel times did not change enough to affect overall distribution of growth. Therefore, we concluded that the project did not influence the methods or the assumptions used in developing the MPO projections.





Next, we looked at the patterns of development that the MPO projections showed. The map above shows the pattern of household and population density for our study area in 2030. If the MPO Projections assumed that the Bypass were built then you would expect to see higher than average densities at the interchange areas. However, when comparing densities along the Bypass corridor to zones south of US 74, there densities are quite similar. Thus, the patterns of growth and density did not indicate that the project was assumed in the MPO projections. **Based on this and our discussions with the staff who helped develop these projections, it was clear to us that the MPO projections better represented a No Build Scenario.**

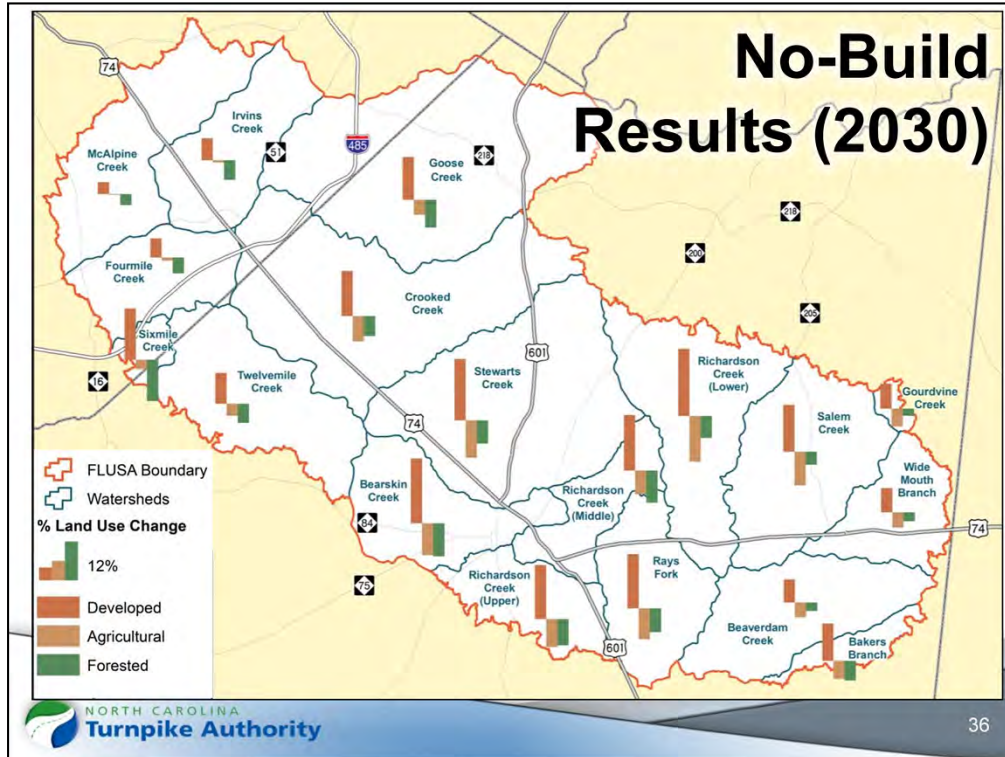
In addition, we looked at how other researchers had used the projections and found they had adjusted the MPO projections in creating a Build Scenario, again indicating that the MPO projections don't best represent a Build Scenario. Also we looked at how the MPO projections compared to projections produced by others and how the MPO projections compared to the 2010 Census actual counts. Analyzing all of these factors indicated that the projections were more accurate than other forecasts. Lastly, we looked at various factors that are associated with growing counties and we found that Union County scored best on a variety of factors that tend to correlate with strong growth. Therefore, it is reasonable to predict that while high growth may not always occur every year, over the long term Union County is likely to be among the faster growing counties in the overall Charlotte region.

## Development of Future Scenarios

- Used the MUMPO Projections as **basis** to develop a **No-Build Scenario**
  - Converted growth to **acres** of development
- Next, assessed potential for **induced growth**
  - **Added** that induced growth to the No-Build land use to create the **Build Scenario**

So, given all of the results of our assessment and review of the MPO projections, we determined they were the best and most reasonable basis to use to help develop a No-Build Scenario. We converted the projected growth in population and jobs to acres of new development and added that to the Existing Land Use Scenario to create a No-Build Land Use Scenario. I think it's important to point out here that we did not simply use the MPO projections as the NO BUILD period. We interpreted them using local information and data from local planners and local zoning ordinances to create a representation of the land use in 2030 without the project.

Next we assessed the potential for induced growth if the project were built and we added the induced growth to the No-Build Scenario to create a Build Scenario. Again, it's important to note here that we did not shift any growth around such as reducing growth in one area and adding it to another. We estimated the induced growth that is likely to occur and added it over and above any growth in the No-Build.



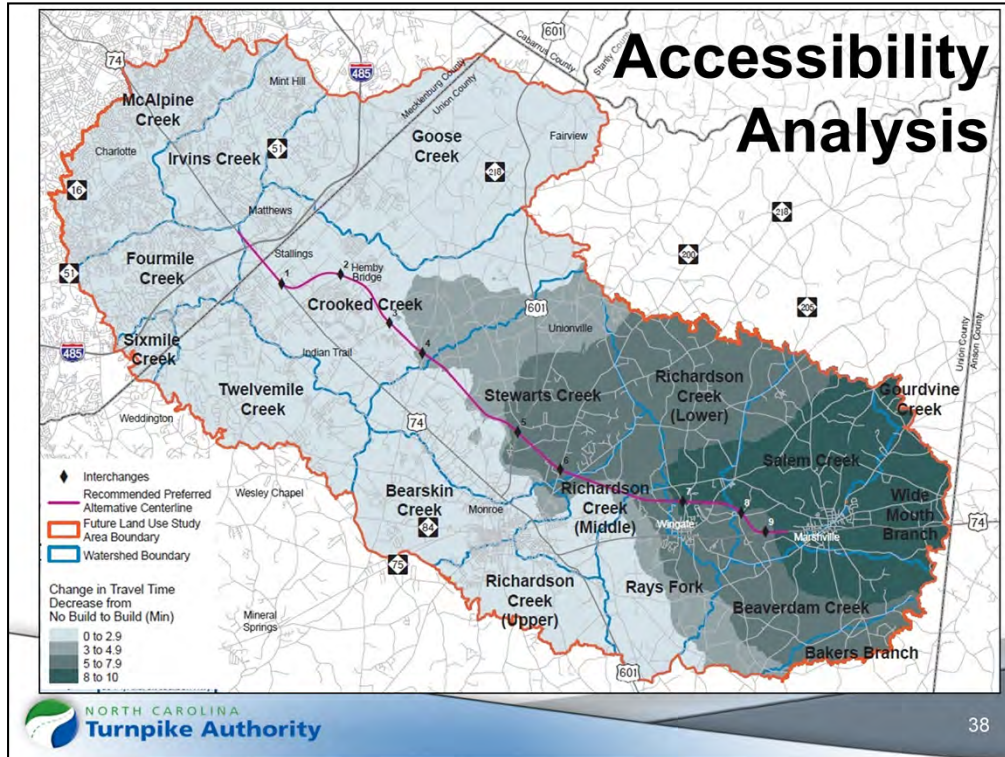
Using the MPO projections and information gathered from local planners we developed an estimate of the 2030 Land Use under a No-Build Scenario. This map shows the percentage change in development between the Existing conditions and the future No-Build. The orange bars show the increase in developed land while the brown bars show the decrease in agricultural land and the green bars show the decrease in forested bars. As you can see, every watershed has some increase in development but the biggest increases are generally in western and central Union County. The general conclusion is that even without the Monroe Connector/Bypass, Union County will likely see a lot of additional growth and development over the next 20 years or so.

# Induced Growth Estimation

- **Used a combination of four methods**
  - Accessibility Analysis
  - Scenario Writing Approach
  - Build-out Analysis
  - Hartgen Analysis

Our next step was to estimate the additional growth that would occur if the road is built. We used a combination of four methods to develop our estimate.

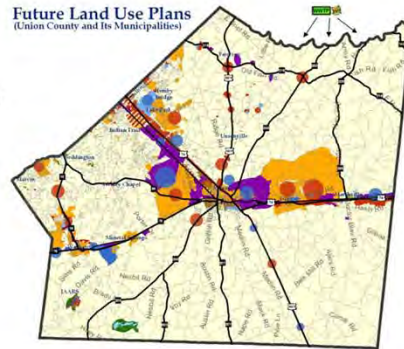




We conducted an accessibility analysis of the study area to see which parts of the study area would get the greatest benefit from the construction of the road. The map above shows the results of the simplified travel time analysis we conducted which shows the estimated travel time savings from the use of the road for trip going to the I-485 interchange. We chose this point for calculating the travel time because many planners and others we interviewed noted the importance that improved access to I-485 meant to commuters and others in the study area. The travel time savings shown here are not truly representative of the real travel time saving but they are useful for comparing which areas see the greatest benefit. The most important takeaway from this analysis is that the central and eastern portions of the study area are the areas that will benefit most from the construction of the Bypass. In particular, areas along the Bypass and east of US 601 will see the greatest reduction in travel times.

## Scenario Writing and Build Out Analysis

- Based on interviews and planning information
  - Key information
    - Wingate and Marshville Economic Development Plan
    - Updated Union County Comprehensive Plan
  - Showed strong desire for development in eastern Union County



We used a scenario writing approach to identify areas most likely to see induced growth based on information from planning documents like the updated Union County Comprehensive Plan and the Wingate and Marshville Economic Development Plan. We also relied on information provided by local planners who helped to identify specific areas that would likely see development with the construction of the Bypass and specific types of development that might occur with the Bypass.

We also used a build-out analysis to see which areas had the most capacity for induced growth. If you remember back to the density map we showed earlier, the densities in western Union are much higher meaning that more land is already developed. So relatively speaking, central and eastern Union County have much more undeveloped land which would make it easier for those areas to accept new development.

The results of these analyses indicated that the areas of central and eastern Union County has high capacities for growth and strong interest and desire from local governments to encourage growth if the Bypass were built.

# Hartgen Analysis

- Yields a qualitative level of likely commercial and industrial development at interchange

Hartgen Analysis of Interchanges

	Crossing Road	Characteristics			Suitable Development				
		Crossing Road Traffic Volumes	Distance from Nearest Town Center	Distance from Public Water and Sewer	Distance to Interstate Highway	Motel	Gas Station	Fast-Food Restaurant	Sit-Down Restaurant
5	Concord Highway	54,300	2.1	0	11.0	Good	Fair	Good	Poor
6	Morgan Mill Road	20,400	2.1	0	12.7	Good	Fair	Good	Poor
7	Austin Chaney Road	17,400	0.9	0	16.7	Fair	Good	Fair	Poor
8	Forest Hills School Road	3,600	1.9	0	18.6	Poor	Poor	Poor	Poor
9	US 74 Business	37,100	1.9	0	19.6	Fair	Fair	Fair	Poor

For details, see Appendix L of the Quantitative ICE Report

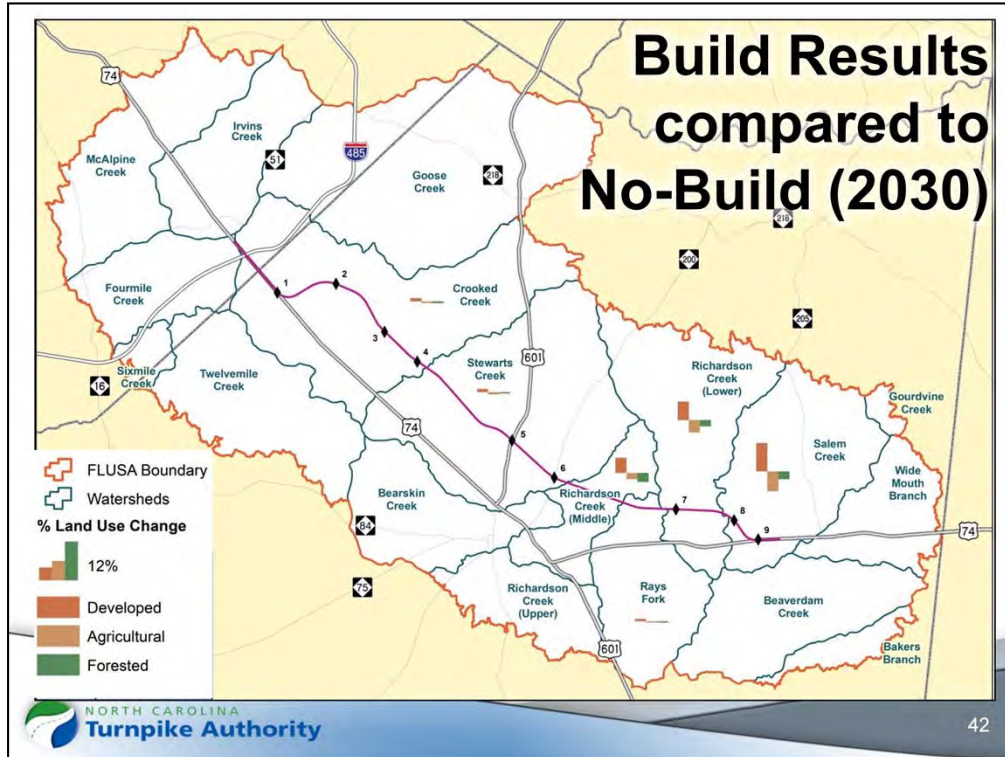
Lastly we used a method known as a Hartgen Analysis, named from a researcher from UNC Charlotte, to roughly gauge the type of commercial development that might be likely in the vicinity of each interchange along the corridor.



## ICE Land Use Results

- Induced Growth Impacts
  - Approximately 2,100 acres of additional development
  - In addition to 1,200 acres of direct impact
- Approximately 1,800 acres of additional residential development
  - Yields approximately 4,900 additional households.
- Additional commercial and industrial development of about 300 and 100 acres, respectively.
- Total additional development = approximately 1% additional developed area

The results of our estimate of induced growth showed that there would be about 2,100 acres of induced development. The direct impact of the road itself is approximately 1,200 acres. Of the induced growth, most is from residential development as areas of eastern Union see additional residential growth yielding about 4,900 additional households. The induced commercial development is about 300 acres and the induced industrial growth is about 100 acres. Now, these are certainly some large numbers, especially the additional residential development, but in the context of the large study area and the expected amount of growth under the No-Build Scenario it is a very marginal addition to the overall development in the study area. The total additional development is only about 1% of the total acreage in the study area.

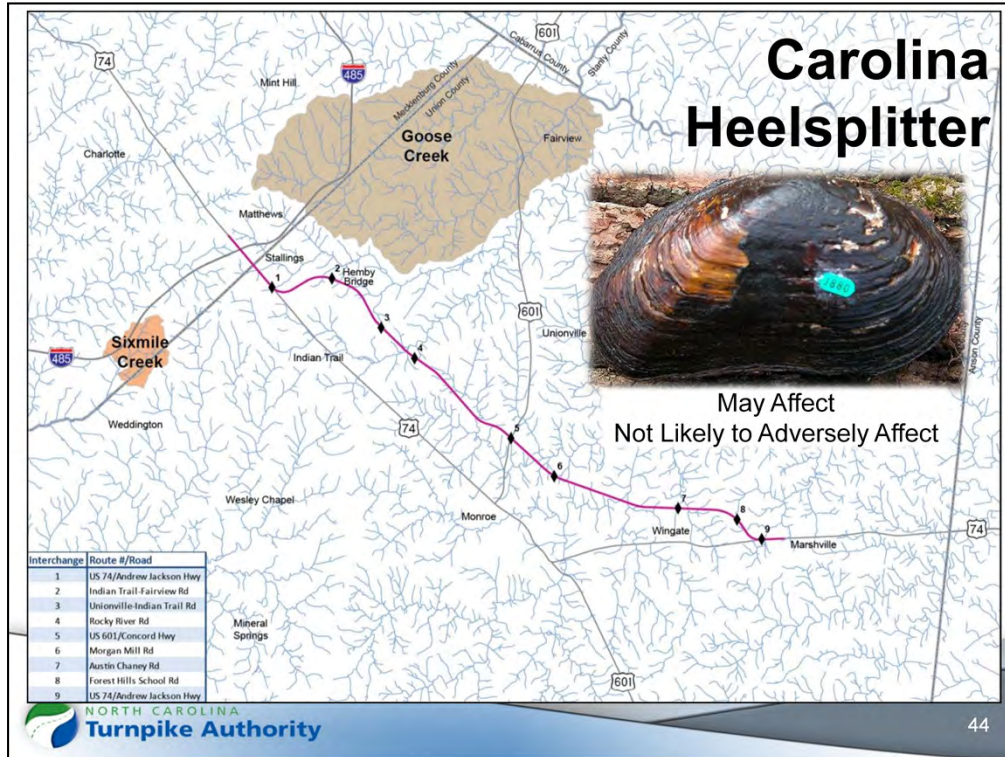


This map shows the percentage increase in developed land and the percentage decrease in agricultural and forested land when we compare the Build and No-Build Scenarios. Crooked Creek, Stewarts Creek and Rays Fork watersheds all see some small increases in development but the largest percentage increases are in the middle and lower Richardson Creek watersheds and the Salem Creek watershed. This is consistent with the conclusions of the Qualitative ICE analysis.

## ICE Impact Results

- Induced growth is concentrated in eastern Union County
- Not likely to adversely affect any protected species
- Indirect losses of forest and farmland are marginal in context

In terms of the actual impacts, the induced growth, while sizeable does not result in major impacts. The indirect losses of forest and farmland are marginal compared to the overall acreage in the study area and compared to the losses expected with the No-Build. Also, the induced growth is unlikely to adversely affect any protected species.



Specifically looking at the protected species, the Carolina Heelsplitter is only found in two watersheds and neither of those watershed are expected to see any effects from induced growth. Therefore we are concluding that the project may affect but is unlikely to adversely affect the Heelsplitter.



## Other Protected Species



Schweinitz's Sunflower  
May Affect  
Not Likely to Adversely Affect



Smooth Coneflower  
No Effect



Michaux's Sumac  
No Effect

As to the three other species, based on their locations and the fact that most of the induced growth is expected in eastern Union County we have concluded the following for each:

For the Sunflower we may affect the species but the project is unlikely to adversely affect it.

For the Coneflower and for Michaux's Sumac we expect there will be no effect from the project.

So that summarizes how we analyzed the indirect and cumulative effects for the Monroe Connector/Bypass. Again, I understand that this short summary may not answer all of your questions, so I encourage you to read the full report and to ask questions of me and our staff around the room to help clarify anything you need. I appreciate your time and now I'd like to let Jamille give you more information about the Right of Way process and the comment process.

# Schedule

- Comment period extends through January 6, 2014
- NCDOT will review all comments received
- Combined Final Supplemental Final EIS/Record of Decision anticipated Spring 2014
- Right-of-way acquisition, permitting and construction activities may resume following final document approvals.

- Public comment period extends through January 6.
- NCDOT will review all comments received. Responses to substantive comments will be provided in the Final Supplemental Final EIS.
- NCDOT and FHWA intend to prepare a combined Final Supplemental Final EIS and Record of Decision, which will be the final environmental document prepared under NEPA.
- Final Supplemental Final EIS/Record of Decision expected to be issued in Spring 2014.

- Right-of-Way acquisition and construction activities to resume following completion of environmental studies.

Resumption of these activities contingent on future litigation

## Right of Way Process

- NCDOT's policy is to:
  - Contact affected property owners and conduct property appraisal
  - Treat all owners and tenants equally
  - Fully explain the owner's rights
  - Provide fair market value for property
  - Provide relocation advisory assistance
- Relocation Assistance
  - Pamphlets summarizing Right of Way and Relocation procedures available at sign-in table

After decisions are made regarding the final design, the proposed right-of-way limits will be staked in the ground. If your property is affected, you will be contacted by a right of way agent who will show you the plans, explain how the project will affect you and advise you of your rights. If permanent right of way is required, a professional appraisal of your properties' current market value at its highest and best use will be made and the right of way agent will make a written offer to you.



# Comments

- Two comment sheets

Title VI Public Involvement Form

Project Comment Sheet

**TITLE VI PUBLIC INVOLVEMENT FORM**

Completing this form is **completely voluntary**. You are not required to provide the information requested in order to participate in this meeting. [Click here for additional information on consent.](#)

**Meeting Title:** The Bypass Open House and Public Hearing  
**Location:** Chapel Center by Center, SDCV, 700 Level Church  
**Date:** Dec 9, 2014 05:00  
**Project Description:** Monroe Connector/Bypass

In accordance with Title VI of the Civil Rights Act of 1964 and related authorities, the North Carolina Department of Transportation (NCDOT) wishes that its proposed plan be evaluated for transportation impacts the benefits of or substantial discrimination under any of the Department's programs, policies, or activities, based on their race, color, national origin, ancestry, age, sex, or gender.

**Completing this form helps meet our data collection and public involvement obligations under Title VI and ADA, and will improve how we serve the public.** Please check the appropriate box in the designated on the appropriate table. Thank you to an NCDOT staff member for their help in the TOGA Human Environment Section, 1550 East Service Center, Raleigh, NC 27619-1592.

All items will be released to the public as part of the project record.

<b>Zip Code:</b>	<b>Gender:</b> <input type="checkbox"/> Male <input type="checkbox"/> Female
<b>Street Name:</b>	<b>Age:</b>
<b>City/State:</b>	<input type="checkbox"/> 18-24 <input type="checkbox"/> 25-34 <input type="checkbox"/> 35-44 <input type="checkbox"/> 45-54 <input type="checkbox"/> 55-64 <input type="checkbox"/> 65 and older
<b>Total Household Income:</b>	<b>Have a Disability:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Less than \$12,000 <input type="checkbox"/> \$12,000 - \$24,999 <input type="checkbox"/> \$25,000 - \$37,499 <input type="checkbox"/> \$37,500 - \$49,999 <input type="checkbox"/> \$50,000 - \$74,999 <input type="checkbox"/> \$75,000 or greater	
<b>Race/Ethnicity:</b>	<b>National Origin:</b> (If born outside the U.S.)
<input type="checkbox"/> White <input type="checkbox"/> Black or African American <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Other (Please specify)	<input type="checkbox"/> African <input type="checkbox"/> Asian American <input type="checkbox"/> Caribbean <input type="checkbox"/> European <input type="checkbox"/> Hispanic <input type="checkbox"/> Mexican <input type="checkbox"/> Other (Please specify)

How did you hear about this meeting? (Check all that apply.)  Newspaper advertisement  Radio  Other

For more information regarding Title VI or this request, please contact the NCDOT Title VI Section at 919-888-1554 or fax at 919-888-0943 or by email at [titelvi@ncdot.gov](mailto:titelvi@ncdot.gov).

Thank you for your participation!

**Project Comment Sheet**

**Contact Information:** (Please Print)

Name: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 E-mail Address: \_\_\_\_\_

How did you hear about this meeting?  
 Facebook  Newspaper  Friend/Family  Other

Which meeting did you attend?  
 December 9, 2014 - South Piedmont Community College  December 11, 2014 - North Lane District  
 December 10, 2014 - Union County Agriculture Center  Not at all/none

**Comments:**  
 Your opinion about this project is important to us. Please use the space below to provide your comments or questions. If you need additional forms to write, please take additional comment sheets to include your own notes.

1. Which part of the project area are you most interested in (road, sound, or noise)? Do you contribute through, live in or have other interests in the area?

2. What comments do you have regarding the Detailed Study Alternatives and/or identification of the Preferred Alternative (DAA/D)?

3. Was this information presented at the hearings clear and understandable? Do you have any suggestions for improvement?

Monroe Connector/Bypass

**Comments due by January 6, 2014**



Please take time to fill out the Title 6 Public Involvement Form and the Comment Sheet tonight which are included in the back of the handout available at the welcome table. If you prefer to fill out the comment sheet at home, please return it to the NCDOT at the address on the bottom of the form by January 6, 2014.

# Contact Information

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[www.ncdot.gov/projects/monroeconnector](http://www.ncdot.gov/projects/monroeconnector)

General Project email: **monroe@ncdot.gov**

General Project Hotline: **(800) 475-6402**

Right of Way Team email: **monroerightofway@ncdot.gov**

Right of Way Office: **(704) 893-0131**

# Public Comments

# Visualization



The Preferred Alternative would include upgrading an approximately one-mile segment of existing US 74 at the western end of the project to a controlled-access highway facility with frontage roads. For this segment, the toll road would be six lanes wide and elevated on retained fill, with one-way frontage roads of two to three lanes on either side, for a total of ten to twelve lanes. For the remaining new location portion, the Preferred Alternative would have four lanes and a 70-foot median.

NCDOT remains committed to incorporating community input into the aesthetic design process. Two stakeholder meetings were held during the previous aesthetic design process. Participants of this process an architectural concept that included a combination of brick and arches, as the preferred concept to be carried forward into the creation of the aesthetic design standards document. The *Monroe Parkway Aesthetic Design Guide* developed as result of this work will remain incorporated in the design-build contract for the project.