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 Operational Analysis
 

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Analyst: NJ  
 Agency/Co.: Florence & Hutcheson  
 Date Performed: 3/17/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-385NB  
 Weaving Location: Woodruff to I-85  
 Analysis Year: 2010  
 Description: I-85/I-385 Existing

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 Inputs
 

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|                                |           |         |
|--------------------------------|-----------|---------|
| Segment Type                   | Freeway   |         |
| Weaving configuration          | One-Sided |         |
| Number of lanes, N             | 3         | ln      |
| Weaving segment length, LS     | 1240      | ft      |
| Freeway free-flow speed, FFS   | 55        | mi/h    |
| Minimum segment speed, SMIN    | 15        | mi/h    |
| Freeway maximum capacity, cIFL | 2250      | pc/h/ln |
| Terrain type                   | Level     |         |
| Grade                          | 0.00      | %       |
| Length                         | 0.00      | mi      |

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 Conversion to pc/h Under Base Conditions
 

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|                                  | Volume Components |       |       |       |       |
|----------------------------------|-------------------|-------|-------|-------|-------|
|                                  | VFF               | VRF   | VFR   | VRR   |       |
| Volume, V                        | 2397              | 749   | 866   | 217   | veh/h |
| Peak hour factor, PHF            | 0.90              | 0.90  | 0.90  | 0.90  |       |
| Peak 15-min volume, v15          | 666               | 208   | 241   | 60    |       |
| Trucks and buses                 | 18                | 18    | 18    | 18    | %     |
| Recreational vehicles            | 0                 | 0     | 0     | 0     | %     |
| Trucks and buses PCE, ET         | 1.5               | 1.5   | 1.5   | 1.5   |       |
| Recreational vehicle PCE, ER     | 1.2               | 1.2   | 1.2   | 1.2   |       |
| Heavy vehicle adjustment, fHV    | 0.917             | 0.917 | 0.917 | 0.917 |       |
| Driver population adjustment, fP | 1.00              | 1.00  | 1.00  | 1.00  |       |
| Flow rate, v                     | 2903              | 907   | 1049  | 263   | pc/h  |

Volume ratio, VR 0.382

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 Configuration Characteristics
 

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|                                     |      |        |
|-------------------------------------|------|--------|
| Number of maneuver lanes, NWL       | 2    | ln     |
| Interchange density, ID             | 0.00 | int/mi |
| Minimum RF lane changes, LCRF       | 0    | lc/pc  |
| Minimum FR lane changes, LCFR       | 0    | lc/pc  |
| Minimum RR lane changes, LCRR       |      | lc/pc  |
| Minimum weaving lane changes, LCMIN | 0    | lc/h   |
| Weaving lane changes, LCW           | 108  | lc/h   |
| Non-weaving vehicle index, INW      | 0    |        |
| Non-weaving lane change, LCNW       | 746  | lc/h   |
| Total lane changes, LCALL           | 854  | lc/h   |

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W 0.168

|                                |      |      |
|--------------------------------|------|------|
| Average weaving speed, SW      | 49.2 | mi/h |
| Average non-weaving speed, SNW | 46.8 | mi/h |

|   |       |          |
|---|-------|----------|
| _____Weaving Segment Speed, Density, Level of Service and Capacity_____ |       |          |
| Weaving segment speed, S  | 47.7  | mi/h     |
| Weaving segment density, D  | 35.8  | pc/mi/ln |
| Level of service, LOS   | E     |          |
| Weaving segment v/c ratio   | 0.923 |          |
| Weaving segment flow rate, v  | 5122  | pc/h     |
| Weaving segment capacity, cW  | 5089  | veh/h    |

|   |  |  |  |  |
|---|--|--|--|--|
| _____Limitations on Weaving Segments_____ |  |  |  |  |
| If limit reached, see note.               |  |  |  |  |

|  | Minimum | Maximum | Actual   | Note |
|--|---------|---------|----------|------|
| Weaving length (ft)                    | 300     | 6479    | 1240     | a,b  |
|  |         | Maximum | Analyzed |      |
| Density-based capacity, cIWL (pc/h/ln) |         | 2250    | 1849     | c    |
|  |         | Maximum | Analyzed |      |
| v/c ratio                              |         | 1.00    | 0.923    | d    |

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

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