



November 16, 2016

*FS-1205A I-40 Managed Lanes
From I-85 to Wade Avenue*

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Project Limits / Location



- Study evaluated managed lanes on I-40 from I-85 to Wade Avenue (approximately 30 miles)
- Considered both one and two managed lanes per direction on I-40
- Evaluated both one and two managed lanes per direction
- Total costs of one managed lane per direction is approximately \$1.05 billion while the total costs of 2 managed lanes is anticipated to be \$1.1 billion

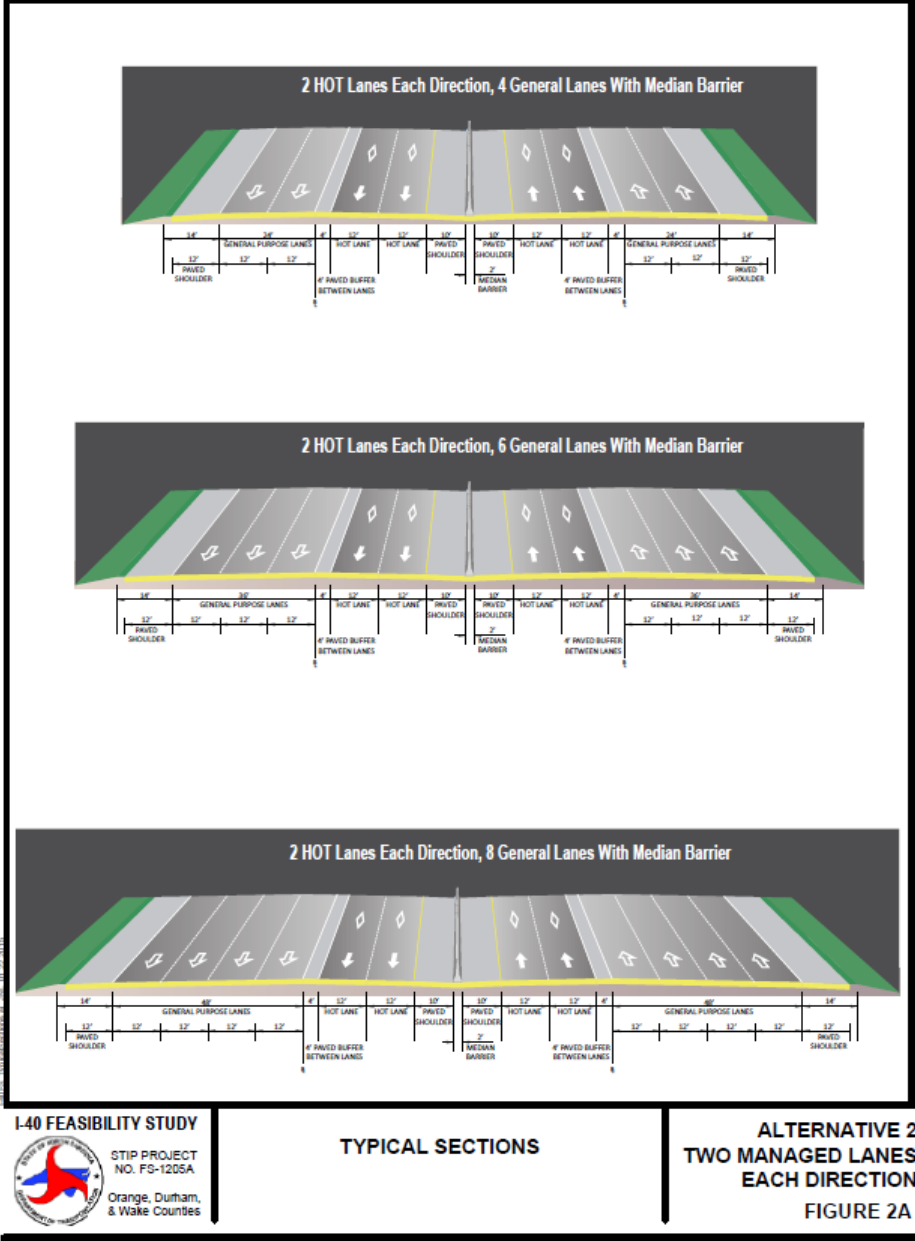
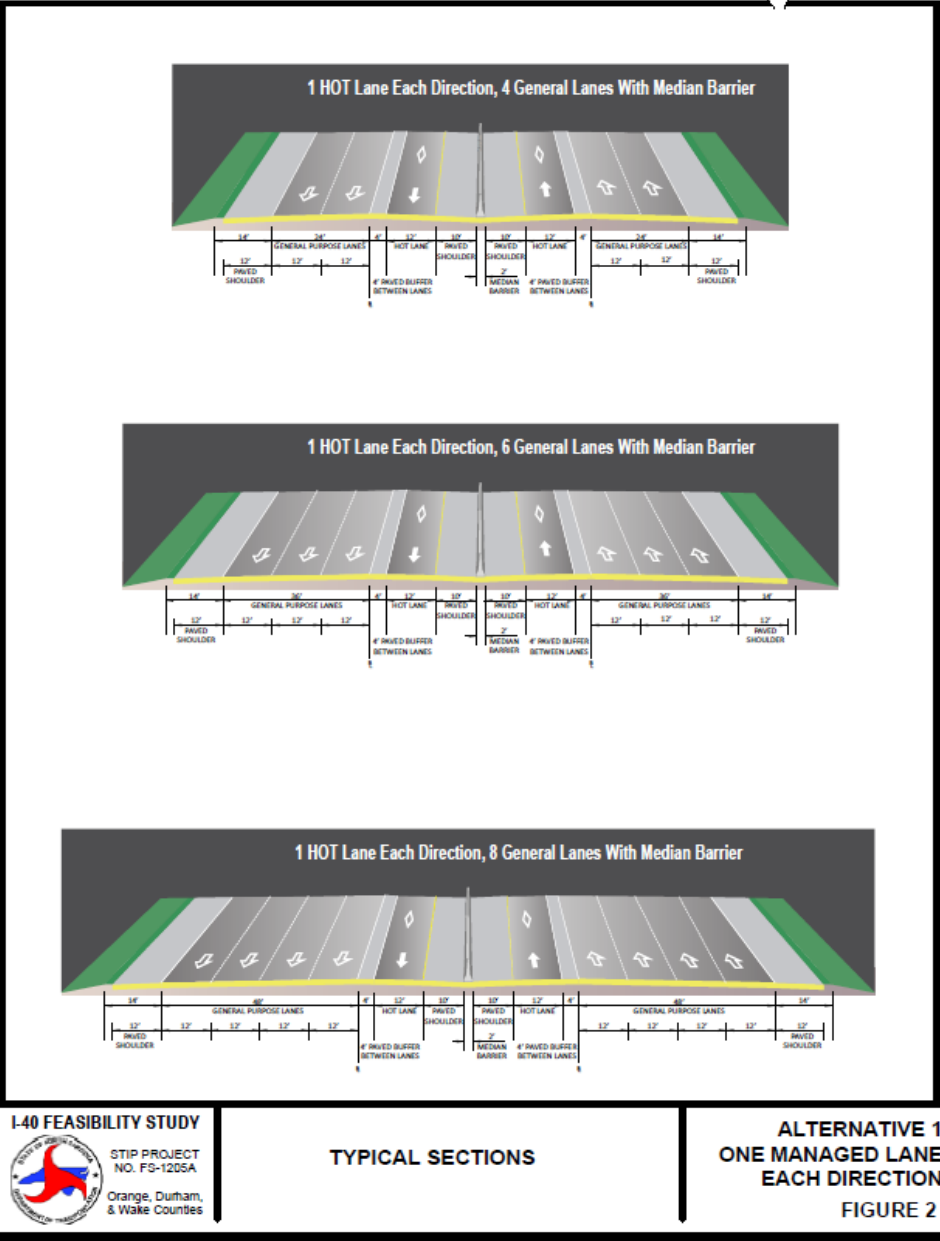
2040 I-40 Mainline AADT Volume

Technical Committee 11/16/2016 Item 5

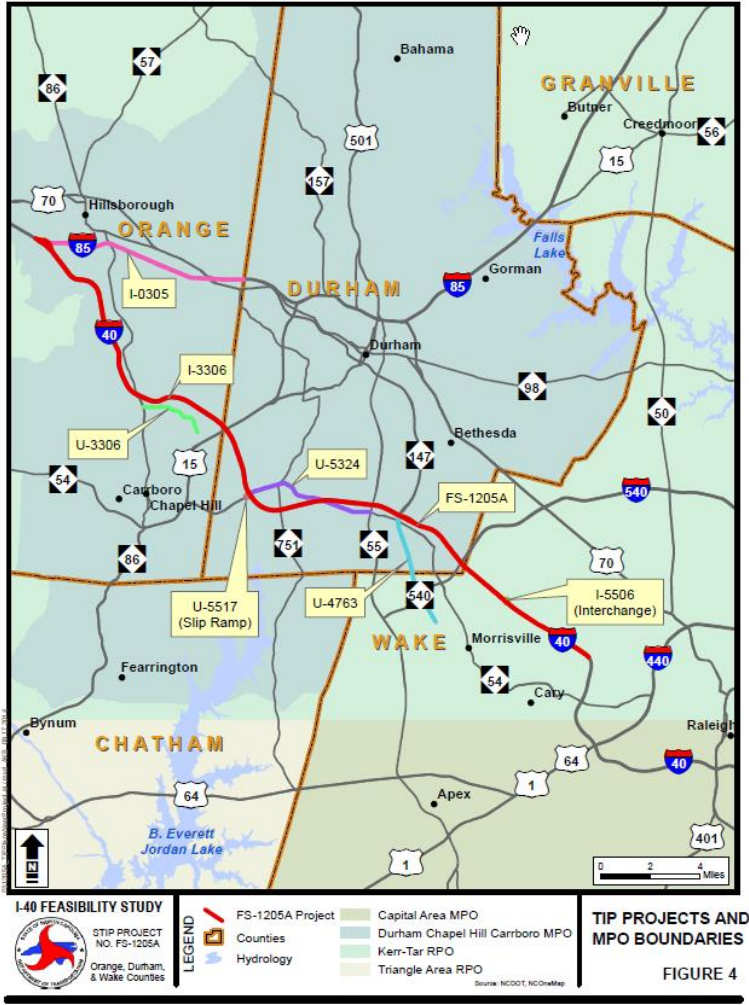
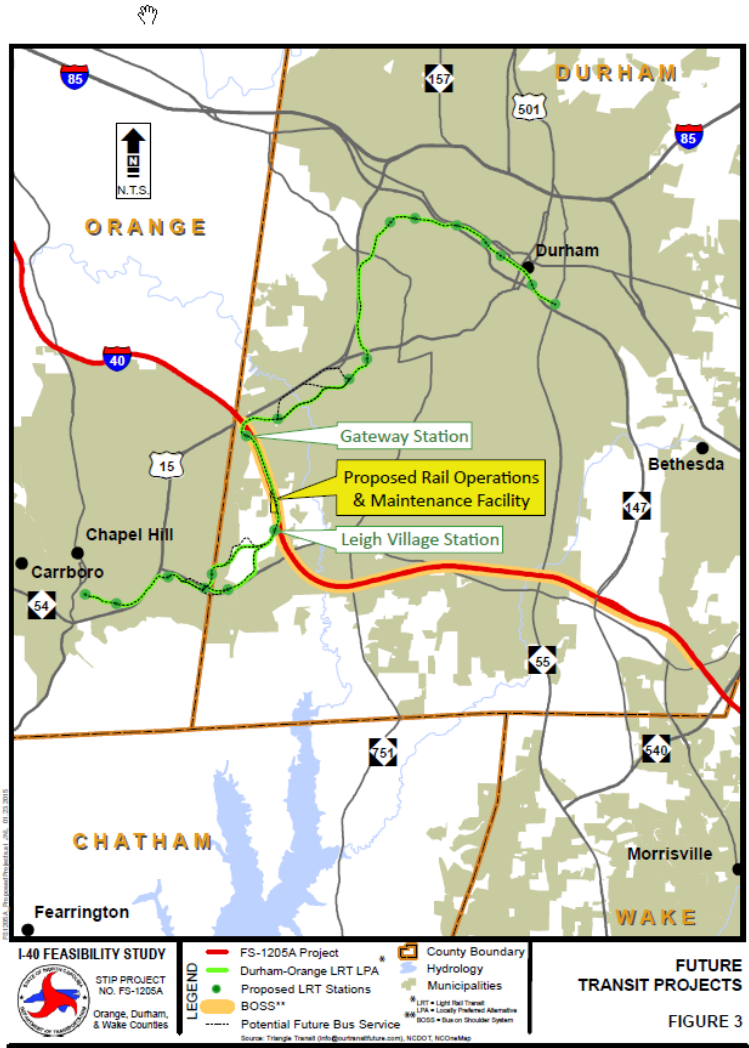
Green – Below Capacity, Yellow – Approaching Capacity, Orange – At Capacity, Red – Over Capacity

| Segment | No-Build ¹ |
|----------------------------------|-----------------------|
| I-85 to Old NC 86 | 83,400 |
| Old NC 86 to New Hope Church Rd | 95,600 |
| New Hope Church Rd to NC 86 | 100,100 |
| NC 86 to US 15-501 | 111,900 |
| US 15-501 to NC 54 | 131,800 |
| NC 54 to NC 751 | 175,500 |
| NC 751 to Fayetteville Rd | 170,300 |
| Fayetteville Rd to NC 55 | 187,600 |
| NC 55 to Alston Avenue | 189,200 |
| Alston Avenue to NC 147 | 189,200 |
| NC 147 to Davis Dr | 223,500 |
| Davis Dr to S. Miami Blvd | 229,200 |
| S. Miami Blvd to Page Rd | 249,500 |
| Page Rd to I-540 | 260,000 |
| I-540 to Airport Blvd | 217,700 |
| Airport Blvd to Aviation Pkwy | 209,200 |
| Aviation Pkwy to N. Harrison Ave | 238,300 |
| N. Harrison Ave to Wade Ave | 245,500 |





Transit and TIP Projects



Potential Major Issues

- Determination of ultimate number of managed lanes by segment.
- Major managed lane connection at I-540 and NC 147
- Ultimate location of direct ingress and egress points
- Potential Right of Way impacts at ingress and egress points
- Reconstruction required to implement either 1 or 2 managed lanes per direction for much of the corridor.
- Coordination with Transit Projects (See Figure 3)



Ingress/Egress Points

- Currently have multiple ingress/egress points included in the estimated costs but a final determination will need to be made during later planning and design phases.
- Not all of the preliminary identified locations will ultimately be provided and some maybe shifted based on more detailed analysis and modeling in later phases.
 - Preliminary locations are as follows:
 - Wade Avenue
 - Harrison Avenue
 - Aviation Parkway
 - I-540 (Major Interchange connection)
 - S. Miami Boulevard
 - NC 147 (Major Interchange connection)
 - Renaissance Parkway
 - NC 751
 - US 15-501 via Mt. Moriah Road
 - NC 86

Cost Comparison

Table 7: Cost Estimates

| | Alternative 1 One Managed Lane | | | Alternative 2 Two Managed Lanes | | |
|---------------------|---|----------------------|----------------------|--|----------------------|----------------------|
| | West | Central | East | West | Central | East |
| Construction Cost | \$214,000,000 | \$359,000,000 | \$410,000,000 | \$235,000,000 | \$382,000,000 | \$413,000,000 |
| ITS | \$1,700,000 | \$1,400,000 | \$600,000 | \$1,700,000 | \$1,400,000 | \$600,000 |
| Utility Relocation* | \$2,500,000 | \$3,700,000 | \$2,500,000 | \$2,500,000 | \$3,700,000 | \$2,500,000 |
| R/W Cost* | \$11,700,000 | \$31,800,000 | \$7,700,000 | \$11,700,000 | \$31,800,000 | \$7,700,000 |
| Total Cost | \$229,900,000 | \$395,900,000 | \$420,800,000 | \$250,900,000 | \$418,900,000 | \$423,800,000 |

*Utility cost and R/W cost are provided for the ultimate condition of two managed lanes each direction.

West-From I-85 in Orange County to 1.5 miles west of NC 54 in Durham County

Central-From 1.5 miles west of NC 54 to 0.4 miles (2000') east of South Miami Boulevard in Durham County

East-From 0.4 miles (2000') east of South Miami Boulevard in Durham County to 0.7 miles (3500') east of North Harrison Avenue in Wake County



Conclusion and Recommendations

- Alternative 2 (two managed lanes in each direction) is the preferred alternative from a feasibility study perspective because it would best meet the long term needs of the corridor by providing a more reliable travel time and flexibility in the corridor at a very modest increase in costs.
- However, a final determination concerning the ultimate configuration (1 or 2 managed lanes per direction) in specific sections should be made during later planning and design stages as refined analysis, traffic and revenue, and local input are developed and factored in to the process.