NC 54 at I-40 and Farrington Rd
Durham, NC

A Case Study in
Managing Oversaturated Conditions

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Outline

• Area Overview
• Simulations
  • As found
  • First Revision
  • Second Revision
  • Third Revision (discussion only)
• Summary of Strategies Used
Overview of the Subject Area: 3-Signal Network on NC 54
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Overview of the Subject Area:
NC 54 at Farrington Rd & I-40 EB
Overview of the Subject Area:
NC 54 at I-40 WB Ramps
Overview of the Subject Area:
NC 54 at Farrington Rd
Overview of the Subject Area:
NC 54 at I-40 EB Ramps
Overview of the Subject Area:
NC 54 at I-40 WB Ramps
Overview of the Subject Area:
3-Signal Network on NC 54
SimTraffic Simulations

- As Found
- First Revision
- Second Revision
- Third Revision
  - Discussion only
- Note: Info is roughly chronological, but not exactly
Summary of Strategies Used: First Revision

• Use your brain, not just your model
  • Avoid inappropriate “accuracy”
  • Overcome model shortcomings (queuing, etc)

• Use shorter greens and shorter cycles to maximize short bay capacity
  • Green ≈ Time to clear bay
  • Red ≈ Time to fill bay

• Use offsets to create storage for side street traffic
  • Use simultaneous red
  • Progress the beginning of red
Summary of Strategies Used: Second Revision

- Longer Cycle for More (Total / Mainline) Capacity
  - Don’t argue about long vs. short cycles
  - Use what works for each individual system
- Shortened Splits for Movements with Safe Storage
  - Divide capacity based on need, not delay equity
  - Use holds / recalls as needed
- Alternate Sequences for Improved Storage
  - Lag lefts can prevent or reduce blocking queues from short turn bays
Summary of Strategies Used: Third Revision

- Longer Cycle for More (Total / Mainline) Capacity
- Shortened Splits for Movements with Safe Storage
- Use Offsets Control Access to Capacity
  - Again, divide capacity based on need, not equity
  - Use holds / recalls as needed
- Know Your Controller
  - Use transition tricks to improve performance
  - Take advantage of little-used features to improve performance
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