

Traffic Quality on the Atlanta Regional Highway System (Fall 2007)

DRAFT REPORT

Prepared by
Skycomp, Inc. (Columbia, Maryland)
For the Georgia Department of Transportation



The contents in this publication reflect the views of the Author(s), who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Georgia Department of Transportation or the Federal Highway Administration. This publication does not constitute a standard, specification or regulation.

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INTRODUCTION

The purpose of this aerial survey program is to rate the performance of the regional Atlanta highway system on a recurring basis, and to provide related data to stakeholders, regional planners, and decision-makers. This mobility monitoring program began in the fall of 1998, at which time approximately 500 centerline miles of limited-access and arterial highway in the Atlanta metropolitan area were surveyed (data collection occurred during both morning and evening peak commuter periods). Coverage was repeated three years later, in the fall of 2001, leading to an identification of locations experiencing both improved and degraded mobility.

The early success of this survey program resulted in decisions to expand coverage, ultimately to include most of the state highways in the 21-county Atlanta planning region. Accordingly, approximately 250 centerline miles of highway in the outlying counties were added in the spring of 2002, and an additional 1,500 miles of arterial highways were added in the spring of 2004. Aerial surveys of the original 750 centerline miles of highway were repeated in 2005 and 2007. This document presents the findings of the most recent survey conducted in the fall of 2007. Survey coverage of the designated 1500 miles of arterial highways was repeated in the spring of 2008.

The aerial survey methodology takes advantage of the mobility and vantage point of fixed-wing aircraft, permitting data collection across a vast highway network that could not be affordably accomplished using traditional ground-based survey methods. During each survey period last fall, up to eight aircraft at a time followed designated routes along the primary highways; each highway segment was photographed in its entirety approximately 24 times. Performance ratings derived from the photography is presented in this report in graphical format.

FEATURES OF THE AERIAL SURVEY PROGRAM

During this aerial survey program, overlapping photographic coverage was obtained for each designated highway, repeated once an hour over four mornings and four evening commuter periods. The morning coverage time was 6:30-9:30 a.m., and the evening time was 4:00-7:00 p.m. Survey flights were conducted on weekdays, excluding Monday mornings, Friday evenings and mornings after holidays. Data were extracted from the aerial photographs to measure average recurring daily traffic conditions by link and by time period. Features of the aerial survey program include:

1) *2007 Survey Findings (this report)*

This report presents performance-rating tables of 2007 traffic conditions on the 750 miles of surveyed highways. The ratings are presented by highway, highway segment, direction, and time period. For uninterrupted-flow facilities, the ratings are density-based level-of-service (LOS) designations "A", "B", "C", "D", "E" and "F", as defined in the *2000 Highway Capacity Manual*. For interrupted-flow facilities, a surrogate level-of-service measure has been used. Details on level-of-service ratings are provided in Appendix A.

The level-of-service graphics in this report also contain arrowheads that depict locations of recurring congestion; narratives that clarify the severity and frequency of the congestion accompany each arrowhead. When evident, apparent causes of the problems are also described.

2) *Comparative Report (entire system – 2250 centerline miles): (2004/2005 vs. 2007/2008)*

This report (provided separately) will include a comparison of traffic conditions on the highway network to include aerial surveys conducted between 2004 and 2008.

3) *Survey Database*

A primary deliverable for this project is the Survey Database (built in Microsoft Access). The database contains all of the data collected from the aerial survey, from vehicle counts and road segmentation, to flight information, and the variables used to calculate densities. Using this database, a number of reports can be displayed or printed, including comparative reports, segment densities and incident information.

3) *Speed/Density Relationship*

In order to allow the estimation of vehicle speeds from densities on the freeways, Skycomp has built a database from data collected in the Washington D.C. metropolitan area and other cities. This database demonstrates the relationship between traffic densities and speeds. From this database, a look-up table was developed relating the two variables. The result of Skycomp's work is provided in Appendix B.

4) *Web-Based Product*

The web-based product will include data collected from all 2,250 miles of surveyed highway; this product will allow data queries from each of the surveyed years, and includes thousands of highlight aerial photographs of congestion found in the 21-county planning region. The product can be displayed on the internet or can be projected to audiences "as is"; the interactive feature allows a presenter to respond to audience interests by going to specific locations as they come up in the discussion.

DISCLAIMER

Survey operations would not have been possible without the assistance of regional FAA air traffic controllers.

In order to predict average travel speeds from traffic densities, a staff member of the Metropolitan Washington, D.C. Council of Governments (Paul DeVivo) calibrated a single-regime model developed by Michel Van Aerde for use in the metropolitan Washington area. The model was submitted by Van Aerde to the Transportation Research Board in 1995 (TRB Paper No. 95082; see also discussion in Appendix B).

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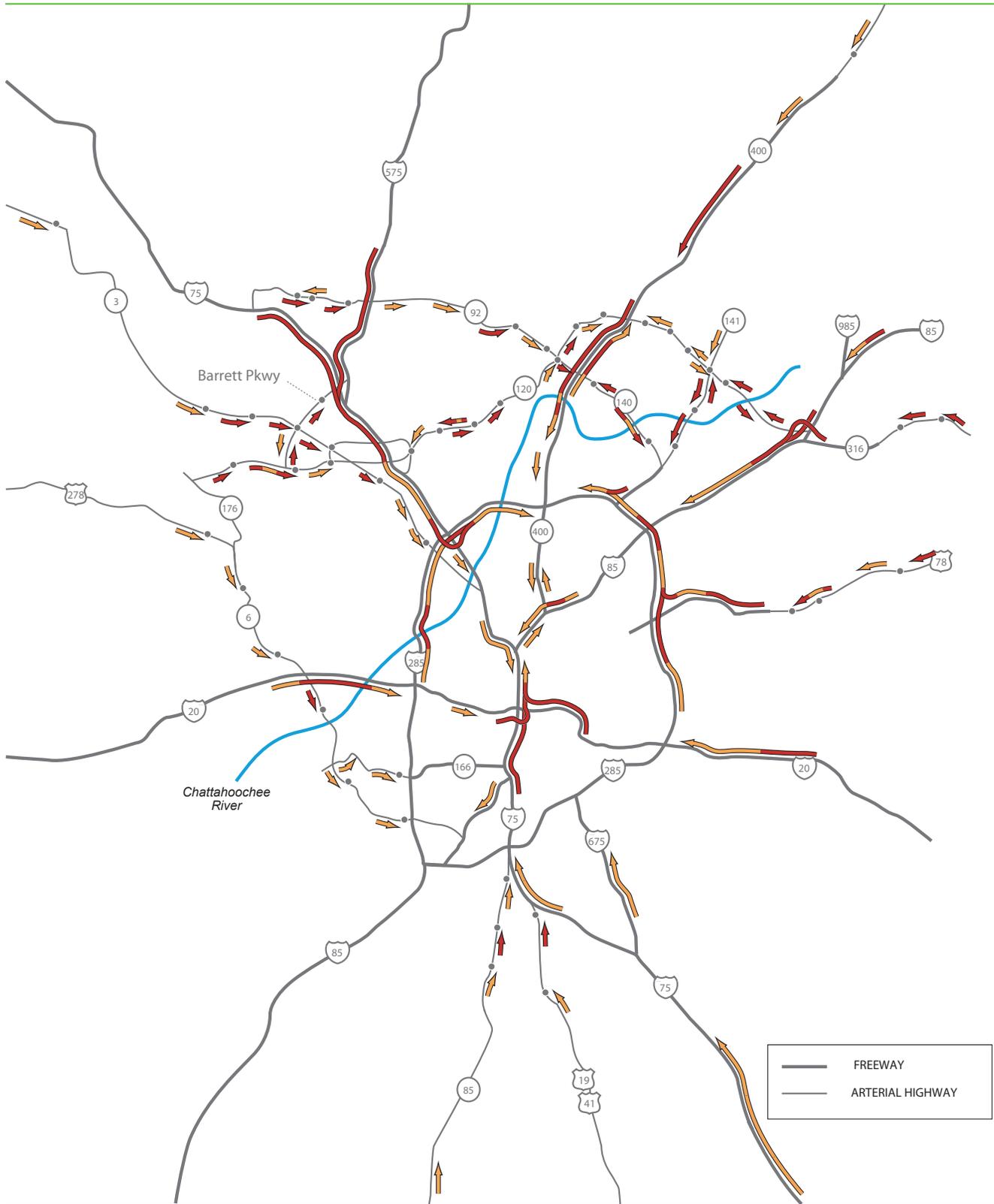
QUESTIONS

If there are any questions about this survey program or the underlying methodology, please direct them to Greg Jordan at 410-884-6900.

Part One - Regional Graphics

Morning & Evening Regional Congestion Graphics

MORNING OBSERVED RECURRING CONGESTION (6:30 - 9:30 A.M.)



Traffic Quality Rating

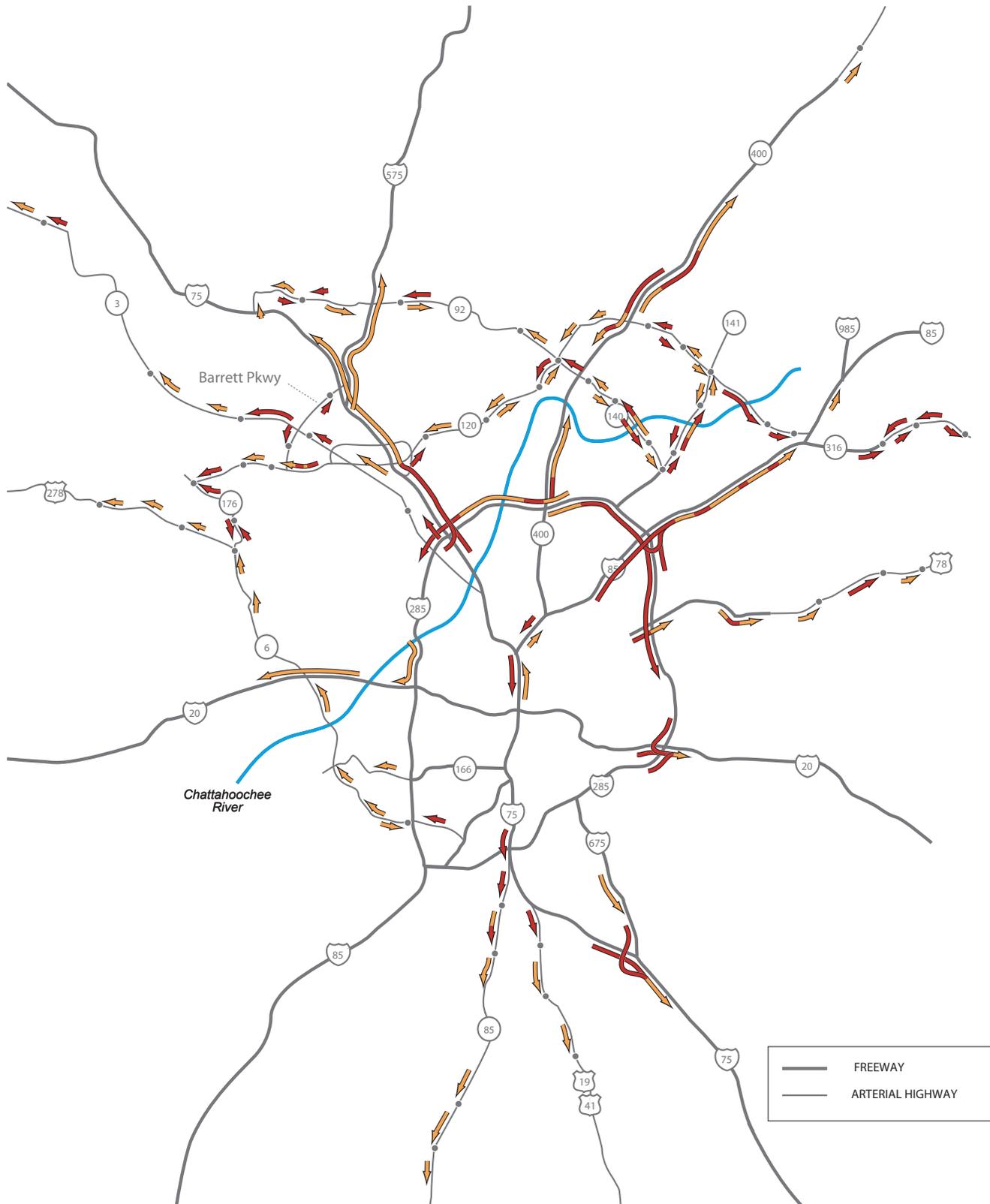
Freeways

- Severe mainline congestion (<30 mph)
- Moderate or intermittent mainline congestion (30-50 mph)

Arterial Highways

- Congested signalized intersection (most observations or queues greater than 40 vpl)
- Congested signalized intersection (intermittent or queues 20 to 40 vpl)
- Platoons (populations greater than 25 vpl)

EVENING OBSERVED RECURRING CONGESTION (4:00 - 7:00 P.M.)



Traffic Quality Rating

Freeways

-  Severe mainline congestion (<30 mph)
-  Moderate or intermittent mainline congestion (30-50 mph)

Arterial Highways

-  Congested signalized intersection (most observations or queues greater than 40 vpl)
-  Congested signalized intersection (intermittent or queues 20 to 40 vpl)
-  Platoons (populations greater than 25 vpl)

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Part Two - Performance Ratings

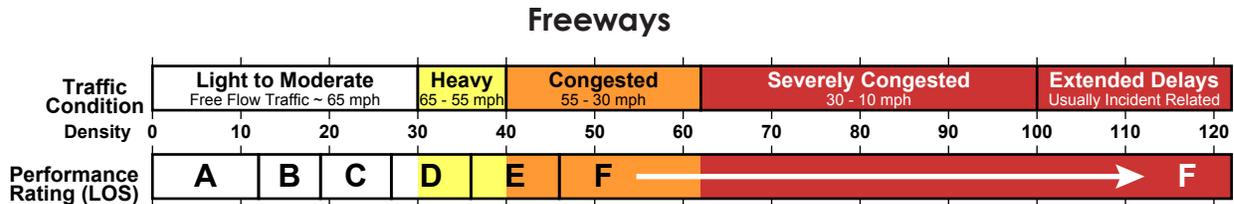
Performance Rating Tables, Fall 2007

This section of the report presents performance rating tables of 2007 traffic conditions on the 750 miles of surveyed highways. The ratings are presented by highway, highway segment, direction and time period. For clarification, these performance rating tables also contain arrowheads that depict the typical extent and location of recurring congestion.

Performance Rating Descriptions

Freeways

For uninterrupted-flow facilities, the ratings are density-based level-of-service designations “A” through “F”, as defined in the 2000 Highway Capacity Manual. A summary of density based level-of-service is provided below (a more detailed discussion of level-of-service is provided in Appendix A).



Note regarding “nested congestion”: In some segments congestion was not uniform, so that high densities associated with congestion were “diluted” by low densities found elsewhere in the segment or at other times. In these cases, averaged density values do not reflect the variety of conditions found in the segments. Accordingly, four types of “nested congestion” have been identified with superscripts, as follows:

Nested congestion superscripts:



- 1 Type 1 nested congestion (some days, not others).
- 2 Type 2 nested congestion (more severe in left or right-hand lanes).
- 3 Type 3 nested congestion (present only in the first or second half-hour period).
- 4 Type 4 nested congestion (partial length of segment).

Signalized Arterial Highways

For interrupted-flow facilities, a surrogate level-of-service measure has been used. Developed by Skycomp for use with overlapping aerial photographs, this surrogate measure is based on platoon sizes and queuing characteristics at signalized intersections. Because this is a surrogate LOS measure, the letters “A” through “F” have been underlined to identify them as surrogate LOS measures. A summary of the surrogate level-of-service is provided below (a more detailed discussion is provided in Appendix A).

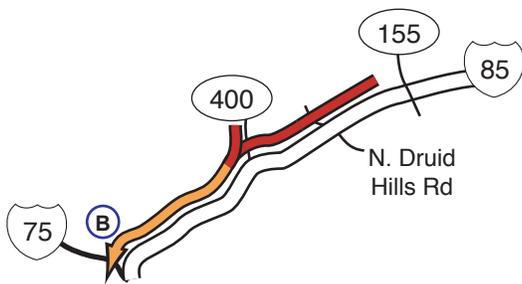
Signalized Arterial Highways:

Traffic Condition	Very Light	Light	Moderate	Heavy	Congested	Severe
Performance Rating (surrogate LOS)	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>

Bottleneck Graphics and Analytical Notes

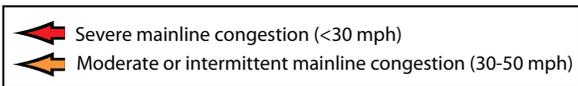
Each performance rating table includes arrowheads that depict locations where congestion was found; notes that clarify the frequency and severity of the congestion accompany each arrowhead. Examples from the report are provided below.

Freeways

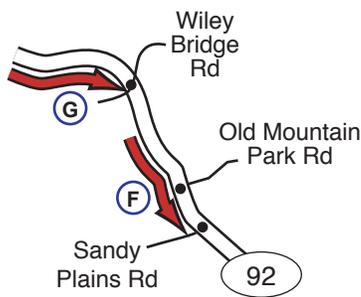


B

Congestion Type: Mainline Congestion
 Frequency: Most observations after 7:30 a.m.
 Direction: Southbound
 Location: Between SR 155 (Clairmont Rd) and I-75
 Queue Length: 3 to 6 miles
 Estimated Speed: 15 to 50 mph
 Potential Cause(s): The primary bottleneck along this section of I-85 was found where traffic entered the mainline at SR 400; upstream of the merge, average estimated speeds were typically less than 30 mph. While congestion persisted south of SR 400, average speeds typically improved (40-50 mph).



Signalized Arterial Highways



F

Signal Queue

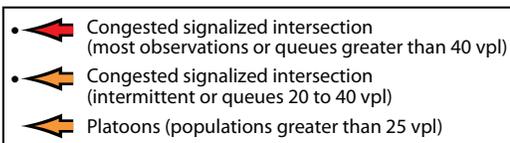
Intersection: Sandy Plains Rd & Old Mountain Park Rd
 Frequency: Most observations
 Direction: Eastbound
 Queue Population: 20 to 50 vpl
 Number of Lanes: 3

Note: In some cases, congestion at Sandy Plains Rd extended back through the upstream signal at Old Mountain Rd.

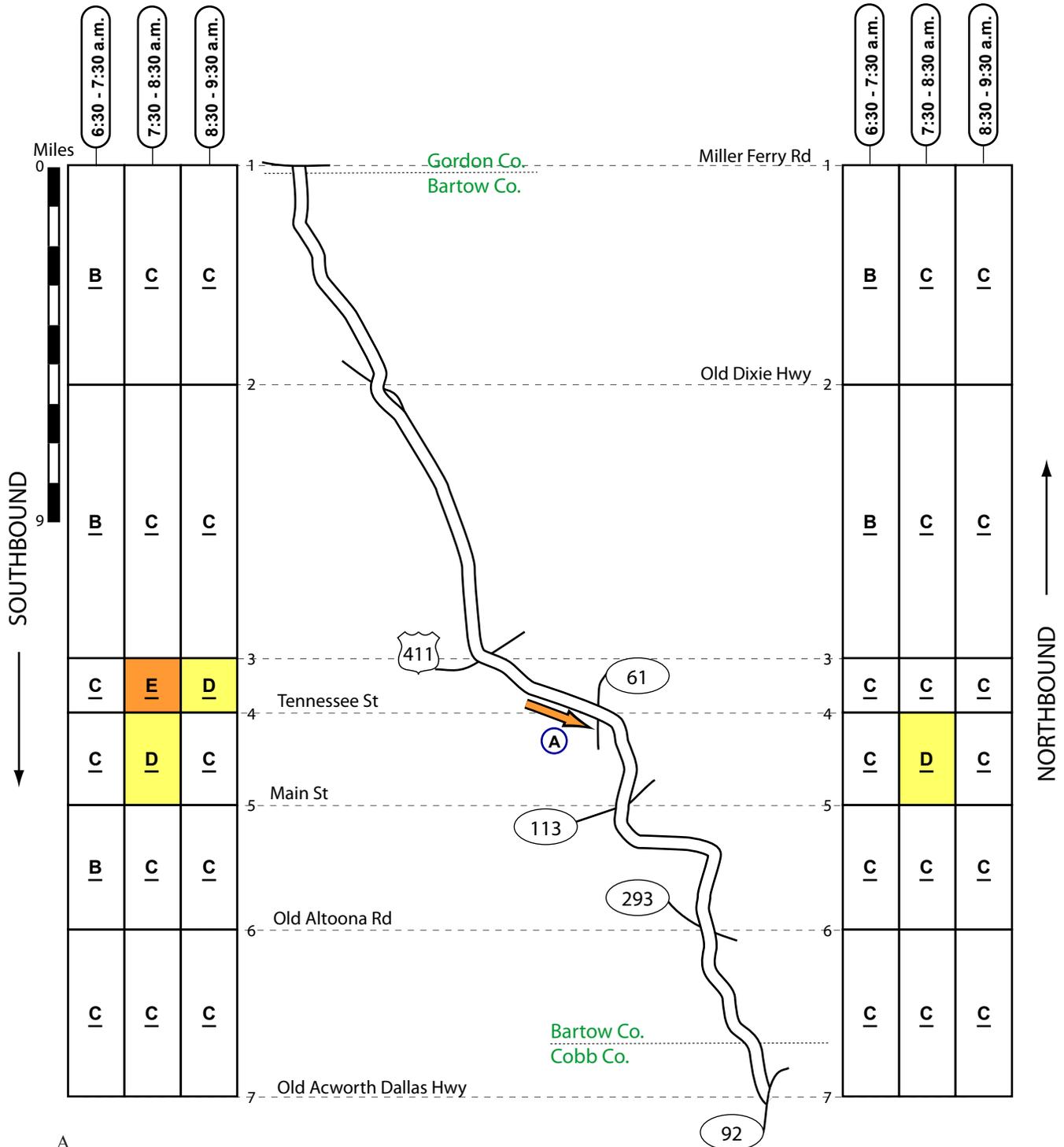
G

Signal Queue

Intersection: Wiley Bridge Rd
 Frequency: Most observations
 Direction: Eastbound
 Queue Population: 20 to 80 vpl
 Number of Lanes: 2



SR 3/US 41 (BARTOW & COBB COUNTIES) - MORNING



A
 Congestion Type: Platoons
 Location: Between US 411 & SR 61
 Frequency: Intermittent
 Direction: Southbound
 Platoon Populations: 25 to 30 vpl
 Number of Lanes: 2

Traffic Quality Rating	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	Very Light	Light	Moderate	Heavy	Congested	Severe

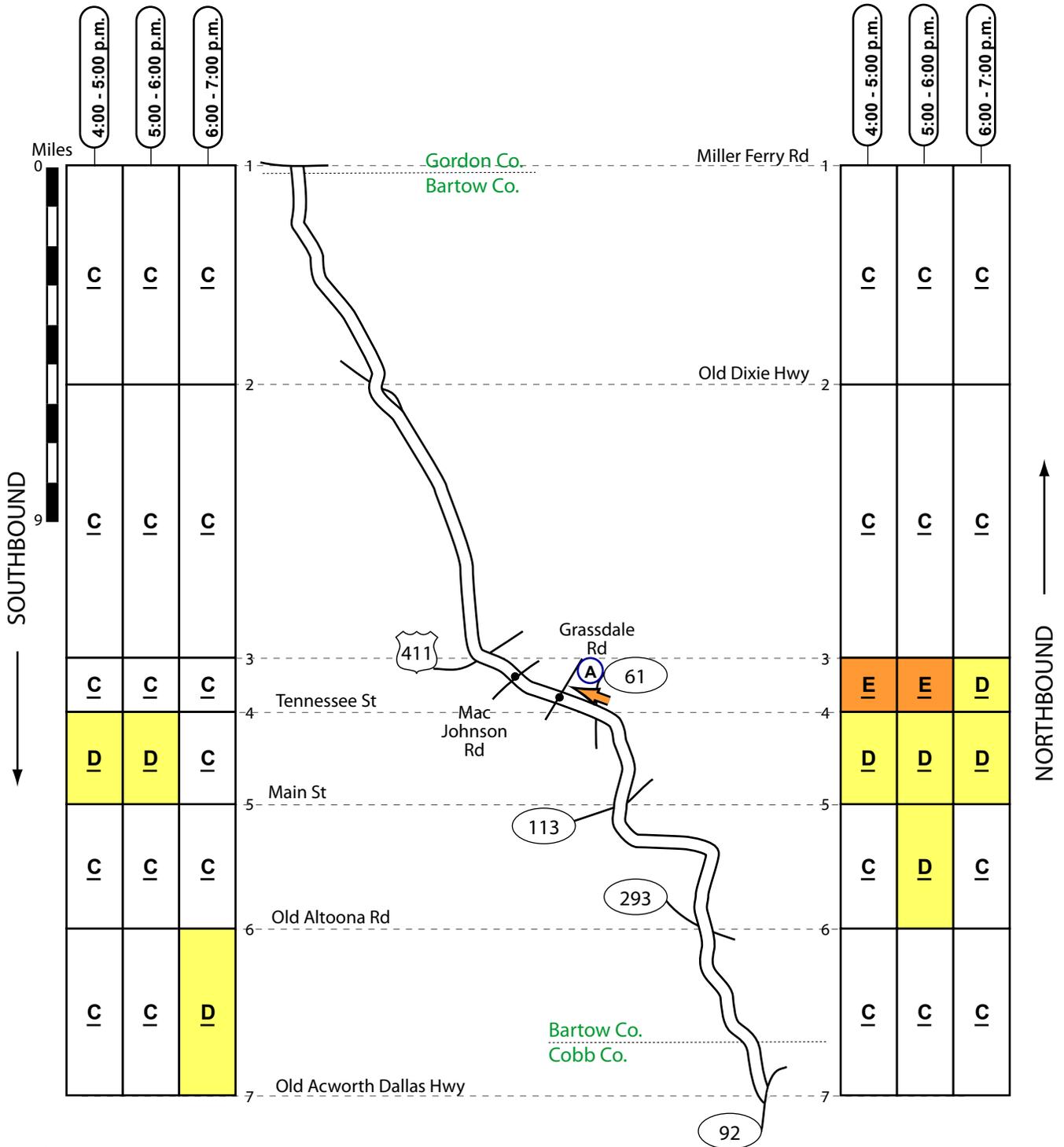
Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

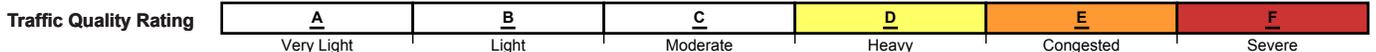
²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

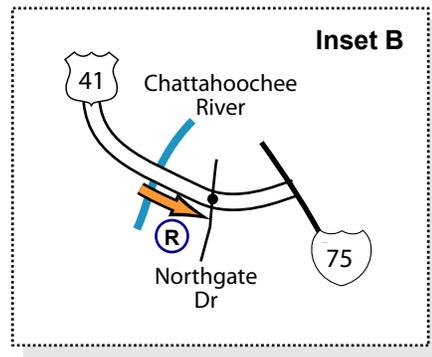
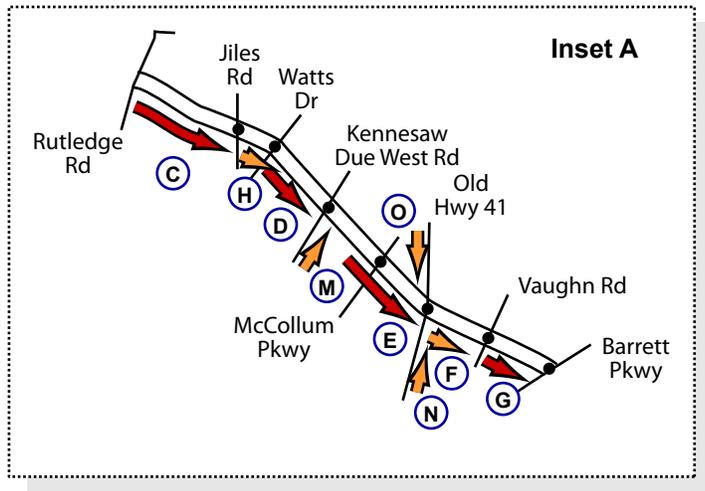
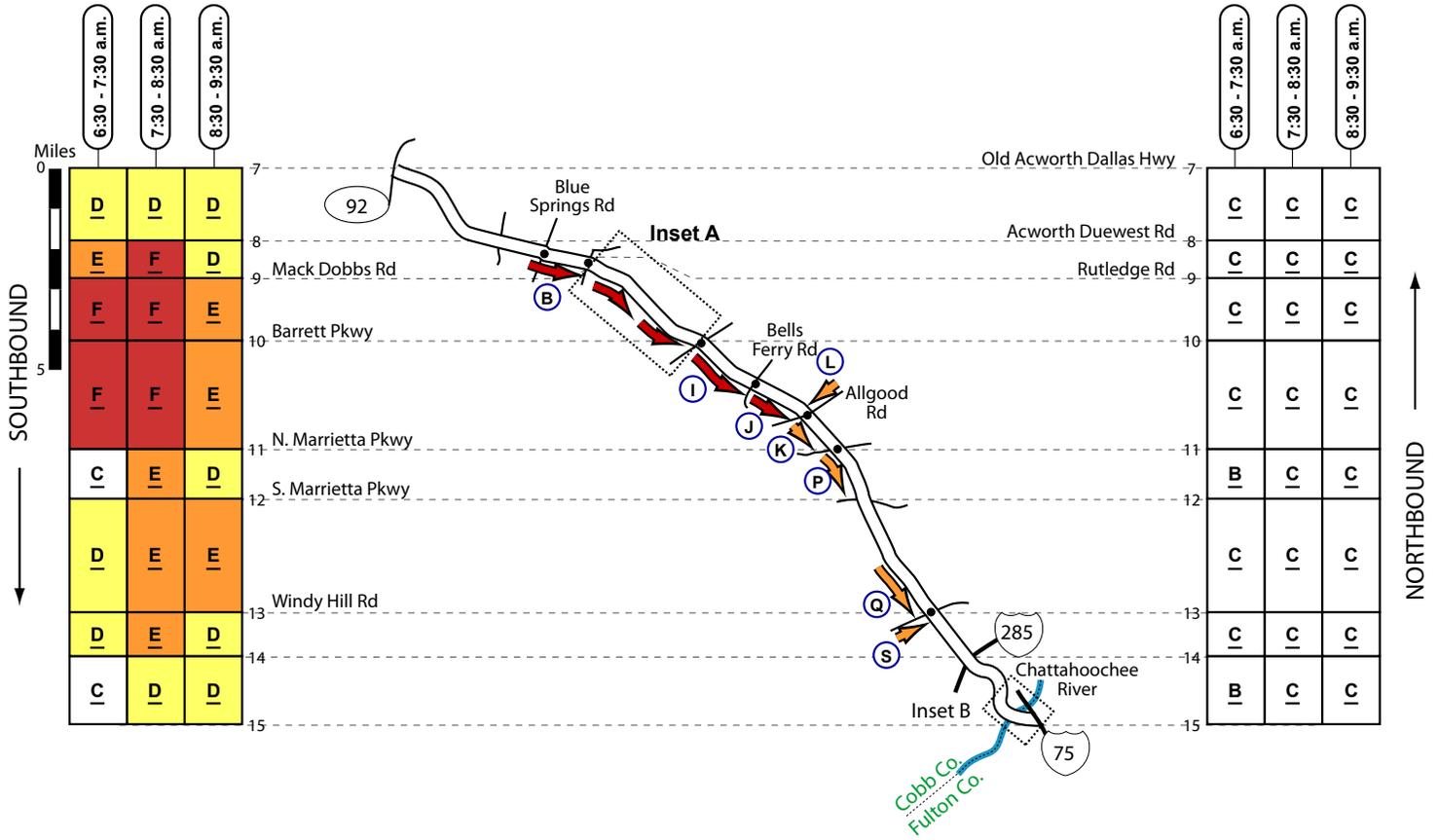
SR 3/US 41 (BARTOW & COBB COUNTIES) - EVENING



A
 Congestion Type: Signal Queue
 Location: Grassdale Rd
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2
 Note: During the 2005 survey, roadwork at Grassdale Rd may have exacerbated congestion (northbound congestion found in 2005 was more severe than congestion found in 2007).



SR 3/US 41 (COBB COUNTY) - MORNING



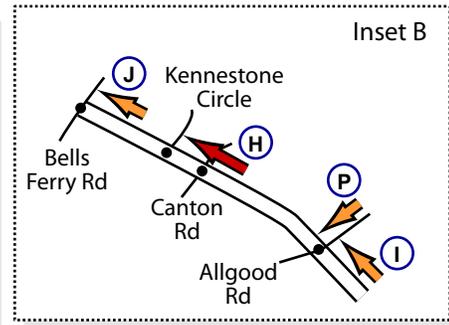
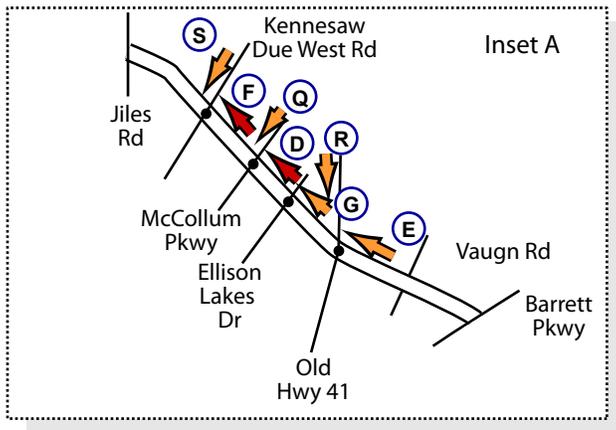
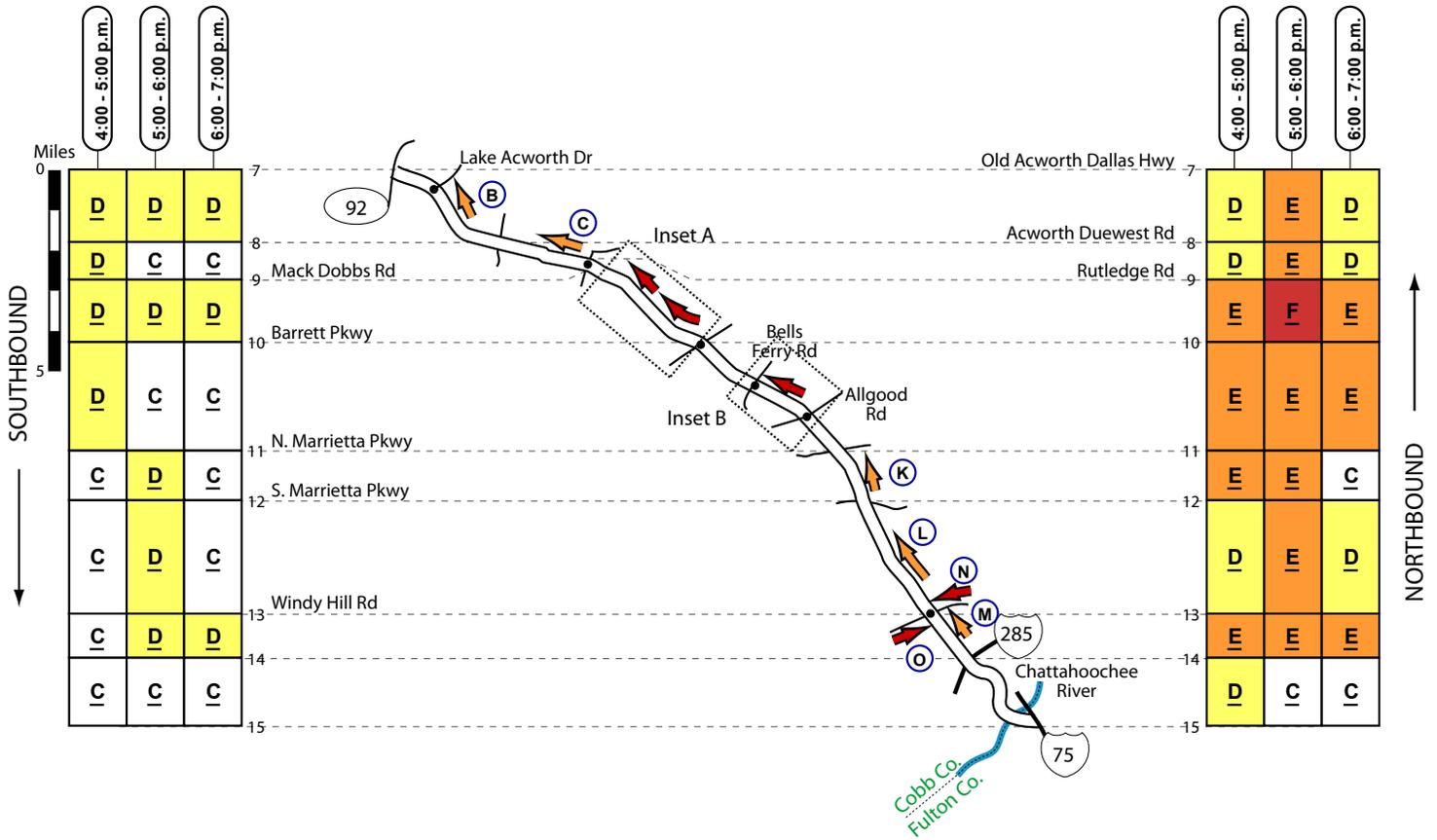
Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

SR 3/US 41 (COBB COUNTY) - MORNING

B Congestion Type: Signal Queue Location: Rutledge Rd Frequency: Most observations Direction: Southbound Queue Populations: 20 to 65 vpl Number of Lanes: 2 Note: During several observations, congestion extended back through the upstream signal at Blue Springs Rd.	I Congestion Type: Signal Queue Location: Bells Ferry Rd Frequency: Most observations Direction: Southbound Queue Populations: 20 to 70 vpl Number of Lanes: 2	P Congestion Type: Platoons Location: Between N. Marietta Pkwy & S. Marietta Pkwy Direction: Southbound Platoon Populations: 25 to 35 vpl Number of Lanes: 2
C Congestion Type: Signal Queue Location: Jiles Rd Frequency: Most observations Direction: Southbound Queue Populations: 20 to 80 vpl Number of Lanes: 2	J Congestion Type: Signal Queue Location: Allgood Rd Frequency: Most observations Direction: Southbound Queue Populations: 20 to 50 vpl Number of Lanes: 2	Q Congestion Type: Signal Queue Location: Windy Hill Rd Frequency: Intermittent Direction: Southbound Queue Populations: 20 to 40 vpl Number of Lanes: 2 Note: During one of the morning survey flights, congestion approaching Windy Hill Rd was significantly worse than the other mornings (queue populations 40 to 50 vehicles per lane).
D Congestion Type: Signal Queue Location: Kennesaw Due West Rd Frequency: Most observations Direction: Southbound Queue Populations: 20 to 40 vpl Number of Lanes: 2	K Congestion Type: Signal Queue Location: N. Marietta Pkwy Frequency: Intermittent Direction: Southbound Queue Populations: 20 to 30 vpl Number of Lanes: 2 Note: During several observations, congestion extended back through the upstream signal at White Circle.	R Congestion Type: Signal Queue Location: Northgate Dr Frequency: Intermittent Direction: Southbound Queue Populations: 20 to 25 vpl Number of Lanes: 2
E Congestion Type: Signal Queue Location: Old Hwy 41 Frequency: Most observations Direction: Southbound Queue Populations: 20 to 60 vpl Number of Lanes: 2 Note: During several observations, congestion extended back through the upstream signal at McCollum Pkwy	L Congestion Type: Congested Cross Road Location: Allgood Rd Frequency: Intermittent Direction: Southbound Queue Populations: 20 to 35 vpl Number of Lanes: 1	S Congestion Type: Congested Cross Road Location: Windy Hill Rd Frequency: Intermittent Direction: Eastbound Queue Populations: 20 to 30 vpl Number of Lanes: 2
F Congestion Type: Signal Queue Location: Vaughn Rd Frequency: Intermittent Direction: Southbound Queue Populations: 20 to 40 vpl Number of Lanes: 2	M Congestion Type: Congested Cross Road Location: Kennesaw Due West Rd Frequency: Intermittent Direction: Eastbound Queue Populations: 20 to 25 vpl Number of Lanes: 1	
G Congestion Type: Signal Queue Location: Barrett Pkwy Frequency: Most observations before 8:00 a.m. Direction: Southbound Queue Populations: 20 to 40 vpl Number of Lanes: 2	N Congestion Type: Congested Cross Road Location: Old Hwy 41 Frequency: Intermittent Direction: Northbound Queue Populations: 20 to 25 vpl Number of Lanes: 1	
H Congestion Type: Signal Queue Location: Watts Dr Frequency: Intermittent Direction: Southbound Queue Populations: 20 to 30 vpl Number of Lanes: 2	O Congestion Type: Congested Cross Road Location: Old Hwy 41 Frequency: Intermittent Direction: Southbound Queue Populations: 20 to 40 vpl Number of Lanes: 1	

SR 3/US 41 (COBB COUNTY) - EVENING



Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 3/US 41 (COBB COUNTY) - EVENING**B**

Congestion Type: Signal Queue
Location: Lake Acworth Dr
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

C

Congestion Type: Platoons
Location: Between Rutledge Rd & Acworth
Due West Rd
Direction: Northbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

D

Congestion Type: Signal Queue
Location: McCollum Pkwy
Frequency: Most observations
Direction: Northbound
Queue Populations: 30 to 60 vpl
Number of Lanes: 2

E

Congestion Type: Signal Queue
Location: Old Hwy 41
Frequency: Intermittent
Direction: Northbound
Queue Populations: 35 to 45 vpl
Number of Lanes: 2

F

Congestion Type: Signal Queue
Location: Kennesaw Due West Rd
Frequency: Most Observations
Direction: Northbound
Queue Populations: 25 to 40 vpl
Number of Lanes: 2

G

Congestion Type: Signal Queue
Location: Ellison Lakes Dr
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

H

Congestion Type: Signal Queue
Location: Kennestone Circle
Frequency: Most observations
Direction: Northbound
Queue Populations: 30 to 40 vpl
Number of Lanes: 2
Note: During some observations, congestion extended back through the upstream signal at Canton Rd.

I

Congestion Type: Signal Queue
Location: Allgood Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

J

Congestion Type: Signal Queue
Location: Bells Ferry Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

K

Congestion Type: Platoons
Location: Between S. Marietta Pkwy & N.
Marietta Pkwy
Frequency: Most observations
Direction: Northbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

L

Congestion Type: Platoons
Location: Between Windy Hill Rd & S.
Marietta Pkwy
Frequency: Intermittent
Direction: Northbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

M

Congestion Type: Signal Queue
Location: Windy Hill Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2
Note: During one observation, approximately 50 vehicles per lane were queued at the signal.

N

Congestion Type: Congested Cross Road
Location: Windy Hill Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 50 vpl
Number of Lanes: 2

O

Congestion Type: Congested Cross Road
Location: Windy Hill Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2
Note: Eastbound congestion was also found in the two left turn lanes at the signal; this queue sometimes extended back into the mainline on Windy Hill Rd.

P

Congestion Type: Congested Cross Road
Location: Allgood Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

Q

Congestion Type: Congested Cross Road
Location: McCollum Pkwy
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 1
Note: During some observations, congestion backed through the upstream signal at Old Hwy 41 (SR 293).

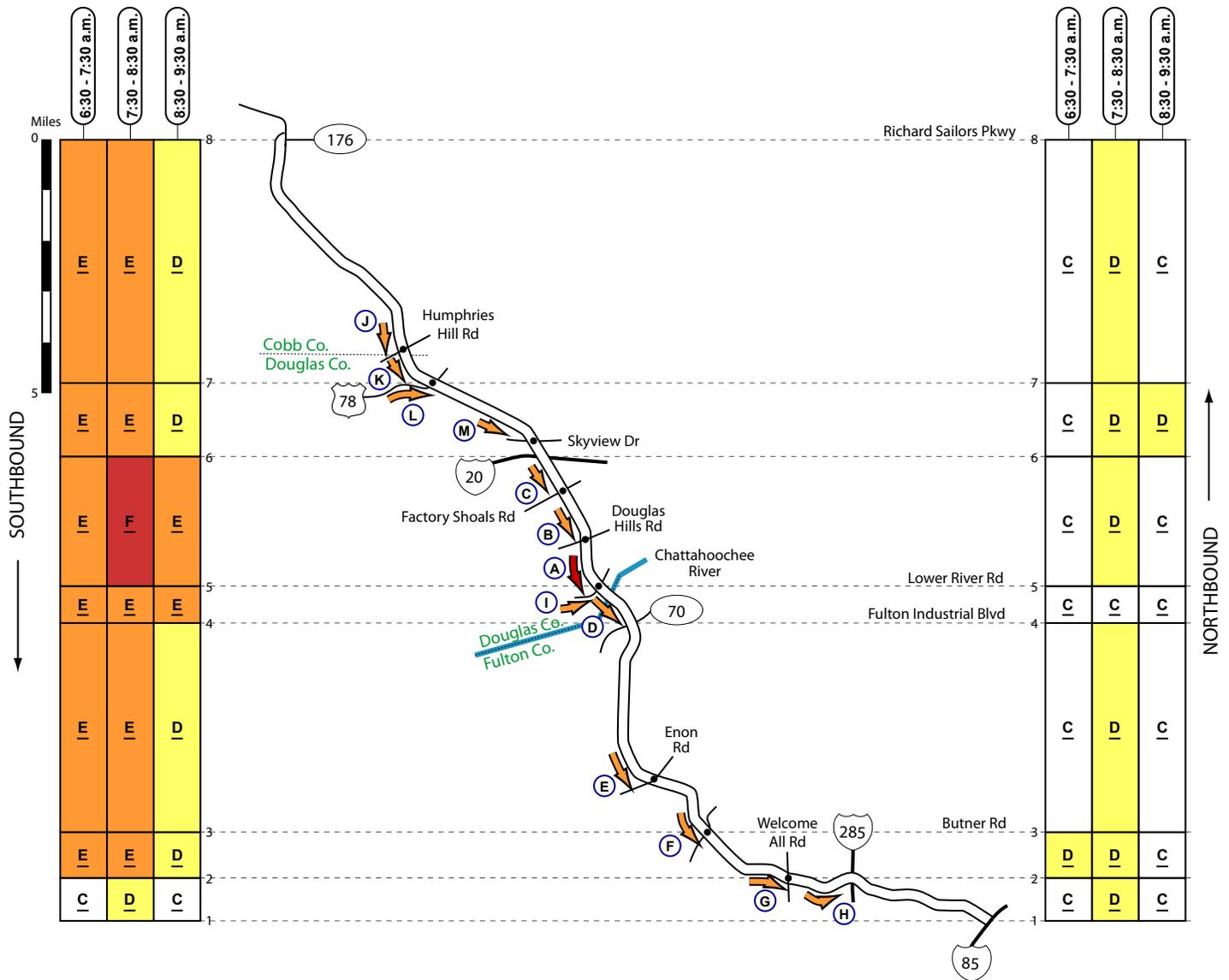
R

Congestion Type: Congested Cross Road
Location: Old Hwy 41
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 1

S

Congestion Type: Congested Cross Road
Location: Kennesaw Due West Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

SR 6 (COBB/DOUGLAS & FULTON COUNTIES) - MORNING



Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

SR 6 (COBB/DOUGLAS & FULTON COUNTIES) - MORNING**A**

Congestion Type: Signal Queue
Location: Lower River Rd
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 60 vpl
Number of Lanes: 2
Note: During some observations, congestion at Lower River Rd extended back through the upstream signal at Douglas Hills Rd.

B

Congestion Type: Signal Queue
Location: Douglas Hills Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2
Note: Southbound congestion at Douglas Hill Rd appeared to be caused by downstream congestion backing through the signal; the head of the queue was found at the signal at Lower River Rd.

C

Congestion Type: Signal Queue
Location: Factory Shoals Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

D

Congestion Type: Platoons
Location: Between Lower River Rd & SR 70
Frequency: Most observations
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

E

Congestion Type: Signal Queue
Location: Enon Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

F

Congestion Type: Signal Queue
Location: Butner Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

G

Congestion Type: Signal Queue
Location: Welcome All Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

H

Congestion Type: Platoons
Location: Between Welcome All Rd & I-285
Frequency: Intermittent
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

I

Congestion Type: Congested Cross Road
Location: Lower River Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1

J

Congestion Type: Signal Queue
Location: Humphries Hill Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

K

Congestion Type: Signal Queue
Location: US 78
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

Note: During several observations on one of the morning surveys, extensive southbound congestion was found on SR 6 approaching the signals at Westside Hwy and US 78; queue populations ranged from approximately 60 to 80 vehicles per lane (two lanes).

L

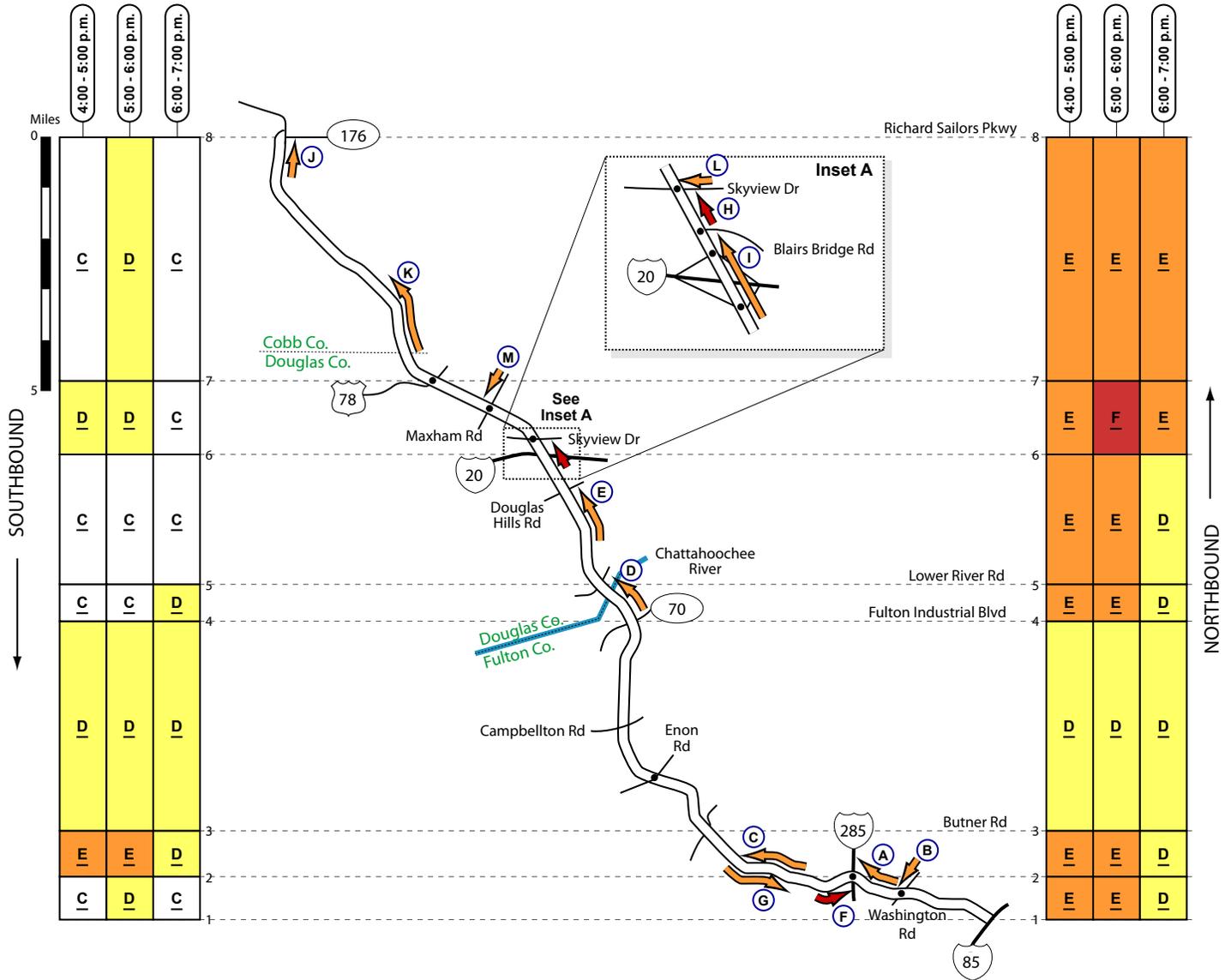
Congestion Type: Congested Cross Road
Location: US 78
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

M

Congestion Type: Signal Queue
Location: Skyview Dr
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 3

Note: During one observation on one of the morning surveys, southbound congestion approaching the signal at Skyview Dr extended all the way back through the upstream signal at Corporate Ct; the entire queue contained approximately 80 vehicles per lane (three lanes).

SR 6 (COBB/DOUGLAS & FULTON COUNTIES) - EVENING



Traffic Quality Rating

A	B	C	D	E	F
Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 6 (COBB/DOUGLAS & FULTON COUNTIES) - EVENING

A

Congestion Type: Signal Queue
Location: I-285
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

B

Congestion Type: Congested Cross Road
Location: Washington Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1

C

Congestion Type: Platoons
Location: Between I-285 & Butner Rd
Frequency: Most observations
Direction: Northbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 2

D

Congestion Type: Platoons
Location: Between SR 70 and Lower River Rd
Frequency: Most observations
Direction: Northbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 2

E

Congestion Type: Platoons
Location: Between Lower River Rd & I-20
Frequency: Most observations
Direction: Northbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

F

Congestion Type: Signal Queue
Location: I-285
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1
Note: When congested, vehicles were queued in the left lane on SR 6 approaching the signal at the I-285 northbound entrance ramp; congestion typically extended back through the upstream signal at the I-285 southbound ramps.

G

Congestion Type: Platoons
Location: Between Butner Rd & I-285
Frequency: Intermittent
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

H

Congestion Type: Signal Queue
Location: Skyview Dr
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 3
Note: During one of the evening surveys, northbound congestion at Skyview Dr extended back through the upstream signals at Blairs Bridge Rd and I-20.

I

Congestion Type: Signal Queue
Location: Blairs Bridge Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 3
Note: During some observations, northbound congestion at Blairs Bridge Rd extended back through the upstream signals at the I-20 ramps.

J

Congestion Type: Signal Queue
Location: SR 176
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2

K

Congestion Type: Platoons
Location: Between US 78 & SR 176
Frequency: Intermittent
Direction: Northbound
Platoon Populations: 25 to 40 vpl
Number of Lanes: 2

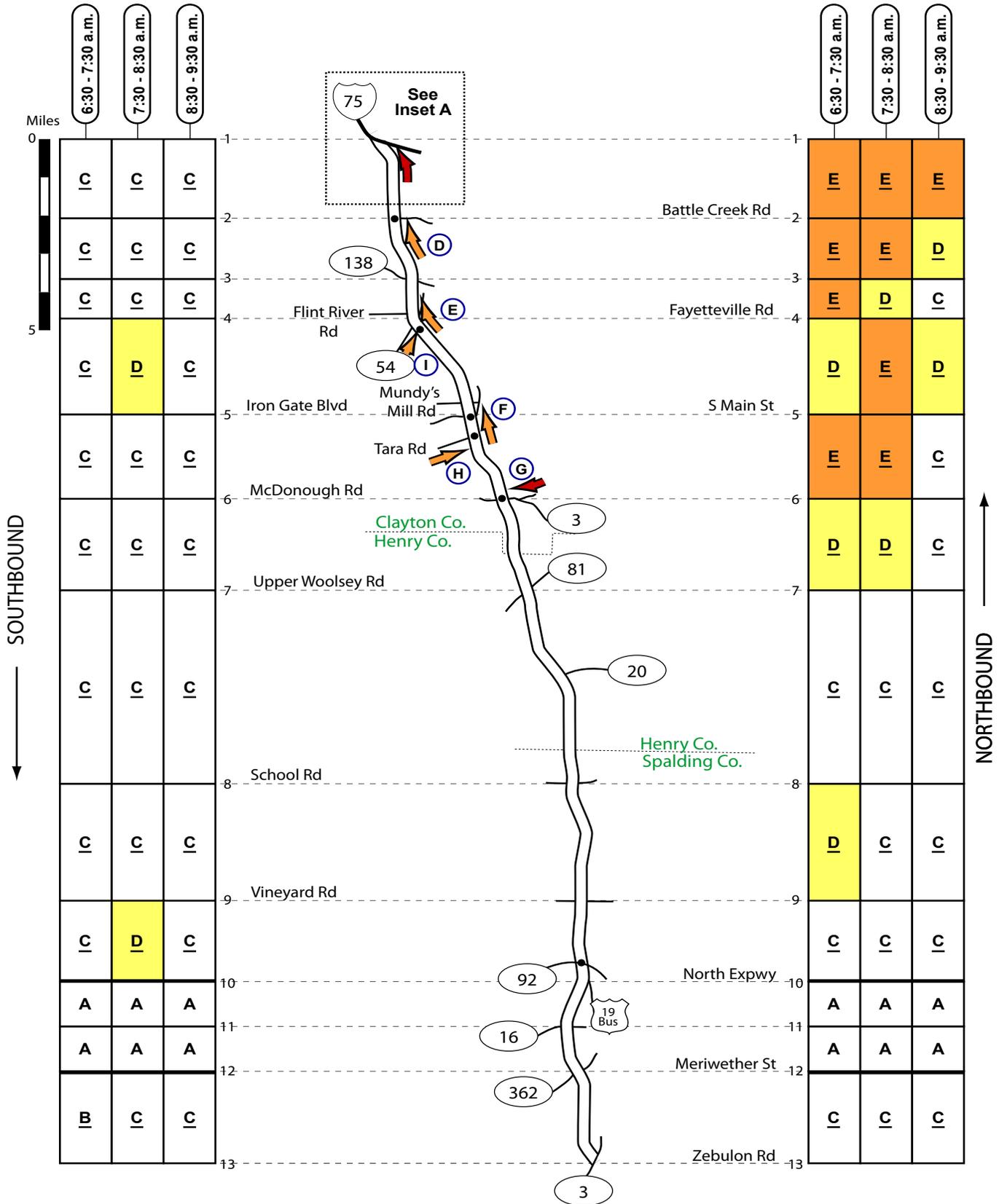
L

Congestion Type: Congested Cross Road
Location: Skyview Dr
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

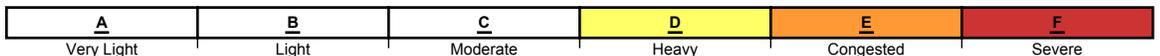
M

Congestion Type: Congested Cross Road
Location: Maxham Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 3

US 19/41 (CLAYTON/HENRY & SPALDING COUNTIES) - MORNING



Traffic Quality Rating



US 19/41 (CLAYTON/HENRY & SPALDING COUNTIES) - MORNING

A
 Congestion Type: Signal Queue
 Location: Upper Riverdale Rd
 Frequency: Most observations
 Direction: Northbound
 Queue Populations: 20 to 45 vpl
 Number of Lanes: 2

B
 Congestion Type: Signal Queue
 Location: Old Dixie Hwy
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 35 vpl
 Number of Lanes: 3

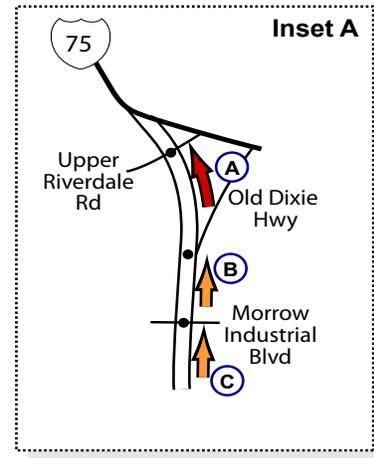
C
 Congestion Type: Signal Queue
 Location: Morrow Industrial Blvd
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 4

D
 Congestion Type: Signal Queue
 Location: Battle Creek Rd
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 3

E
 Congestion Type: Platoons
 Location: Between Mundy's Mill Rd and SR 138
 Frequency: Intermittent
 Direction: Northbound
 Platoon Populations: 25 to 35 vpl
 Number of Lanes: 3

F
 Congestion Type: Signal Queue
 Location: Iron Gate Blvd / S. Main St
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

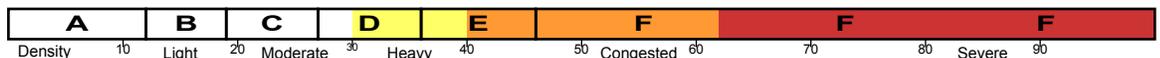
G
 Congestion Type: Congested Cross Road
 Location: SR 3 (McDonough Rd)
 Frequency: Peak Hour
 Direction: Westbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 1



H
 Congestion Type: Congested Cross Road
 Location: Tara Rd
 Frequency: Intermittent (before 7:30 a.m.)
 Direction: Eastbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 2

I
 Congestion Type: Congested Cross Road
 Location: SR 54 (Fayetteville Rd)
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 2

Traffic Quality Rating



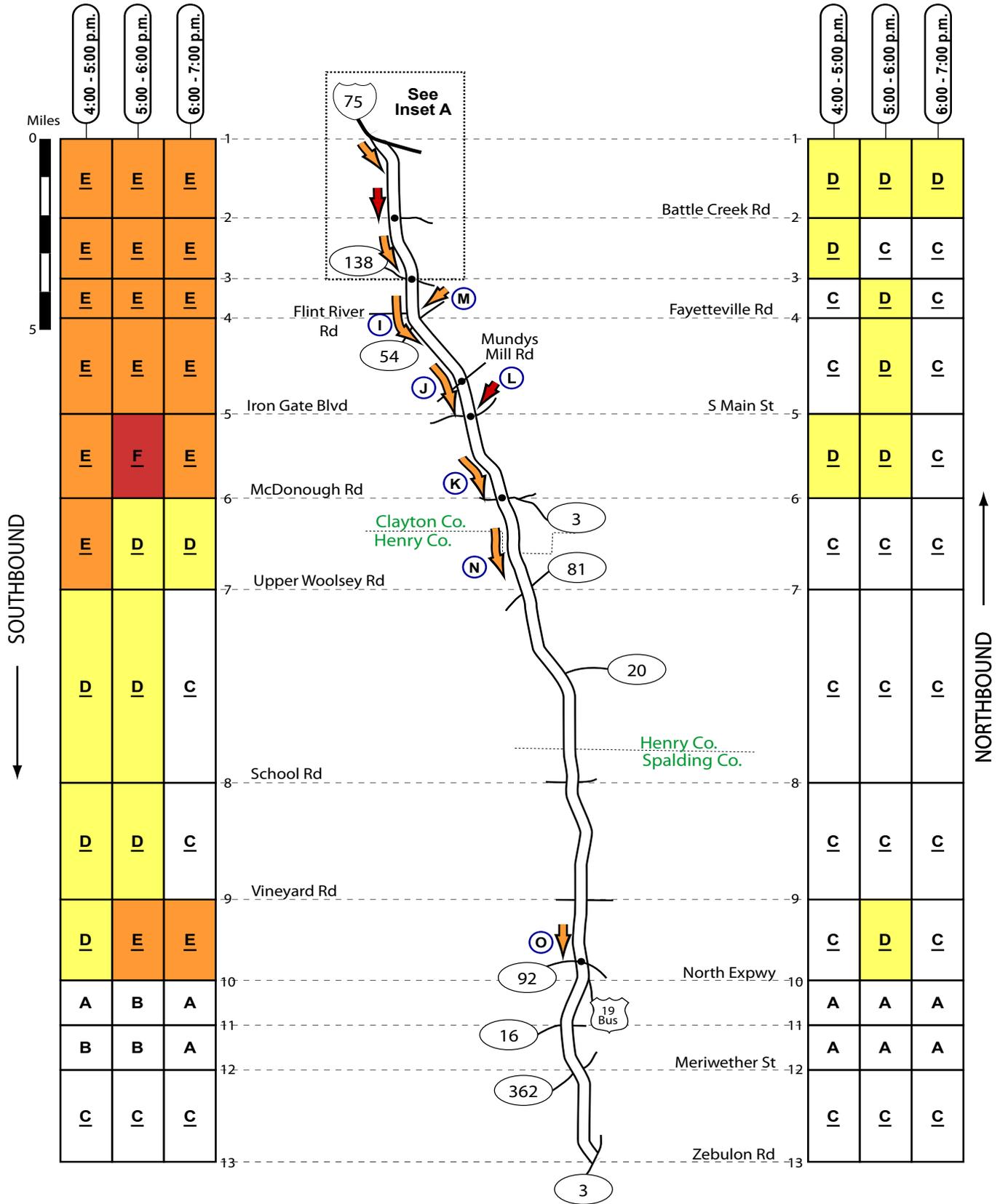
Superscripts: ¹ Type 1 nested congestion (some days, not others).

² Type 2 nested congestion (more severe in left or right-hand lanes).

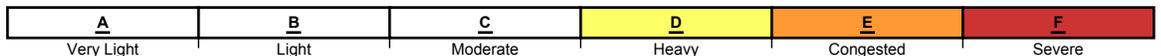
³ Type 3 nested congestion (present only in the first or second half-hour period).

⁴ Type 4 nested congestion (partial length of segment).

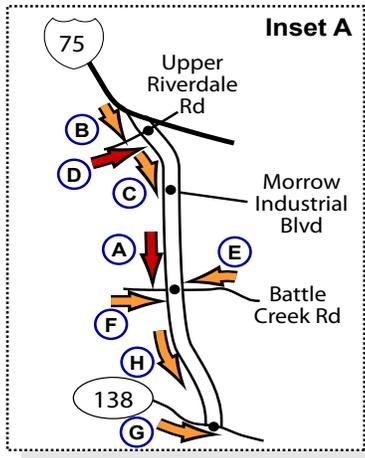
US 19/41 (CLAYTON/HENRY & SPALDING COUNTIES) - EVENING



Traffic Quality Rating



US 19/41 (CLAYTON/HENRY & SPALDING COUNTIES) - EVENING



A
Congestion Type: Signal Queue
Location: Battle Creek Rd
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 3

B
Congestion Type: Signal Queue
Location: Upper Riverdale Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 3

C
Congestion Type: Signal Queue
Location: Morrow Industrial Blvd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 3

D
Congestion Type: Congested Cross Road
Location: Upper Riverdale Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

E
Congestion Type: Congested Cross Road
Location: Battle Creek Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

F
Congestion Type: Congested Cross Road
Location: Battle Creek Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

G
Congestion Type: Congested Cross Road
Location: SR 138
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

H
Congestion Type: Platoons
Location: Between Battle Creek Rd & SR 138
Frequency: Most observations
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 3

I
Congestion Type: Platoons
Location: Between SR 138 & SR 54
Frequency: Most observations
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 3

J
Congestion Type: Platoons
Location: Between Flint River Rd & Iron Gate Blvd
Frequency: Most observations
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2
Note: During two observations on one of the evenings surveyed, extensive southbound congestion was found approaching the signals at Mundys Mill Rd and Iron Gate Blvd; this may have been an anomaly as similar congestion was not found during any other observation.

K
Congestion Type: Signal Queue
Location: SR 3 (McDonough Rd)
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 50 vpl
Number of Lanes: 2

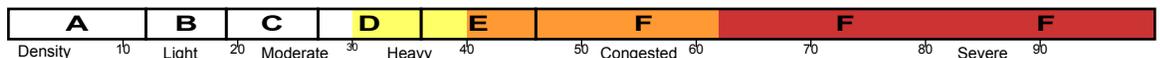
L
Congestion Type: Congested Cross Road
Location: S. Main St
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 50 vpl
Number of Lanes: 1

M
Congestion Type: Congested Cross Road
Location: Fayetteville Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2
Note: When congested, vehicles were queued in the two dedicated left-turn lanes.

N
Congestion Type: Platoons
Location: Between SR 3 & SR 81
Frequency: Intermittent
Direction: Southbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 2

O
Congestion Type: Signal Queue
Location: SR 92 (McIntosh Rd)
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2
Note: During one observation, approximately 40 vehicles per lane (two lanes) were queued at the signal; otherwise, observed queue populations ranged from 20 to 25 vehicles per lane.

Traffic Quality Rating



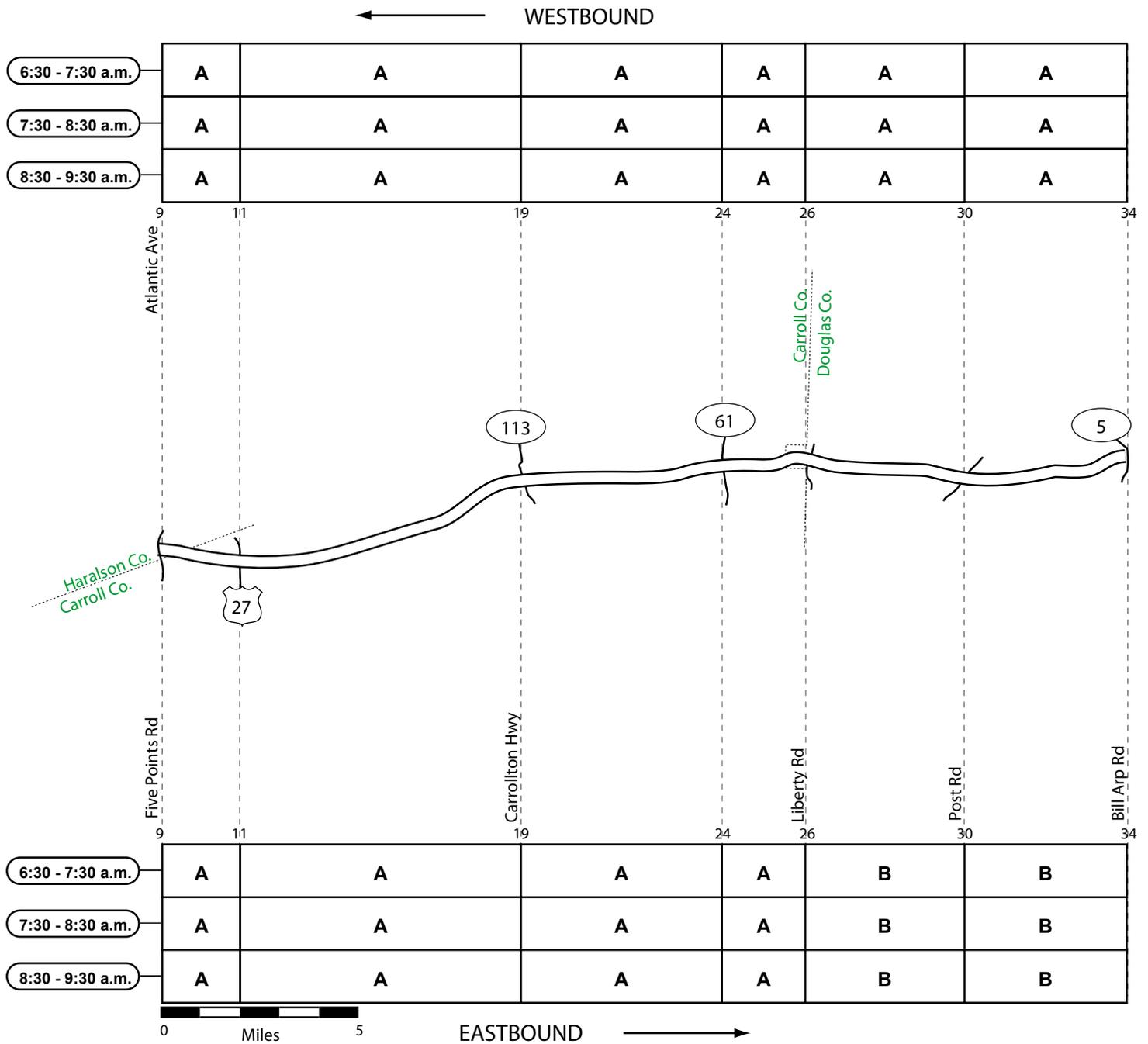
Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

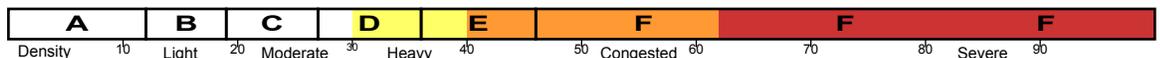
²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-20 (CARROLL & DOUGLAS COUNTIES) - MORNING



Traffic Quality Rating



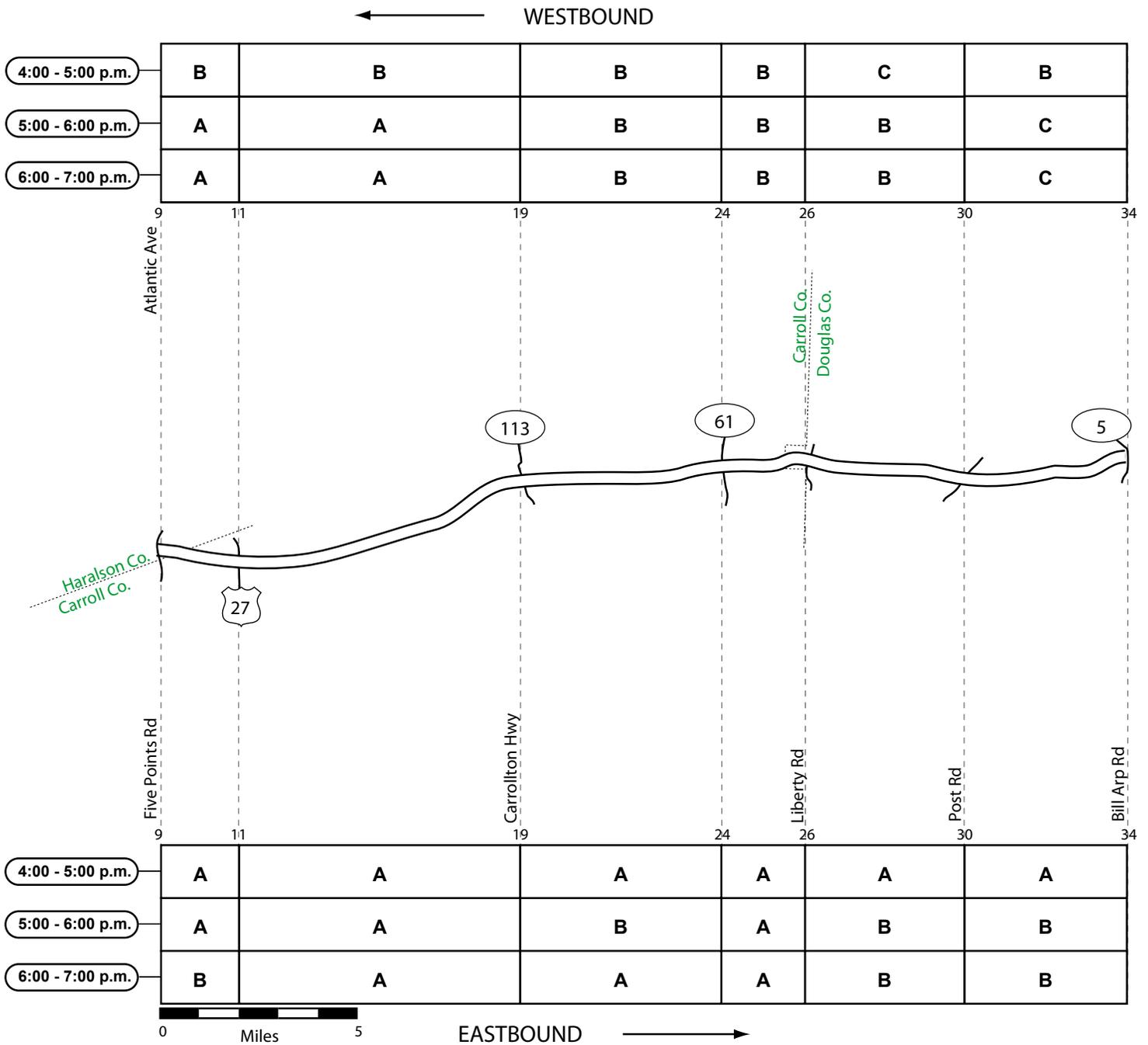
Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-20 (CARROLL & DOUGLAS COUNTIES) - EVENING



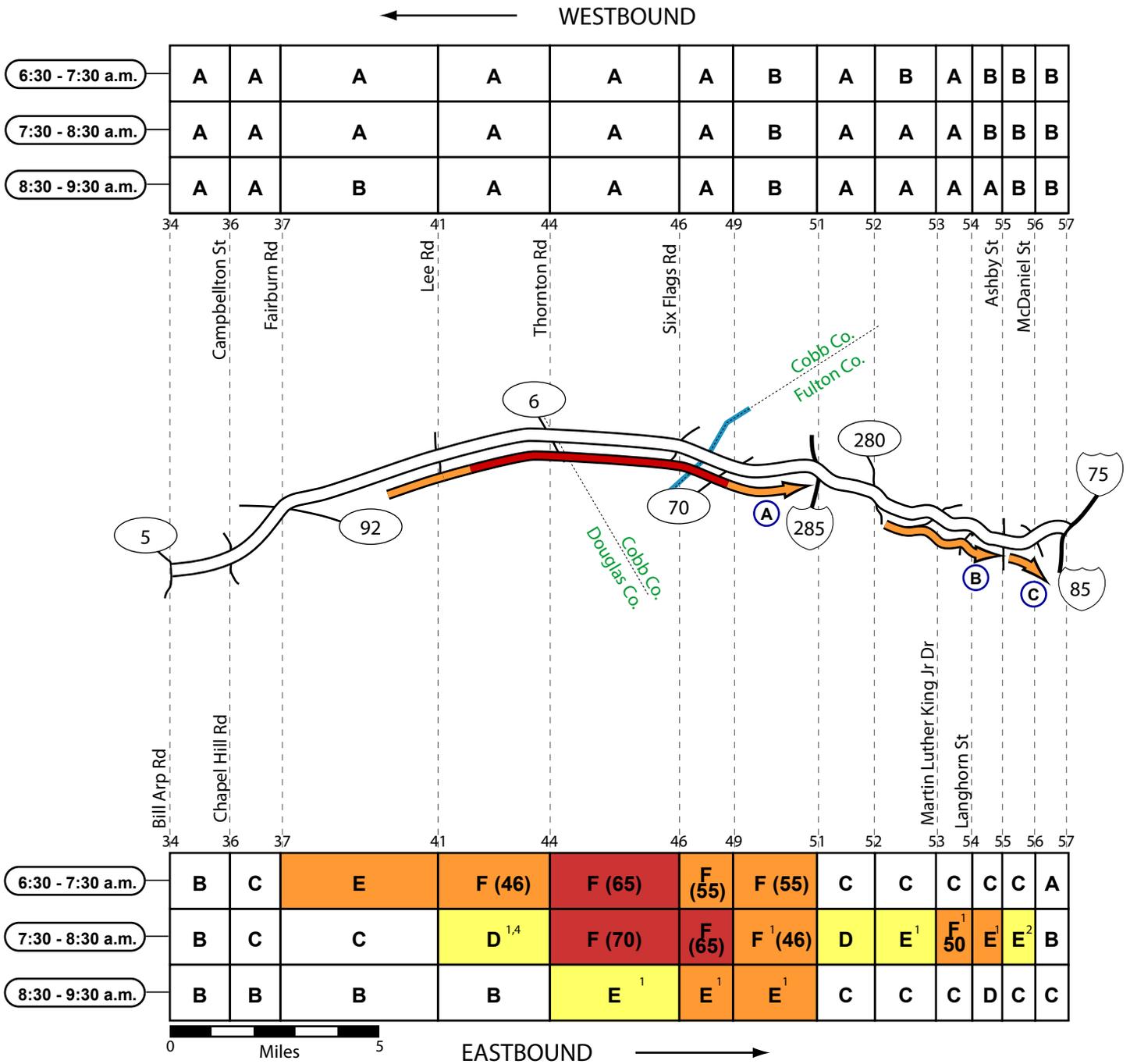
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

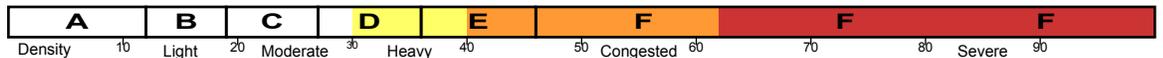
² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-20 (DOUGLAS/COBB & FULTON COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-20 (DOUGLAS/COBB & FULTON COUNTIES) - MORNING

A

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: Eastbound

Location: Between SR 92 and I-285

Queue Length: 10 to 12 miles

Estimated Speed: 30 to 50 mph

Potential Cause(s): Factors that may have exacerbated the congestion included: 1) traffic entering the mainline at the interchanges along this section of I-20; 2) two separate lane drops (4 lanes to 3) - one at Fulton Industrial Blvd - one between SR 6 and Riverside Pkwy; 3) sun glare.

B

Congestion Type: Mainline Congestion

Frequency: Most observations 7:30 to 8:30 a.m.

Direction: Eastbound

Location: Between SR 280 (Hightower Rd) and Ashby St

Queue Length: 2 to 3 miles

Estimated Speed: 40 to 50 mph

Potential Cause(s): Eastbound congestion appeared to be caused or exacerbated by sun glare and the roadway geometrics (curves).

C

Congestion Type: Exit Ramp Queue

Location: McDaniel St

Frequency: Intermittent

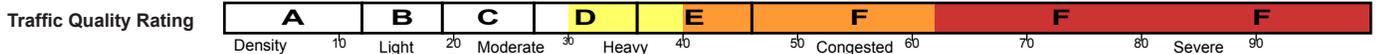
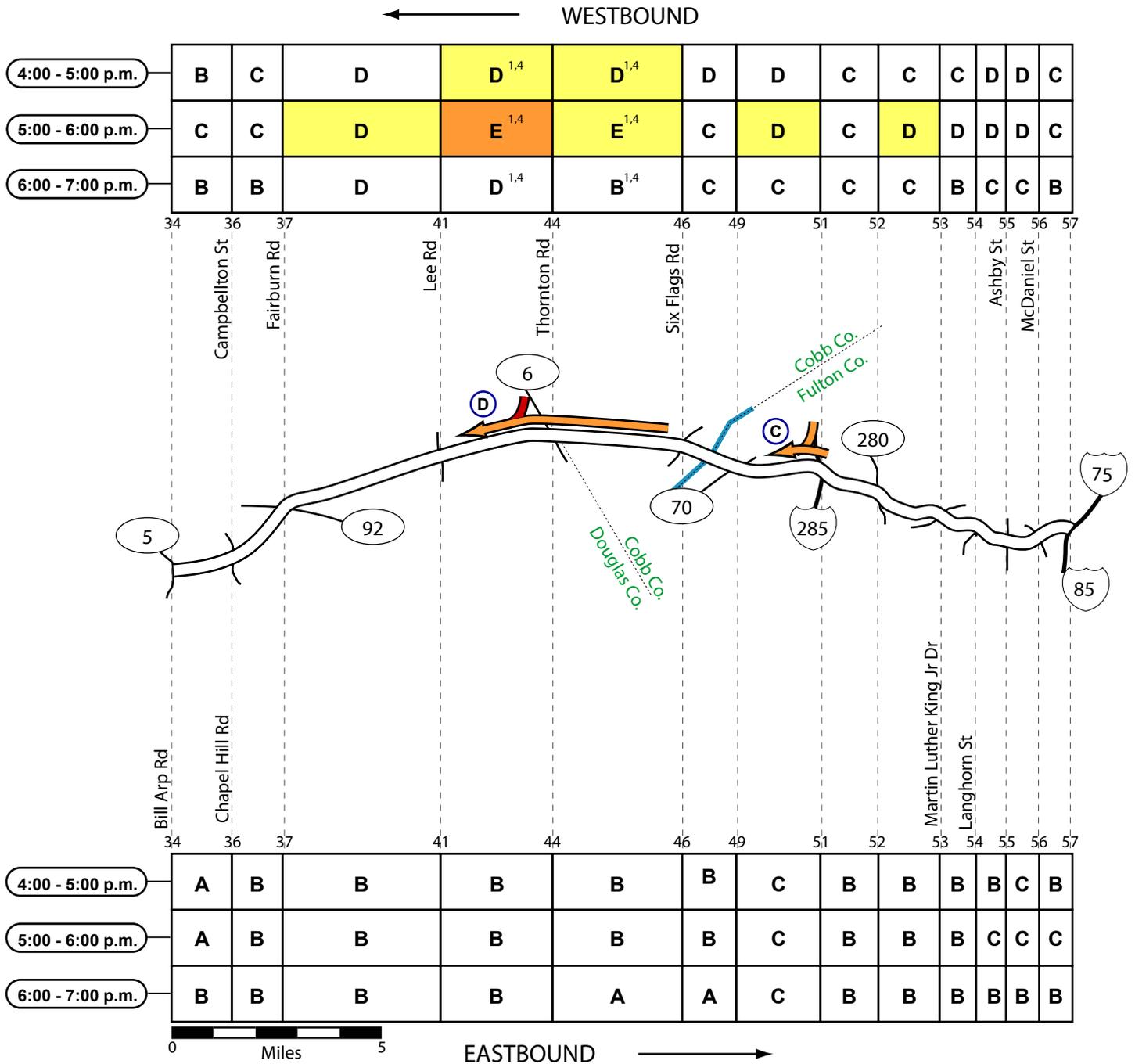
Direction: Eastbound

Queue Population: 20 to 30 vpl

Number of Lanes: Two

Note: In some cases, congestion on the exit ramp extended back into the right lane on I-20.

I-20 (DOUGLAS/COBB & FULTON COUNTIES) - EVENING



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-20 (DOUGLAS/COBB & FULTON COUNTIES) - EVENING

C

Congestion Type: Mainline Congestion
Frequency: Most observations
Direction: Westbound
Location: Between I-285 and SR 70
Queue Length: 0.5 to 1 miles
Estimated Speed: 40 to 50 mph
Potential Cause(s): Traffic entering from the Perimeter

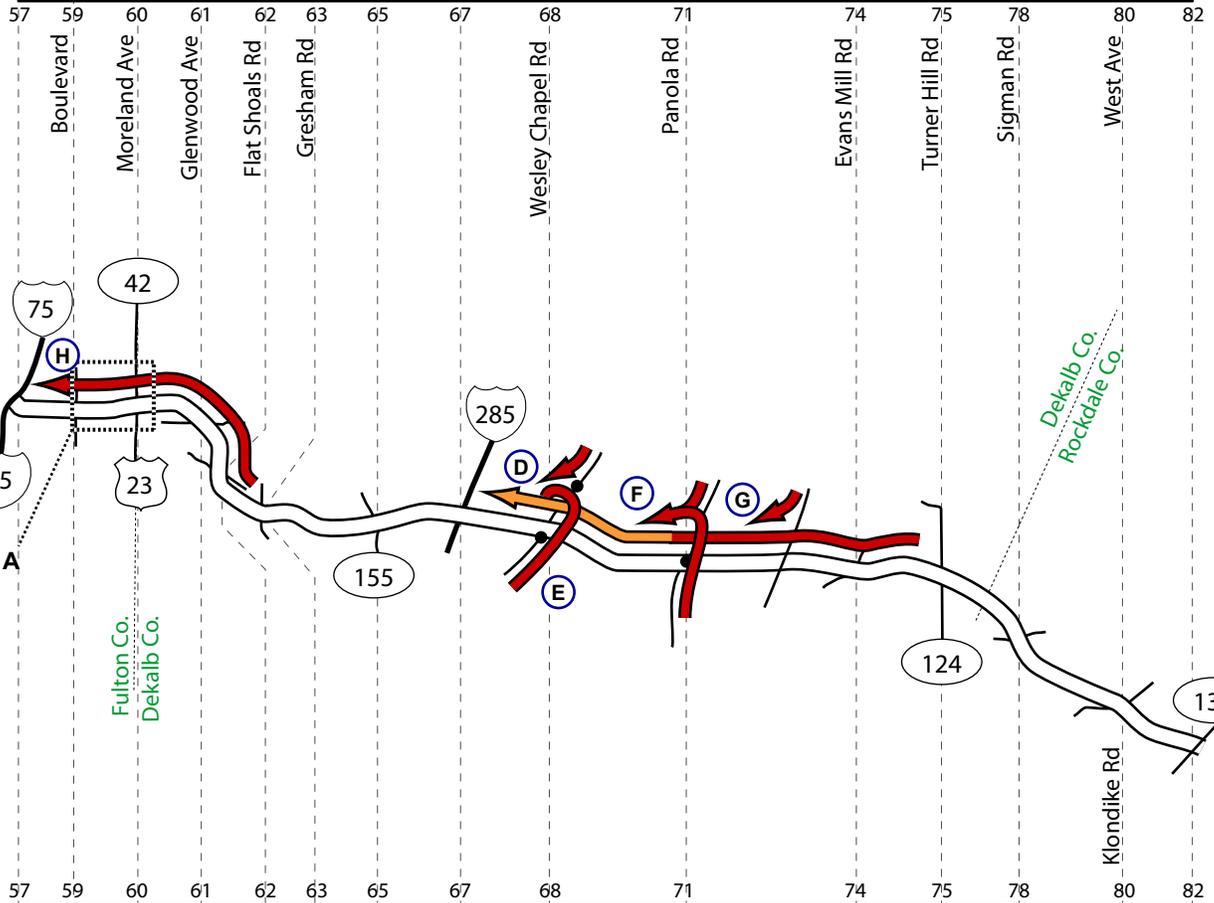
D

Congestion Type: Mainline Congestion
Frequency: On some days but not others
Direction: Westbound
Location: Between Six Flags Dr and Lee Rd
Queue Length: 5 to 6 miles
Estimated Speed: 40 to 50 mph
Potential Cause(s): Factors contributing to the congestion were: 1) the lane drop (4 lanes to 3) at SR 6 and; 2) the merging associated with the interchanges along this corridor.

I-20 (FULTON/DEKALB & ROCKDALE COUNTIES) - MORNING

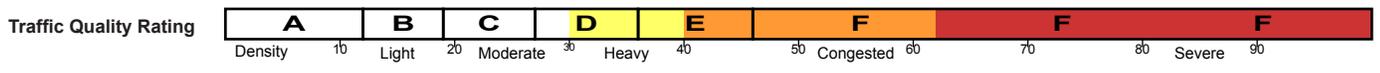
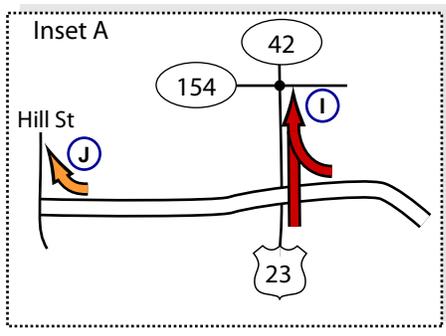
← WESTBOUND

6:30 - 7:30 a.m.	E ³	E ³	E ¹	D ¹	C	C	C	E	F (50)	F (95)	E ⁴	D	C	D
7:30 - 8:30 a.m.	F (60)	F (75)	F (60)	E ¹	D	C	C	F ⁴ (46)	F (60)	F (80)	C	C	B	C
8:30 - 9:30 a.m.	F (70)	F (60)	D ¹	C	C	B	C	D ¹	D	C	B	C	B	B



6:30 - 7:30 a.m.	B	B	A	A	A	A	A	B	B	B	B	B	A	B
7:30 - 8:30 a.m.	B	B	A	A	A	A	A	B	C	B	B	B	B	B
8:30 - 9:30 a.m.	B	B	A	A	A	A	A	B	C	B	B	B	B	B

0 Miles 5 EASTBOUND →



Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

I-20 (FULTON/DEKALB & ROCKDALE COUNTIES) - MORNING

D

Congestion Type: Mainline Congestion
Frequency: Most observations before 9:00 a.m.
Direction: Westbound
Location: Between SR 124 (Turner Hill Rd) and I-285
Queue Length: 5 to 8 miles
Estimated Speed: 15 to 50 mph
Potential Cause(s): Traffic entering the mainline at the interchanges along this section of I-20 appeared to exacerbate the congestion.
Congestion between SR 124 and Panola Rd was particularly severe during the peak period with average speeds estimated at 15 to 30 mph; while congestion typically persisted west of Panola Rd, speeds typically improved (40-50 mph).

E

Congestion Type: Entrance Ramp Queue
Location: Wesley Chapel Rd
Frequency: Most observations
Direction: NB & SB
Queue Population: 20 to 70 vpl
Number of Lanes: Two
Note: Congestion on Wesley Chapel Rd was typically found in both directions approaching the I-20 Interchange (left two lanes northbound; right two lanes southbound); the head of the queues were found either at the signals on Wesley Chapel Rd or at the head of the entrance ramp where vehicles merged into congested westbound flow on I-20. The lane drop (2 lanes to 1) on the entrance ramp may have exacerbated the congestion.

F

Congestion Type: Entrance Ramp Queue
Location: Panola Rd
Frequency: Most observations
Direction: NB & SB
Queue Population: 20 to 60 vpl
Number of Lanes: One
Note: Congestion on Panola Rd was typically found in both directions approaching the I-20 Interchange (left lane northbound; right lane southbound); the head of the queues were found either at the signals on Panola Rd or at the head of the entrance ramp where vehicles merged into congested westbound flow on I-20.

G

Congestion Type: Entrance Ramp Queue
Location: Lithonia Industrial Blvd
Frequency: Most observations
Direction: Westbound
Queue Population: 30 to 100 vpl
Number of Lanes: One
Note: When congested, the head of the queue was found where vehicles merged into westbound flow on I-20; the lane drop (2 lanes to 1) on the entrance ramp appeared to exacerbate congestion.

H

Congestion Type: Mainline Congestion
Frequency: Most observations
Direction: Westbound
Location: Between Flat Shoals Rd and I-75/85
Queue Length: 3 to 5 miles
Estimated Speed: 25 to 50 mph
Potential Cause(s): Factors contributing to the congestion included:
1) the lane drop at the terminus of the HOV facility (5 lanes to 4); 2) congestion on the two-lane ramp to I-75 northbound (this congestion backed into the two right lanes, and ultimately across all lanes on I-20).

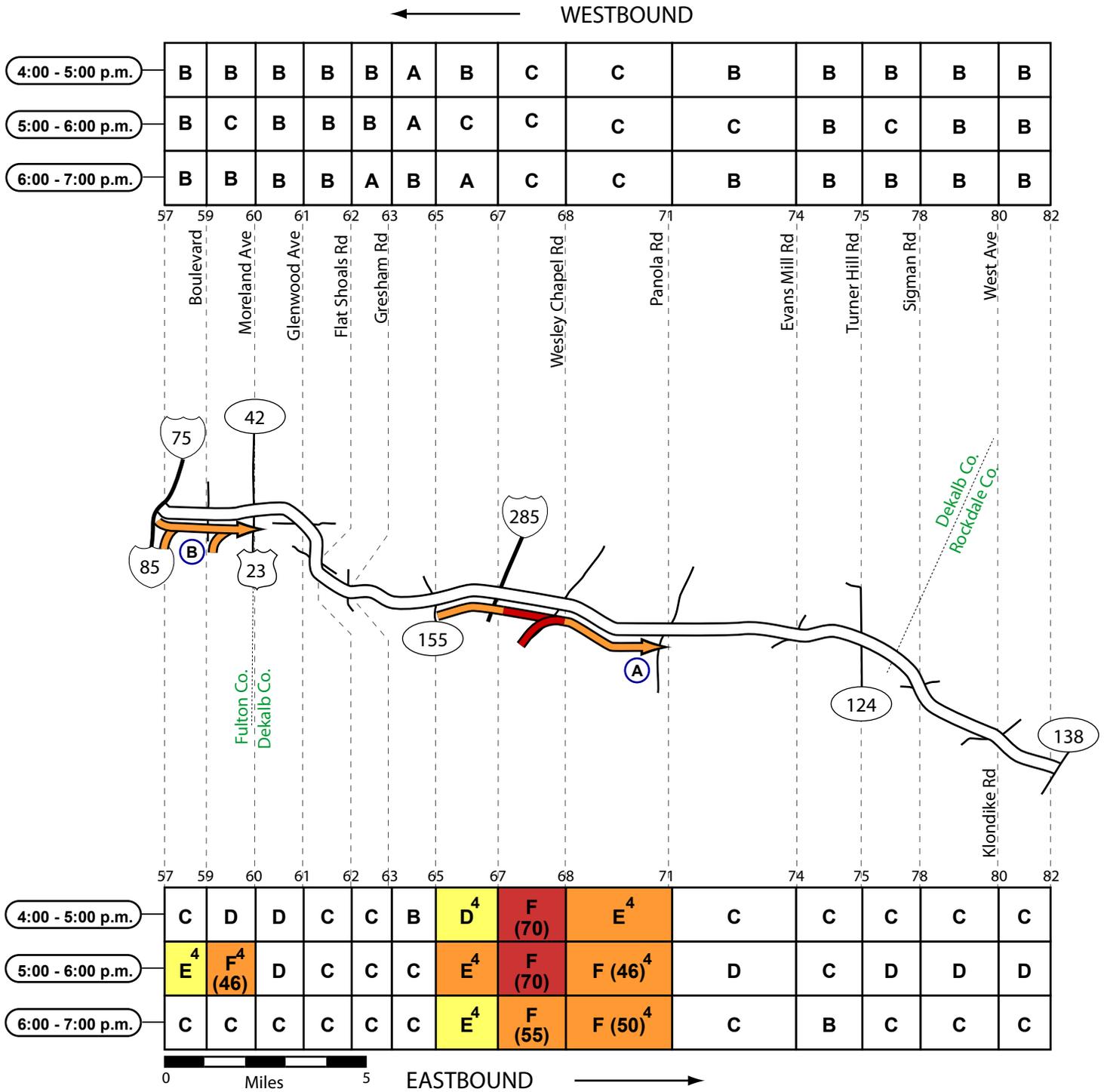
I

Congestion Type: Exit Ramp Queue
Location: SR 42 / US 23
Frequency: Most observations
Direction: WB / NB
Queue Population: 20 to 50 vpl
Number of Lanes: One / Two
Note: Northbound congestion on SR 42 was typically found approaching the signal at SR 154 located just north of I-20; intermittent congestion was also found in the right lane on the I-20 exit ramp; vehicles at the head of the ramp typically had to merge into northbound congestion on SR 42.

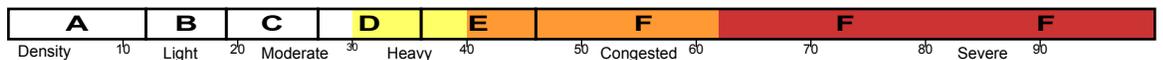
J

Congestion Type: Exit Ramp Queue
Location: Hill St
Frequency: Intermittent
Direction: Westbound
Queue Population: 20 to 40 vpl
Number of Lanes: One
Note: When congested, vehicles were queued in the right lane on the exit ramp; vehicles at the head of the ramp waited to merge into the northbound lanes on Hill St.

I-20 (FULTON/DEKALB & ROCKDALE COUNTIES) - EVENING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-20 (FULTON/DEKALB & ROCKDALE COUNTIES) - EVENING

A

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: Eastbound

Location: Between SR 155 and Panola Rd

Queue Length: 4 to 6 miles

Estimated Speed: 25 to 45 mph

Potential Cause(s): The primary cause of congestion appeared to be the series of lane drops (6 lanes to 3) between I-285 and Wesley Chapel Rd.

B

Congestion Type: Mainline Congestion

Frequency: On some days but not others

Direction: Eastbound

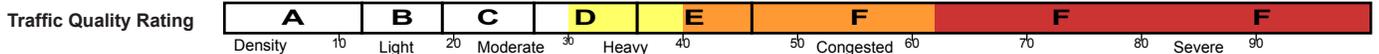
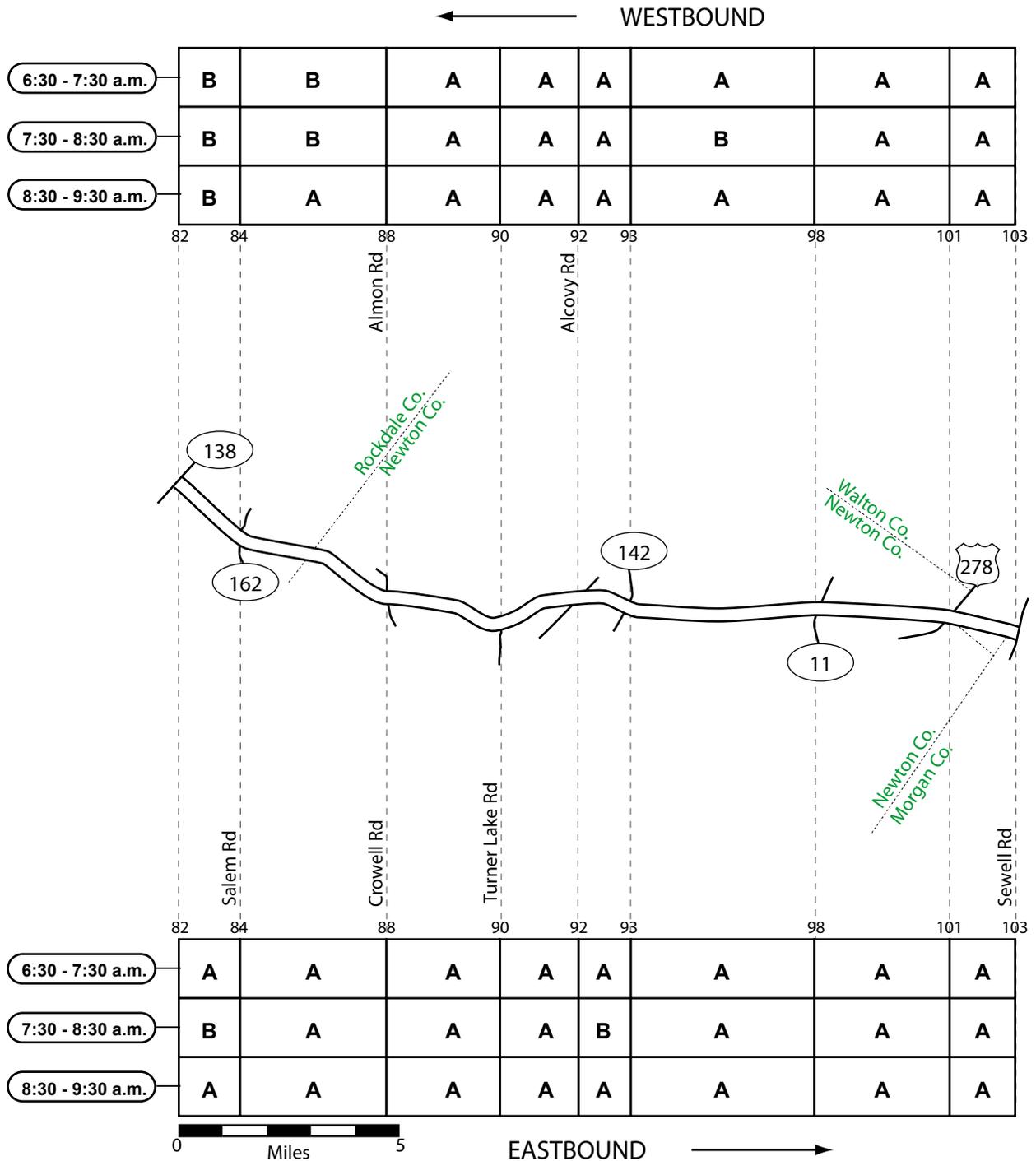
Location: Between I-75 and SR 42

Queue Length: 1.5 to 2.5 miles

Estimated Speed: 40 to 50 mph

Potential Cause(s): Merging associated with the interchanges along this section of I-20.

I-20 (ROCKDALE & NEWTON COUNTIES) - MORNING



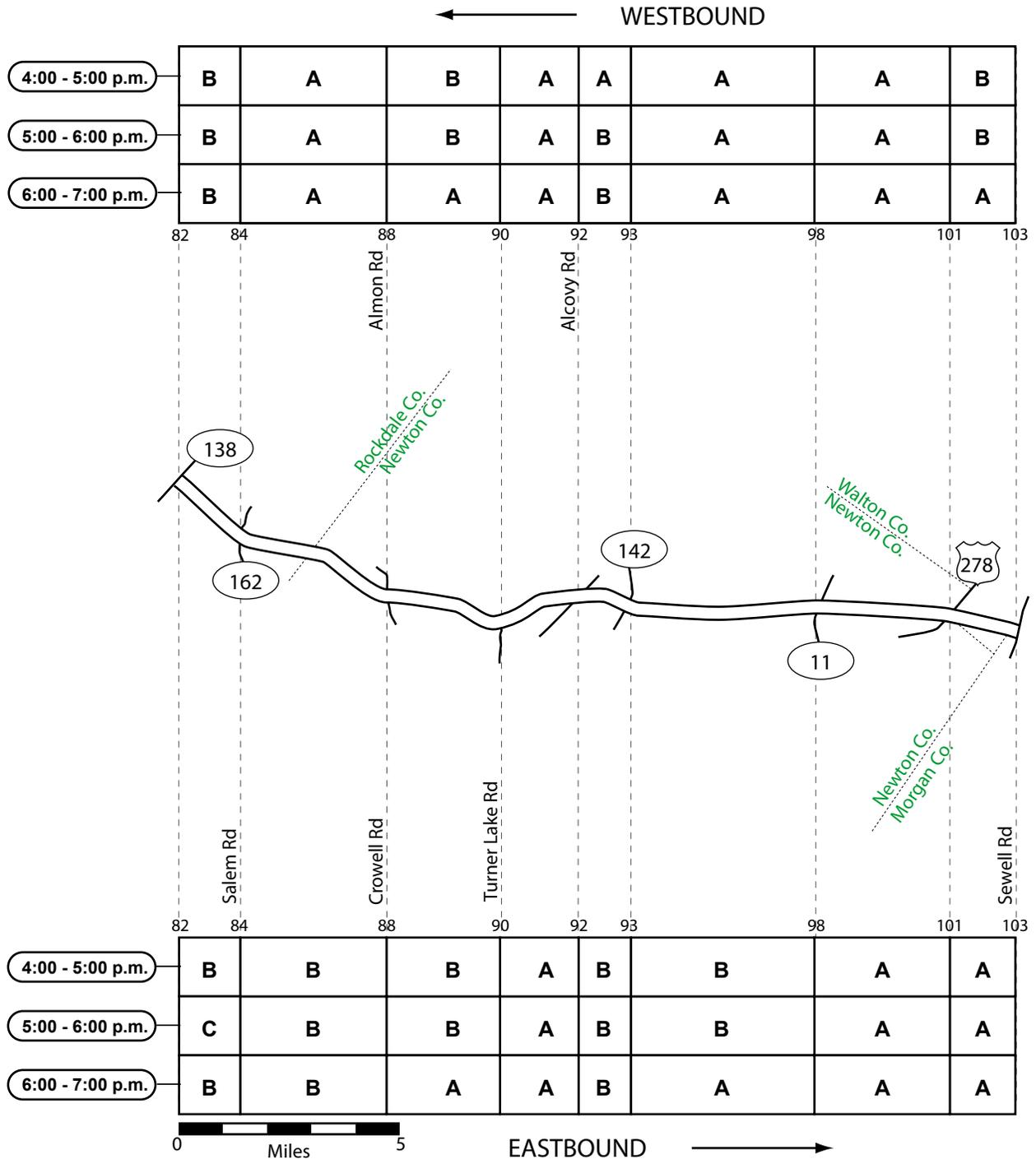
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

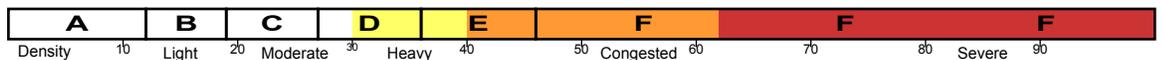
² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-20 (ROCKDALE & NEWTON COUNTIES) - EVENING



Traffic Quality Rating



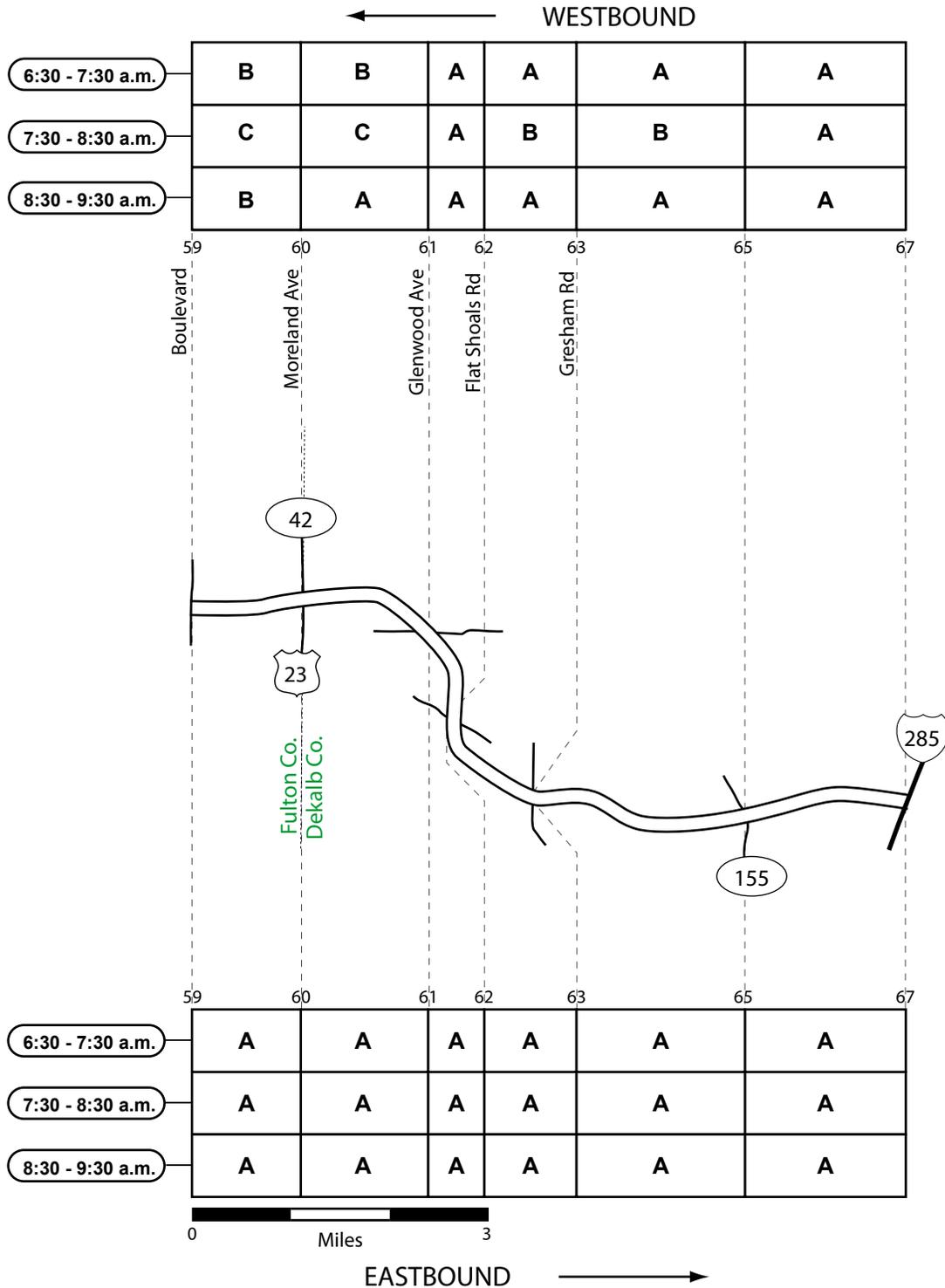
Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

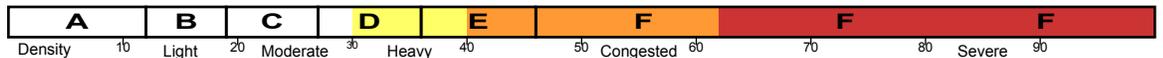
²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-20 HOV (FULTON & DEKALB COUNTIES) - MORNING



Traffic Quality Rating



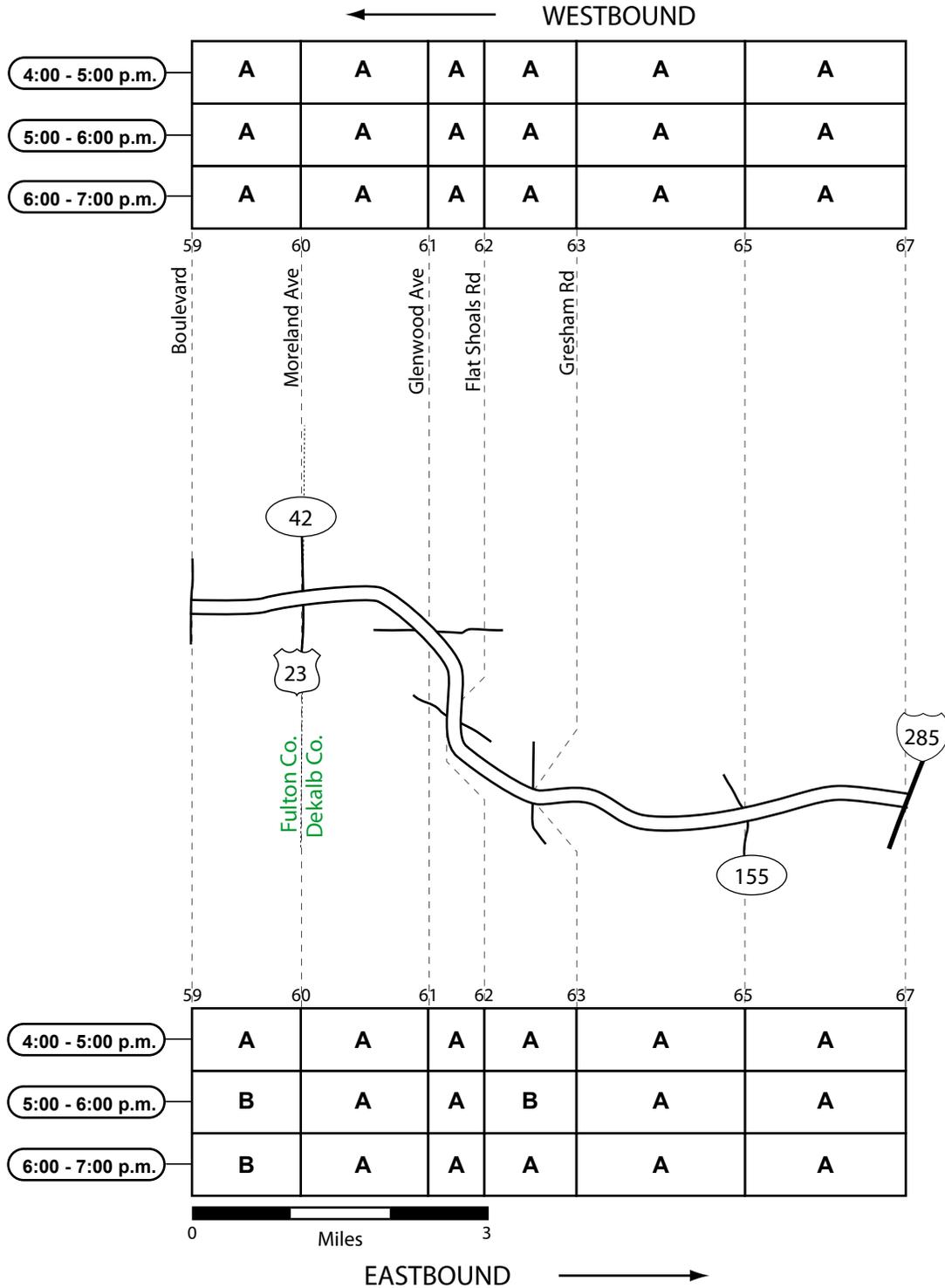
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

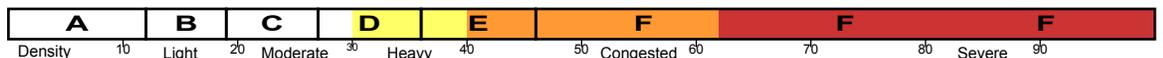
² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-20 HOV (FULTON & DEKALB COUNTIES) - EVENING



Traffic Quality Rating



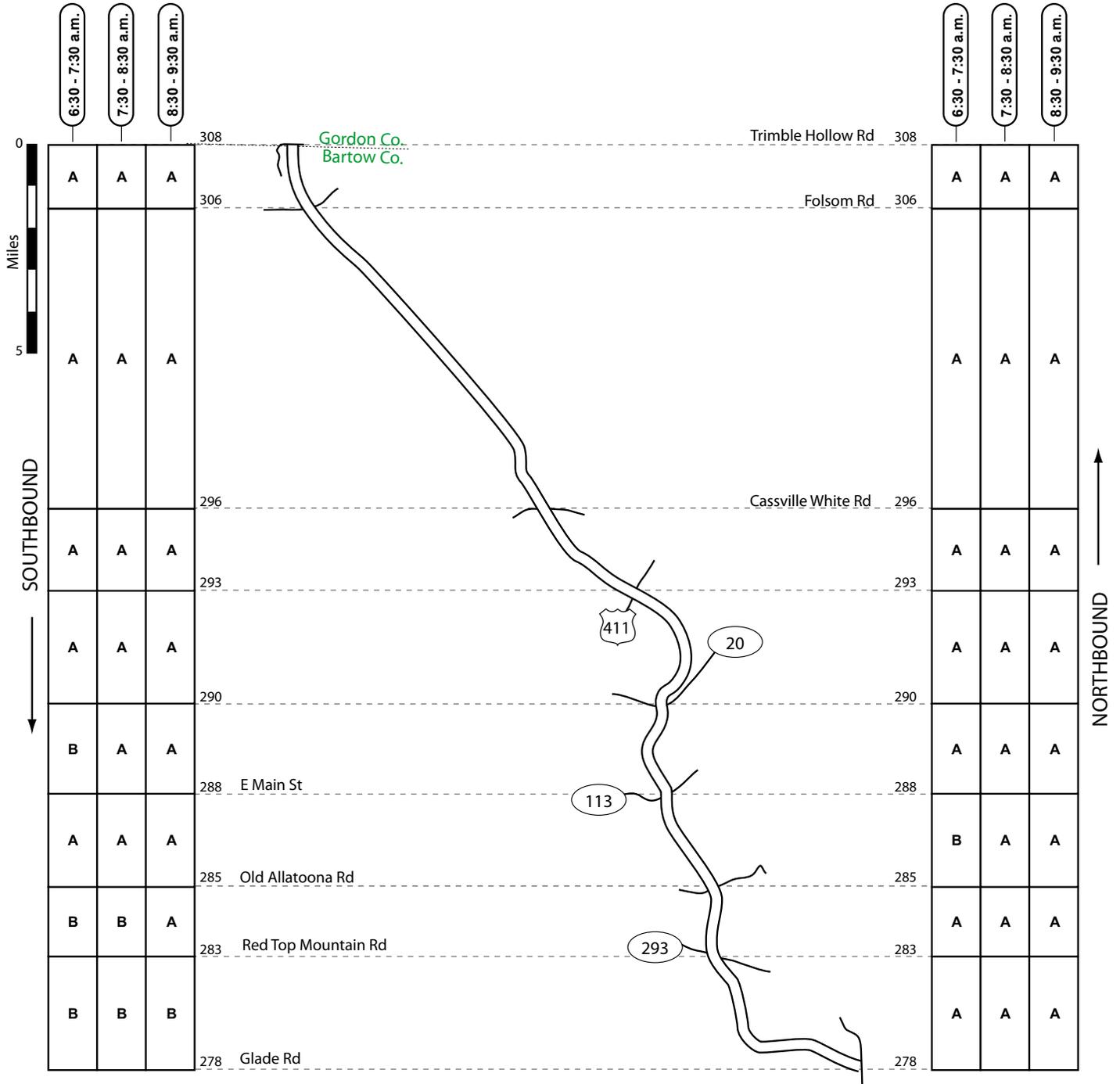
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

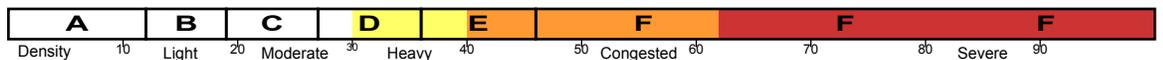
² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-75 (BARTOW COUNTY) - MORNING



Traffic Quality Rating



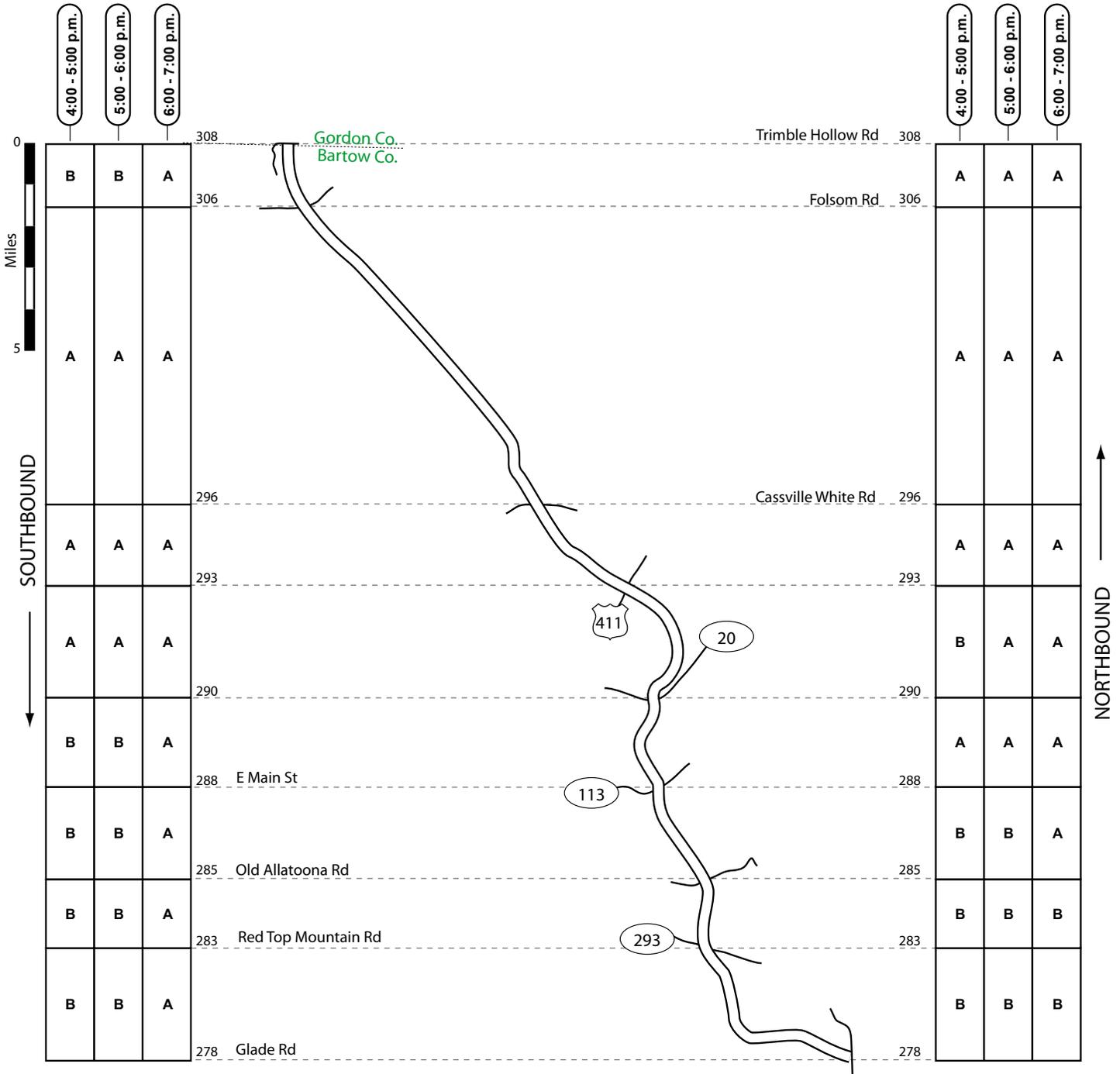
Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

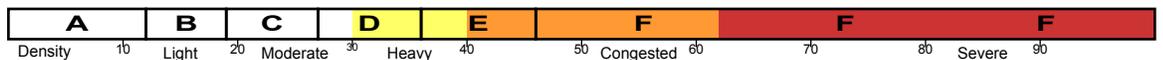
²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-75 (BARTOW COUNTY) - EVENING



Traffic Quality Rating



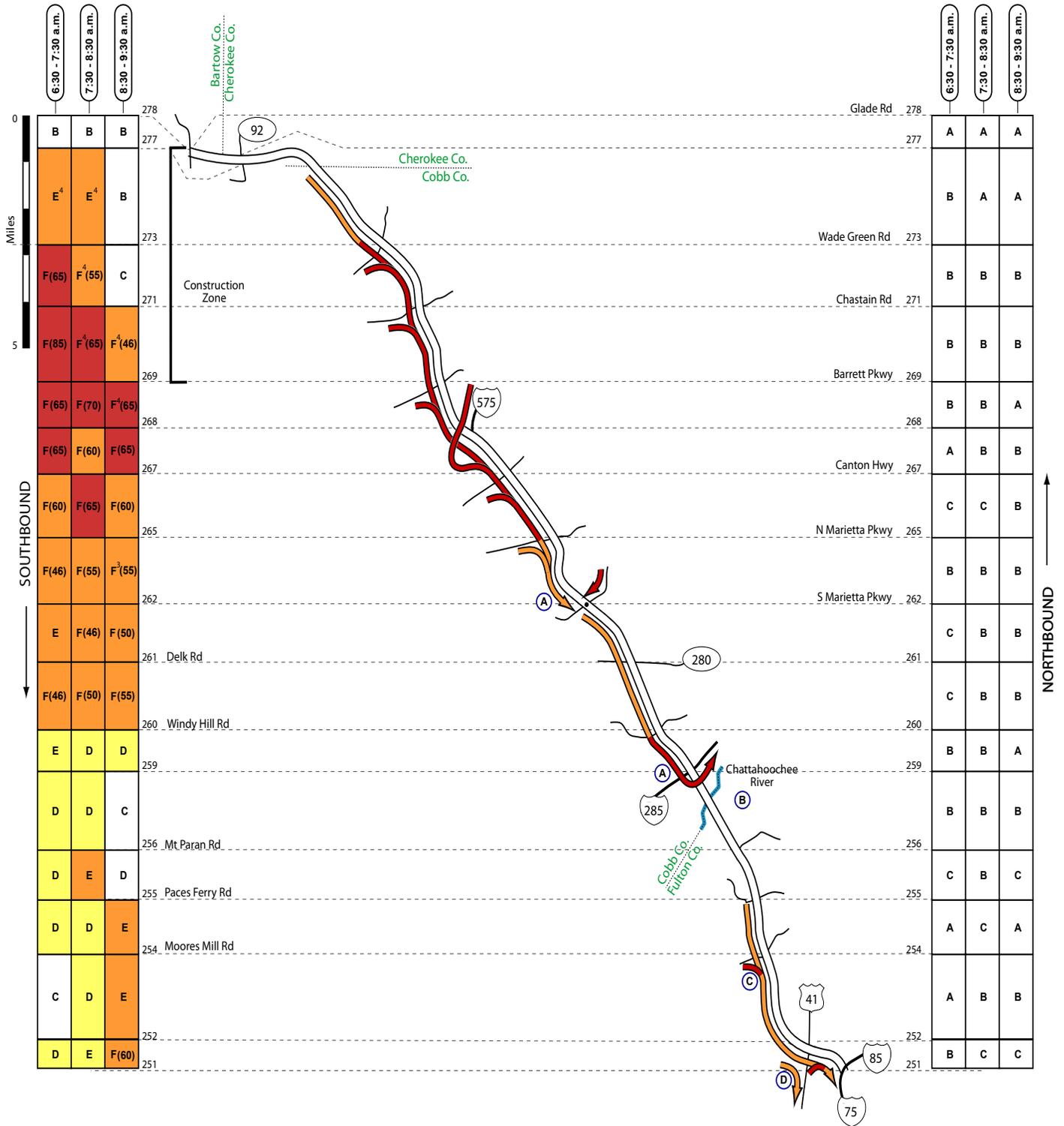
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

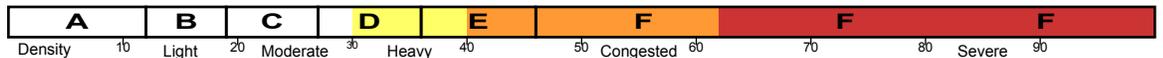
² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-75 (BARTOW/CHEROKEE/COBB & FULTON COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-75 (BARTOW/CHEROKEE/COBB & FULTON COUNTIES) - MORNING

A

Congestion Type: Mainline Congestion
 Frequency: Most observations
 Direction: Southbound
 Location: Between SR 92 and I-285
 Queue Length: 12 to 14 miles
 Estimated Speed: 20 to 50 mph
 Potential Cause(s): Factors contributing to the congestion were: 1) traffic entering at the interchanges along this corridor; 2) congestion on the ramp to the Perimeter (Eastbound) extending back into the right two lanes of I-75 and: 3) ongoing construction (lane shift and no shoulders) between Glade Rd and Barrett Parkway.

B

Congestion Type: Congested Cross Road
 Location: S. Marietta Parkway
 Frequency: Peak Hour
 Direction: Westbound
 Queue Population: 25 to 35 vpl
 Number of Lanes: Two Left-Turn Lanes

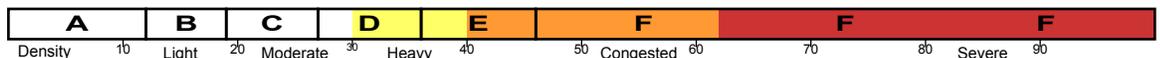
C

Congestion Type: Mainline Congestion
 Frequency: Most observations after 8:00 a.m.
 Direction: Southbound
 Location: Between Paces Ferry Rd and I-75 / I-85
 Queue Length: 4 to 5 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): The merging associated with the interchanges along this corridor.

D

Congestion Type: Exit Ramp Queue
 Location: SR 3 / US 41
 Frequency: Intermittent
 Direction: Southbound
 Queue Population: 20 to 40 vpl
 Number of Lanes: One (Right-Turn Lane)

Traffic Quality Rating



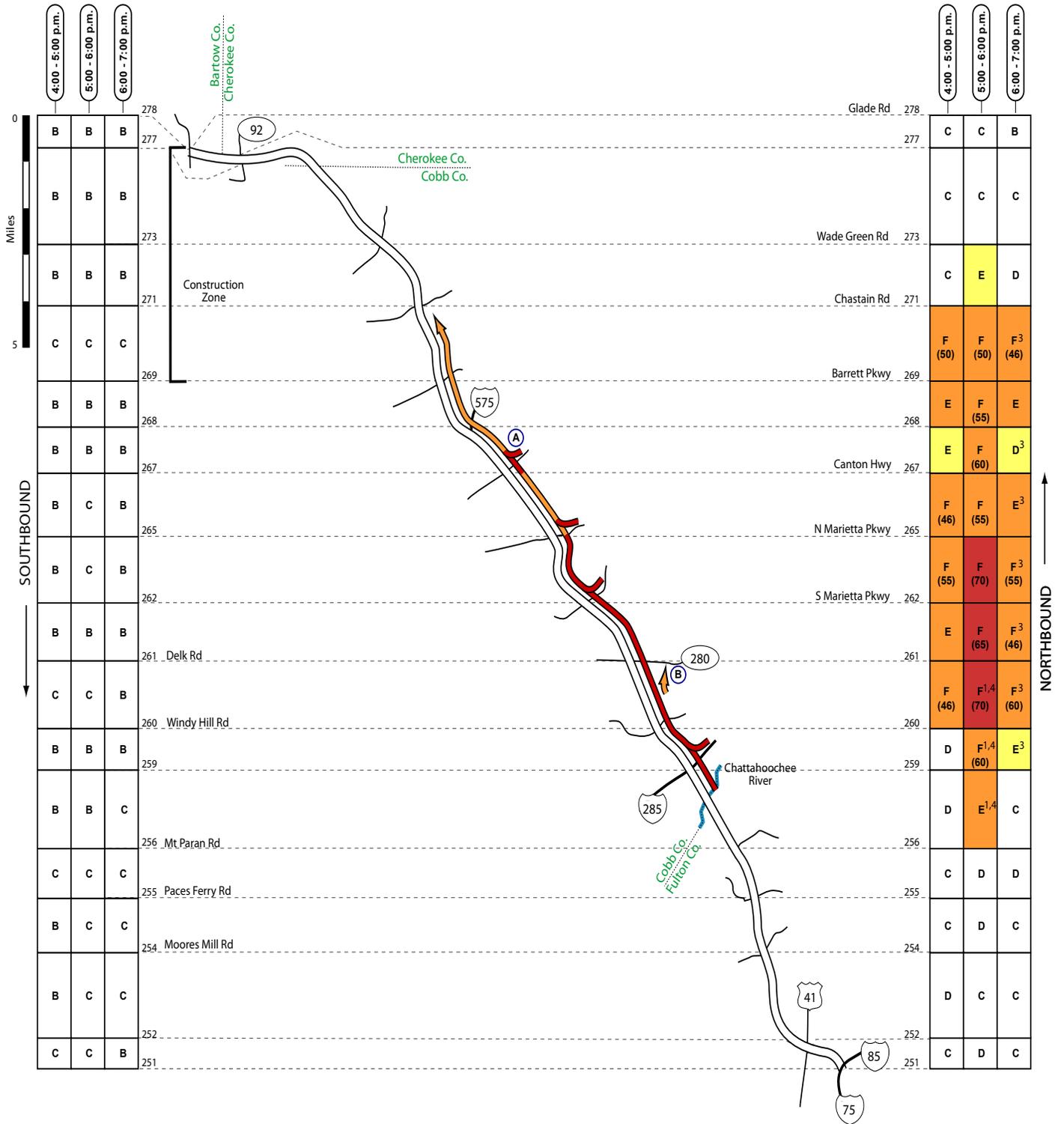
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-75 (BARTOW/CHEROKEE/COBB & FULTON COUNTIES) - EVENING



Traffic Quality Rating	A	B	C	D	E	F	F	F
Density	10	Light	20	Moderate	30	Heavy	40	50
						Congested	60	70
							80	Severe
							90	

Superscripts: ¹ Type 1 nested congestion (some days, not others). ² Type 2 nested congestion (more severe in left or right-hand lanes). ³ Type 3 nested congestion (present only in the first or second half-hour period). ⁴ Type 4 nested congestion (partial length of segment).

I-75 (BARTOW/CHEROKEE/COBB & FULTON COUNTIES) - EVENING

A

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: Northbound

Location: Between the Perimeter and Chastain Rd

Queue Length: 12 to 14 miles

Estimated Speed: 25 to 50 mph

Potential Cause(s): Factors contributing to the congestion were: 1) the two separate lane drops at I-575 (6 lanes to 4) and Barrett Pkwy (4 lanes to 3); 2) merging associated the Perimeter, Marietta Parkway (North and South), Canton Rd Connector and I-575 interchanges and; 3) ongoing construction (lane shift and no shoulders) between Barrett Parkway and Glade Rd.

B

Congestion Type: Exit Ramp Queue

Location: SR 280

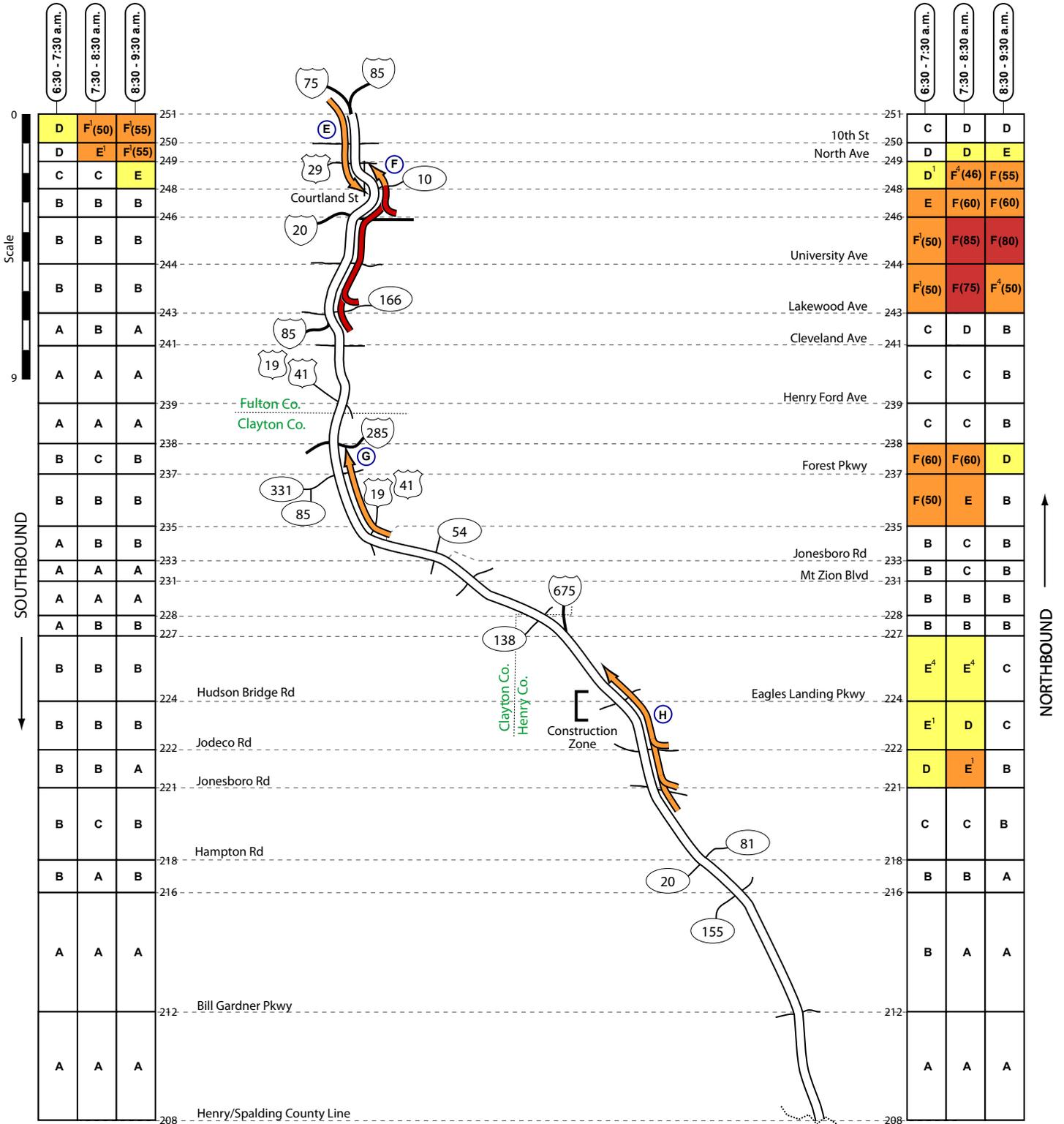
Frequency: Intermittent

Direction: Northbound

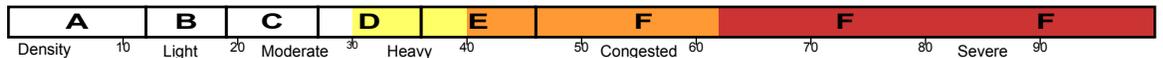
Queue Population: 20 to 30 vpl

Number of Lanes: One

I-75 (FULTON/CLAYTON & HENRY COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-75 (FULTON/CLAYTON & HENRY COUNTIES) - MORNING

E

Congestion Type: Mainline Congestion
Frequency: Most observations after 7:30 a.m.
Direction: Southbound
Location: Between the I-75/I-85 merge and SR 10
Queue Length: 1 to 2 miles
Estimated Speed: 25 to 50 mph
Potential Cause(s): Traffic exiting at Williams St and Courtland St.

F

Congestion Type: Mainline Congestion
Frequency: Most observations
Direction: Northbound
Location: Between SR 166 and US 29
Queue Length: 4 to 5 miles
Estimated Speed: 20 to 40 mph
Potential Cause(s): Factors contributing to the congestion were: 1) traffic entering at the SR 166 and I-20 interchanges and; 2) the two separate lane drops approaching the I-20 interchange (6 lanes to 5 and 5 lanes to 4).

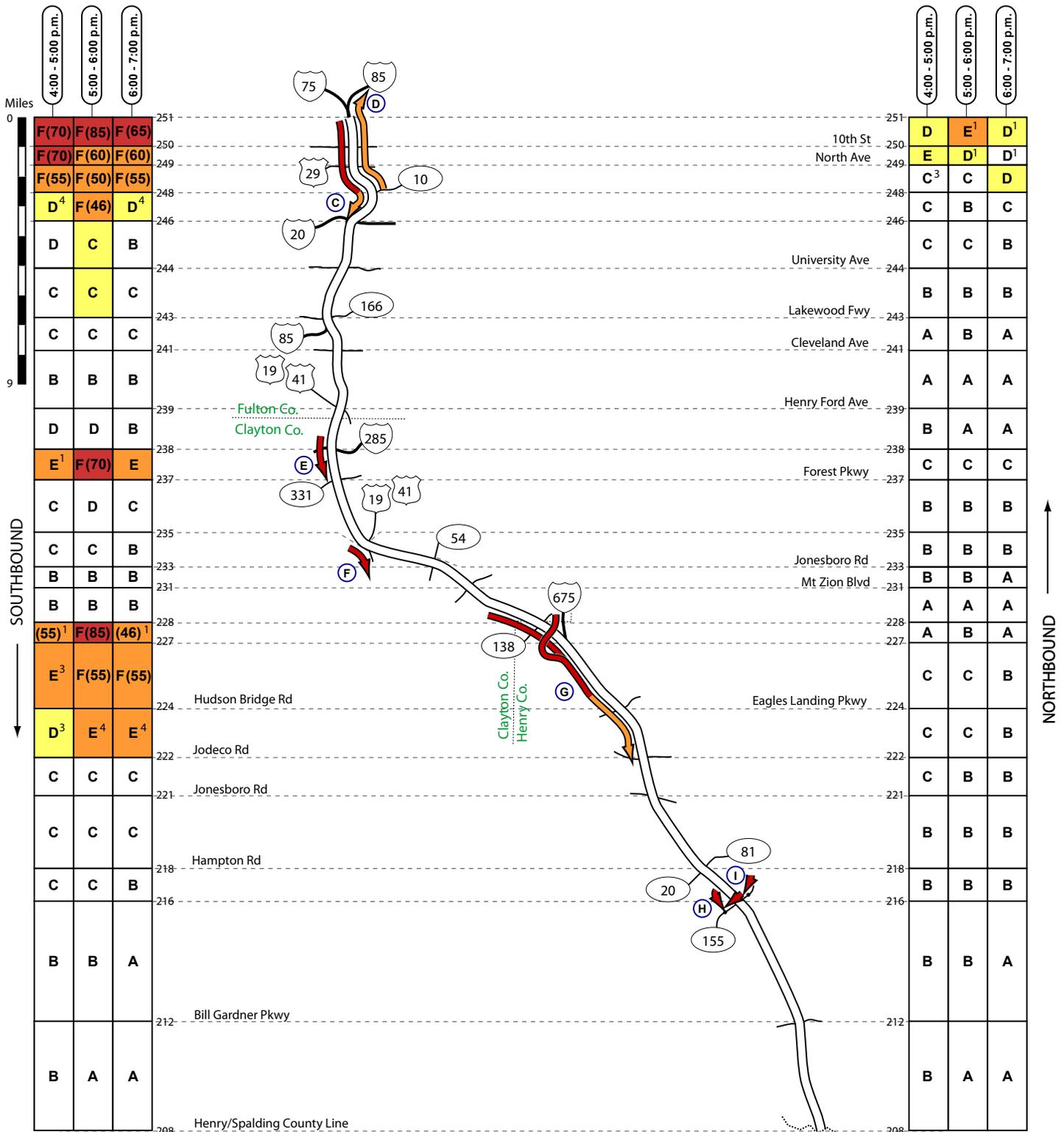
G

Congestion Type: Mainline Congestion
Frequency: Most observations before 8:30 a.m.
Direction: Northbound
Location: Between US 19/41 and I-285
Queue Length: 3 to 4 miles
Estimated Speed: 30 to 50 mph
Potential Cause(s): The merging associated with the interchanges along this section of I-75.

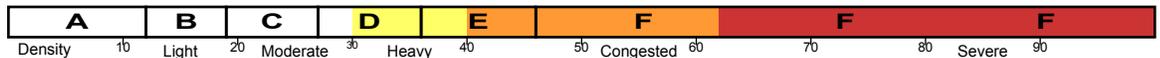
H

Congestion Type: Mainline Congestion
Frequency: Most observations before 8:00 a.m.
Direction: Northbound
Location: Between Jonesboro Rd and I-675
Queue Length: 4 to 5 miles
Estimated Speed: 30 to 50 mph
Potential Cause(s): Traffic entering at the Jodeco Rd and Jonesboro Rd interchanges.

I-75 (FULTON/CLAYTON & HENRY COUNTIES) - EVENING



Traffic Quality Rating



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-75 (FULTON/CLAYTON & HENRY COUNTIES) - EVENING

C

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: Southbound

Location: Between I-75/I-85 and I-20

Queue Length: 2 to 3 miles

Estimated Speed: 15 to 45 mph

Potential Cause(s): Factors contributing to the congestion were: 1) the geometrics of the road (sharp bends) and: 2) merging associated with the interchanges along this corridor.

D

Congestion Type: Mainline Congestion

Frequency: Peak Hour

Direction: Northbound

Location: Between SR 10 and I-75/I-85

Queue Length: 1 to 2 miles

Estimated Speed: 40 to 50 mph

Potential Cause(s): Weaving associated with the I-75/I-85 Interchange

E

Congestion Type: Mainline Congestion

Frequency: Most observations before 6:30 p.m.

Direction: Southbound

Location: Between I-285 and Forest Parkway

Queue Length: 1 to 2 miles

Estimated Speed: 25 to 50 mph

Potential Cause(s): Factors contributing to the congestion were: 1) the lane drops (5 lanes to 4 and 4 lanes to 3) in the vicinity of the I-285 interchange and; 2) traffic entering from I-285.

F

Congestion Type: Exit Ramp Queue

Location: US 19 / US 41

Frequency: Peak Hour

Direction: Southbound

Queue Population: 20 to 30 vpl

Number of Lanes: Three

G

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: Southbound

Location: Between SR 138 and Jodeco Rd

Queue Length: 5 to 6 miles

Estimated Speed: 15 to 50 mph

Potential Cause(s): Traffic entering at the I-675 and Hudson Bridge Rd

H

Congestion Type: Exit Ramp Queue

Location: SR 155

Frequency: Peak Hour

Direction: Southbound

Queue Population: 20 to 30 vpl

Number of Lanes: One Left-Turn Lane

I

Congestion Type: Congested Cross Road

Location: SR 155

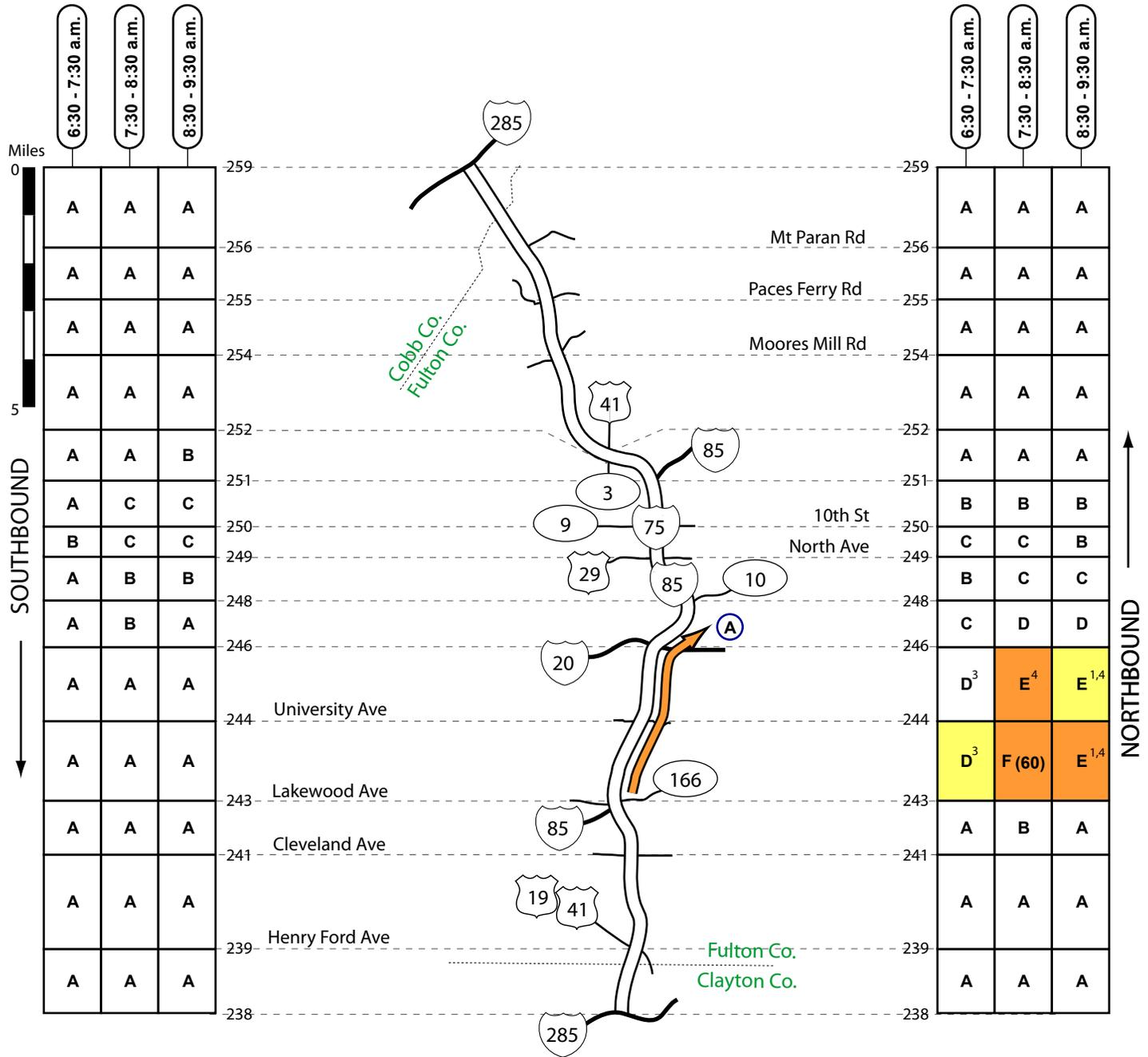
Frequency: Peak Hour

Direction: Westbound

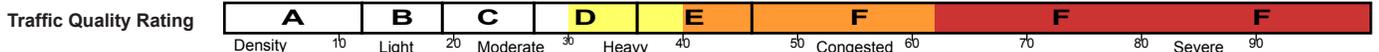
Queue Population: 40 to 50 vpl

Number of Lanes: One

I-75 HOV (COBB/FULTON & CLAYTON COUNTIES) - MORNING

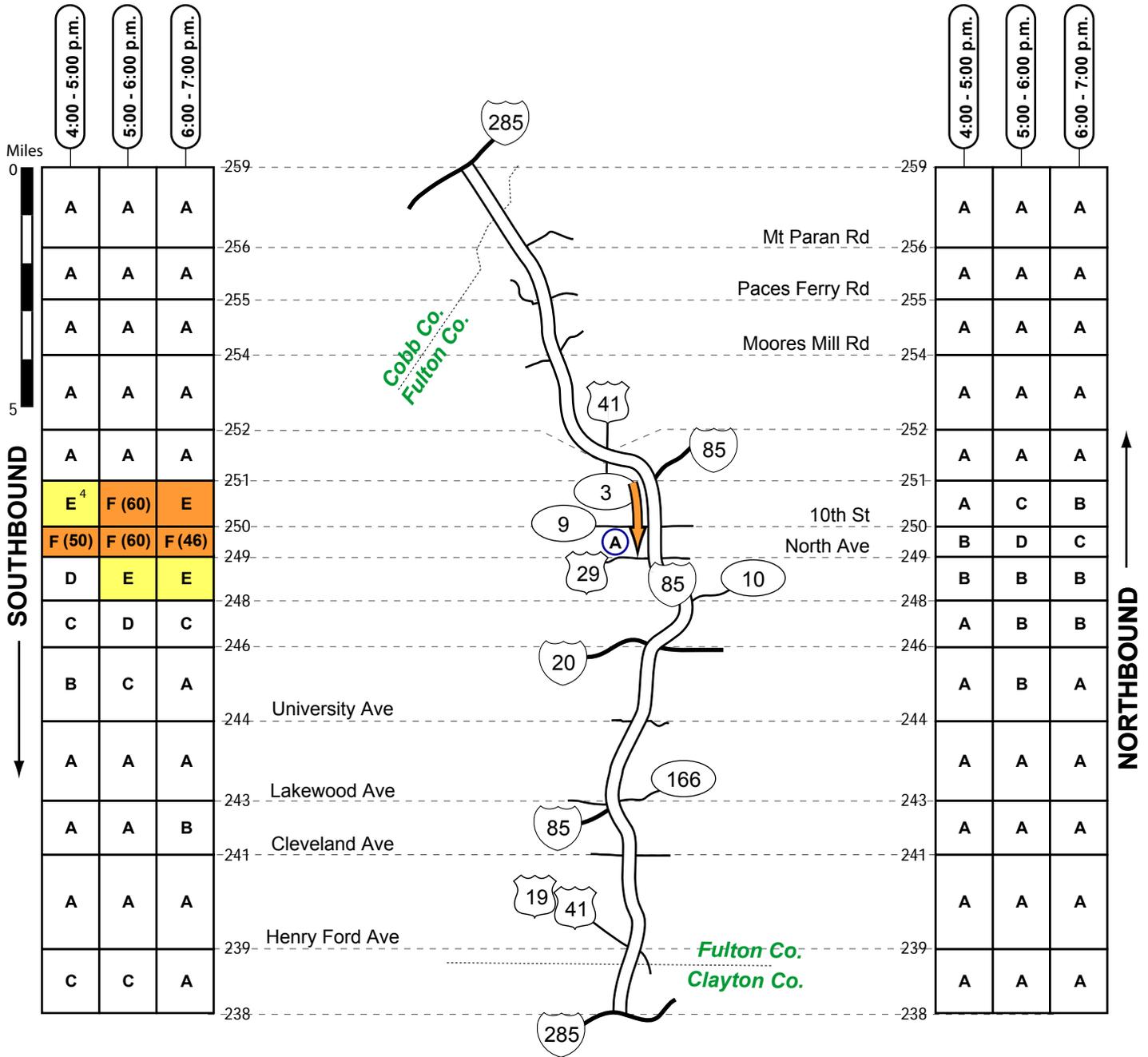


A
 Congestion Type: Mainline Congestion
 Frequency: Most observations
 Direction: Northbound
 Location: Between SR 166 and I-20
 Queue Length: 3 to 4 miles
 Estimated Speed: 25 to 50 mph
 Potential Cause(s): Friction between the congested "general-purpose" lanes and the HOV facility

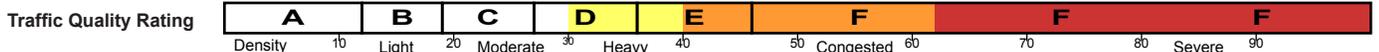


Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

I-75 HOV (COBB/FULTON & CLAYTON COUNTIES) - EVENING



A
 Congestion Type: Mainline Congestion
 Frequency: Most observations
 Direction: Southbound
 Location: Between I-75/I-85 and SR 10
 Queue Length: 1 to 2 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): Friction between the congested "general-purpose" lanes and the HOV Facility

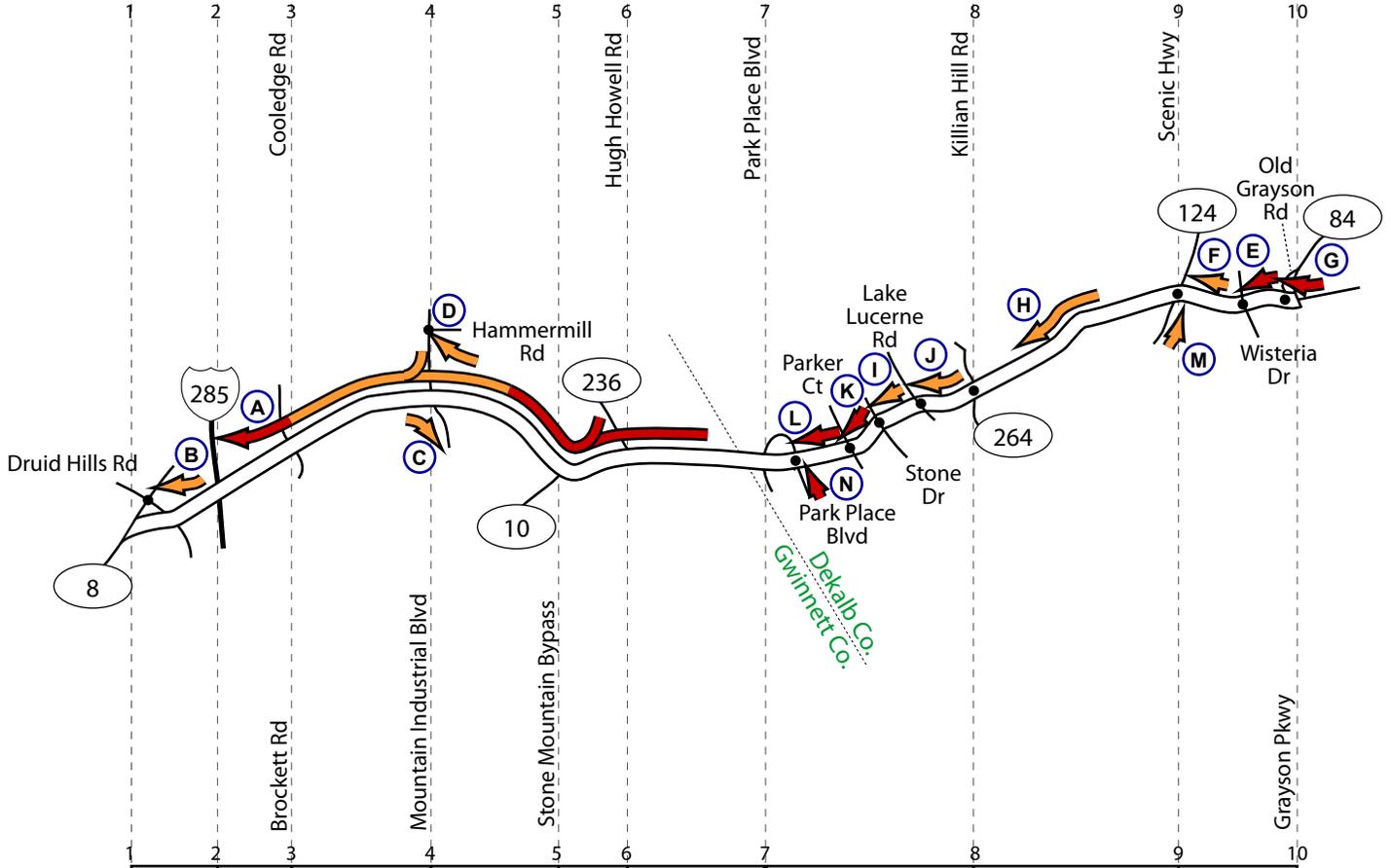


Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

US 78 (DEKALB & GWINNETT COUNTIES) - MORNING

← WESTBOUND

6:30 - 7:30 a.m.	B	^{2,4} F(55)	F (55)	F (50)	E ⁴	D	F	E	E
7:30 - 8:30 a.m.	C	^{2,4} F(55)	F (55)	F (55)	F ⁴ (60)	E	F	E	E
8:30 - 9:30 a.m.	B	^{2,4} D	D	D	C	C	E	D	E



6:30 - 7:30 a.m.	A	A	A	A	A	A	C	C	C
7:30 - 8:30 a.m.	A	A	A	A	A	A	C	C	C
8:30 - 9:30 a.m.	A	A	A	A	A	A	C	C	C

0 Miles 5 → EASTBOUND



Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

US 78 (DEKALB & GWINNETT COUNTIES) - MORNING

A
 Congestion Type: Mainline Congestion
 Frequency: Most observations before 9:00 a.m.
 Direction: Westbound
 Location: Between Park Place Blvd and I-285
 Queue Length: 5 to 8 miles
 Estimated Speed: 20 to 50 mph
 Potential Cause(s): Factors contributing to the congestion included: 1) congestion on the ramp to northbound I-285 backed into the right two lanes on US 78 and ultimately across all three lanes; 2) traffic entering the mainline at Stone Mountain Industrial Blvd and SR 10 (Stone Mountain Blvd).

B
 Congestion Type: Exit Ramp Queue
 Location: Druid Hills Rd
 Frequency: Intermittent
 Direction: Westbound
 Queue Population: 20 to 45 vpl
 Number of Lanes: Two
 Note: When congested, the head of the ramp queue was found on westbound Druid Hills Rd at the signal at SR 8.

C
 Congestion Type: Exit Ramp Queue
 Location: Mountain Industrial Blvd
 Frequency: Intermittent
 Direction: Eastbound
 Queue Population: 20 to 25 vpl
 Number of Lanes: Two
 Note: When congested, vehicles were queued in the left two lanes at the signal at the head of the ramp.

D
 Congestion Type: Exit Ramp Queue
 Location: Mountain Industrial Blvd
 Frequency: Intermittent
 Direction: Westbound
 Queue Population: 20 to 25 vpl
 Number of Lanes: One
 Note: When congested, vehicles were queued in the right lane on the ramp waiting to turn northbound on Mountain Industrial Blvd; the head of the queue was found on Mountain Industrial Blvd at the signal at Hammermill Rd.

E
 Congestion Type: Signal Queue
 Location: Wisteria Dr
 Frequency: Most observations
 Direction: Westbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

F
 Congestion Type: Signal Queue
 Location: SR 124
 Frequency: Intermittent
 Direction: Westbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 2

G
 Congestion Type: Signal Queue
 Location: Old Grayson Rd
 Frequency: Most observations
 Direction: Westbound
 Queue Populations: 20 to 60 vpl
 Number of Lanes: 2

H
 Congestion Type: Platoons
 Location: Between SR 124 & SR 264
 Frequency: Intermittent
 Direction: Westbound
 Platoon Populations: 25 to 35 vpl
 Number of Lanes: 2

I
 Congestion Type: Signal Queue
 Location: Stone Dr
 Frequency: Intermittent
 Direction: Westbound
 Queue Populations: 20 to 35 vpl
 Number of Lanes: 3

J
 Congestion Type: Signal Queue
 Location: Lake Lucerne Rd
 Frequency: Intermittent
 Direction: Westbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 3

K
 Congestion Type: Signal Queue
 Location: Parker Ct
 Frequency: Most observations
 Direction: Westbound
 Queue Populations: 35 to 50 vpl
 Number of Lanes: 3

L
 Congestion Type: Signal Queue
 Location: Park Place Blvd
 Frequency: Most observations
 Direction: Westbound
 Queue Populations: 20 to 50 vpl
 Number of Lanes: 3

M
 Congestion Type: Congested Cross Road
 Location: SR 124
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 3

N
 Congestion Type: Congested Cross Road
 Location: Park Place Blvd
 Frequency: Most observations
 Direction: Northbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2
 Note: During some observations, congestion extended back through the upstream signal at Rockbridge Rd.

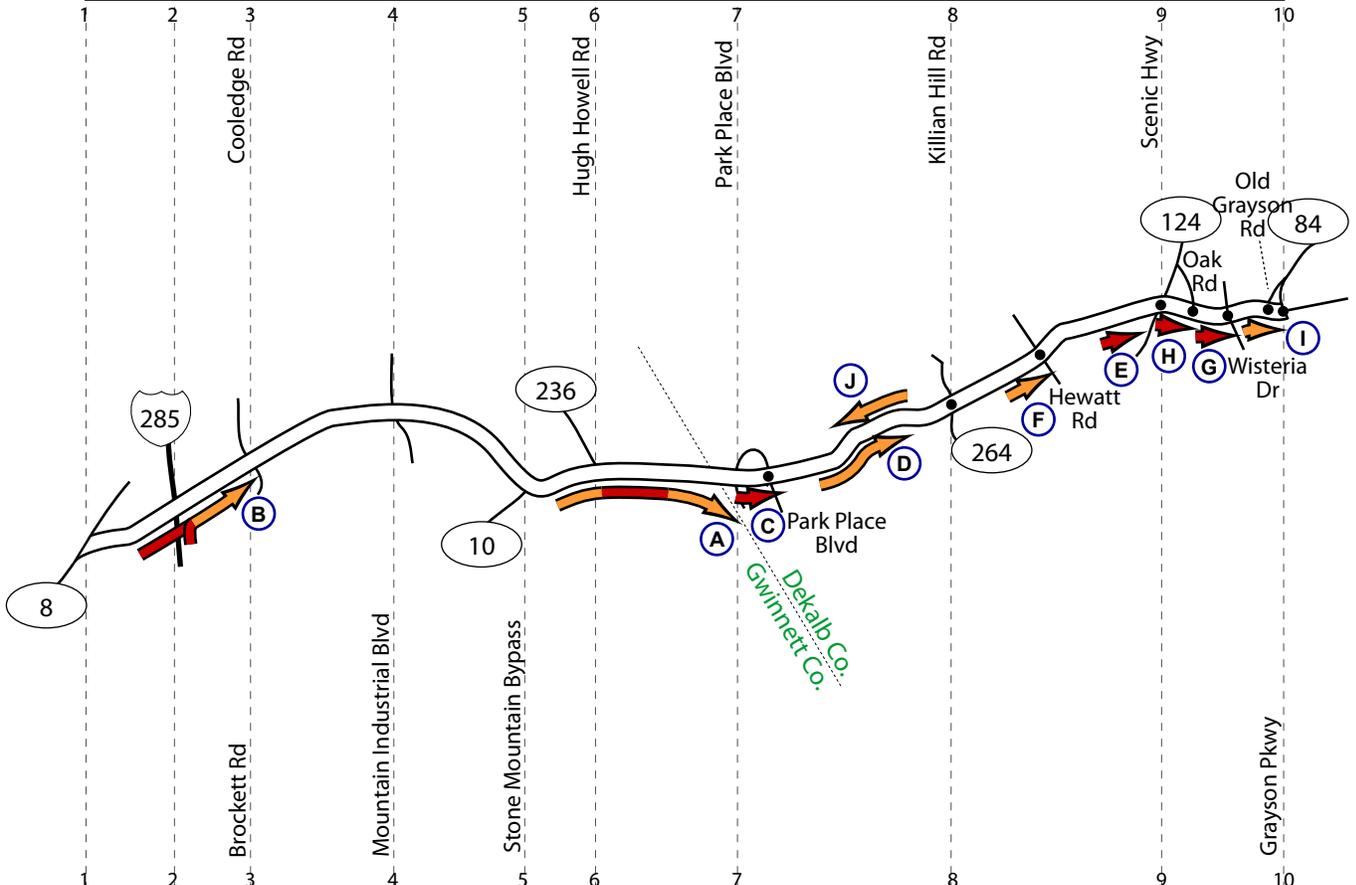
Traffic Quality Rating

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
Very Light	Light	Moderate	Heavy	Congested	Severe

US 78 (DEKALB & GWINNETT COUNTIES) - EVENING

← WESTBOUND

4:00 - 5:00 p.m.	A	A	B	A	A	A	D	D	D
5:00 - 6:00 p.m.	A	B	B	A	A	A	D	D	D
6:00 - 7:00 p.m.	A	A	A	A	A	A	E	D	D



4:00 - 5:00 p.m.	C	B	C	C	B	D	E	D	E
5:00 - 6:00 p.m.	D	F (50)	D ⁴	C	C	F ^{2,4} (55)	F	E	F
6:00 - 7:00 p.m.	C	B	C	C	C	E ^{2,4}	E	E	D



EASTBOUND →

Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

US 78 (DEKALB & GWINNETT COUNTIES) - EVENING

A
 Congestion Type: Mainline Congestion
 Frequency: Most observations after 5:00 p.m.
 Direction: Eastbound
 Location: Between SR 236 and Park Place Blvd
 Queue Length: 1 to 2 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): Congestion appeared to be exacerbated by vehicles exiting at the service road approximately one-half mile before the Park Place Blvd interchange; weaving on the approach to the exit ramp may have contributed to the congestion.

B
 Congestion Type: Mainline Congestion
 Frequency: Most observations between 5:00 and 6:00 p.m.
 Direction: Eastbound
 Location: Between I-285 and Cooledge Rd
 Queue Length: 1 to 1.5 miles
 Estimated Speed: 20 to 50 mph
 Potential Cause(s): Congestion appeared to be caused by traffic entering the mainline from northbound I-285 and the lane drop (4 lanes to 3) at Cooledge Rd.

C
 Congestion Type: Signal Queue
 Location: Park Place Blvd
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

D
 Congestion Type: Platoons
 Location: Between E. Park Place Blvd & SR 264
 Frequency: Most observations
 Direction: Eastbound
 Platoon Populations: 25 to 40 vpl
 Number of Lanes: 3

E
 Congestion Type: Signal Queue
 Location: SR 124
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

F
 Congestion Type: Signal Queue
 Location: Hewatt Rd
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

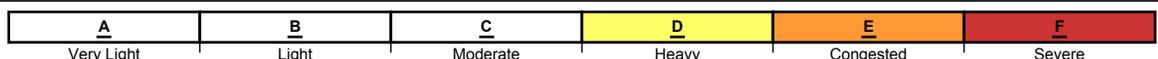
G
 Congestion Type: Signal Queue
 Location: Wisteria Dr
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 45 vpl
 Number of Lanes: 2

H
 Congestion Type: Signal Queue
 Location: Oak Rd
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 35 vpl
 Number of Lanes: 2

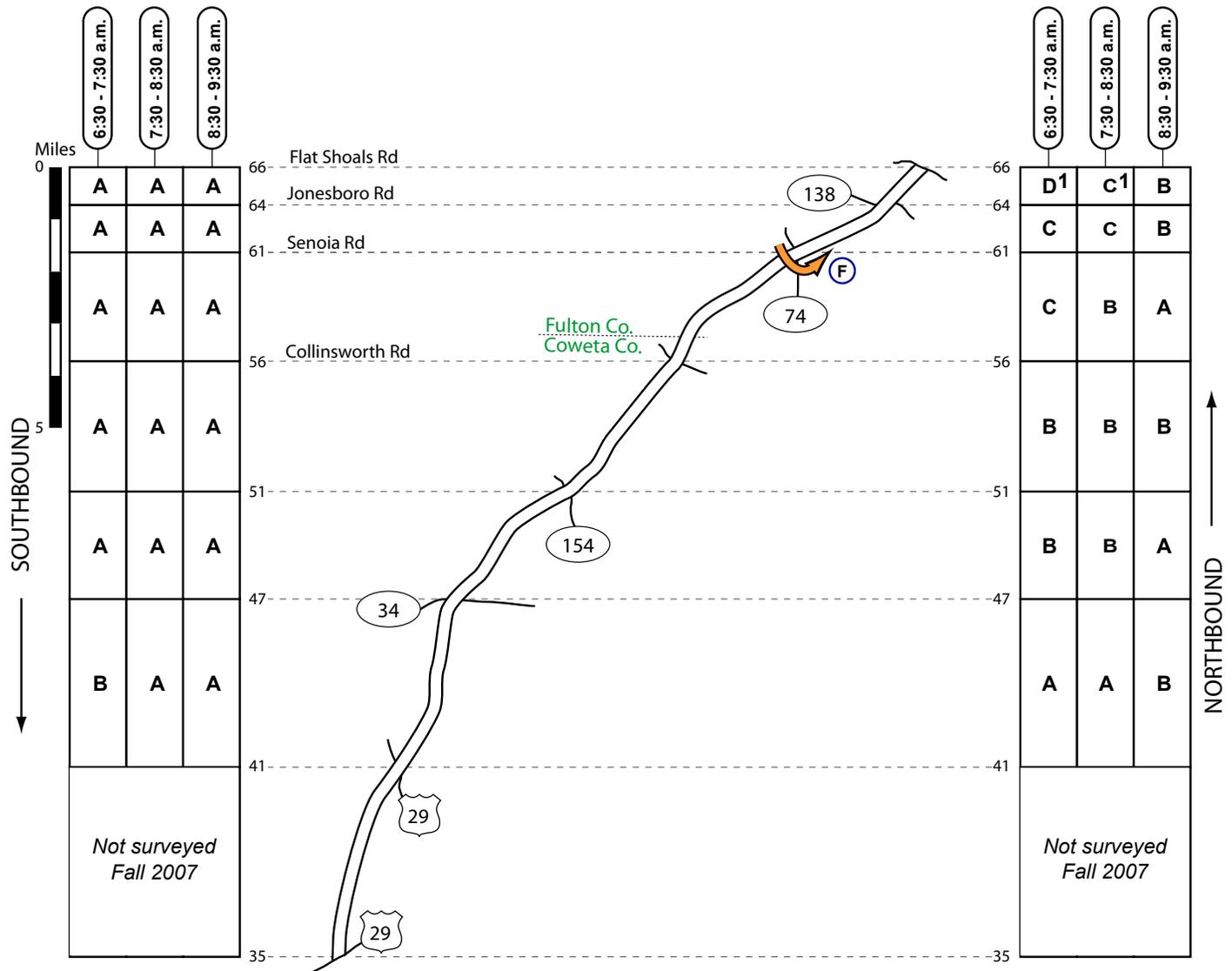
I
 Congestion Type: Signal Queue
 Location: Old Grayson Rd
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

J
 Congestion Type: Platoons
 Location: Between Killian Hill Rd and Park Place Blvd
 Frequency: Intermittent
 Direction: Westbound
 Queue Populations: 25 to 30 vpl
 Number of Lanes: 2

Traffic Quality Rating



I-85 (FULTON & COWETA COUNTIES) - MORNING

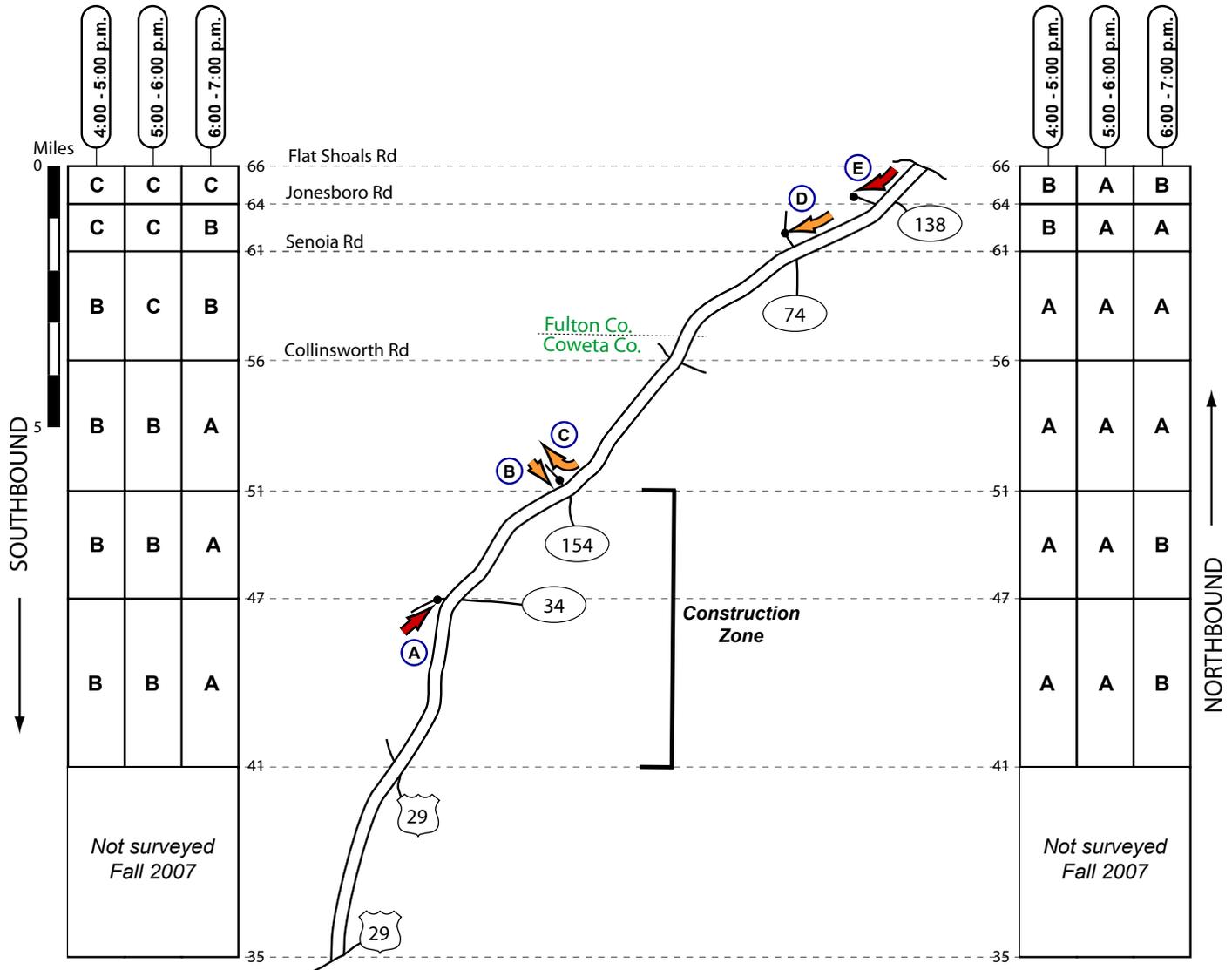


F
 Congestion Type: Entrance Ramp Queue
 Location: SR 74 (Senoia Rd)
 Frequency: Intermittent
 Direction: Northbound
 Queue Population: 20 to 40 vpl
 Number of Lanes: One
 Note: In some cases, congestion on the entrance ramp appeared to back through the signal on SR 74; congestion was intermittently found in the left lane (eastbound) on SR 74 approaching the signal at the northbound ramp.



Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

I-85 (FULTON & COWETA COUNTIES) - EVENING



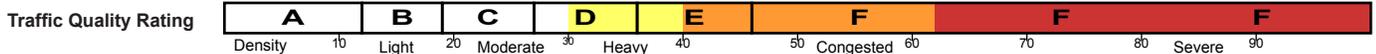
A
Congestion Type: Congested Cross Road
Location: SR 34
Frequency: Peak Hour
Direction: Eastbound
Queue Population: 20 to 30 vpl
Number of Lanes: Three

B
Congestion Type: Congested Cross Road
Location: SR 154
Frequency: Intermittent
Direction: Eastbound
Queue Population: 20 to 30 vpl
Number of Lanes: One

C
Congestion Type: Exit Ramp Queue
Location: SR 154
Frequency: Intermittent
Direction: Southbound
Queue Population: 20 to 30 vpl
Number of Lanes: One (Left-Turn Lane)

D
Congestion Type: Exit Ramp Queue
Location: SR 74
Frequency: Intermittent
Direction: Southbound
Queue Population: 20 to 30 vpl
Number of Lanes: Two (Left-Turn Lanes)
Note: Intermittently, congestion on the ramp extended back into the right lane of I-85.

E
Congestion Type: Exit Ramp Queue
Location: SR 138
Frequency: Peak Hour
Direction: Southbound
Queue Population: 40 to 60 vpl
Number of Lanes: One
Note: The signal at the head of the ramp did not appear to be the capacity constraint.



Superscripts: ¹ Type 1 nested congestion (some days, not others).

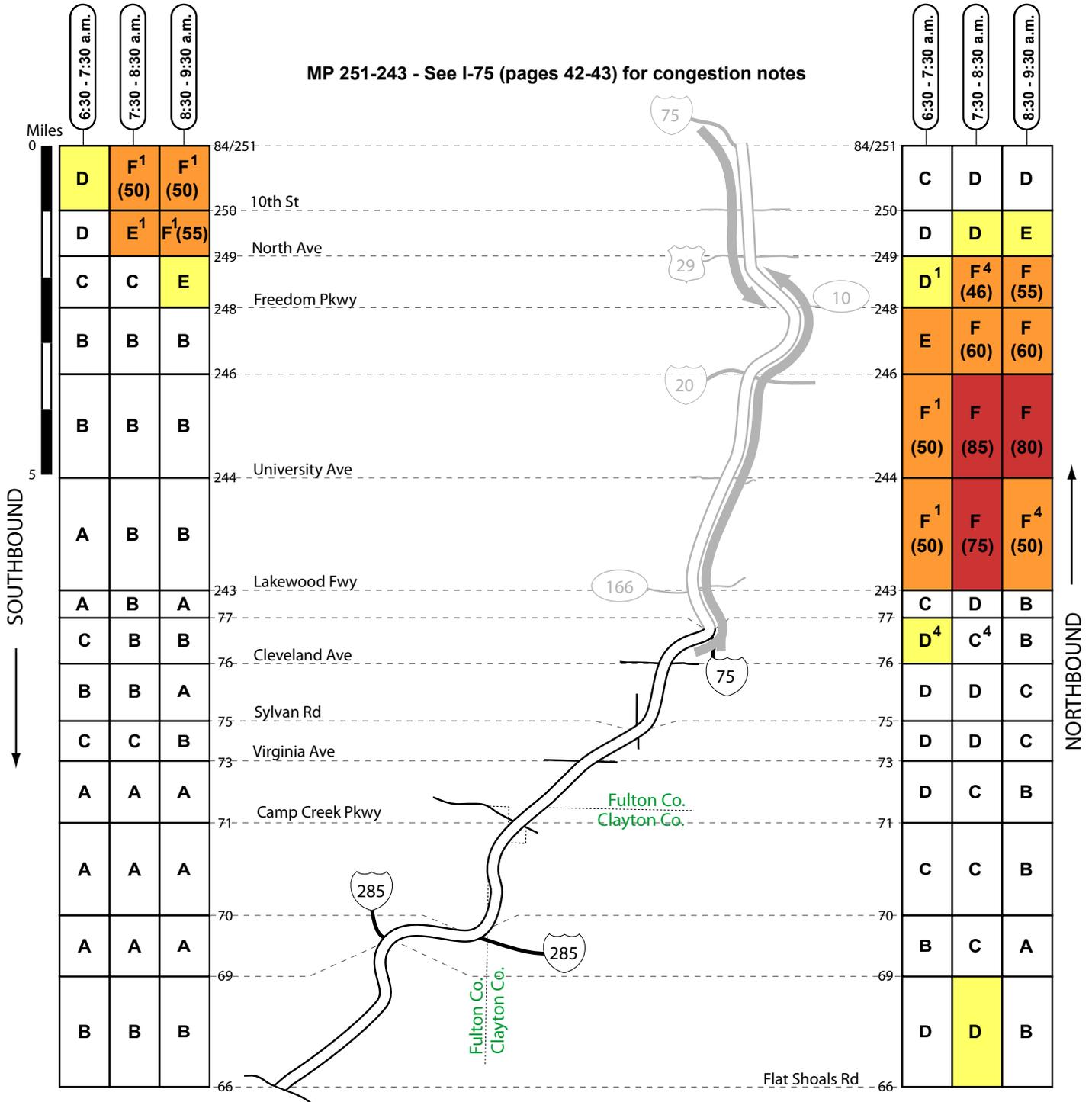
² Type 2 nested congestion (more severe in left or right-hand lanes).

³ Type 3 nested congestion (present only in the first or second half-hour period).

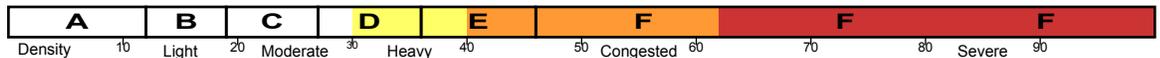
⁴ Type 4 nested congestion (partial length of segment).

I-85 (FULTON & CLAYTON COUNTIES) - MORNING

MP 251-243 - See I-75 (pages 42-43) for congestion notes



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

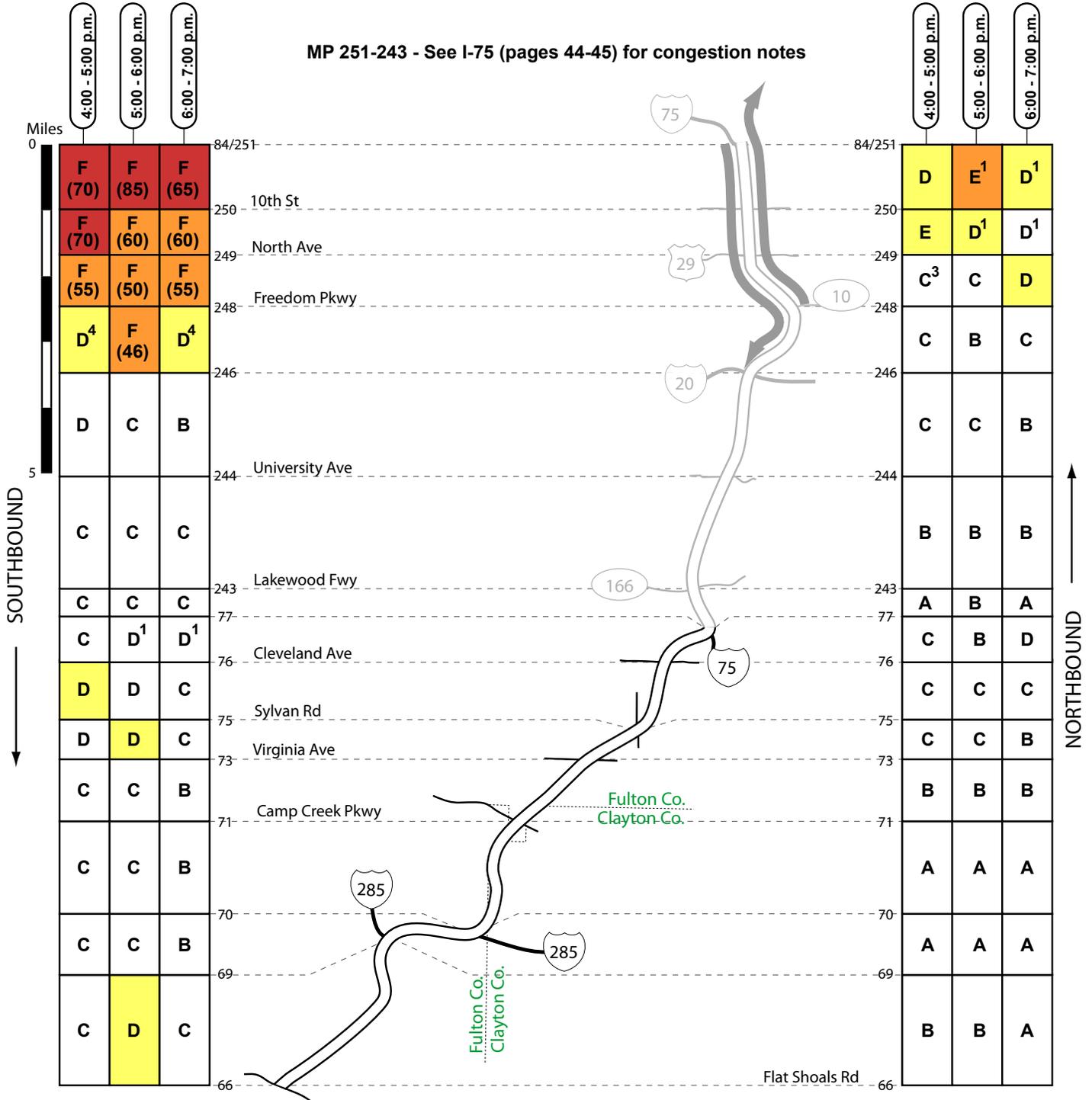
³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

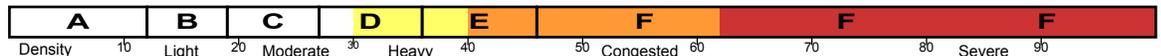
⁴Type 4 nested congestion (partial length of segment).

I-85 (FULTON & CLAYTON COUNTIES) - EVENING

MP 251-243 - See I-75 (pages 44-45) for congestion notes



Traffic Quality Rating



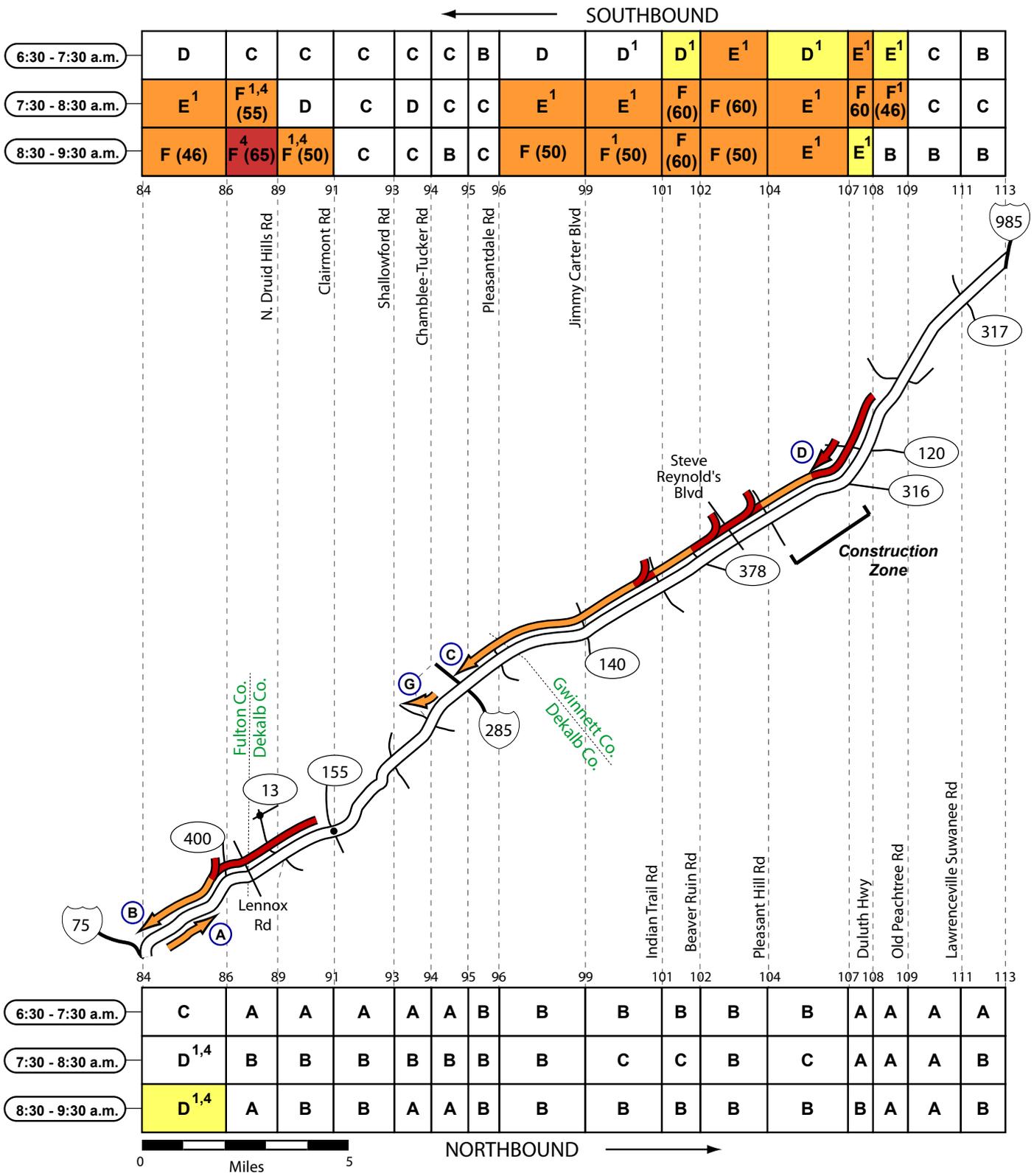
Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

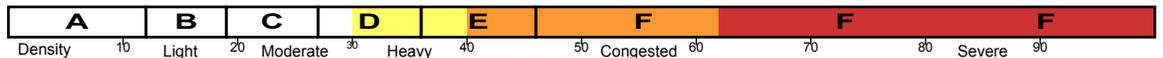
²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-85 (FULTON/DEKALB & GWINNETT COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-85 (FULTON/DEKALB & GWINNETT COUNTIES) - MORNING

A

Congestion Type: Mainline Congestion

Frequency: Intermittent

Direction: Northbound

Location: Between I-75 and SR 400

Queue Length: 0.5 to 1.5 miles

Estimated Speed: 40 to 50 mph

Potential Cause(s): Factors that may have exacerbated the congestion included: 1) the lane drop (5 lanes to 4) at Buford Hwy; 2) sun glare.

B

Congestion Type: Mainline Congestion

Frequency: Most observations after 7:30 a.m.

Direction: Southbound

Location: Between SR 155 (Clairmont Rd) and I-75

Queue Length: 3 to 6 miles

Estimated Speed: 15 to 50 mph

Potential Cause(s): The primary bottleneck along this section of I-85 was found where traffic entered the mainline at SR 400; upstream of the merge, average estimated speeds were typically less than 30 mph. While congestion persisted south of SR 400, average speeds typically improved (40-50 mph).

C

Congestion Type: Mainline Congestion

Frequency: Most observations after 7:00 a.m.

Direction: Southbound

Location: Between Old Peachtree Rd and I-285

Queue Length: 8 to 13 miles

Estimated Speed: 30 to 50 mph

Potential Cause(s): Construction (widening) between SR 316 and Pleasant Hill Rd appeared to cause atypical traffic conditions on I-85 in the morning; during previous aerial surveys, severe southbound congestion between SR 120 and Indian Trail Rd persisted throughout the morning commute. While the extent of congestion found in 2007 was similar, a lesser degree of congestion was found in terms of severity and duration. Construction at the SR 316 Interchange may have caused a bottleneck that contributed to improved conditions downstream on I-85.

D

Congestion Type: Entrance Ramp Queue

Location: SR 120 (Duluth Hwy)

Frequency: Most observations

Direction: Southbound

Note: Vehicles at the head of the one-lane ramp merged into the mainline on I-85 at the SR 316 Interchange construction zone (no shoulder at merge); in most cases, congestion on the ramp backed onto the service road and onto the SR 120 ramp.

G

Congestion Type: Exit Ramp Queue

Location: Chamblee Tucker Rd

Frequency: Intermittent

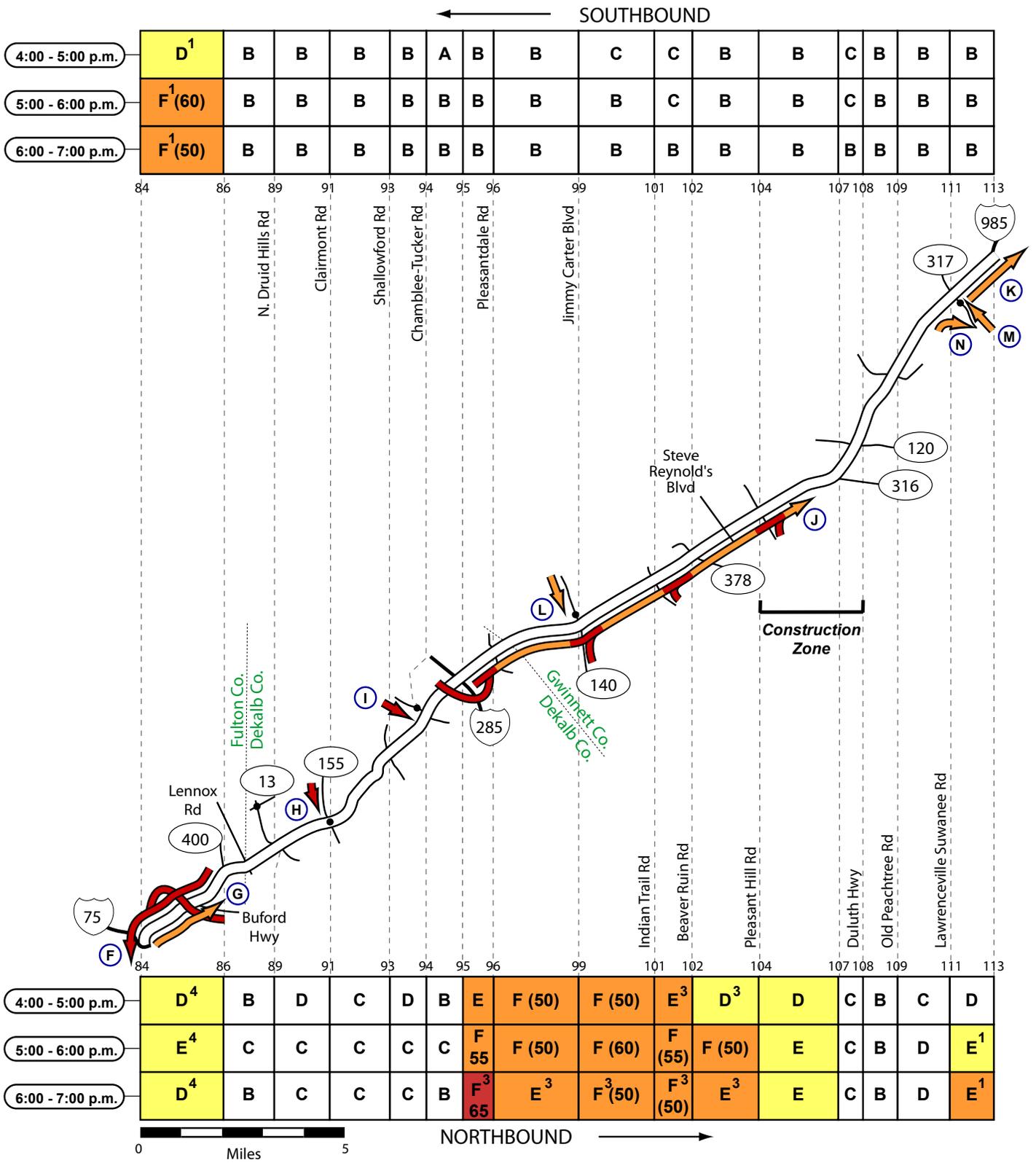
Direction: Southbound

Queue Population: 20 to 30 vpl

Number of Lanes: One

Note: When congested, vehicles were queued in the right lane; vehicles at the head of the ramp waited to merge into northbound flow on Chamblee-Tucker Rd.

I-85 (FULTON/DEKALB & GWINNETT COUNTIES) - EVENING



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-85 (FULTON/DEKALB & GWINNETT COUNTIES) - EVENING

F

Congestion Type: Mainline Congestion
Frequency: Most observations after 5:00 p.m.
Direction: Southbound
Location: Between SR 400 and I-75/I-85
Queue Length: 2 to 3 miles
Estimated Speed: 20 to 40 mph
Potential Cause(s): The head of the queue was found downstream on I-75/I-85.

G

Congestion Type: Mainline Congestion
Frequency: Most observations
Direction: Northbound
Location: Between the I-75/I-85 split and SR 400
Queue Length: 1 to 2 miles
Estimated Speed: 40 to 50 mph
Potential Cause(s): The merging associated with the SR 13 (Buford Highway) interchange

H

Congestion Type: Congested Cross Road
Location: SR 155
Frequency: Peak Hour
Direction: Southbound
Queue Population: 30 to 50 vpl
Number of Lanes: Two Thru-Lanes

I

Congestion Type: Congested Cross Road
Location: Chamblee-Tucker Rd
Frequency: Peak Hour
Direction: Eastbound
Queue Population: 30 to 50 vpl
Number of Lanes: Two

J

Congestion Type: Mainline Congestion
Frequency: Most observations
Direction: Northbound
Location: Between the Perimeter and SR 316
Queue Length: 9 to 10 miles
Estimated Speed: 20 to 50 mph
Potential Cause(s): Traffic entering at the interchanges along this corridor

K

Congestion Type: Mainline Congestion
Frequency: Intermittently after 5:00 p.m.
Direction: Northbound
Location: Between SR 317 and I-985
Queue Length: 1 to 2 miles
Estimated Speed: 30 to 50 mph
Potential Cause(s): The primary bottleneck was found at the lane drop (3 lanes to 2) at I-985; while congestion persisted north of the lane drop, traffic flow typically improved.
Note: Ongoing construction between I-985 and SR 20 may have exacerbated the congestion.

L

Congestion Type: Congested Cross Road
Location: SR 140 (Jimmy Carter Blvd)
Frequency: Intermittent
Direction: Southbound
Queue Population: 20 to 30 vpl
Number of Lanes: Two Thru-Lanes

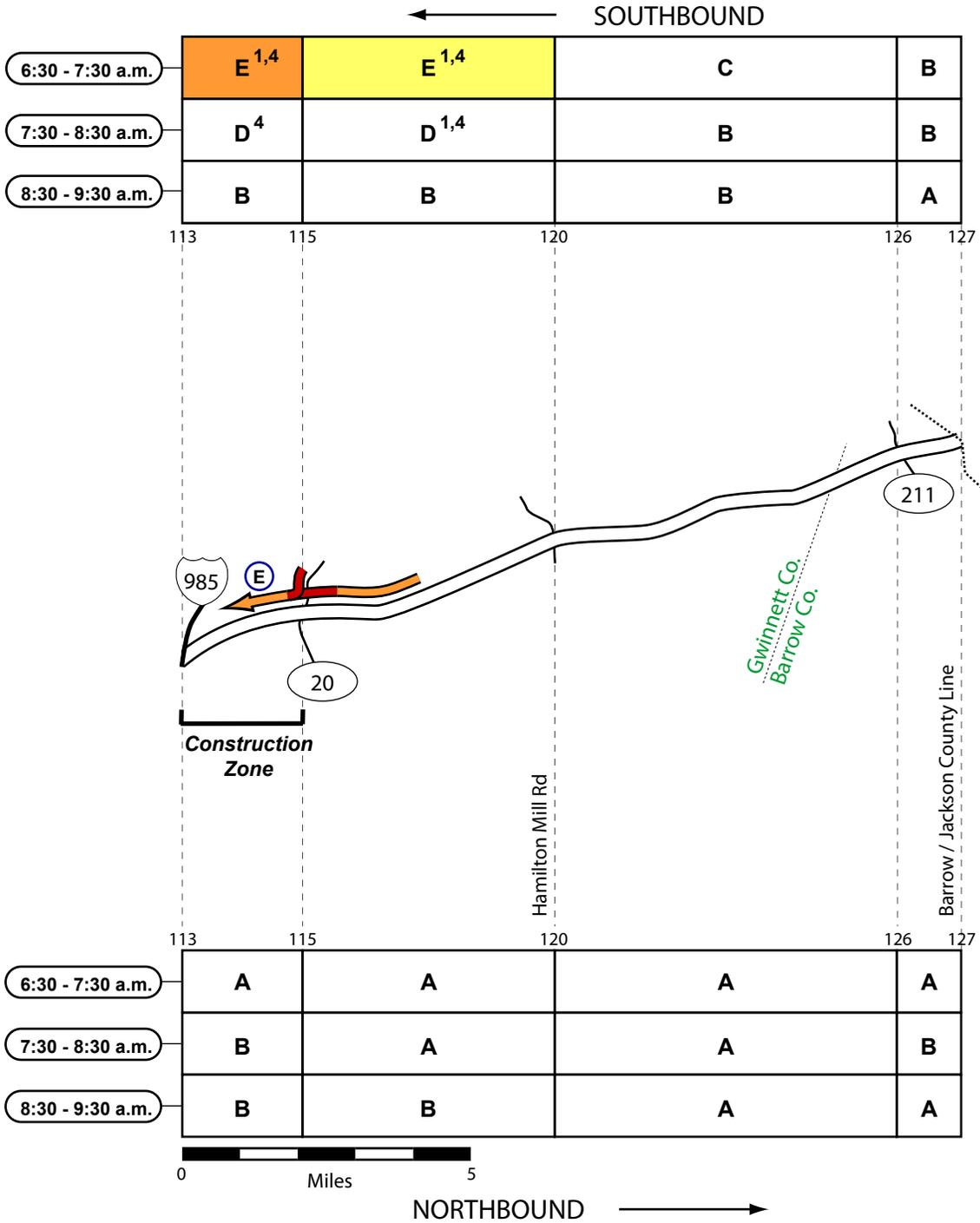
M

Congestion Type: Congested Cross Road
Location: SR 317
Frequency: Peak Hour
Direction: Northbound
Queue Population: 30 to 40 vpl
Number of Lanes: Two Thru-Lanes

N

Congestion Type: Exit Ramp Queue
Location: SR 317
Frequency: Intermittent
Direction: Northbound
Queue Population: 20 to 30 vpl
Number of Lanes: Two Left-Turn Lanes

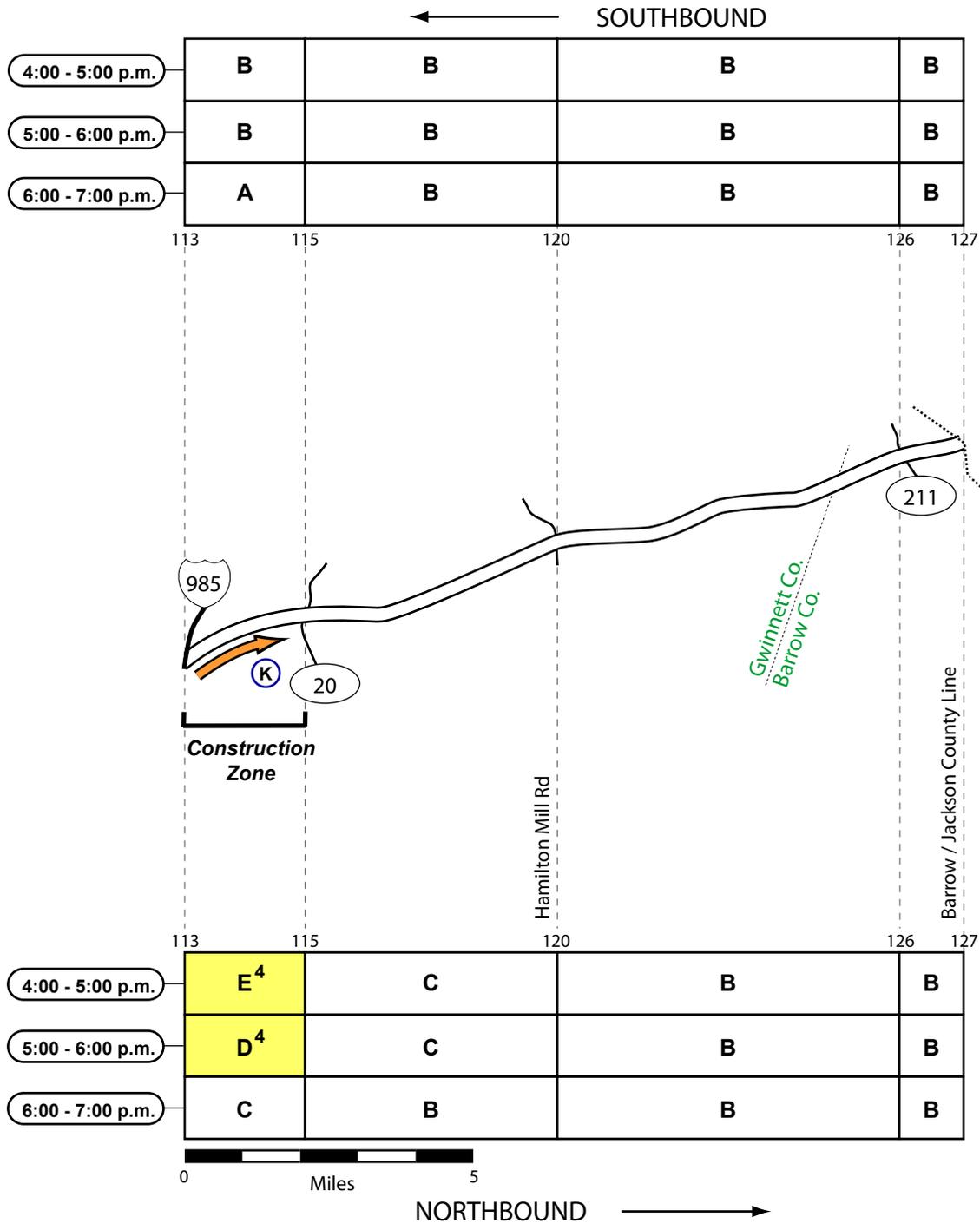
I-85 (GWINNETT & BARROW COUNTIES) - MORNING



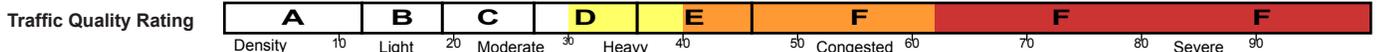
E
 Congestion Type: Mainline Congestion
 Frequency: Most observations before 8:00 a.m.
 Direction: Southbound
 Location: Between Hamilton Mill Rd and SR 20
 Queue Length: 1 to 2 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): In some cases, stop-and-go congestion was found in the vicinity of the SR 20 Interchange where vehicles merged into the mainline; construction may have exacerbated the construction.

Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

I-85 (GWINNETT & BARROW COUNTIES) - EVENING

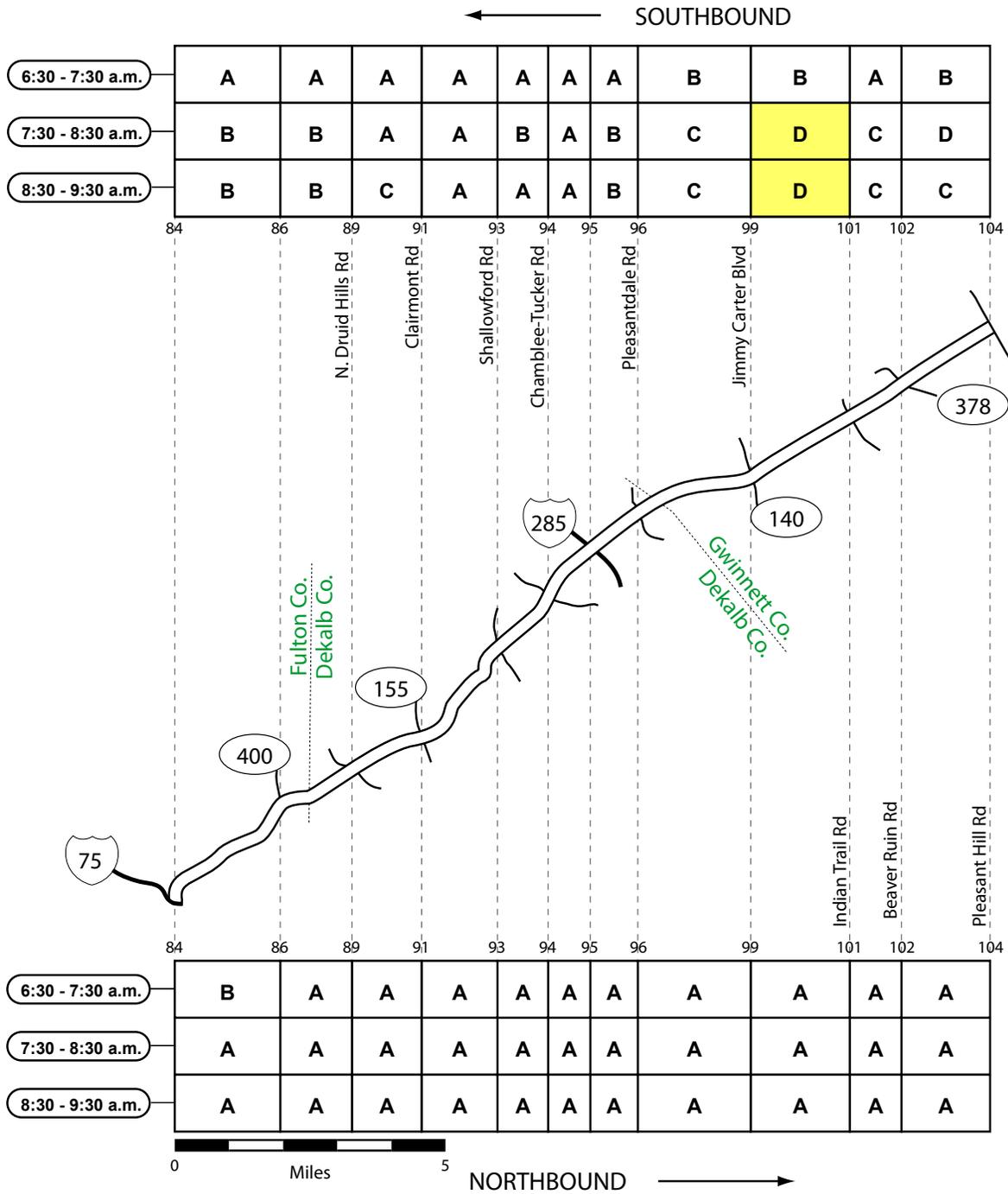


K
 Congestion Type: Mainline Congestion
 Frequency: Intermittently after 5:00 p.m.
 Direction: Northbound
 Location: Between SR 317 and I-985
 Queue Length: 1 to 2 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): The primary bottleneck was the lane drop (3 lanes to 2) at I-985; while congestion persisted north of the lane drop, traffic flow typically improved.
 Note: Ongoing construction between I-985 and SR 20 may have exacerbated the congestion.

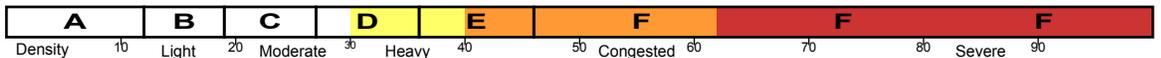


Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

I-85 HOV (FULTON/DEKALB & GWINNETT COUNTIES) -MORNING



Traffic Quality Rating



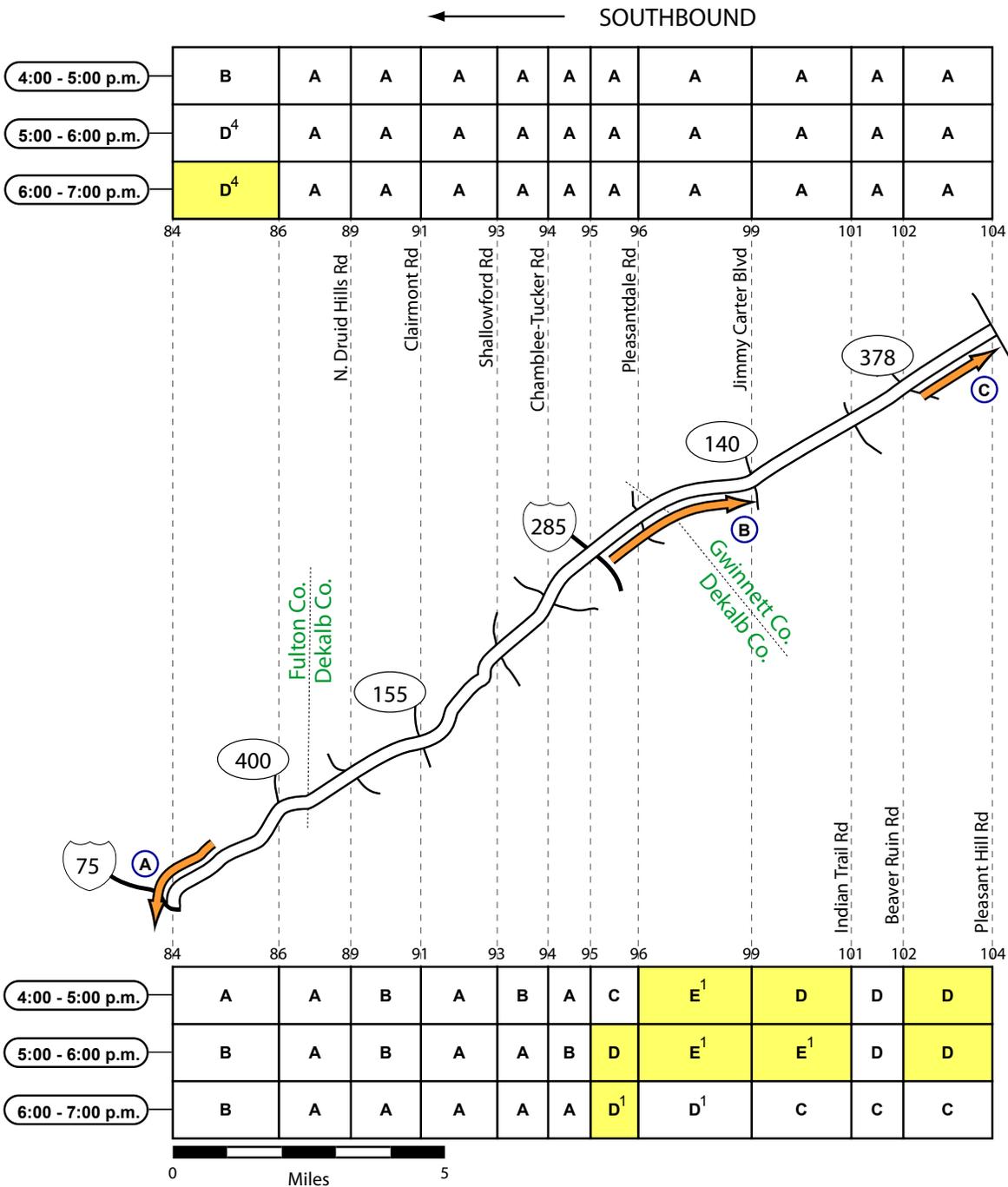
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

I-85 HOV (FULTON/DEKALB & GWINNETT COUNTIES) - EVENING

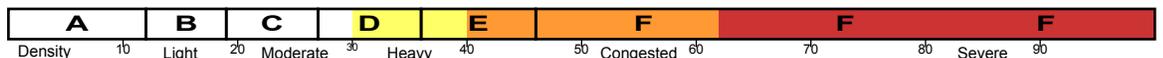


A
 Congestion Type: Mainline Congestion
 Frequency: Most observations between 5:00 and 6:30 p.m.
 Direction: Southbound
 Location: Between SR 400 and I-75/I-85
 Queue Length: 1 to 2 miles
 Estimated Speed: 25 to 45 mph
 Potential Cause(s): Friction between the congested "general-purpose" lanes and the HOV facility

B
 Congestion Type: Mainline Congestion
 Frequency: Intermittently between 4:30 and 6:30 p.m.
 Direction: Northbound
 Location: Between I-285 and SR 140
 Queue Length: 3 to 4 miles
 Estimated Speed: 40 to 50 mph
 Potential Cause(s): Friction between the congested "general-purpose" lanes and the HOV facility

C
 Congestion Type: Mainline Congestion
 Frequency: Intermittently between 4:30 and 5:30 p.m.
 Direction: Northbound
 Location: Between SR 378 and Pleasant Hill Rd
 Queue Length: 1 to 2 miles
 Estimated Speed: 40 to 50 mph
 Potential Cause(s): The merge into the congested "general-purpose" lanes at the HOV terminus

Traffic Quality Rating



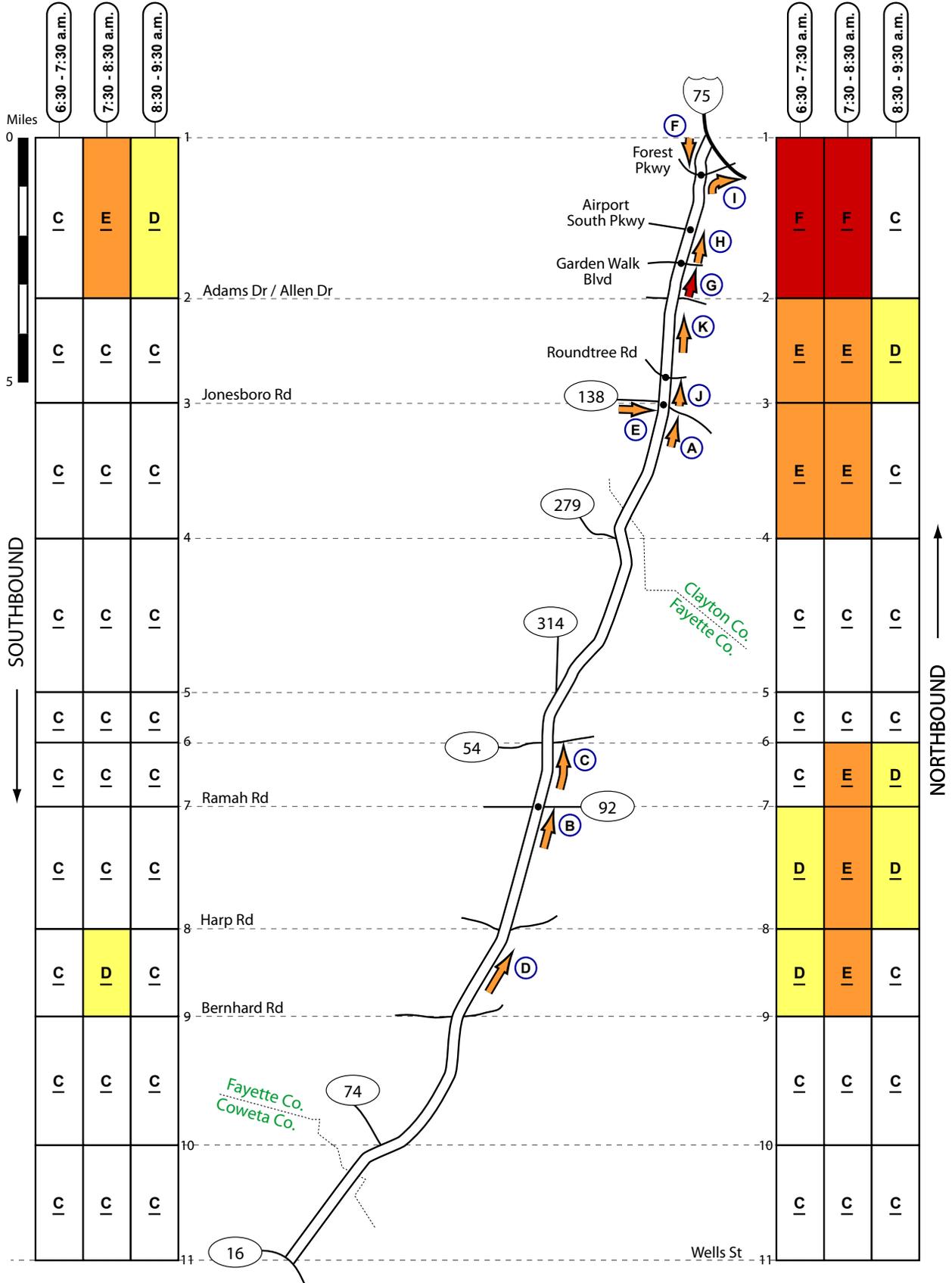
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 85 (CLAYTON/FAYETTE & COWETA COUNTIES) - MORNING



Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

SR 85 (CLAYTON/FAYETTE & COWETA COUNTIES) - MORNING

A

Congestion Type: Signal Queue
Location: SR 138
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

B

Congestion Type: Signal Queue
Location: SR 92 (Ramah Rd)
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

C

Congestion Type: Platoons
Location: Between SR 92 (Ramah Rd) & SR 54
Frequency: Intermittent
Direction: Northbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 1

D

Congestion Type: Platoons
Location: Between Bernhard Rd & Harp Rd
Frequency: All observations (7:30-8:30 a.m.)
Direction: Northbound
Platoon Populations: 25 to 50 vpl
Number of Lanes: 1
Note: Platooning and queuing appeared to be caused by school buses traveling in each direction along this section of SR 85 (a school is located on the northbound side of the roadway in this highway segment).

E

Congestion Type: Congested Cross Road
Location: SR 138
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

F

Congestion Type: Signal Queue
Location: Forest Pkwy
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2

G

Congestion Type: Signal Queue
Location: Garden Walk Blvd
Frequency: Most observations
Direction: Northbound
Queue Populations: 30 to 90 vpl
Number of Lanes: 2

H

Congestion Type: Signal Queue
Location: Airport South Pkwy
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

I

Congestion Type: Congestion - Right Lane
Location: Forest Pkwy
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 1
Note: When congested, vehicles were queued in the right lane on SR 85 approaching the intersection at Forest Pkwy; the head of the queue was intermittently found on eastbound Forest Pkwy at the ramp to southbound I-75.

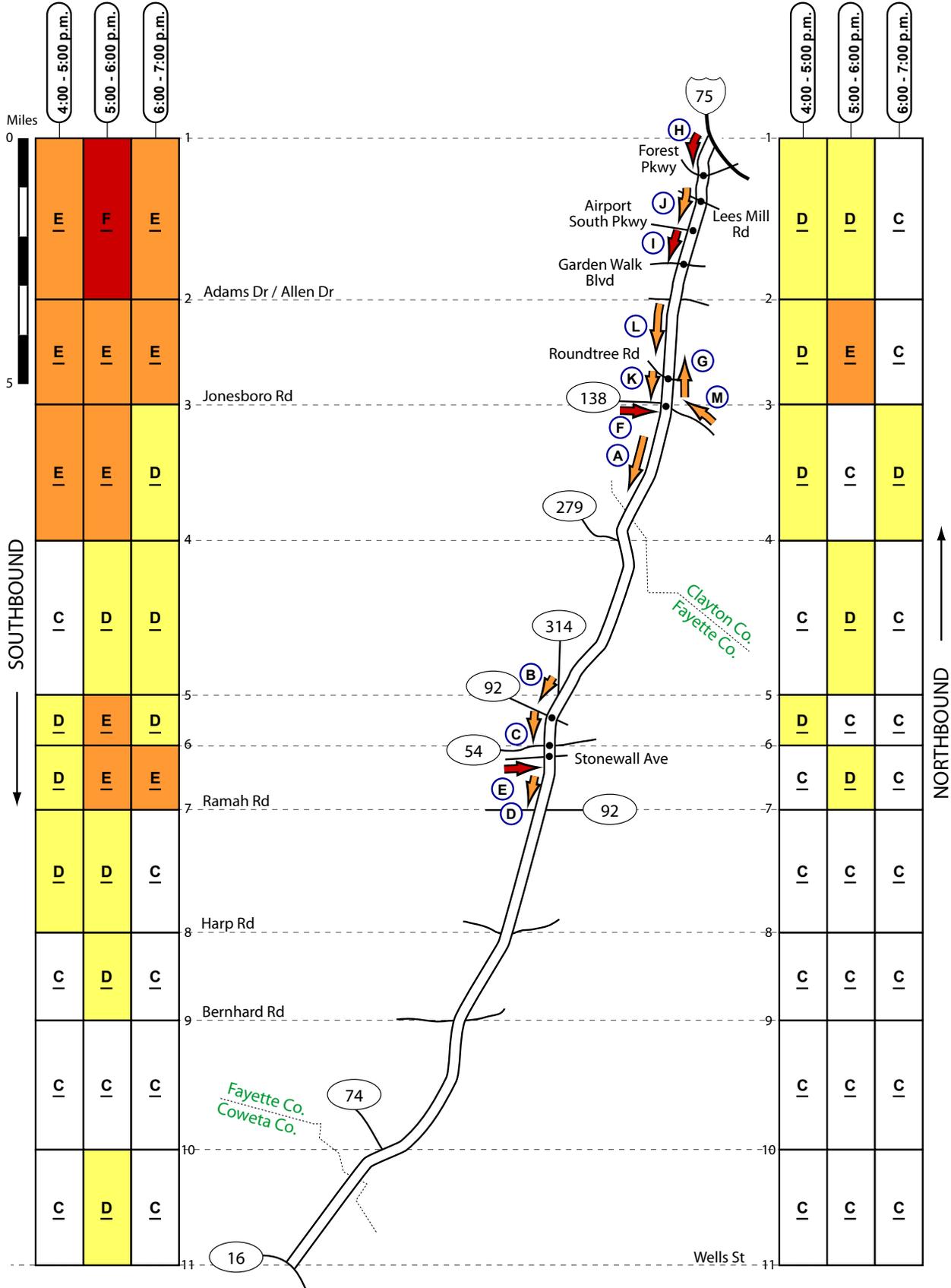
J

Congestion Type: Signal Queue
Location: Roundtree Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

K

Congestion Type: Platoons
Location: Between Roundtree Rd & Adams Dr
Frequency: Intermittent
Direction: Northbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 3

SR 85 (CLAYTON/FAYETTE & COWETA COUNTIES) - EVENING



Traffic Quality Rating

A	B	C	D	E	F
Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 85 (CLAYTON/FAYETTE & COWETA COUNTIES) - EVENING**A**

Congestion Type: Platoons
Location: Between SR 138 & SR 279
Frequency: Intermittent
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

B

Congestion Type: Signal Queue
Location: SR 92 (Forest Ave)
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

C

Congestion Type: Signal Queue
Location: SR 54 (Lanier Ave)
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

D

Congestion Type: Platoons
Location: Between SR 54 & SR 92 (Ramah Rd)
Frequency: Intermittent
Direction: Southbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 1

E

Congestion Type: Congested Cross Road
Location: Stonewall Ave
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 3

F

Congestion Type: Congested Cross Road
Location: SR 138
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

G

Congestion Type: Signal Queue/Platoons
Location: Vicinity of Roundtree Rd
Frequency: Intermittent
Direction: Northbound
Queue/Platoon Populations: 20 to 30 vpl
Number of Lanes: 2

H

Congestion Type: Signal Queue
Location: Forest Pkwy
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

I

Congestion Type: Signal Queue
Location: Garden Walk Blvd
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 80 vpl
Number of Lanes: 2
Note: During the peak period, congestion approaching Garden Walk Blvd sometimes extended back through several upstream signals.

J

Congestion Type: Platoons
Location: Between Forest Pkwy & Garden Walk Blvd
Frequency: Most observations
Direction: Southbound
Platoon Populations: 20 to 40 vpl
Number of Lanes: 2
Note: During some observations, congestion was found at the signals at Lees Mill Rd and Airport South Pkwy; downstream congestion sometimes appeared to affect thru traffic at these signals.

K

Congestion Type: Signal Queue
Location: SR 138
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

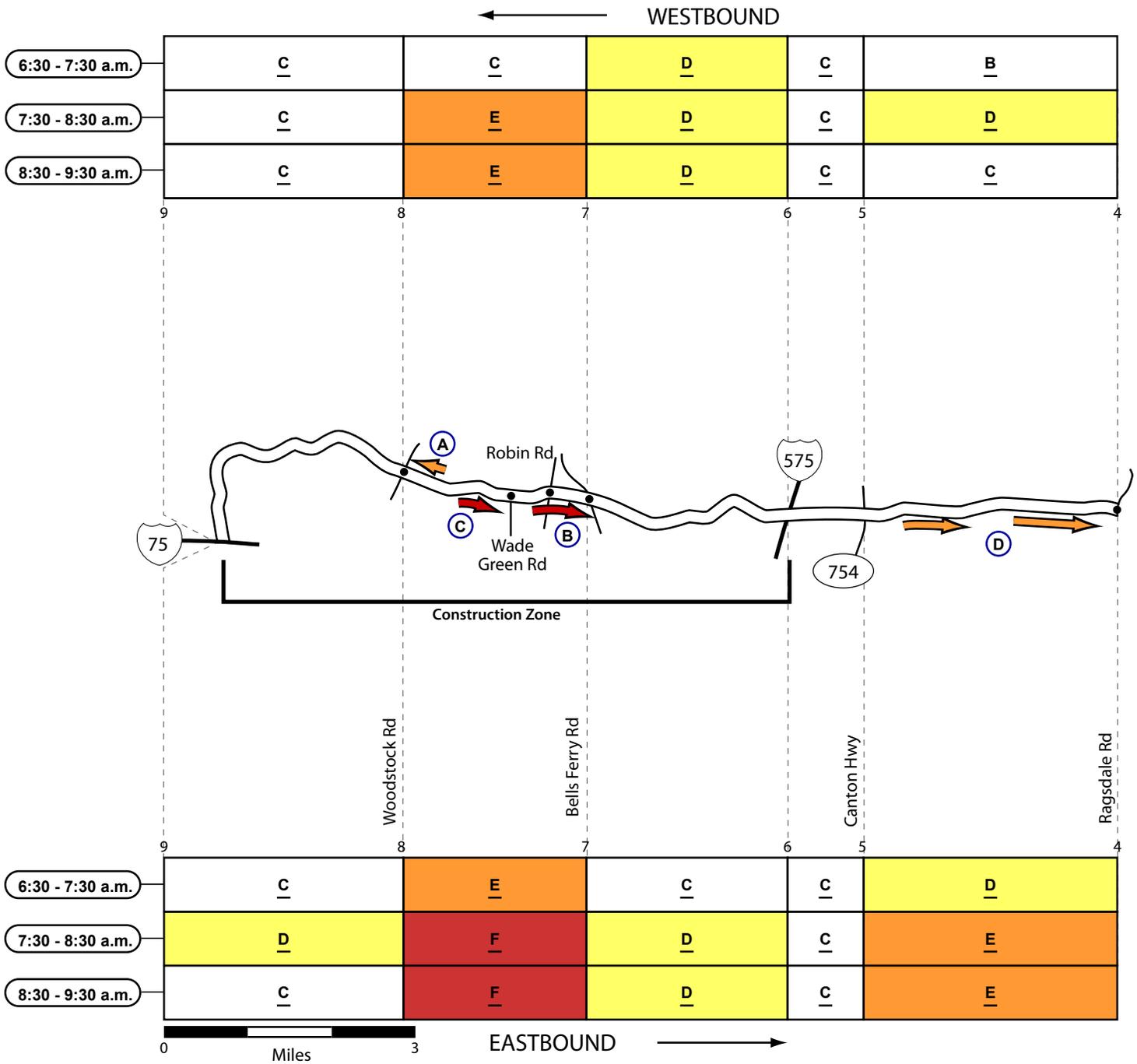
L

Congestion Type: Platoons/Queues
Location: Between Adams Dr & Roundtree Rd
Frequency: Most observations
Direction: Southbound
Platoons/Queue Populations: 20 to 40 vpl
Number of Lanes: 2
Note: Intermittently, marginal southbound congestion was found approaching the signals at Roundtree Rd, Bethsaida Rd, Riverdale Rd and Howard St.

M

Congestion Type: Congested Cross Road
Location: SR 138
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

SR 92 (CHEROKEE COUNTY) - MORNING



Note: Construction (widening) along SR 92 between I-75 and I-575 appeared to exacerbate eastbound congestion in the vicinity of Bells Ferry Rd; the bottleneck at this location may have contributed to improved conditions downstream on SR 92 (relative to conditions found during the 2005 survey).

Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others). ³Type 3 nested congestion (present only in the first or second half-hour period).
²Type 2 nested congestion (more severe in left or right-hand lanes). ⁴Type 4 nested congestion (partial length of segment).

SR 92 (CHEROKEE COUNTY) -MORNING**A**

Congestion Type: Signal Queue
Location: Woodstock Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

B

Congestion Type: Signal Queue
Location: Bells Ferry Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 40 to 80 vpl
Number of Lanes: 1
Note: Congestion approaching the signal at Bells Ferry Rd appeared to be exacerbated by construction; during some observations, congestion extended back through the upstream signal at Robin Rd.

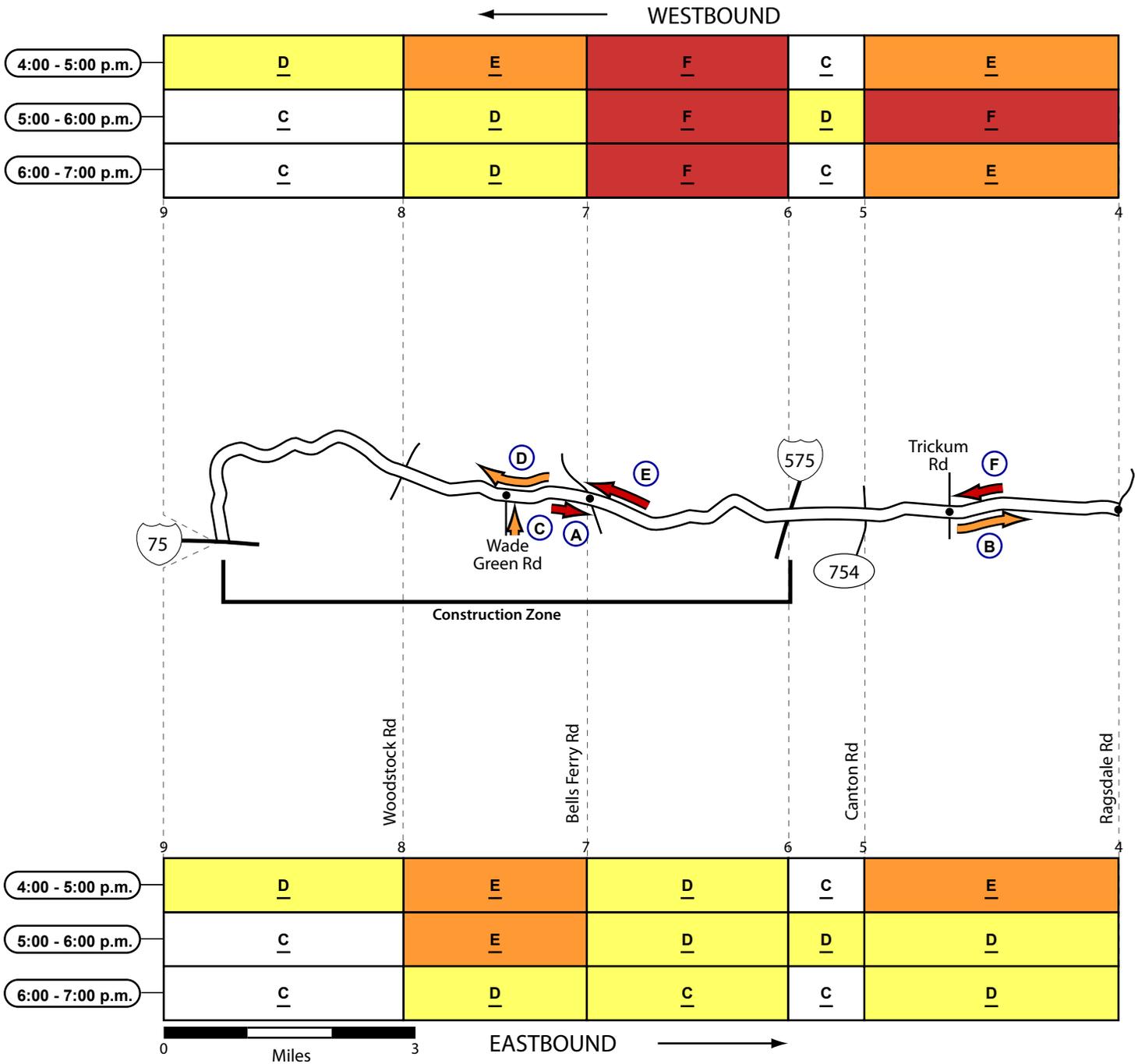
C

Congestion Type: Signal Queue
Location: Wade Green Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 25 to 100 vpl
Number of Lanes: 1
Note: Congestion approaching the signal at Wade Green Rd may have been exacerbated by construction downstream at Bells Ferry Rd.

D

Congestion Type: Platoons
Location: Between Canton Hwy & Ragsdale Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 25 to 50 vpl
Number of Lanes: 2

SR 92 (CHEROKEE COUNTY) - EVENING



Traffic Quality Rating	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 92 (CHEROKEE COUNTY) -EVENING

A

Congestion Type: Signal Queue

Location: Bells Ferry Rd

Frequency: Most observations

Direction: Eastbound

Queue Populations: 20 to 35 vpl

Number of Lanes: 1

Note: Congestion approaching the signal at Bells Ferry Rd appeared to be exacerbated by construction.

B

Congestion Type: Platoons

Location: Between Canton Hwy & Ragsdale Rd

Frequency: Intermittent

Direction: Eastbound

Queue Populations: 25 to 35 vpl

Number of Lanes: 2

C

Congestion Type: Congested Cross Road

Location: Wade Green Rd

Frequency: Intermittent

Direction: Northbound

Queue Populations: 20 to 25 vpl

Number of Lanes: 1

D

Congestion Type: Platoons

Location: Between Bells Ferry Rd & Woodstock Rd

Frequency: Intermittent

Direction: Westbound

Platoon Populations: 25 to 45 vpl

Number of Lanes: 1

E

Congestion Type: Signal Queue

Location: Bells Ferry Rd

Frequency: Most observations

Direction: Westbound

Queue Populations: 35 to 125 vpl

Number of Lanes: 1

Note: Congestion approaching the signal at Bells Ferry Rd appeared to be exacerbated by construction.

F

Congestion Type: Signal Queue

Location: Trickum Rd

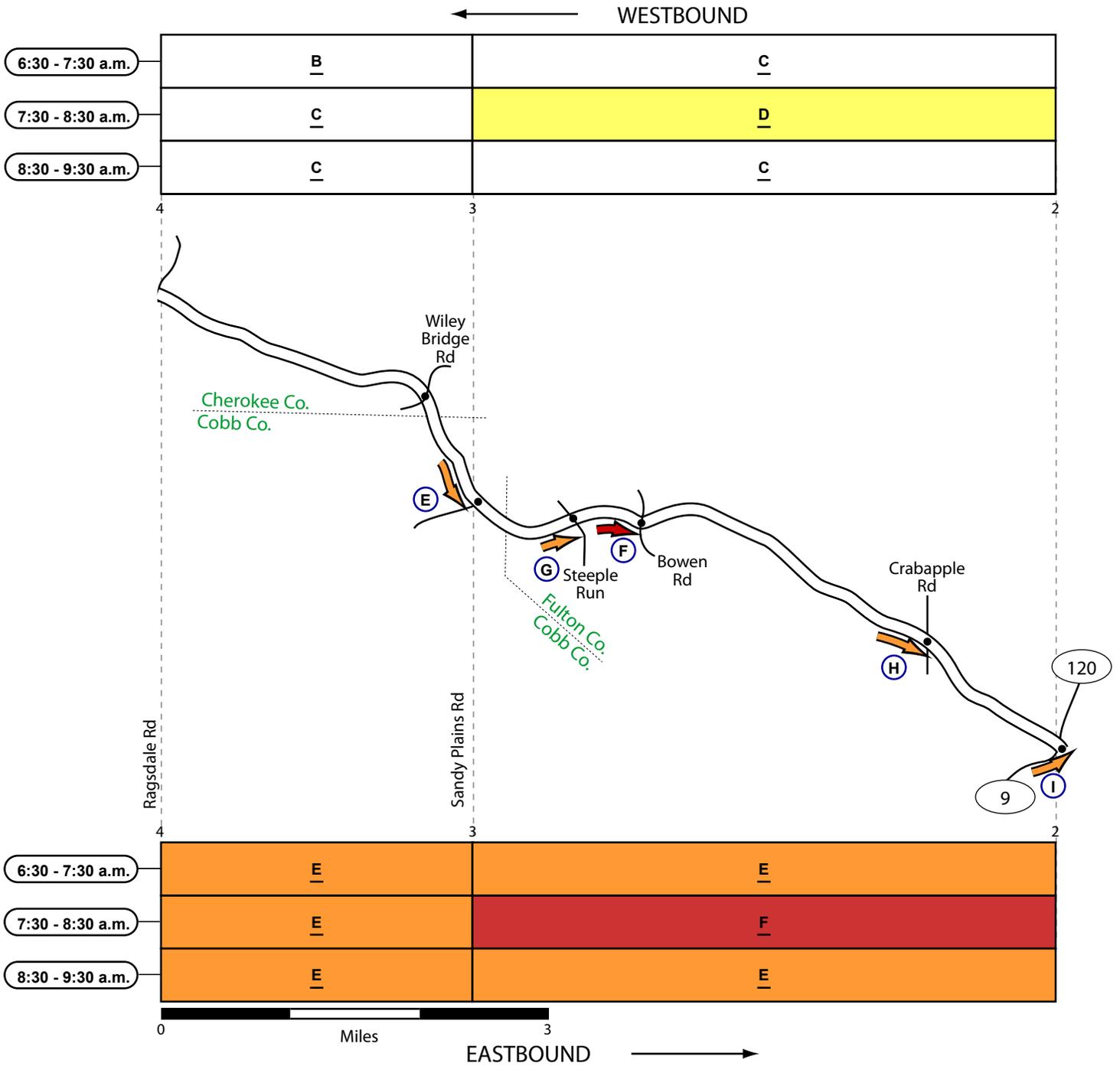
Frequency: Most observations

Direction: Westbound

Queue Populations: 20 to 40 vpl

Number of Lanes: 2

SR 92 (CHEROKEE/COBB & FULTON COUNTIES) -MORNING



Traffic Quality Rating	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes). ⁴Type 4 nested congestion (partial length of segment).

SR 92 (CHEROKEE/COBB & FULTON COUNTIES) -MORNING

E

Congestion Type: Signal Queue
Location: Sandy Plains Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 3

F

Congestion Type: Signal Queue
Location: Bowen Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 25 to 60 vpl
Number of Lanes: 3

G

Congestion Type: Signal Queue
Location: Steeple Run
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 3

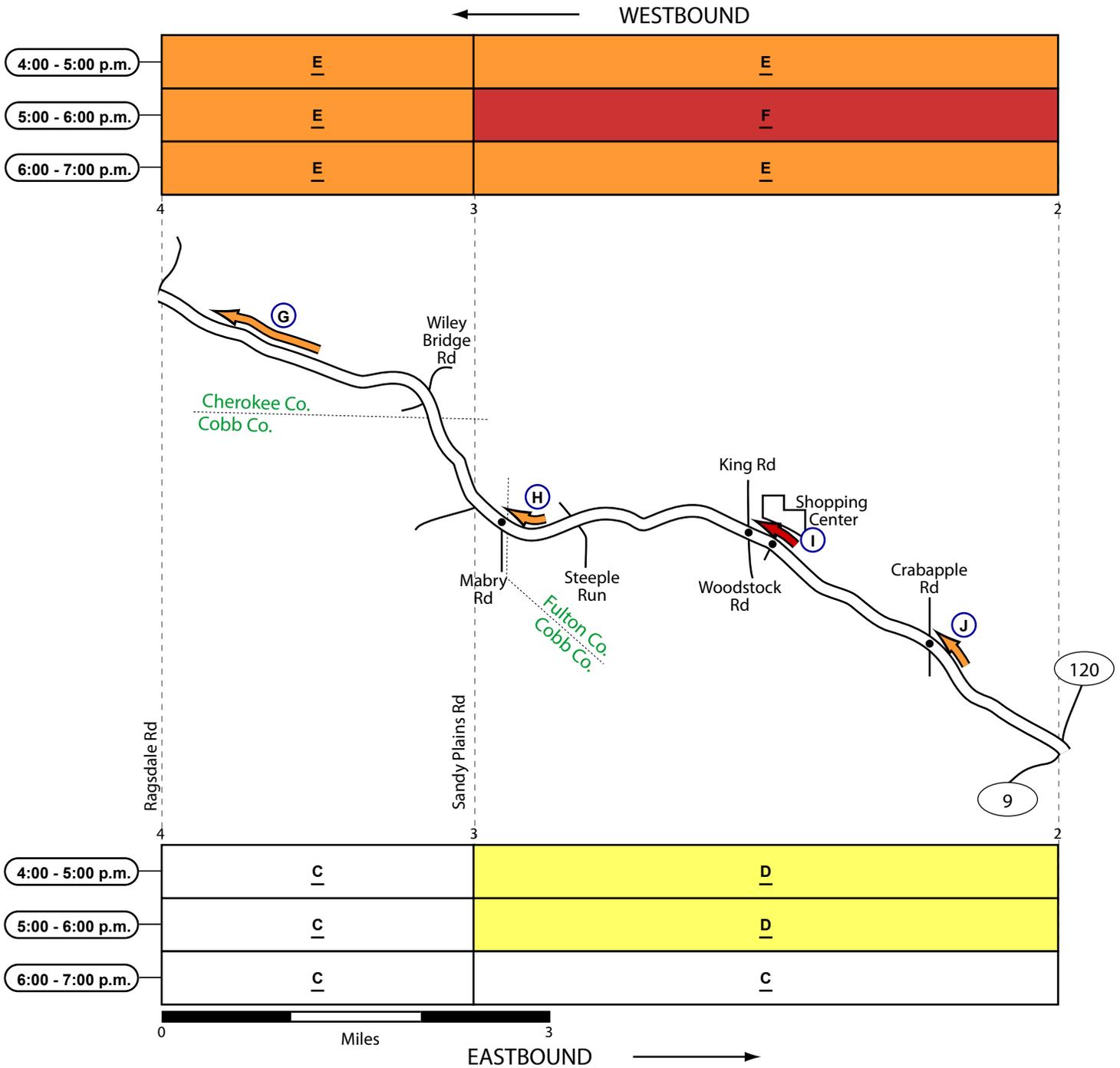
H

Congestion Type: Signal Queue
Location: Crabapple Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 3

I

Congestion Type: Congested Cross Road
Location: SR 120
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

SR 92 (CHEROKEE/COBB & FULTON COUNTIES) - EVENING



Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 92 (CHEROKEE/COBB & FULTON COUNTIES) -EVENING**G**

Congestion Type: Platoons
Location: Between Sandy Plains Rd & Ragsdale Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 25 to 35 vpl
Number of Lanes: 2

H

Congestion Type: Signal Queue
Location: Mabry Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 3

I

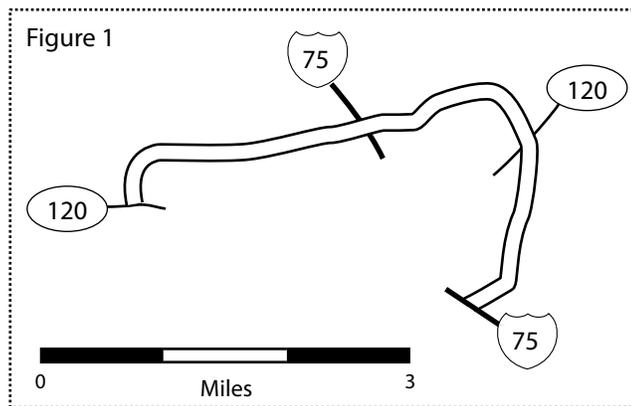
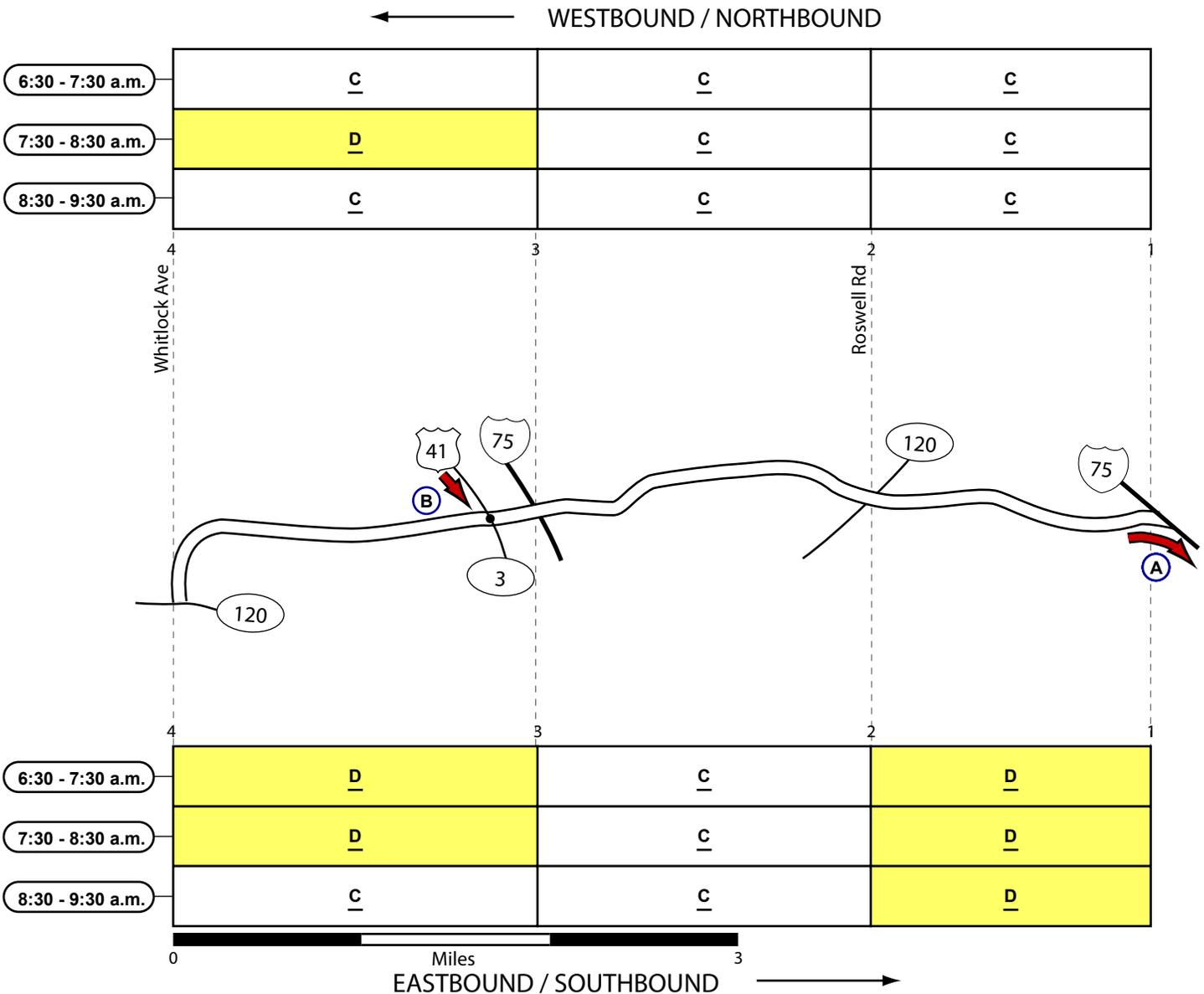
Congestion Type: Signal Queue
Location: King Rd / Woodstock Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 30 to 40 vpl
Number of Lanes: 3
Note: During some observations, congestion at King Rd extended back through the upstream signal at the shopping center.

J

Congestion Type: Signal Queue
Location: Crabapple Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 3

120 LOOP / MARIETTA PARKWAY (COBB COUNTY) - MORNING

Graphic depicted below is not the actual shape of Marietta Pkwy. See Figure 1 for actual shape.



Traffic Quality Rating	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

120 LOOP / MARIETTA PARKWAY (COBB COUNTY) - MORNING

A

Congestion Type: Signal Queue

Location: I-75 (Exit 263)

Frequency: Most observations

Direction: Southbound

Queue Populations: 20 to 50 vpl

Number of Lanes: 2

Note: When congested, vehicles queued in the two dedicated left-turn lanes (to southbound I-75) sometimes extended back into the the mainline of Marietta Pkwy (left two of three lanes).

B

Congestion Type: Congested Cross Road

Location: SR 3/US 41

Frequency: Intermittent

Direction: Southbound

Queue Populations: 20 to 30 vpl

Number of Lanes: 2

120 LOOP / MARIETTA PARKWAY (COBB COUNTY) - EVENING

A
Congestion Type: Platoons
Location: Between SR 120 (Roswell Rd) & I-75
Frequency: Intermittent
Direction: Westbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 2
Note: During some observations, the signal at Wallace Rd appeared to generate marginal westbound congestion.

B
Congestion Type: Signal Queue
Location: SR 120 (Whitlock Ave)
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2
Note: During some observations, a mostly continuous queue was found along Marietta Pkwy between Church St and SR 120 (Whitlock Ave).

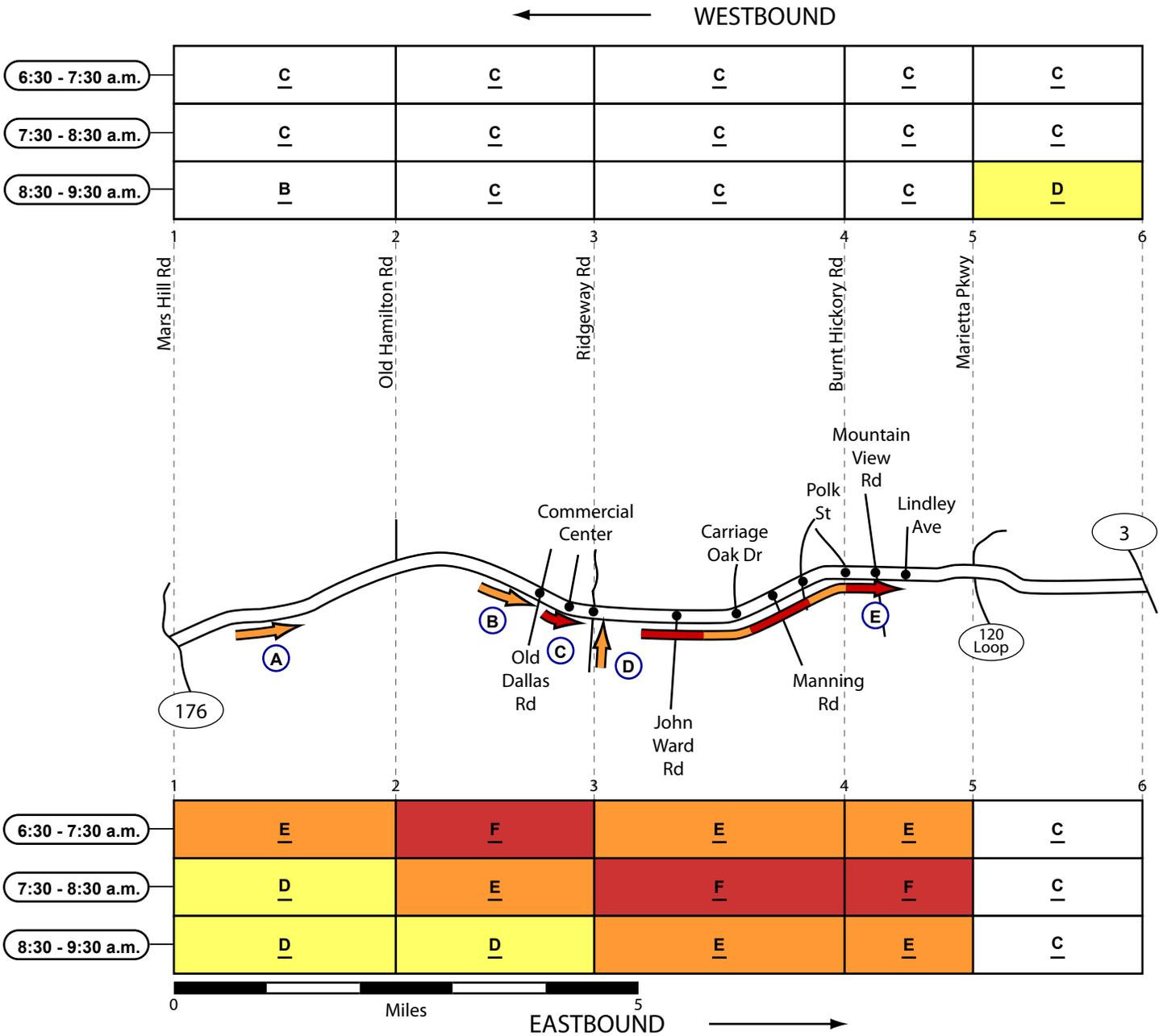
C
Congestion Type: Signal Queue
Location: Polk St
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2

D
Congestion Type: Signal Queue
Location: Church St & Cherokee St
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

E
Congestion Type: Congested Cross Road
Location: Church St
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 3

F
Congestion Type: Exit Ramp Queue
Location: SR 120 (Roswell Rd)
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2

SR 120 (COBB COUNTY) - MORNING



Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others). ³Type 3 nested congestion (present only in the first or second half-hour period).
²Type 2 nested congestion (more severe in left or right-hand lanes). ⁴Type 4 nested congestion (partial length of segment).

SR 120 (COBB COUNTY) - MORNING

A

Congestion Type: Platoons
Location: Between SR 176 & Old Hamilton Rd
Frequency: Intermittent
Direction: Eastbound
Platoon Populations: 25 to 30 vpl
Number of Lanes: 2

B

Congestion Type: Signal Queue
Location: Old Dallas Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

C

Congestion Type: Signal Queue
Location: Ridgeway Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 60 vpl
Number of Lanes: 2

Note: Early in the survey period (6:30-7:30 a.m.), extensive eastbound congestion was typically found on SR 120 approaching Ridgeway Rd; during one observation the head of the queue was found at the signal at Ridgeway Rd - the head of the queue during another observation was found at the closely spaced upstream signal (commercial center).

D

Congestion Type: Congested Cross Road
Location: Ridgeway Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

E

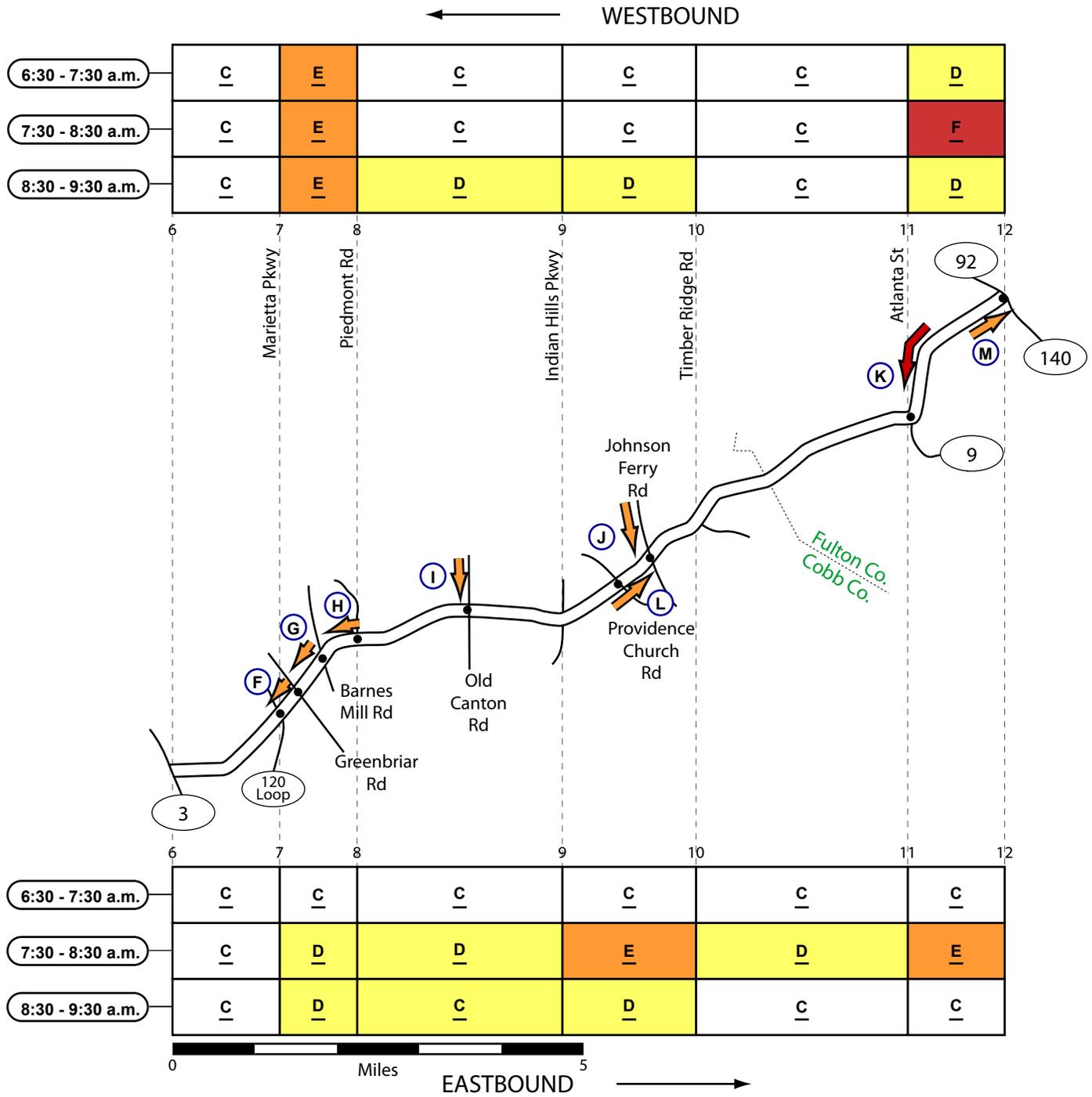
Congestion Type: Signal Queue
Location: Lindley Ave
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 150 vpl
Number of Lanes: 1

Note: During the peak hour, congestion typically extended from John Ward Rd eastbound to Lindley Ave (a distance of approximately 2 miles); the series of signals along this section of SR 120 exacerbated the congestion.

SR 120 (COBB COUNTY) - EVENING

- A**
Congestion Type: Congested Cross Road
Location: SR 176
Frequency: Intermittent
Direction: Southbound
Queue Populations: 25 to 60 vpl
Number of Lanes: 2
- B**
Congestion Type: Congested Cross Road
Location: SR 176
Frequency: Most observations
Direction: Northbound
Queue Populations: 25 to 65 vpl
Number of Lanes: 1
- C**
Congestion Type: Congested Cross Road
Location: John Ward Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1
- D**
Congestion Type: Signal Queue
Location: SR 176
Frequency: Most observations peak hour
Direction: Westbound
Queue Populations: 25 to 60 vpl
Number of Lanes: 2
- E**
Congestion Type: Signal Queue
Location: Bob Cox Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2
- F**
Congestion Type: Congested Cross Road
Location: Ridgeway Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2
- G**
Congestion Type: Signal Queue/Platoons
Location: Vicinity of Manning Rd and Carriage Oak Dr
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 1
Note: After clearing the signal at Polk St, westbound travelers intermittently encountered congestion at the closely spaced signals at Manning Rd and Carriage Oak Dr.
- H**
Congestion Type: Congested Cross Road
Location: Polk St
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1
- I**
Congestion Type: Signal Queue
Location: Polk St
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 50 vpl
Number of Lanes: 1
- J**
Congestion Type: Signal Queue
Location: Burnt Hickory Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 30 to 60 vpl
Number of Lanes: 1
Note: During the peak period, westbound congestion approaching Burnt Hickory Rd (and the closely spaced upstream signals at Mountain View Rd and Lidley Ave) typically extended all the way back to SR 120 Loop (a distance of approximately 1.5 miles).
- K**
Congestion Type: Congested Cross Road
Location: SR 120 Loop
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2
- L**
Congestion Type: Signal Queue
Location: SR 120 Loop
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1
- M**
Congestion Type: Signal Queue
Location: Fairground St
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

SR 120 (COBB & FULTON COUNTIES) - MORNING



Traffic Quality Rating	A	B	C	D	E	F
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 120 (COBB & FULTON COUNTIES) - MORNING

F

Congestion Type: Signal Queue
Location: Marietta Pkwy (120 Loop)
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1
Note: When congested, vehicles were queued in the dedicated left-turn lane to Loop 120 (southbound).

G

Congestion Type: Signal Queue
Location: Greenbriar Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

H

Congestion Type: Signal Queue
Location: Barnes Mill Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

I

Congestion Type: Congested Cross Road
Location: Old Canton Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

J

Congestion Type: Congested Cross Road
Location: Johnson Ferry Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 3

K

Congestion Type: Signal Queue
Location: Atlanta St
Frequency: Peak Hour
Direction: Westbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2

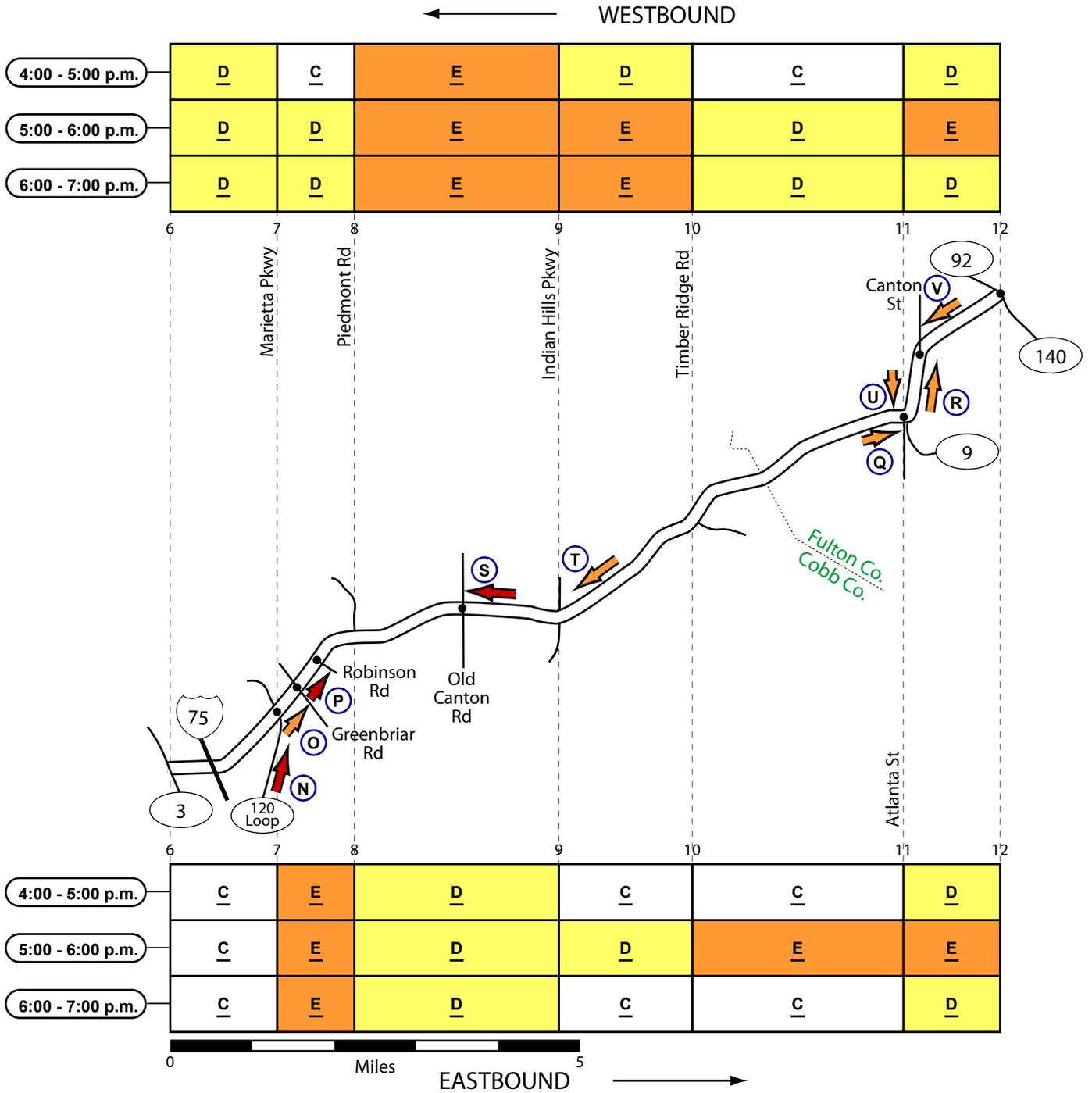
L

Congestion Type: Signal Queue
Location: Johnson Ferry Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2
Note: During some observations, congestion at Johnson Ferry Rd extended back through the closely spaced signal at Providence Church Rd.

M

Congestion Type: Signal Queue
Location: SR 92/SR 140
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

SR 120 (COBB & FULTON COUNTIES) - EVENING



Traffic Quality Rating	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others). ³Type 3 nested congestion (present only in the first or second half-hour period).
²Type 2 nested congestion (more severe in left or right-hand lanes). ⁴Type 4 nested congestion (partial length of segment).

SR 120 (COBB & FULTON COUNTIES) - EVENING**N**

Congestion Type: Congested Cross Road
Location: SR 120 Loop
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2
Note: When congested, vehicles were queued on the ramp from SR 120 Loop to SR 120 (right two lanes to eastbound SR 120).

O

Congestion Type: Signal Queue
Location: Greenbriar Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

P

Congestion Type: Signal Queue
Location: Robinson Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2

Q

Congestion Type: Signal Queue
Location: Atlanta St
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

R

Congestion Type: Signal Queue
Location: Canton St
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1
Note: When congested, vehicles were queued in the left lane approaching the signal at Canton St (left lane dedicated to northbound Canton St). Vehicles in the right lane (dedicated lane to eastbound SR 120) appeared to bypass the queue with minimal delay.

S

Congestion Type: Signal Queue
Location: Old Canton Rd
Frequency: Most observations peak hour
Direction: Westbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2

T

Congestion Type: Platoons
Location: Between Timber Ridge Rd & Indian Hills Pkwy
Frequency: Most observations peak hour
Direction: Westbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2

U

Congestion Type: Signal Queue
Location: Atlanta St
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1
Note: When congested, vehicles were queued in the right lane approaching the ninety-degree right turn onto Marietta Hwy (continuation of SR 120).

V

Congestion Type: Signal Queue
Location: Canton St
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

SR 120 (FULTON COUNTY) - MORNING

N

Congestion Type: Signal Queue
Location: Mansell Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

O

Congestion Type: Signal Queue
Location: Hembree Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

P

Congestion Type: Signal Queue
Location: Main St
Frequency: Peak Hour
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

Q

Congestion Type: Signal Queue
Location: North Point Pkwy
Frequency: Most observations
Direction: Eastbound
Queue Populations: 30 to 90 vpl
Number of Lanes: 2

Note: During most observations, eastbound congestion at North Point Pkwy extended back through the closely spaced intersection at the entrance to a commercial building/parking lot. Congestion also intermittently extended back to the SR 400 Interchange.

R

Congestion Type: Congested Cross Road
Location: State Bridge Rd
Frequency: Most observations
Direction: Northbound
Queue Populations: 30 to 50 vpl
Number of Lanes: 2

S

Congestion Type: Signal Queue
Location: Parsons Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

Note: Eastbound congestion found on SR 120 at Parsons Rd may have been exacerbated by construction at this intersection.

T

Congestion Type: Congested Cross Road
Location: Hembree Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

U

Congestion Type: Signal Queue
Location: Hembree Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

V

Congestion Type: Signal Queue
Location: North Point Pkwy
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

W

Congestion Type: Signal Queue
Location: Brookside Pkwy/Cotton Creek Entry
Frequency: Most observations peak hour
Direction: Westbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2

X

Congestion Type: Signal Queue
Location: Alexander Dr
Frequency: Most observations peak hour
Direction: Westbound
Queue Populations: 25 to 45 vpl
Number of Lanes: 2

Y

Congestion Type: Signal Queue
Location: Bridge Pkwy
Frequency: Most observations peak hour
Direction: Westbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2

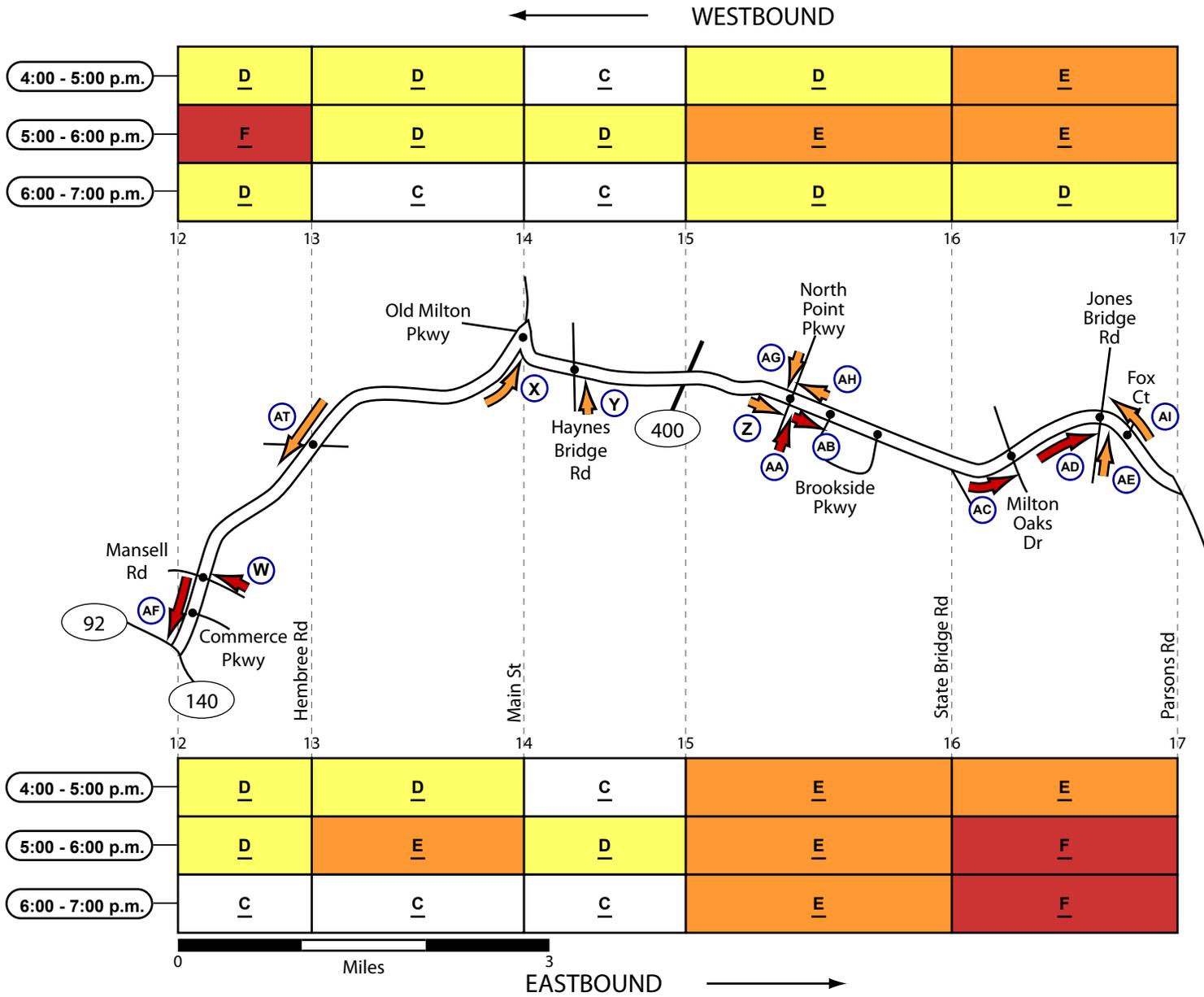
Z

Congestion Type: Signal Queue
Location: Milton Oaks Dr
Frequency: Most observations before 8:30 a.m.
Direction: Westbound
Queue Populations: 30 to 65 vpl
Number of Lanes: 1
Note: During the peak period, congestion typically extended back to the signal at Jones Bridge Rd.

AA

Congestion Type: Signal Queue
Location: Jones Bridge Rd
Frequency: Most observations peak hour
Direction: Westbound
Queue Populations: 30 to 90 vpl
Number of Lanes: 1
Note: On two of the four morning surveys, westbound congestion approaching Jones Bridge Rd extended all the way back to the signal at Parsons Rd (a distance of approximately one mile).

SR 120 (FULTON COUNTY) - EVENING



Traffic Quality Rating	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 120 (FULTON COUNTY) - EVENING

W

Congestion Type: Congested Cross Road
Location: Mansell Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 55 vpl
Number of Lanes: 2

X

Congestion Type: Signal Queue
Location: Main St/Old Milton Pkwy
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

Y

Congestion Type: Congested Cross Road
Location: Haynes Bridge Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1
Note: When congested, vehicles queued in the left turn bay typically extended back into the left lane (of three) on Haynes Bridge Rd.

Z

Congestion Type: Signal Queue
Location: North Point Pkwy
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 35 to 50 vpl
Number of Lanes: 2

AA

Congestion Type: Congested Cross Road
Location: North Point Pkwy
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 55 vpl
Number of Lanes: 2

AB

Congestion Type: Signal Queue
Location: Brookside Pkwy
Frequency: Most observations peak hour
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

AC

Congestion Type: Signal Queue
Location: Milton Oaks Dr
Frequency: Most observations
Direction: Eastbound
Queue Populations: 25 to 70 vpl
Number of Lanes: 1

AD

Congestion Type: Signal Queue
Location: Jones Bridge Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 25 to 70 vpl
Number of Lanes: 1

AE

Congestion Type: Congested Cross Road
Location: Jones Bridge Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

AF

Congestion Type: Signal Queue
Location: SR 92 / SR 140
Frequency: Most observations
Direction: Southbound
Queue Populations: 30 to 50 vpl
Number of Lanes: 2
Note: During some observations, southbound congestion approaching SR 92/140 extended back through the upstream signal at Commerce Pkwy; on one day only (one observation), southbound congestion was also found at the upstream signals at Mansell Rd and Houze Way.

AG

Congestion Type: Congested Cross Road
Location: North Point Pkwy
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

Note: When congested, vehicles queued in the left turn bay typically extended back into the left lane (of two) on North Point Pkwy.

AH

Congestion Type: Signal Queue
Location: North Point Pkwy
Frequency: Intermittent
Direction: Westbound
Queue Populations: 30 to 40 vpl
Number of Lanes: 2

AI

Congestion Type: Signal Queue
Location: Jones Bridge Rd/Fox Ct
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 1

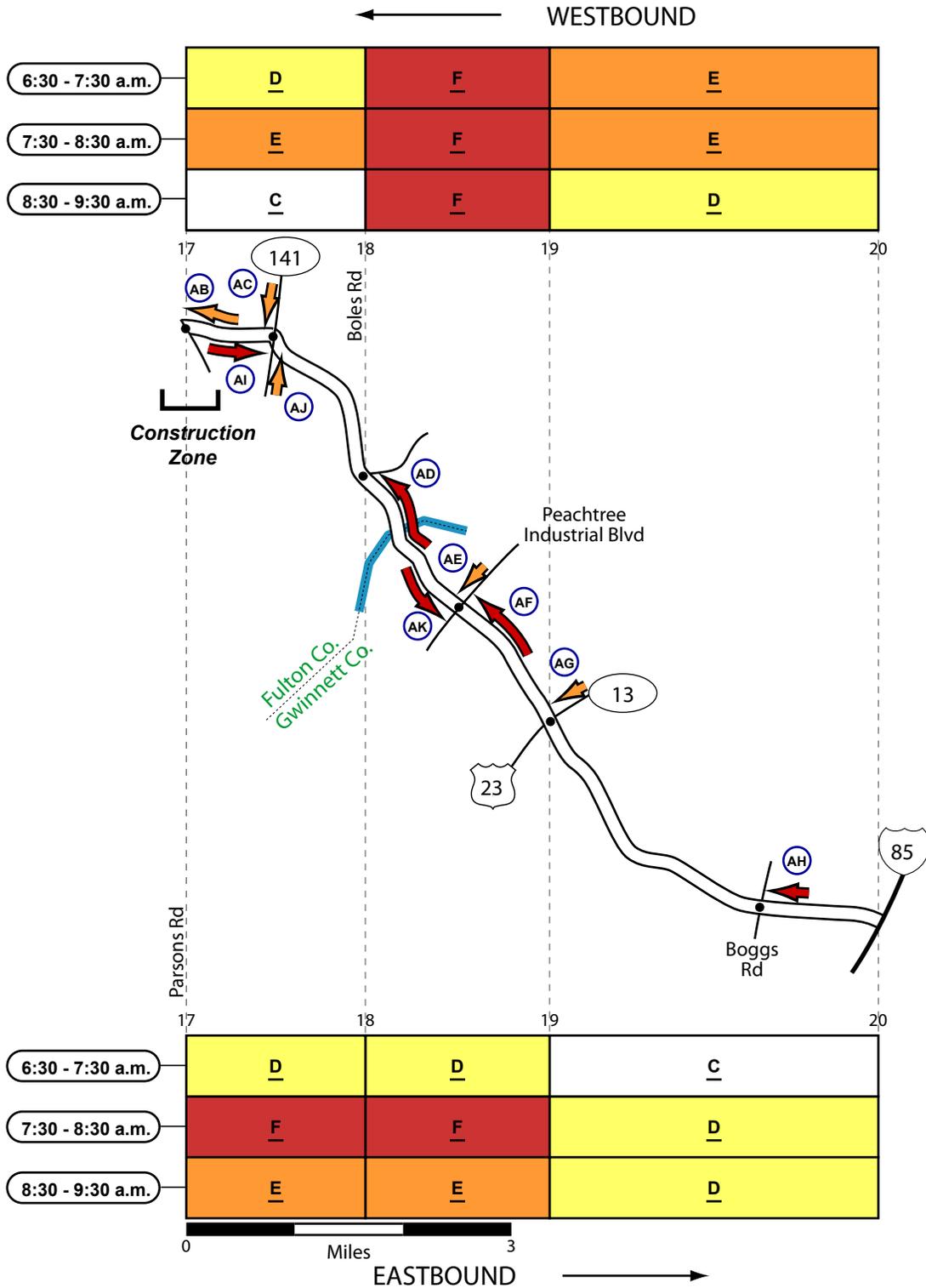
Note: School buses in the traffic stream may have contributed to the congestion.

AT

Congestion Type: Congested Cross Road
Location: Hembree Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 1

Note: When congested, vehicles were queued in the left lane of two waiting to turn southbound on SR 120.

SR 120 (FULTON & GWINNETT COUNTIES) - MORNING



Traffic Quality Rating	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 120 (FULTON & GWINNETT COUNTIES) - MORNING**AB**

Congestion Type: Signal Queue
Location: Parsons Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 1
Note: Westbound congestion on SR 120 at Parsons Rd may have been exacerbated by construction at this intersection.

AC

Congestion Type: Congested Cross Road
Location: SR 141
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

AD

Congestion Type: Signal Queue
Location: Boles Rd
Frequency: Most observations before 8:30 a.m.
Direction: Westbound
Queue Populations: 40 to 80 vpl
Number of Lanes: 1

AE

Congestion Type: Congested Cross Road
Location: Peachtree Industrial Blvd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

AF

Congestion Type: Signal Queue
Location: Peachtree Industrial Blvd
Frequency: Most observations
Direction: Westbound
Queue Populations: 30 to 105 vpl
Number of Lanes: 1

AG

Congestion Type: Congested Cross Road
Location: SR 13
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

AH

Congestion Type: Signal Queue
Location: Boggs Rd
Frequency: Most observations peak hour
Direction: Westbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1

AI

Congestion Type: Signal Queue
Location: SR 141
Frequency: Most observations
Direction: Eastbound
Queue Populations: 35 to 45 vpl
Number of Lanes: 1

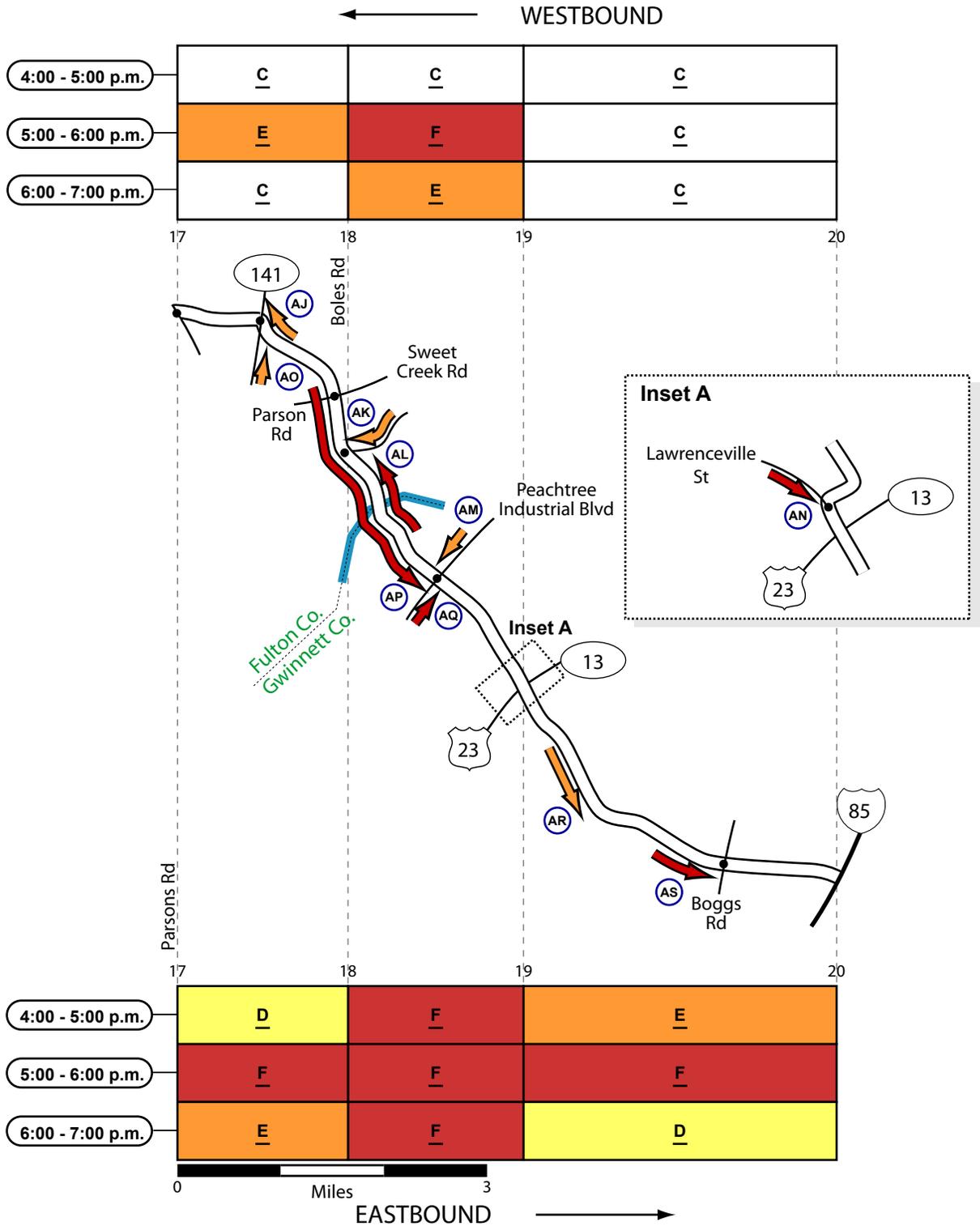
AJ

Congestion Type: Congested Cross Road
Location: SR 141
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

AK

Congestion Type: Signal Queue
Location: Peachtree Industrial Blvd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 40 to 70 vpl
Number of Lanes: 1

SR 120 (FULTON & GWINNETT COUNTIES) - EVENING



Traffic Quality Rating

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 120 (FULTON & GWINNETT COUNTIES) - EVENING**AJ**

Congestion Type: Signal Queue
Location: SR 141
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

AK

Congestion Type: Congested Cross Road
Location: Boles Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

AL

Congestion Type: Signal Queue
Location: Boles Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 50 to 120 vpl
Number of Lanes: 1
Note: During two of the four evening survey dates (peak hour), extensive westbound congestion was found on SR 120 crossing the Chattahoochee River approaching the signal at Boles Rd; congestion was not found here during the other two evening survey dates.

AM

Congestion Type: Congested Cross Road
Location: Peachtree Industrial Blvd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2

AN

Congestion Type: Congested Cross Road
Location: Lawrenceville St
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 50 vpl
Number of Lanes: 1

AO

Congestion Type: Congested Cross Road
Location: SR 141
Frequency: Intermittent
Direction: Northbound
Queue Populations: 40 to 50 vpl
Number of Lanes: 2

AP

Congestion Type: Signal Queue
Location: Peachtree Industrial Blvd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 75 to 120 vpl
Number of Lanes: 1
Note: During most observations, eastbound congestion approaching the signal at Peachtree Industrial Blvd extended back across the Chattahoochee River and through the upstream signals at Boles Rd and Parsons Rd (a distance of over one mile).

AQ

Congestion Type: Congested Cross Road
Location: Peachtree Industrial Blvd
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

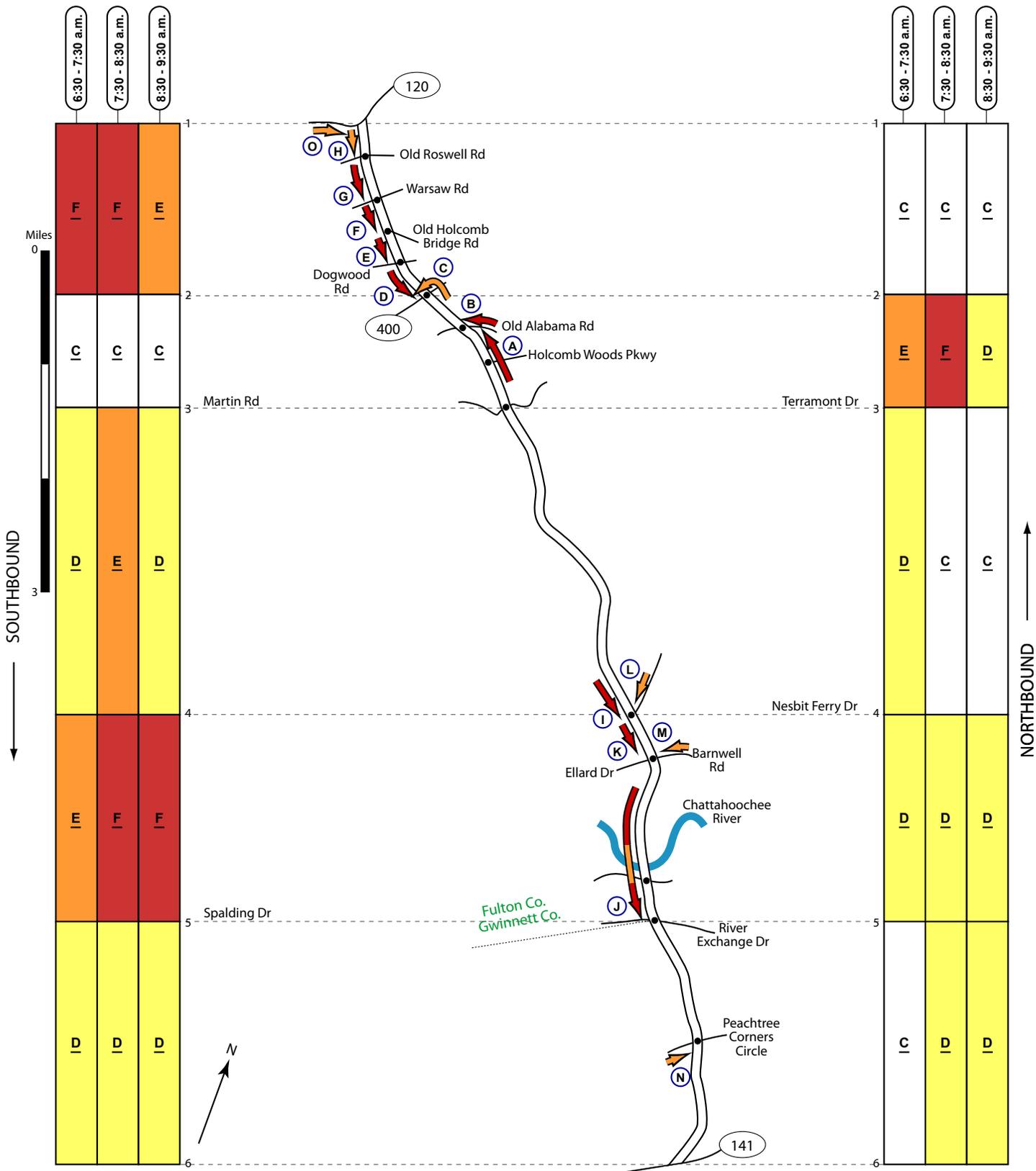
AR

Congestion Type: Platoons
Location: Between SR 13 and Boggs Rd
Frequency: Most observations
Direction: Eastbound
Platoon Populations: 25 to 40 vpl
Number of Lanes: 1

AS

Congestion Type: Signal Queue
Location: Boggs Rd
Frequency: Most observations peak hour
Direction: Eastbound
Queue Populations: 20 to 65 vpl
Number of Lanes: 1

SR 140 (FULTON & GWINNETT COUNTIES) - MORNING



Traffic Quality Rating

A	B	C	D	E	F
Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 140 (FULTON & GWINNETT COUNTIES) - MORNING

A

Congestion Type: Signal Queue
 Location: Old Alabama Rd
 Frequency: Most observations
 Direction: Northbound
 Queue Populations: 30 to 80 vpl
 Number of Lanes: 2
 Note: During some observations, northbound congestion at Old Alabama Rd extended back through the upstream signal at Holcomb Woods Pkwy. Intermittently, downstream congestion approaching the signal at Market Blvd may have adversely affected throughput at the signal at Old Alabama Rd.

B

Congestion Type: Congested Cross Road
 Location: Old Alabama Rd
 Frequency: Most observations during the peak period.
 Direction: Westbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 1
 Note: When congested, the head of the queue was found in the dedicated right-turn lane (to northbound SR 140); during some observations, congestion on Old Alabama Rd approaching SR 140 extended back through the upstream signal at Holcomb Woods Pkwy.

C

Congestion Type: Signal Queue
 Location: SR 400
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 2
 Note: When congested, vehicles were queued in the two leftturn lanes waiting to turn onto the SR 400 southbound ramp.

D

Congestion Type: Signal Queue
 Location: SR 400
 Frequency: Most observations
 Direction: Southbound
 Queue Populations: 25 to 50 vpl
 Number of Lanes: 2
 Note: During the peak period, a mostly continuous queue extended through the series signals between SR 400 and Old Roswell Rd (a distance of approximately one mile).

E

Congestion Type: Signal Queue
 Location: Dogwood Rd
 Frequency: Most observations
 Direction: Southbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 3

F

Congestion Type: Signal Queue
 Location: Old Holcomb Bridge Rd
 Frequency: Most observations
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 3

G

Congestion Type: Signal Queue
 Location: Warsaw Rd
 Frequency: Most observations
 Direction: Southbound
 Queue Populations: 40 to 60 vpl
 Number of Lanes: 3

H

Congestion Type: Signal Queue
 Location: Old Roswell Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 3

I

Congestion Type: Signal Queue
 Location: Nesbit Ferry Rd
 Frequency: Most observations peak period
 Direction: Southbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

J

Congestion Type: Signal Queue
 Location: Spalding Dr
 Frequency: Most observations peak period
 Direction: Southbound
 Queue Populations: 20 to 80 vpl
 Number of Lanes: 2
 Note: During the peak period, southbound congestion typically extended back across the Chattahoochee River.

K

Congestion Type: Signal Queue
 Location: Barnwell Rd/Ellard Dr
 Frequency: Most observations peak period
 Direction: Southbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

L

Congestion Type: Congested Cross Road
 Location: Nesbit Ferry Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 50 vpl
 Number of Lanes: 2

M

Congestion Type: Congested Cross Road
 Location: Barnwell Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

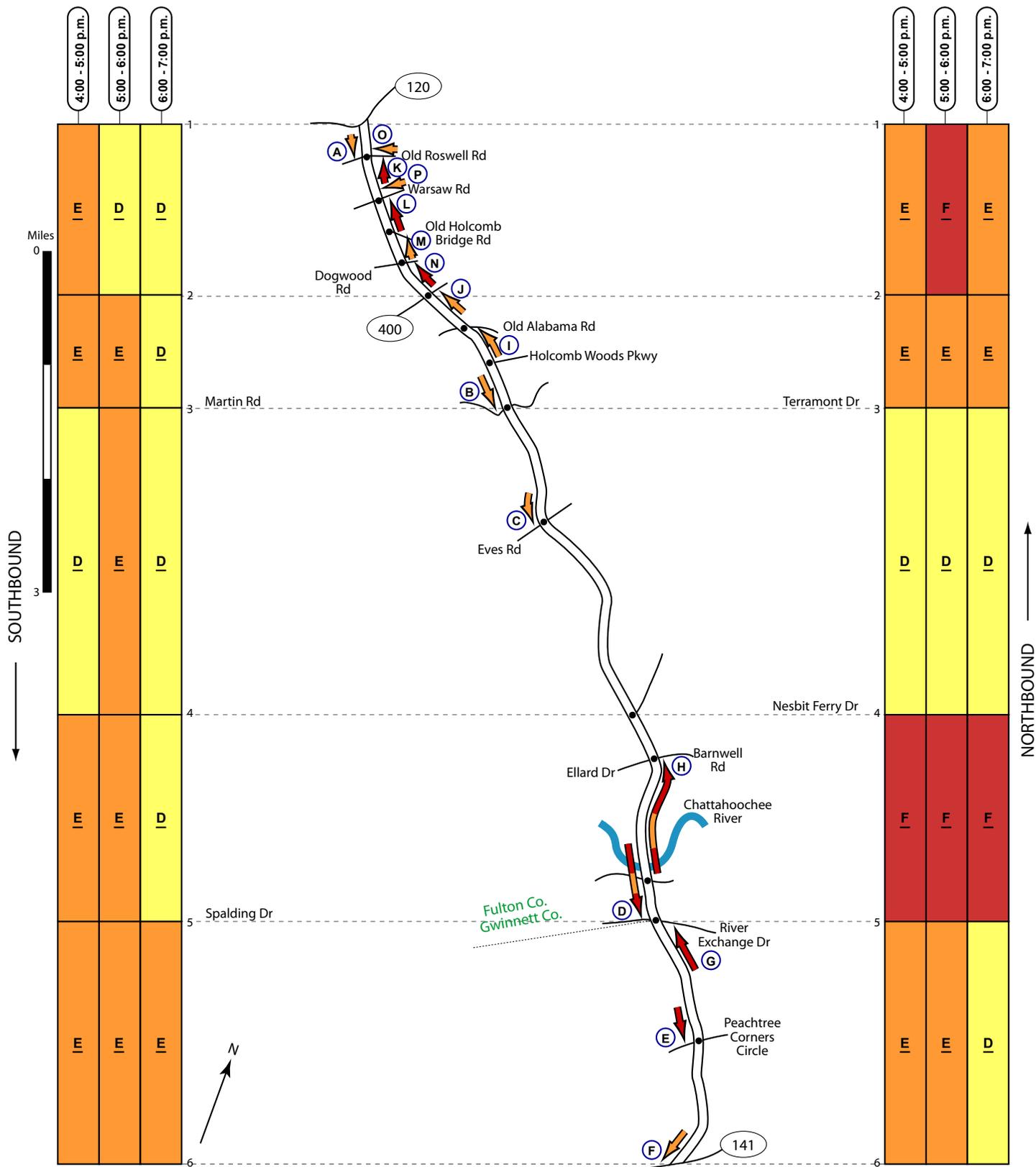
N

Congestion Type: Congested Cross Road
 Location: Peachtree Corners Circle
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 1
 Note: When congested, vehicles were queued in the left turn bay waiting to turn northbound on SR 140.

O

Congestion Type: Congested Cross Road
 Location: SR 120
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 2

SR 140 (FULTON & GWINNETT COUNTIES) - EVENING



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 140 (FULTON & GWINNETT COUNTIES) - EVENING**A**

Congestion Type: Signal Queue
Location: Grimes Bridge Rd/Old Roswell Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 3

B

Congestion Type: Signal Queue
Location: Terramont Dr/Martins Landing Dr
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 3

C

Congestion Type: Signal Queue
Location: Eves Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 3

D

Congestion Type: Signal Queue
Location: Spalding Dr/River Exchange Dr
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2
Note: The head of the queue south of the Chattahoochee River appeared to alternate between the signals at River Exchange Dr and Spalding Dr.

E

Congestion Type: Signal Queue
Location: Peachtree Corners Circle
Frequency: Most observations peak period
Direction: Southbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2
Note: During one observation, approximately 60 vehicles per lane were queued at the signal.

F

Congestion Type: Signal Queue
Location: SR 141
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

G

Congestion Type: Signal Queue
Location: Spalding Dr/Wetherburn Way
Frequency: Most observations peak period
Direction: Northbound
Queue Populations: 25 to 75 vpl
Number of Lanes: 2
Note: During some observations, northbound congestion approaching Spalding Dr extended back through the upstream signal at Wetherburn Way.

H

Congestion Type: Signal Queue
Location: Barnwell Rd/Ellard Dr
Frequency: Most observations
Direction: Northbound
Queue Populations: 25 to 115 vpl
Number of Lanes: 2
Note: During the peak period, northbound congestion approaching Barnwell Rd typically extended back across the Chattahoochee River.

I

Congestion Type: Signal Queue
Location: Old Alabama Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

J

Congestion Type: Signal Queue
Location: SR 400
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

K

Congestion Type: Signal Queue
Location: Old Roswell Rd/Grimes Bridge Rd
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

L

Congestion Type: Signal Queue
Location: Warsaw Rd
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2

M

Congestion Type: Signal Queue
Location: Old Holcomb Bridge Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

N

Congestion Type: Signal Queue
Location: Dogwood Rd
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2
Note: During some observations, northbound congestion approaching Dogwood Rd extended back through the upstream signal at SR 400.

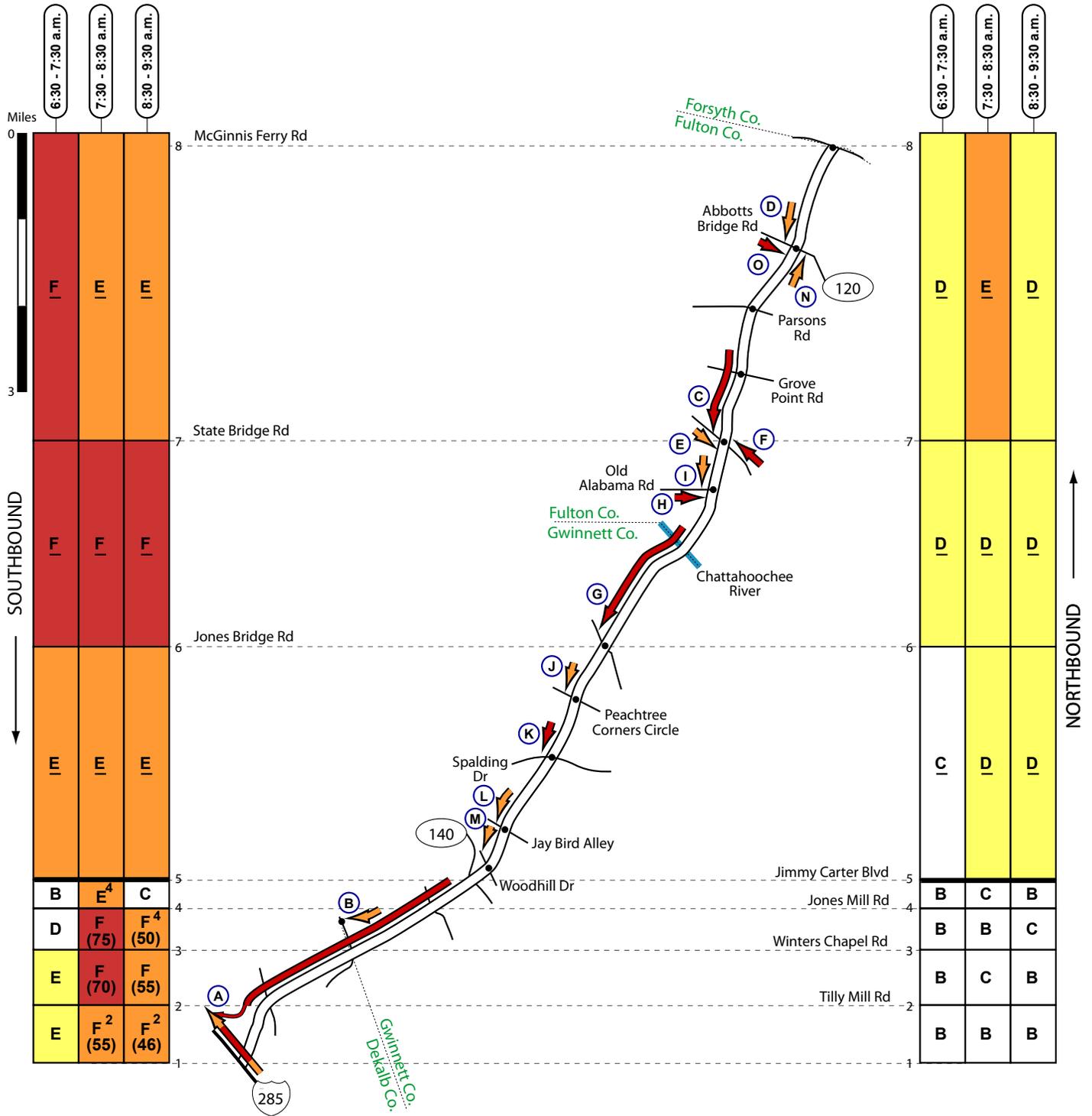
O

Congestion Type: Congested Cross Road
Location: Old Roswell Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 50 vpl
Number of Lanes: 1

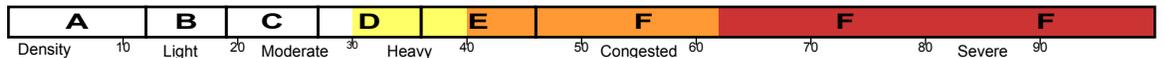
P

Congestion Type: Congested Cross Road
Location: Warsaw Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

SR 141 (FULTON/GWINNETT & DEKALB COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 141 (FULTON/GWINNETT & DEKALB COUNTIES) - MORNING

A
 Congestion Type: Mainline Congestion
 Frequency: Most observations
 Direction: Southbound
 Location: Between Jimmy Carter Blvd and I-285
 Queue Length: 2 to 3 miles
 Estimated Speed: 20 to 40 mph
 Potential Cause(s): The head of the queue was found on the ramp to I-285; congestion typically extended back into the right lane (and eventually across all lanes) of SR 141.

B
 Congestion Type: Exit Ramp Queue
 Location: Winters Chapel Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Population: 20 to 30 vpl
 Number of Lanes: Three

C
 Congestion Type: Signal Queue
 Location: State Bridge Rd
 Frequency: Most observations
 Direction: Southbound
 Queue Populations: 20 to 80 vpl
 Number of Lanes: 2
 Note: During some observations, southbound congestion approaching the signal at State Bridge Rd extended back through several upstream signals (Grove Point Rd and Medlock Bridge Pkwy).

D
 Congestion Type: Signal Queue
 Location: SR 120
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

E
 Congestion Type: Congested Cross Road
 Location: State Bridge Rd
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

F
 Congestion Type: Congested Cross Road
 Location: State Bridge Rd
 Frequency: Most observations
 Direction: Westbound
 Queue Populations: 20 to 60 vpl
 Number of Lanes: 2

G
 Congestion Type: Signal Queue
 Location: Jones Bridge Rd
 Frequency: Most observations
 Direction: Southbound
 Queue Populations: 20 to 175 vpl
 Number of Lanes: 2
 Note: During the peak period, southbound congestion approaching the signal at Jones Bridge Rd typically extended back across the Chattahoochee River to the vicinity of Old Alabama Rd (a distance of approximately two miles).

H
 Congestion Type: Congested Cross Road
 Location: Old Alabama Rd
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 1
 Note: When congested, vehicles were queued in the left lane of two waiting at the signal to turn northbound onto SR 141.

I
 Congestion Type: Signal Queue
 Location: Old Alabama Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

J
 Congestion Type: Signal Queue
 Location: Peachtree Corners Circle
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

K
 Congestion Type: Signal Queue
 Location: Spalding Dr
 Frequency: Most observations
 Direction: Southbound
 Queue Populations: 20 to 45 vpl
 Number of Lanes: 2

L
 Congestion Type: Signal Queue
 Location: Jay Bird Alley
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

M
 Congestion Type: Signal Queue
 Location: Woodhill Dr
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

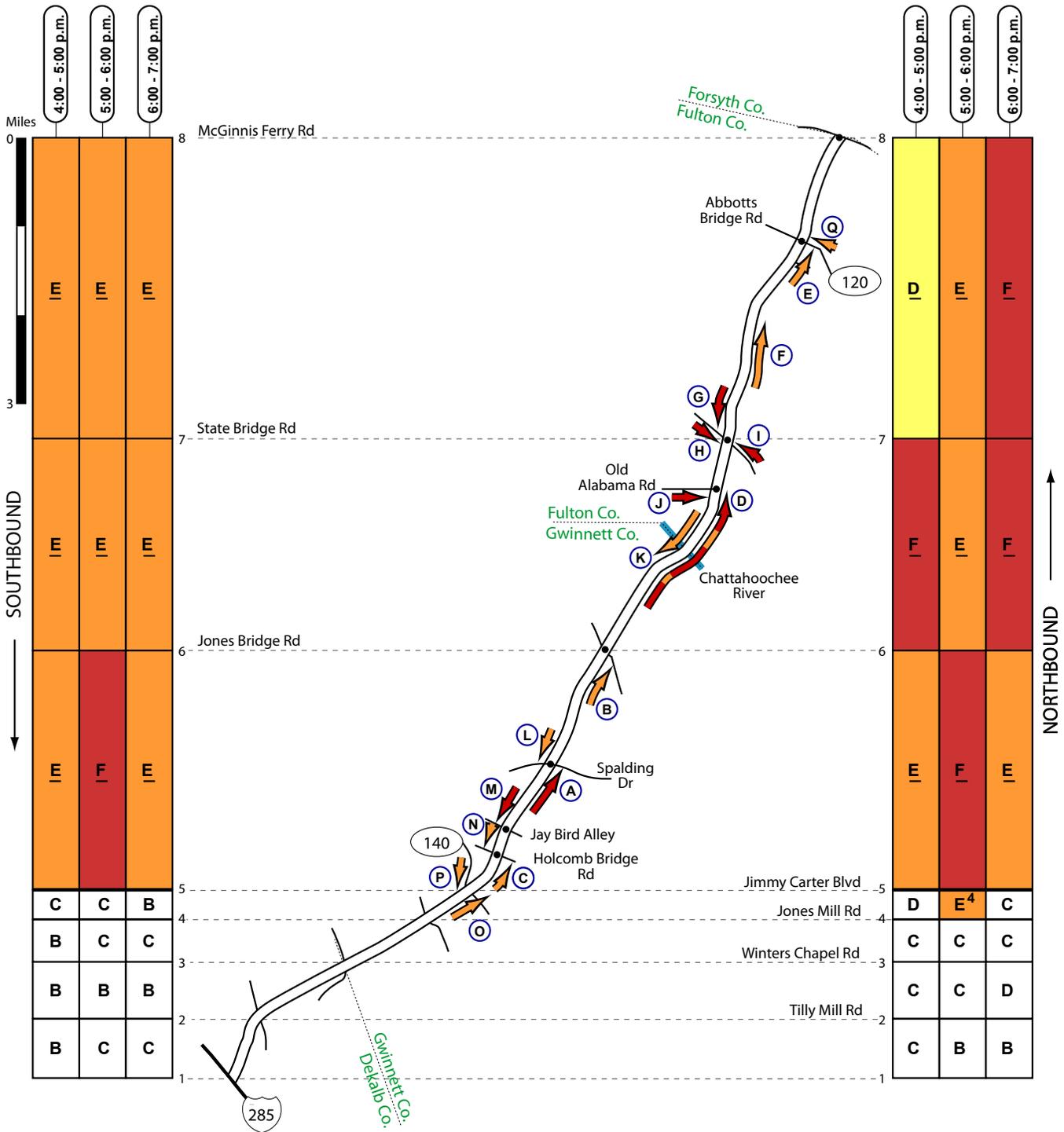
N
 Congestion Type: Signal Queue
 Location: SR 120
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

O
 Congestion Type: Congested Cross Rd
 Location: SR 120
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 35 to 45 vpl
 Number of Lanes: 1

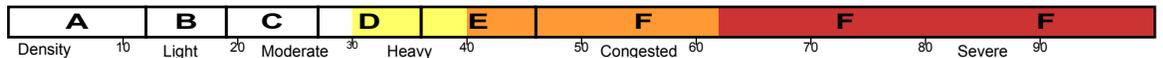
Traffic Quality Rating

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
Very Light	Light	Moderate	Heavy	Congested	Severe

SR 141 (FULTON/GWINNETT & DEKALB COUNTIES) - EVENING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

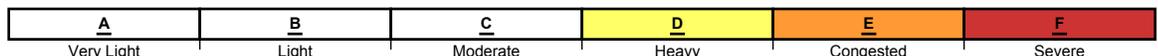
²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 141 (FULTON/GWINNETT & DEKALB COUNTIES) - EVENING

- A**
Congestion Type: Signal Queue
Location: Spalding Dr
Frequency: Most observations
Direction: Northbound
Queue Populations: 30 to 65 vpl
Number of Lanes: 2
- B**
Congestion Type: Signal Queue
Location: Jones Bridge Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2
- C**
Congestion Type: Signal Queue
Location: Holcomb Bridge Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2
- D**
Congestion Type: Signal Queue
Location: Old Alabama Rd
Frequency: Most observations
Direction: Northbound
Queue Populations: 40 to 150 vpl
Number of Lanes: 2
Note: During the peak period, congestion typically extended back across the Chattahoochee River; on two of the mornings surveyed, congestion extended all the way back to Jones Bridge Rd (a distance of approximately 2 miles).
- E**
Congestion Type: Signal Queue
Location: SR 120 (Abbotts Bridge Rd)
Frequency: Intermittent
Direction: Northbound
Queue Populations: 40 to 45 vpl
Number of Lanes: 2
- F**
Congestion Type: Platoons
Location: Between State Bridge Rd & SR 120
Frequency: Intermittent
Direction: Northbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2
- G**
Congestion Type: Signal Queue
Location: State Bridge Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 65 vpl
Number of Lanes: 2
Note: During some observations, congestion in the left-turn bay extended back into the left lane on SR 141.
- H**
Congestion Type: Congested Cross Road
Location: State Bridge Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 60 vpl
Number of Lanes: 2
- I**
Congestion Type: Congested Cross Road
Location: State Bridge Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2
- J**
Congestion Type: Congested Cross Road
Location: Old Alabama Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 60 vpl
Number of Lanes: 1
Note: When congested, vehicles were queued in the left lane waiting to turn northbound onto SR 141.
- K**
Congestion Type: Platoons
Location: Between State Bridge Rd & Jones Bridge Rd
Frequency: Most observations
Direction: Southbound
Platoon Populations: 25 to 35 vpl
Number of Lanes: 2
- L**
Congestion Type: Signal Queue
Location: Spalding Dr
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2
- M**
Congestion Type: Signal Queue
Location: Jay Bird Alley
Frequency: Most observations
Direction: Southbound
Queue Populations: 30 to 45 vpl
Number of Lanes: 2
- N**
Congestion Type: Signal Queue
Location: Holcomb Bridge Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2
- O**
Congestion Type: Mainline Congestion
Frequency: On some days but not others
Direction: Northbound
Location: Between Jones Mill Rd and Holcomb Bridge Rd
Queue Length: .5 to 1 miles
Potential Cause(s): The signal at the freeway terminus at Holcomb Bridge Rd
- P**
Congestion Type: Congested Cross Road
Location: SR 140
Frequency: Intermittent
Direction: Southbound
Queue Population: 20 to 25 vpl
Number of Lanes: 2
- Q**
Congestion Type: Congested Cross Road
Location: SR 120
Frequency: Intermittent
Direction: Westbound
Queue Population: 20 to 25 vpl
Number of Lanes: 1

Traffic Quality Rating



SR 166 (FULTON COUNTY) - MORNING

A

Congestion Type: Platoons
 Location: Between Camp Creek Pkwy & Enon Rd
 Frequency: Intermittent
 Direction: Eastbound
 Platoon Populations: 25 to 35 vpl
 Number of Lanes: 1
 Note: Vehicles waiting to turn left at Boat Rock Rd (no signal - waiting for gap in westbound traffic) may have contributed to the formation of the platoons.

B

Congestion Type: Signal Queue
 Location: County Line Rd
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 1

C

Congestion Type: Signal Queue
 Location: Niskey Lake Rd
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 35 vpl
 Number of Lanes: 1

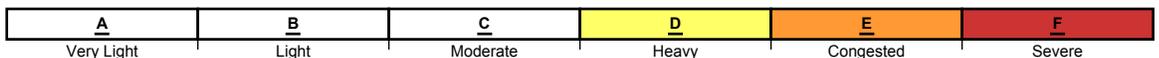
D

Congestion Type: Signal Queue
 Location: Fairburn Rd
 Frequency: Peak Hour
 Direction: Eastbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 2

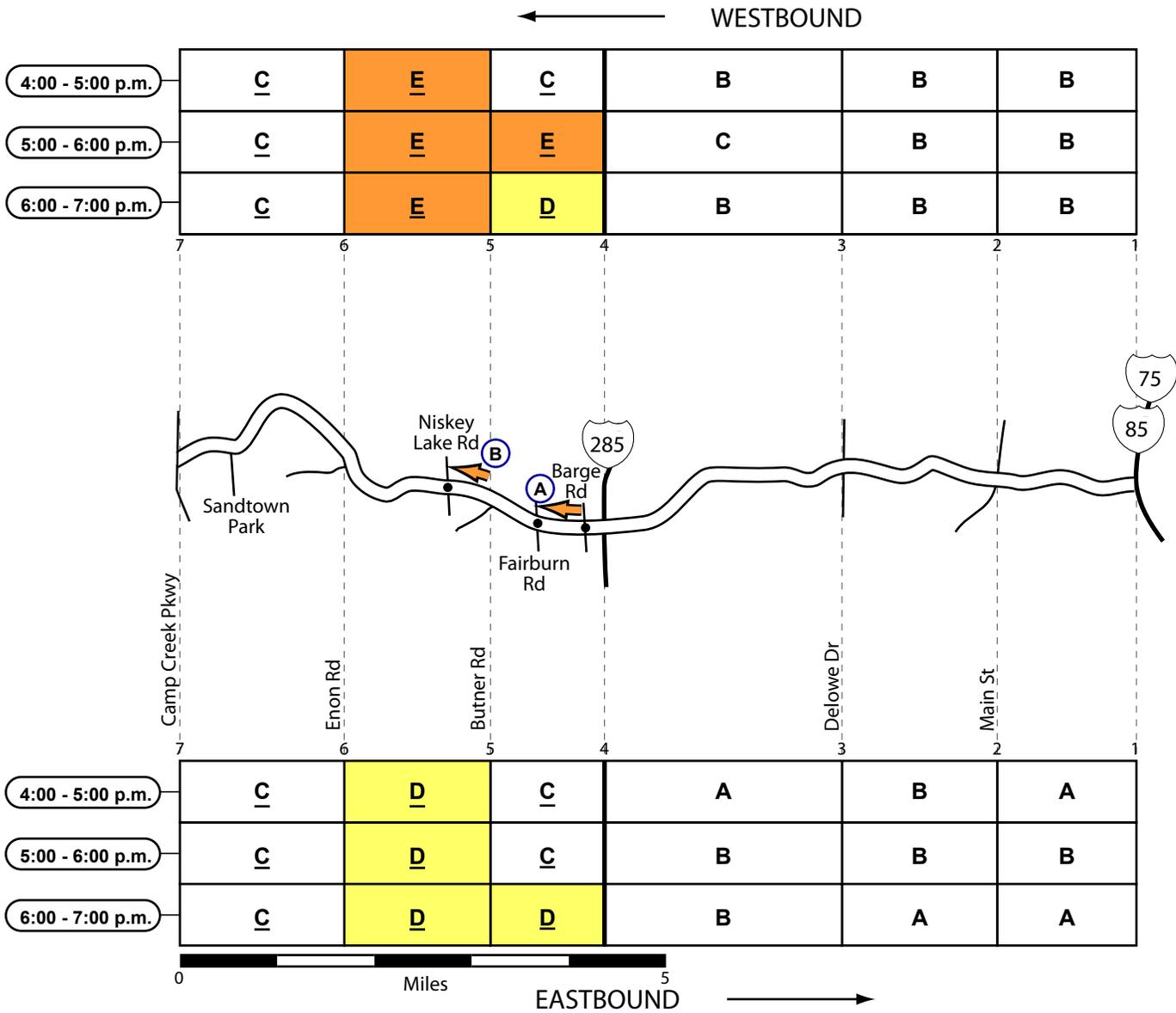
E

Congestion Type: Signal Queue
 Location: Barge Rd
 Frequency: Peak Hour
 Direction: Eastbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

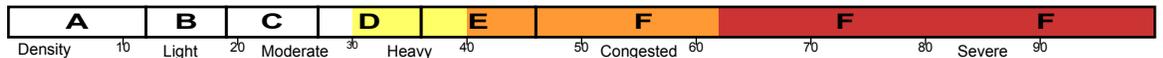
Traffic Quality Rating



SR 166 (FULTON COUNTY) - EVENING



Traffic Quality Rating



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 166 (FULTON COUNTY) - EVENING

A

Congestion Type: Signal Queue

Location: Fairburn Rd

Frequency: Peak Hour

Direction: Westbound

Queue Populations: 20 to 30 vpl

Number of Lanes: 2

Note: During one observation, eastbound congestion approaching Fairburn Rd extended back through the upstream signal at Barge Rd.

B

Congestion Type: Signal Queue

Location: Niskey Lake Rd

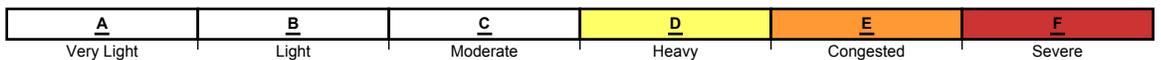
Frequency: Intermittent

Direction: Westbound

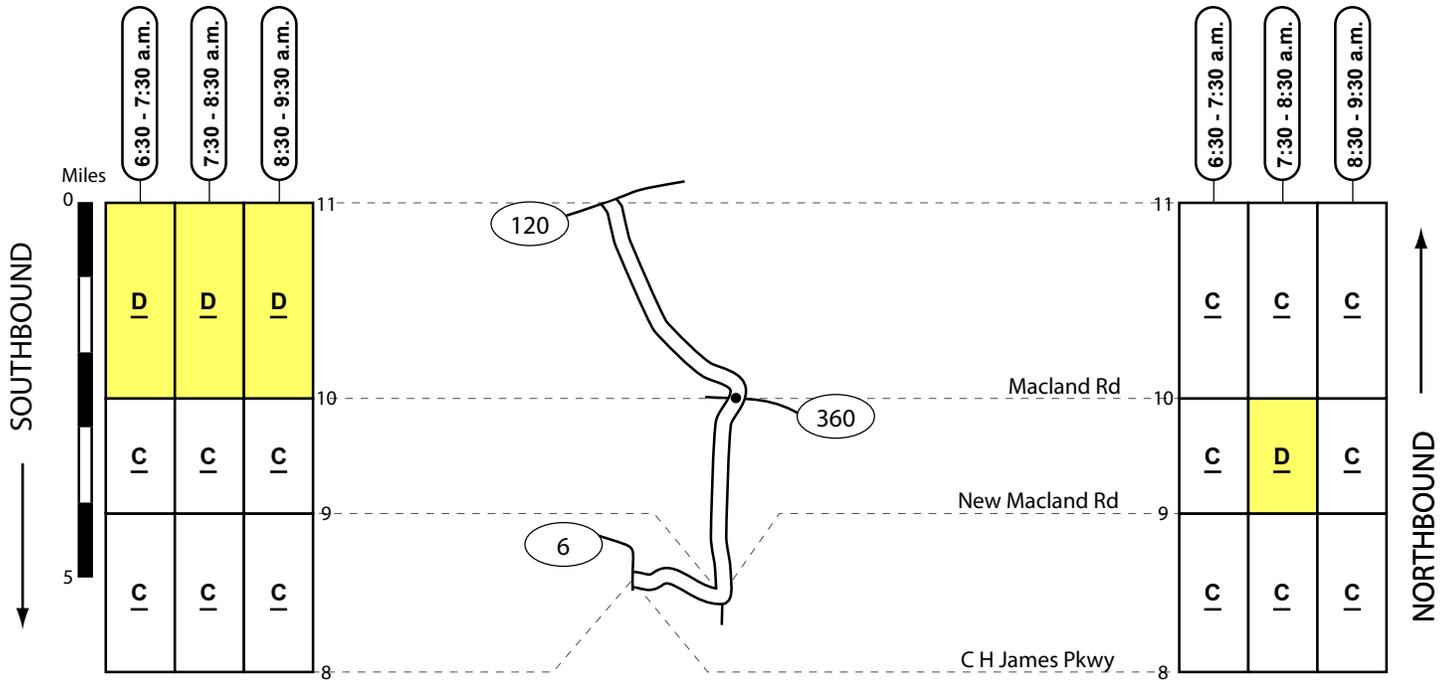
Queue Populations: 20 to 30 vpl

Number of Lanes: 1

Traffic Quality Rating



SR 176 (COBB COUNTY) - MORNING



Traffic Quality Rating



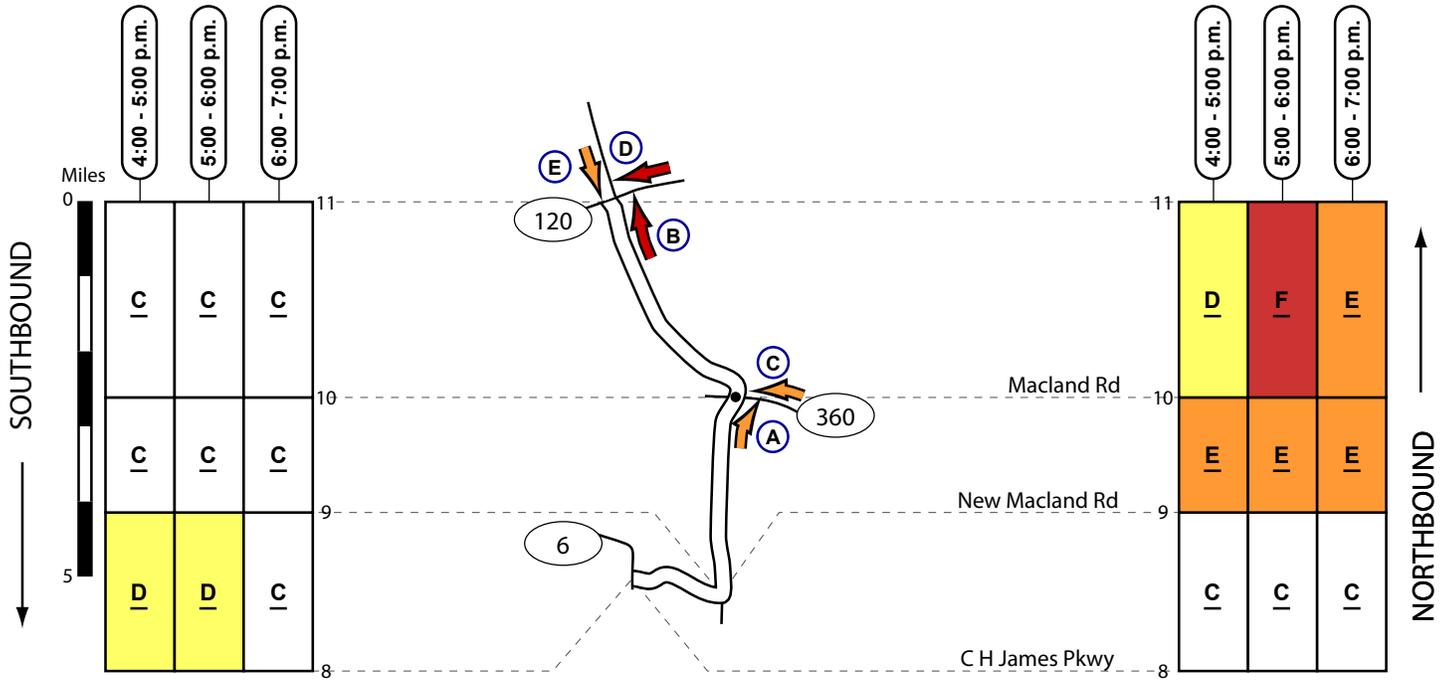
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

SR 176 (COBB COUNTY) - EVENING



A
 Congestion Type: Signal Queue
 Location: SR 360 (Macland Rd)
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 50 vpl
 Number of Lanes: 1

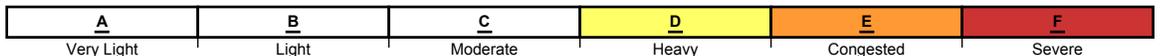
E
 Congestion Type: Signal Queue
 Location: SR 120
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 25 to 60 vpl
 Number of Lanes: 2

B
 Congestion Type: Signal Queue
 Location: SR 120
 Frequency: Most observations
 Direction: Northbound
 Queue Populations: 25 to 65 vpl
 Number of Lanes: 1

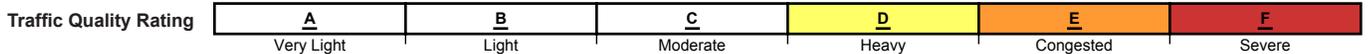
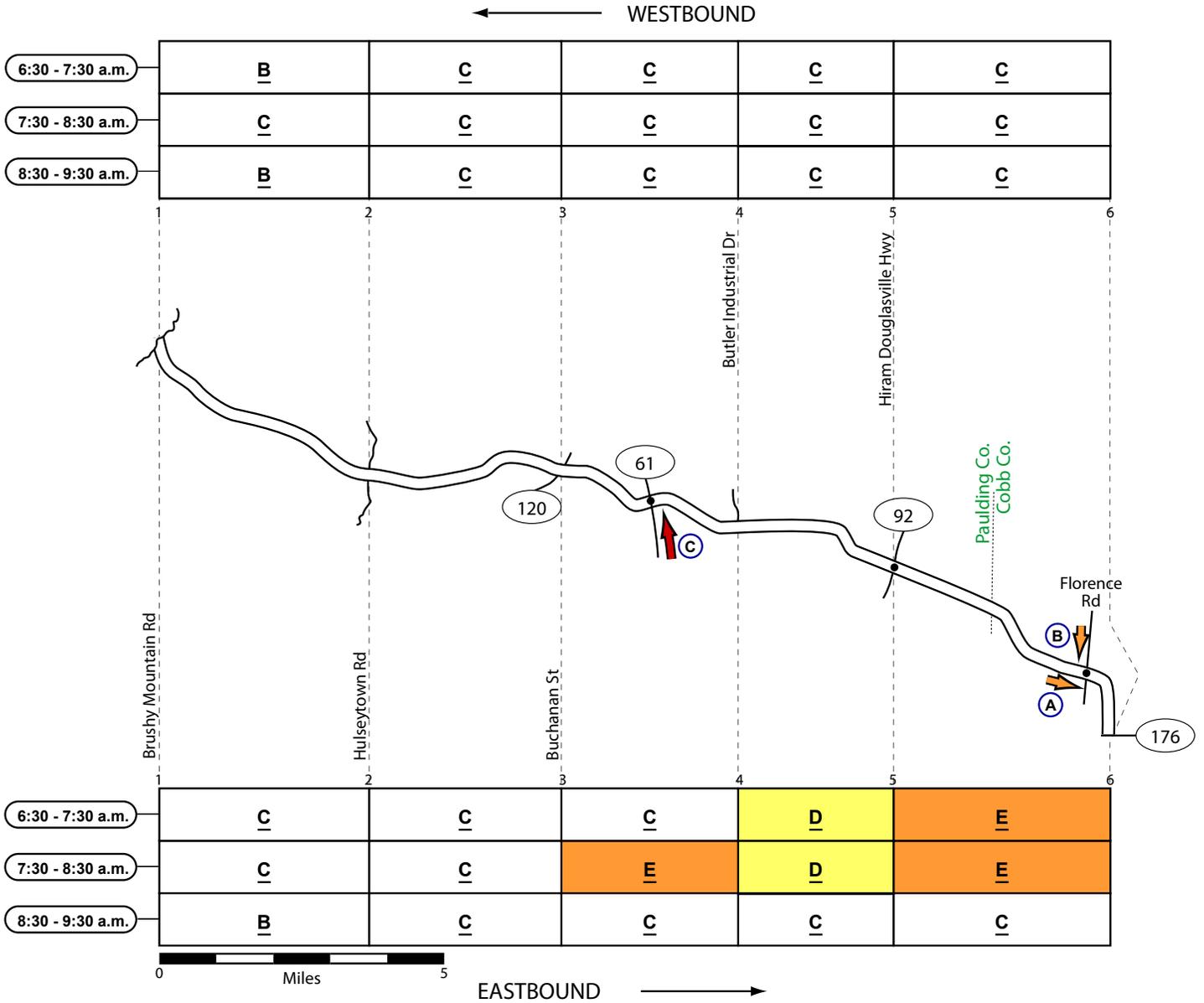
C
 Congestion Type: Congested Cross Road
 Location: SR 360 (Macland Rd)
 Frequency: Intermittent
 Direction: Westbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 1

D
 Congestion Type: Congested Cross Road
 Location: SR 120
 Frequency: Most observations (peak hour)
 Direction: Westbound
 Queue Populations: 25 to 60 vpl
 Number of Lanes: 2

Traffic Quality Rating



US 278 (PAULDING & COBB COUNTIES) - MORNING



US 278 (PAULDING & COBB COUNTIES) - MORNING

A

Congestion Type: Signal Queue
Location: Florence Rd
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

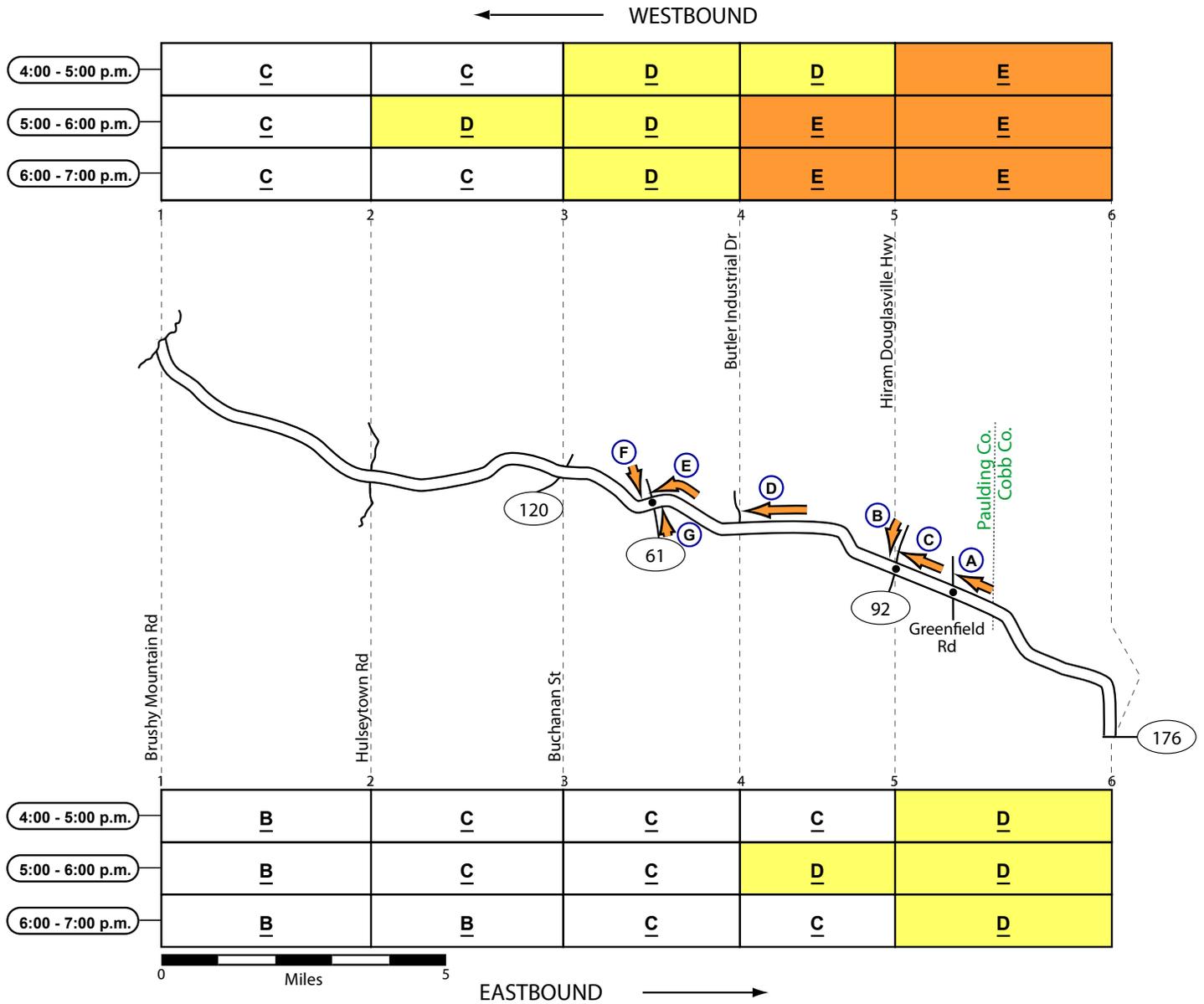
B

Congestion Type: Congested Cross Road
Location: Florence Rd
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

C

Congestion Type: Congested Cross Road
Location: SR 61 (Villa Rica Hwy)
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

US 278 (PAULDING & COBB COUNTIES) - EVENING



Traffic Quality Rating

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

US 278 (PAULDING & COBB COUNTIES) - EVENING

A

Congestion Type: Signal Queue
Location: Greenfield Rd
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

B

Congestion Type: Congested Cross Road
Location: SR 92
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

C

Congestion Type: Signal Queue
Location: SR 92
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2
Note: During some observations, congestion approaching the signal at SR 92 extended back through the closely spaced upstream signal at W. Lake Rd.

D

Congestion Type: Platoons
Location: Between SR 92 & Butler Industrial Dr
Frequency: Intermittent
Direction: Westbound
Queue Populations: 25 to 30 vpl
Number of Lanes: 2

E

Congestion Type: Signal Queue
Location: SR 61 (Villa Rica Hwy)
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1
Note: When congested, vehicles were queued in the dedicated left-turn lane.

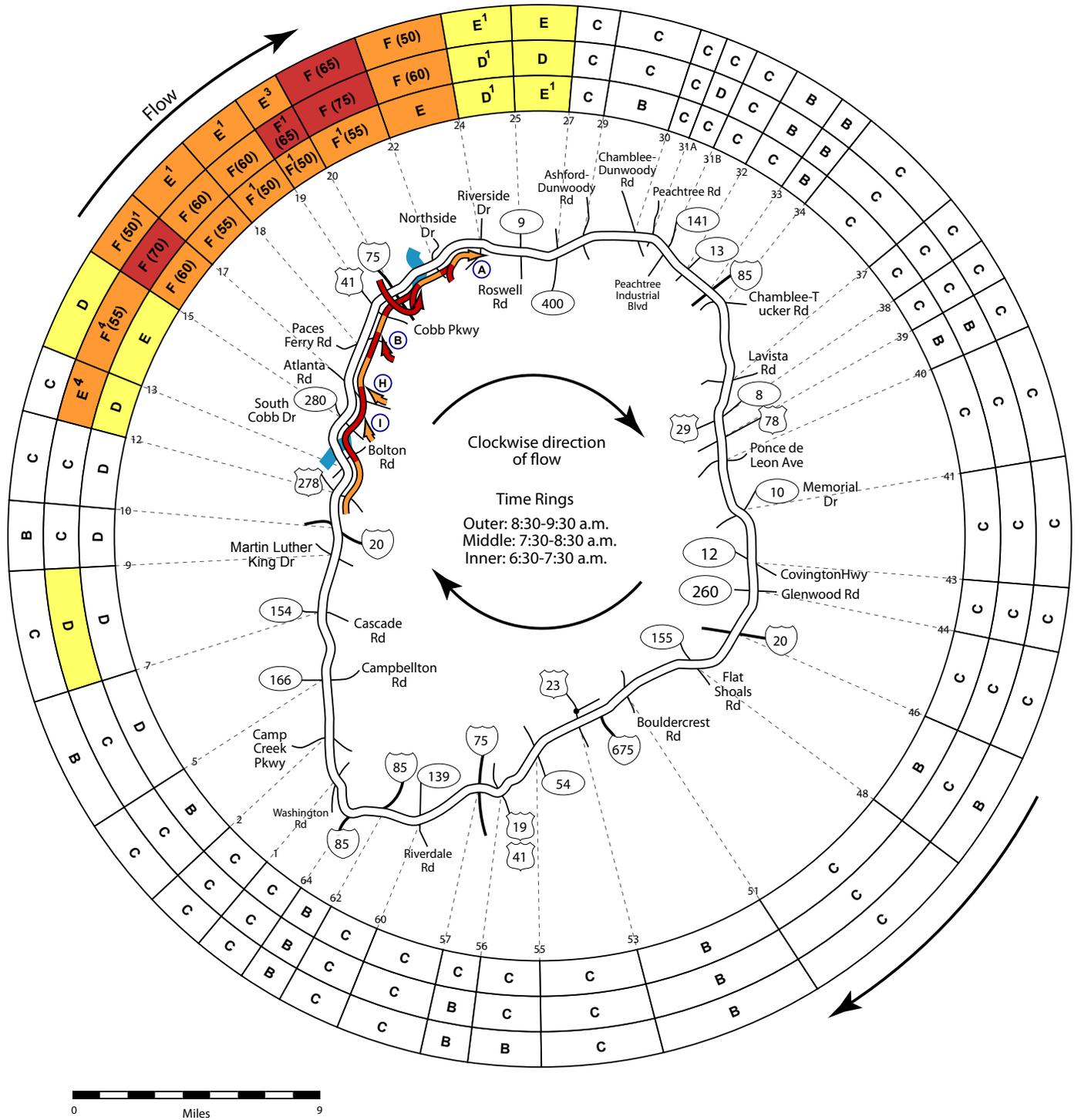
F

Congestion Type: Congested Cross Road
Location: SR 61 (Villa Rica Hwy)
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

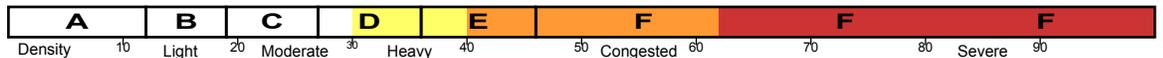
G

Congestion Type: Congested Cross Road
Location: SR 61 (Villa Rica Hwy)
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

THE PERIMETER (I-285 CLOCKWISE) - MORNING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

THE PERIMETER (I-285 CLOCKWISE) - MORNING

A

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: Northeast-bound

Location: Between I-20 and SR 9 (Roswell Rd)

Queue Length: 9 to 12 miles

Estimated Speed: 15 to 50 mph

Potential Cause(s): The primary cause of congestion appeared to be traffic entering the mainline at the interchanges along this section of I-285; the primary bottleneck was found at the closely spaced ramps where traffic entered I-285 from I-75 and the service road originating at SR 3 (Cobb Pkwy).

B

Congestion Type: Entrance Ramp Queue

Location: Paces Ferry Rd

Frequency: Most observations

Direction: Northbound

Queue Population: 20 to 40 vpl

Number of Lanes: One/Two

Note: The head of the ramp queue was found where vehicles merged into the mainline on I-285; the lane drop (2 lanes to 1) on the entrance ramp appeared to exacerbate the congestion.

H

Congestion Type: Entrance Ramp Queue

Location: Atlanta Rd

Frequency: Intermittent

Direction: Northbound

Queue Population: 20 to 30 vpl

Number of Lanes: One

Note: The head of the queue was found where vehicles merged into northbound flow on I-285.

I

Congestion Type: Entrance Ramp Queue

Location: SR 280 (S. Cobb Dr)

Frequency: Intermittent

Direction: Northbound

Queue Population: 20 to 40 vpl

Number of Lanes: One

Note: The head of the queue was found where vehicles merged into northbound flow on I-285.

THE PERIMETER (I-285 COUNTER-CLOCKWISE) - MORNING

C

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: Northwest-bound

Location: Between I-20 and Ashford-Dunwoody Rd

Queue Length: 12 to 15 miles

Estimated Speed: 15 to 50 mph

Potential Cause(s): Congestion appeared to be exacerbated by merging and weaving at the interchanges along this section of I-285, particularly at US 78 and I-85.

D

Congestion Type: Exit Ramp Queue

Location: SR 8

Frequency: Most observations

Direction: Northbound

Queue Population: 20 to 50 vpl

Number of Lanes: One

Note: Construction at the I-285/SR 8 Interchange appeared to cause the congestion.

E

Congestion Type: Frontage Road Queue

Location: Chamblee-Dunwoody Rd

Frequency: Intermittent

Direction: Westbound

Queue Population: 20 to 50 vpl

Number of Lanes: One

Note: When congested, vehicles were queued in the one thru-lane at the signal (to the westbound I-285 entrance ramp).

F

Congestion Type: Entrance Ramp Queue

Location: Chamblee-Dunwoody Rd

Frequency: Intermittent

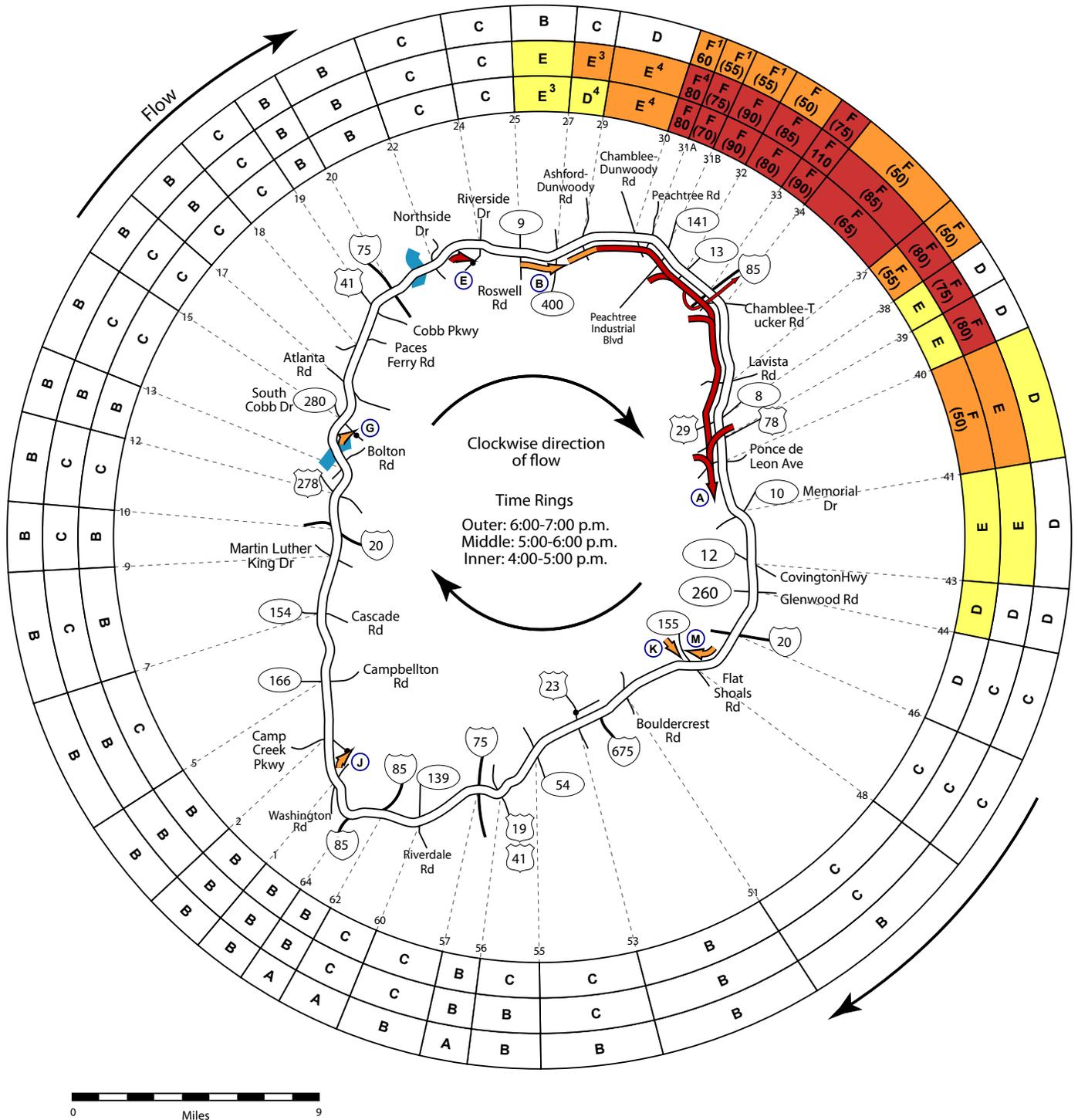
Direction: Westbound

Queue Population: 20 to 30 vpl

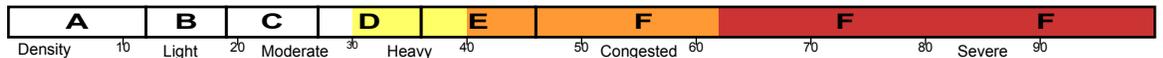
Number of Lanes: One

Note: The head of the queue was found where vehicles merged into westbound flow on I-285.

THE PERIMETER (I-285 CLOCKWISE) - EVENING



Traffic Quality Rating



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

THE PERIMETER (I-285 CLOCKWISE) - EVENING

A

Congestion Type: Mainline Congestion

Frequency: Most observations

Direction: South-eastbound

Location: Between SR 400 and SR 10 (Memorial Dr)

Queue Length: 10 to 15 miles

Estimated Speed: 10 to 45 mph

Potential Cause(s): Factors contributing to the congestion were: 1) congestion in the exit lanes at I-85 extending back into the mainline of the Perimeter and; 2) traffic entering at the SR 141, I-85 and US 78 interchanges.

Note: Congestion may have been exacerbated by construction in the vicinity of the SR 8 and SR 10 interchanges.

B

Congestion Type: Mainline Congestion

Frequency: Most observations between 4:30 and 5:30 p.m.

Direction: Eastbound

Location: Between Roswell Rd and SR 400

Queue Length: 0.5 to 1.5 miles

Estimated Speed: 25 to 50 mph

Potential Cause(s): The head of the queue was found on the ramp to SR 400; congestion typically extended back into the right two lanes of the Perimeter (thru-traffic in the left lanes of the Perimeter appeared to bypass the queue with little or no delay.

E

Congestion Type: Exit Ramp Queue

Location: Riverside Dr

Frequency: Peak Hour

Direction: Eastbound

Queue Population: 20 to 40 vpl

Number of Lanes: One Left-Turn Lane

G

Congestion Type: Exit Ramp Queue

Location: SR 280

Frequency: Peak Hour

Direction: Northbound

Queue Population: 20 to 25 vpl

Number of Lanes: Two Left-Turn Lanes

J

Congestion Type: Exit Ramp Queue

Location: Camp Creek Parkway

Frequency: Intermittent

Direction: Northbound

Queue Population: 20 to 25 vpl

Number of Lanes: Two Left-Turn Lanes

K

Congestion Type: Congested Cross Road

Location: SR 155 (Flat Shoals Rd)

Frequency: Intermittent

Direction: Southbound

Queue Population: 20 to 25 vpl

Number of Lanes: Two

M

Congestion Type: Exit Ramp Queue

Location: SR 155 (Flat Shoals Rd)

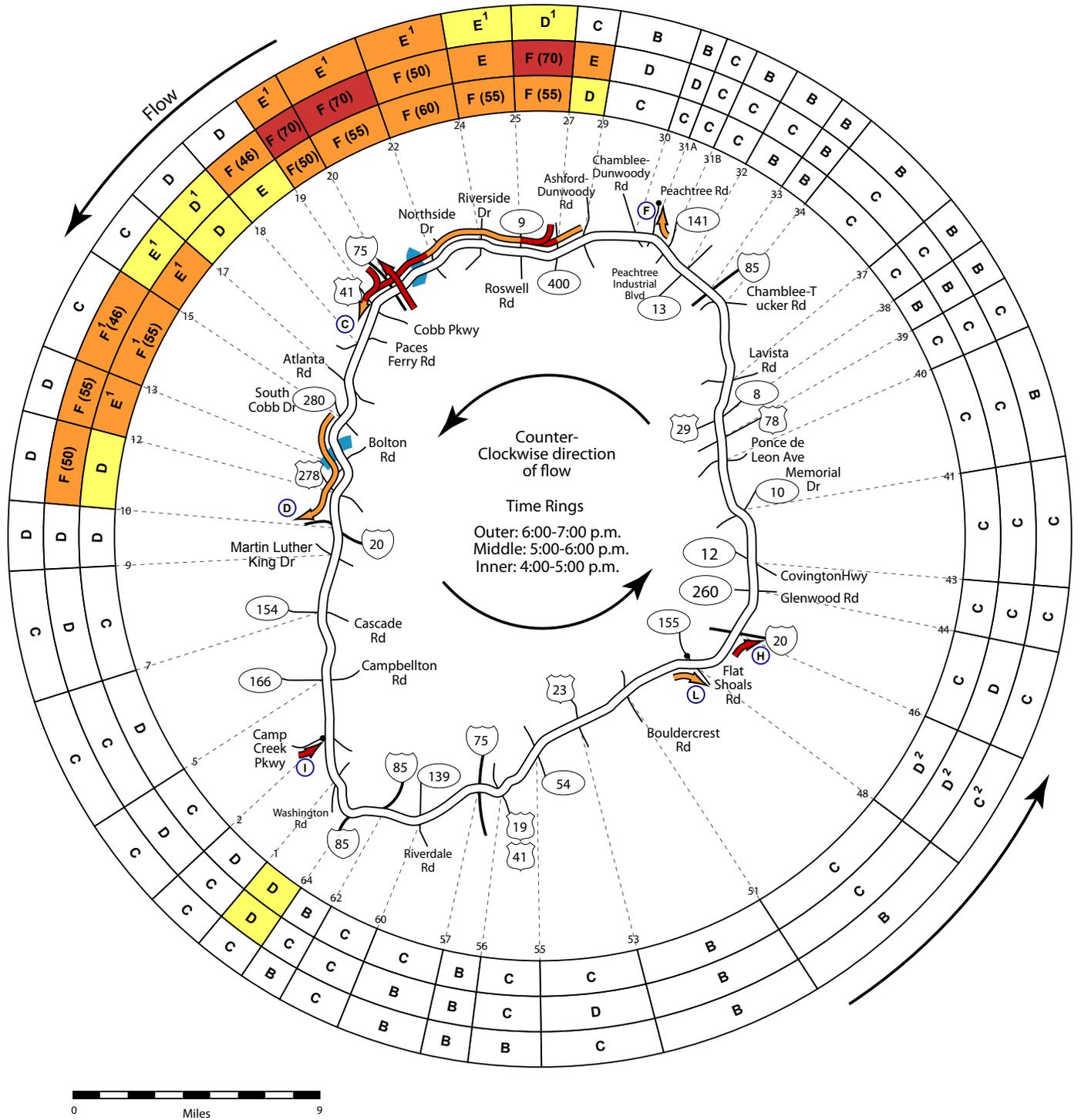
Frequency: Intermittent

Direction: Westbound

Queue Population: 20 to 30 vpl

Number of Lanes: One Left-Turn Lane

THE PERIMETER (I-285 COUNTER-CLOCKWISE) - EVENING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

THE PERIMETER (I-285 COUNTER-CLOCKWISE) - EVENING

C

Congestion Type: Mainline Congestion
Frequency: Most observations
Direction: South-westbound
Location: Between Ashford-Dunwoody Rd and Paces Ferry Rd
Queue Length: 6 to 9 miles
Estimated Speed: 20 to 50 mph
Potential Cause(s): Factors contributing to the congestion were: 1) merging associated with the SR 400 and I-75 interchanges and; 2) the series of lane drops (6 lanes to 2) approaching the I-75 interchange.

D

Congestion Type: Mainline Congestion
Frequency: Most observations between 4:30 and 6:00 p.m.
Direction: Southbound
Location: Between SR 280 and I-20
Queue Length: 4 to 5 miles
Estimated Speed: 25 to 50 mph
Potential Cause(s): The head of the queue was found on the ramp to I-20; congestion typically extended back into the right lane (and eventually across all lanes) of the Perimeter.
Note: Factors contributing to the congestion were: 1) the geometrics of the road (sharp bends) along this corridor and; 2) the bridge over the Chattahoochee River.

F

Congestion Type: Exit Ramp Queue
Location: Peachtree Rd
Frequency: Intermittent
Direction: Westbound
Queue Population: 20 to 25 vpl
Number of Lanes: One Thru-Lane

H

Congestion Type: Mainline Congestion
Location: Between Flat Shoals Rd and I-20
Frequency: Most observations
Direction: Northbound
Queue Length: 0.5 to 1 mile
Estimated Speed: 10 to 30 mph
Potential Cause(s): Congestion on the ramp to eastbound I-20 typically extended back into the right lane on I-285; the length of the queue in the right lane varied widely, with the maximum observed queue found in the vicinity of Flat Shoals Rd (a distance of approximately 1.5 miles). The head of the queue on the one lane ramp was found where vehicles merged with ramp traffic from I-285 southbound. During one observation, congestion in the right lane ultimately extended back across all four lanes on I-285.

I

Congestion Type: Congested Cross Road
Location: Camp Creek Parkway
Frequency: Peak Hour
Direction: Eastbound
Queue Population: 25 to 35 vpl
Number of Lanes: One Left-Turn Lane

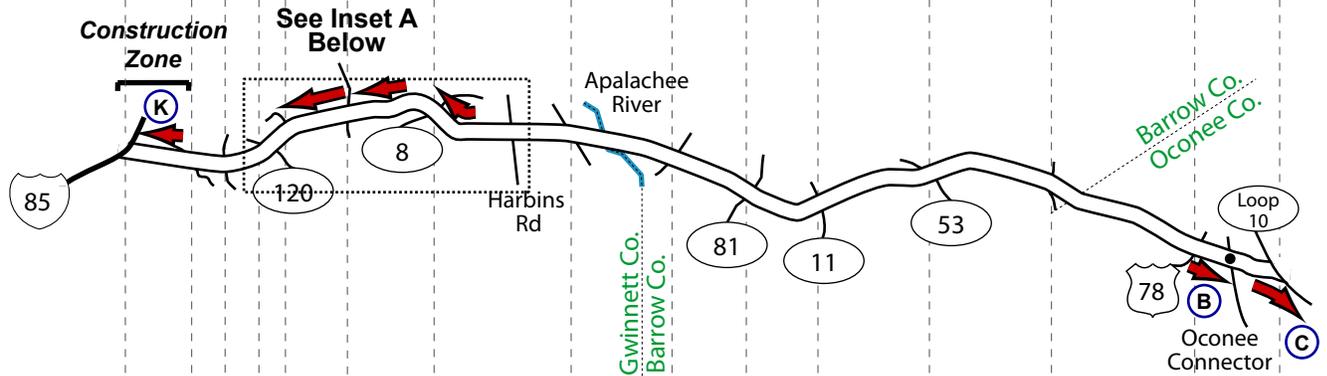
L

Congestion Type: Exit Ramp Queue
Location: SR 155 (Flat Shoals Rd)
Frequency: Peak Hour
Direction: Eastbound
Queue Population: 20 to 30 vpl
Number of Lanes: One Right-Turn Lane

SR 316 (GWINNETT/BARROW & OCONEE COUNTIES) - MORNING

← WESTBOUND

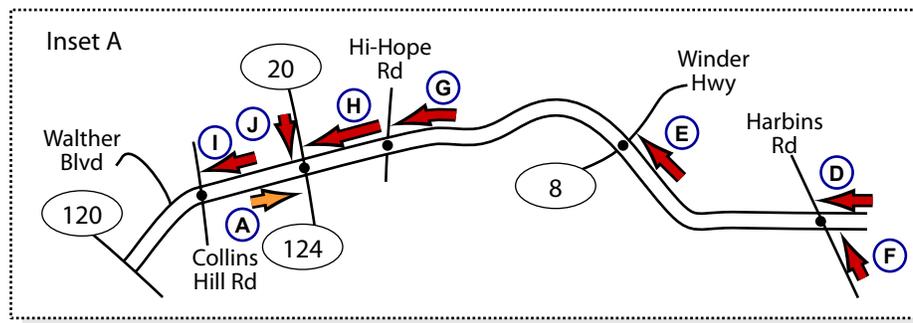
6:30 - 7:30 a.m.	E ^{1,4}	B	A	C	F	F	F	D	C	C	C	C	C	C	
7:30 - 8:30 a.m.	D ^{1,4}	B	A	B	F	E	E	D	C	C	C	C	C	C	
8:30 - 9:30 a.m.	C ^{1,4}	A	A	C	F	D	D	C	C	C	C	C	C	C	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Sugarloaf Pkwy	Riverside Pkwy	Walther Blvd	Hi-Hope Rd	Winder Hwy		Drowning Creek Rd	Patrick Mill Rd	Loganville Hwy	Monroe Hwy	Hog Mountain Rd	Barber Creek Rd	Monroe Hwy	



6:30 - 7:30 a.m.	B	B	B	A	E	D	C	C	C	C	C	C	C	C	
7:30 - 8:30 a.m.	B	B	B	A	E	D	D	C	C	C	C	C	C	E	
8:30 - 9:30 a.m.	B	A	B	B	D	D	C	C	C	C	C	C	C	C	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15



→ EASTBOUND



Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

SR 316 (GWINNETT/BARROW & OCONEE COUNTIES) - MORNING

A
Congestion Type: Signal Queue
Location: SR 20/SR 124
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

B
Congestion Type: Signal Queue
Location: Oconee Connector
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

C
Congestion Type: Platoons
Location: Approaching Loop 10
Frequency: Peak Hour
Direction: Eastbound
Platoon Populations: 20 to 30 vpl
Number of Lanes: 1
Note: During some observations, eastbound congestion was found in the right lane (dedicated lane for vehicles entering the ramp to eastbound Loop 10) between Oconee Connector and SR 10.

D
Congestion Type: Signal Queue
Location: Harbins Rd
Frequency: Most observations before 8:00 a.m.
Direction: Westbound
Queue Populations: 25 to 50 vpl
Number of Lanes: 2

E
Congestion Type: Signal Queue
Location: SR 8 (Winder Hwy)
Frequency: Most observations before 8:00 a.m.
Direction: Westbound
Queue Populations: 25 to 70 vpl
Number of Lanes: 2

F
Congestion Type: Congested Cross Road
Location: Harbins Rd
Frequency: Most observations before 8:00 a.m.
Direction: Northbound
Queue Populations: 25 to 50 vpl
Number of Lanes: 1

G
Congestion Type: Signal Queue
Location: Hi-Hope Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 25 to 60 vpl
Number of Lanes: 2

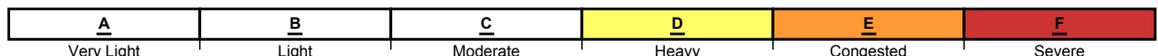
H
Congestion Type: Signal Queue
Location: SR 20
Frequency: Most observations
Direction: Westbound
Queue Populations: 25 to 70 vpl
Number of Lanes: 2

I
Congestion Type: Signal Queue
Location: Collins Hill Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 45 vpl
Number of Lanes: 2

J
Congestion Type: Congested Cross Road
Location: SR 20
Frequency: Most observations
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

K
Congestion Type: Mainline Congestion
Frequency: Most observations before 8:00 a.m.
Direction: Westbound
Location: Between Sugarloaf Pkwy and I-85
Queue Length: 1 to 2 miles
Estimated Speed: 20 to 40 mph
Potential Cause(s): During the Fall 2007 aerial survey, the SR 316 / I-85 Interchange was under construction. During the earlier survey flights, there was a lane drop (2 lanes to 1) in the construction zone; later in the survey, three lanes were available for vehicles heading southbound at the terminus of SR 316 (two lanes to I-85; one lane to the I-85 service road). Westbound congestion was found on SR 316 approaching the I-85 Interchange during the earlier flights when the lane drop was present; westbound congestion was not found on SR 316 during the survey flights when three lanes were available for southbound vehicles.

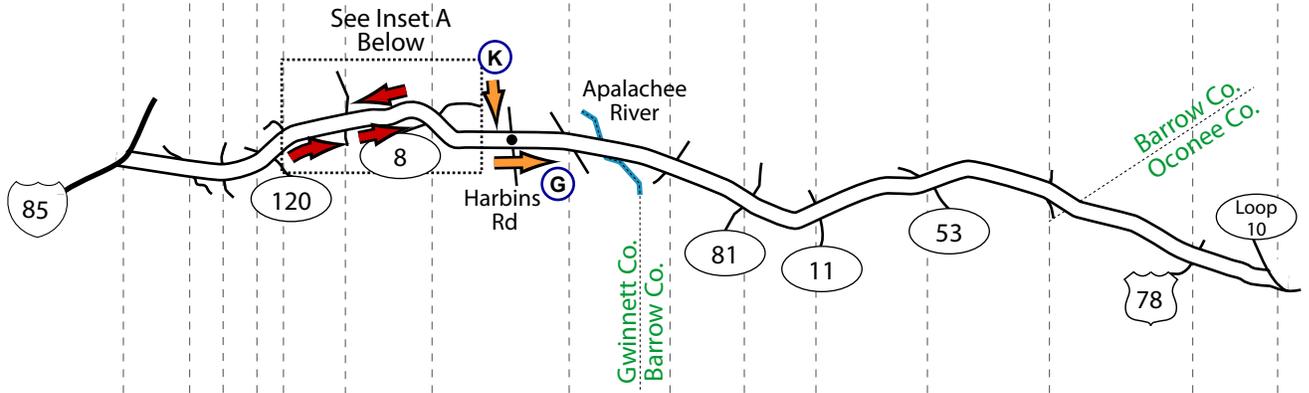
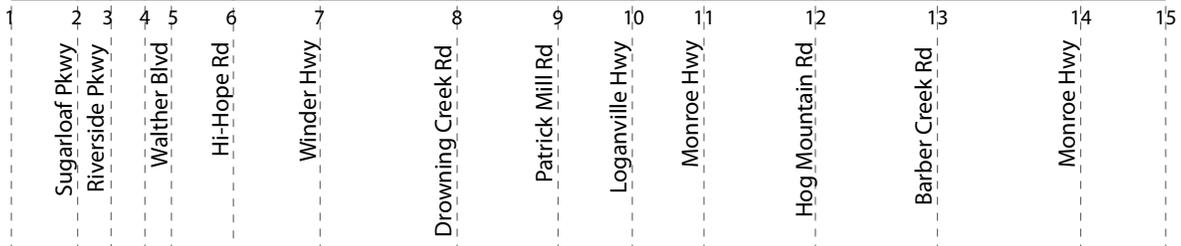
Traffic Quality Rating



SR 316 (GWINNETT/BARROW & OCONEE COUNTIES) - EVENING

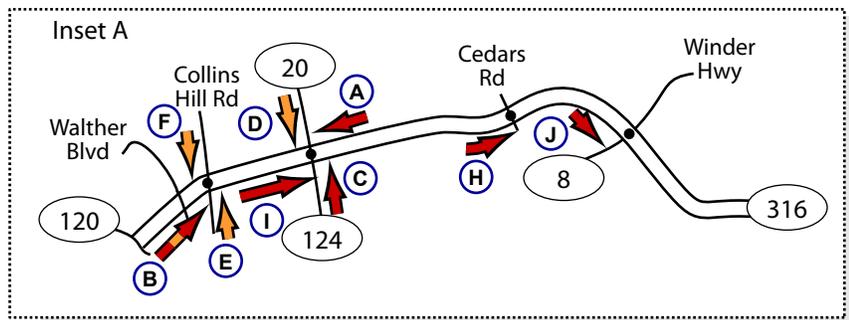
← WESTBOUND

4:00 - 5:00 p.m.	A	A	A	A	<u>E</u>	<u>D</u>	<u>D</u>	<u>C</u>						
5:00 - 6:00 p.m.	B	A	A	A	<u>E</u>	<u>D</u>	<u>D</u>	<u>D</u>	<u>C</u>	<u>D</u>	<u>D</u>	<u>C</u>	<u>C</u>	<u>D</u>
6:00 - 7:00 p.m.	B	A	A	B	<u>F</u>	<u>C</u>	<u>D</u>	<u>C</u>						



4:00 - 5:00 p.m.	C	B	C	¹ 65	<u>F</u>	<u>E</u>	<u>E</u>	<u>D</u>	<u>D</u>	<u>D</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>D</u>
5:00 - 6:00 p.m.	D	C	¹ 70	¹ 70	<u>F</u>	<u>E</u>	<u>E</u>	<u>D</u>	<u>D</u>	<u>D</u>	<u>D</u>	<u>D</u>	<u>C</u>	<u>D</u>
6:00 - 7:00 p.m.	C	B	B	¹ 50	<u>F</u>	<u>E</u>	<u>E</u>	<u>D</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>D</u>

0 Miles 5 → EASTBOUND



Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

SR 316 (GWINNETT/BARROW & OCONEE COUNTIES) - EVENING

A
 Congestion Type: Signal Queue
 Location: SR 20
 Frequency: Intermittent
 Direction: Westbound
 Queue Populations: 20 to 60 vpl
 Number of Lanes: 2

B
 Congestion Type: Signal Queue
 Location: Collins Hill Rd
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 150 vpl
 Number of Lanes: 2

Note: During most observations, eastbound congestion approaching the signal at Collins Hill Rd extended back to the vicinity of SR 120 (a distance of approximately 1.5 miles).

C
 Congestion Type: Congested Cross Road
 Location: SR 20
 Frequency: Most observations
 Direction: Northbound
 Queue Populations: 20 to 50 vpl
 Number of Lanes: 2
 Note: During some observations, northbound congestion approaching SR 316 extended back through the upstream signal at Hurricane Shoals Rd.

D
 Congestion Type: Congested Cross Road
 Location: SR 20
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

E
 Congestion Type: Congested Cross Road
 Location: Collins Hill Rd
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 1

F
 Congestion Type: Congested Cross Road
 Location: Collins Hill Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 1

G
 Congestion Type: Platoons
 Location: Between SR 8 (Winder Hwy) and Drowning Creek Rd
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 25 to 35 vpl
 Number of Lanes: 2

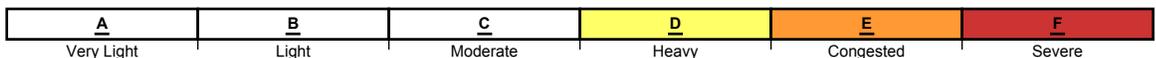
H
 Congestion Type: Signal Queue
 Location: Cedars Rd
 Frequency: Peak Hour
 Direction: Eastbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

I
 Congestion Type: Signal Queue
 Location: SR 20
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 40 vpl
 Number of Lanes: 2

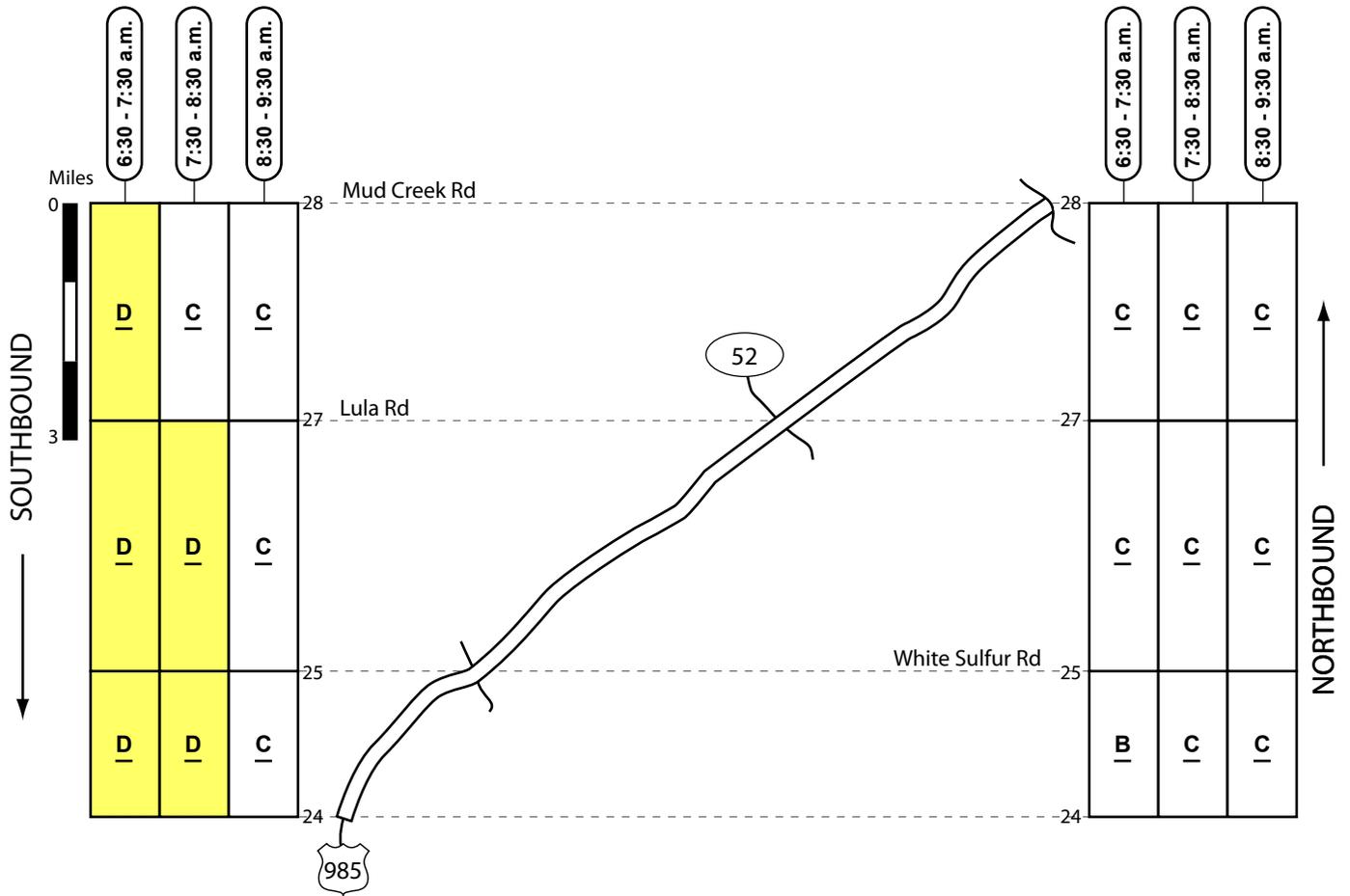
J
 Congestion Type: Signal Queue
 Location: SR 8 (Winder Hwy)
 Frequency: Most observations
 Direction: Eastbound
 Queue Populations: 20 to 35 vpl
 Number of Lanes: 2

K
 Congestion Type: Congested Cross Road
 Location: Harbins Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 1

Traffic Quality Rating



SR 365/US 23 (HALL COUNTY) - MORNING



Traffic Quality Rating



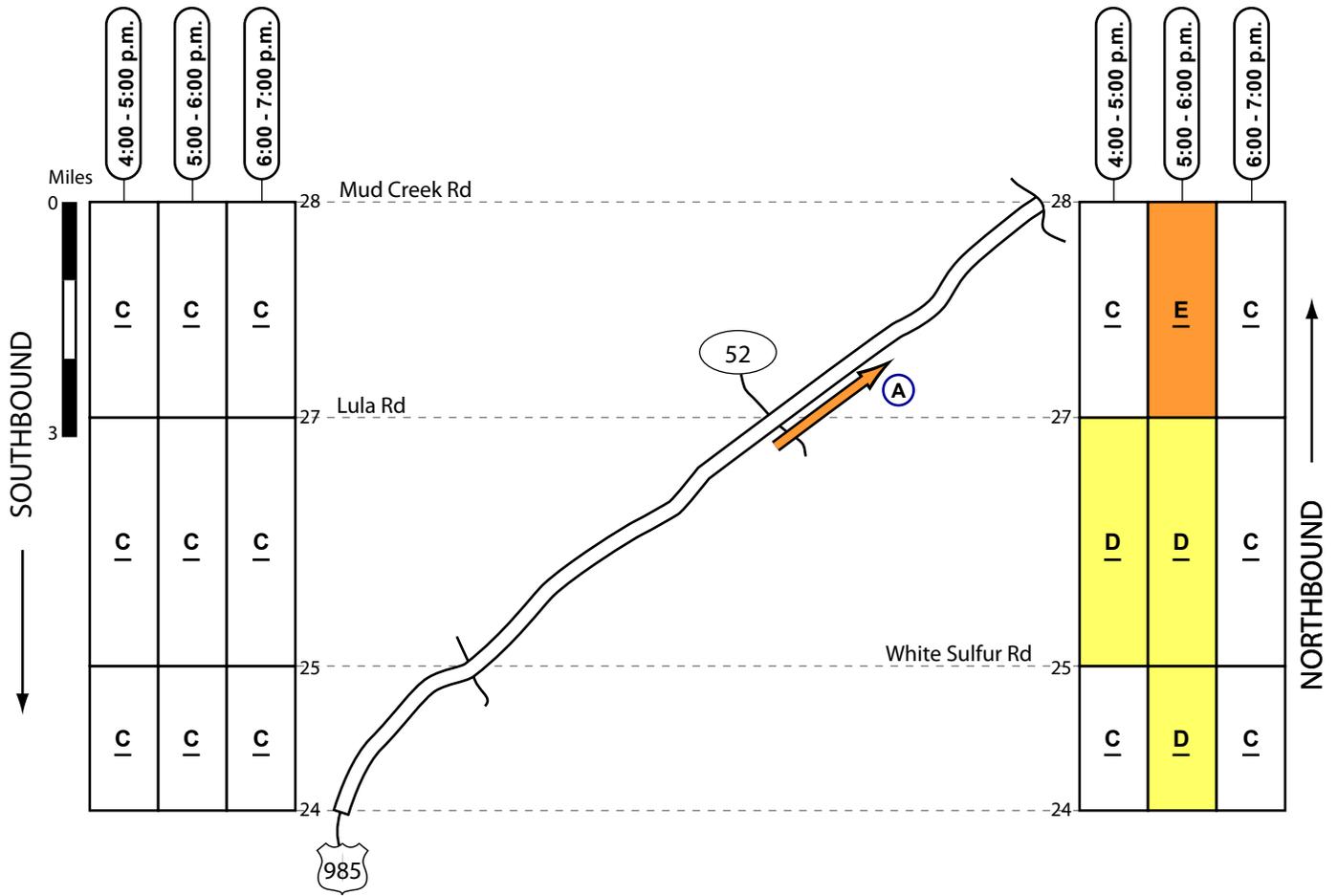
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

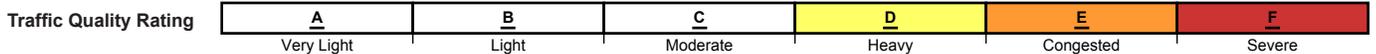
² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

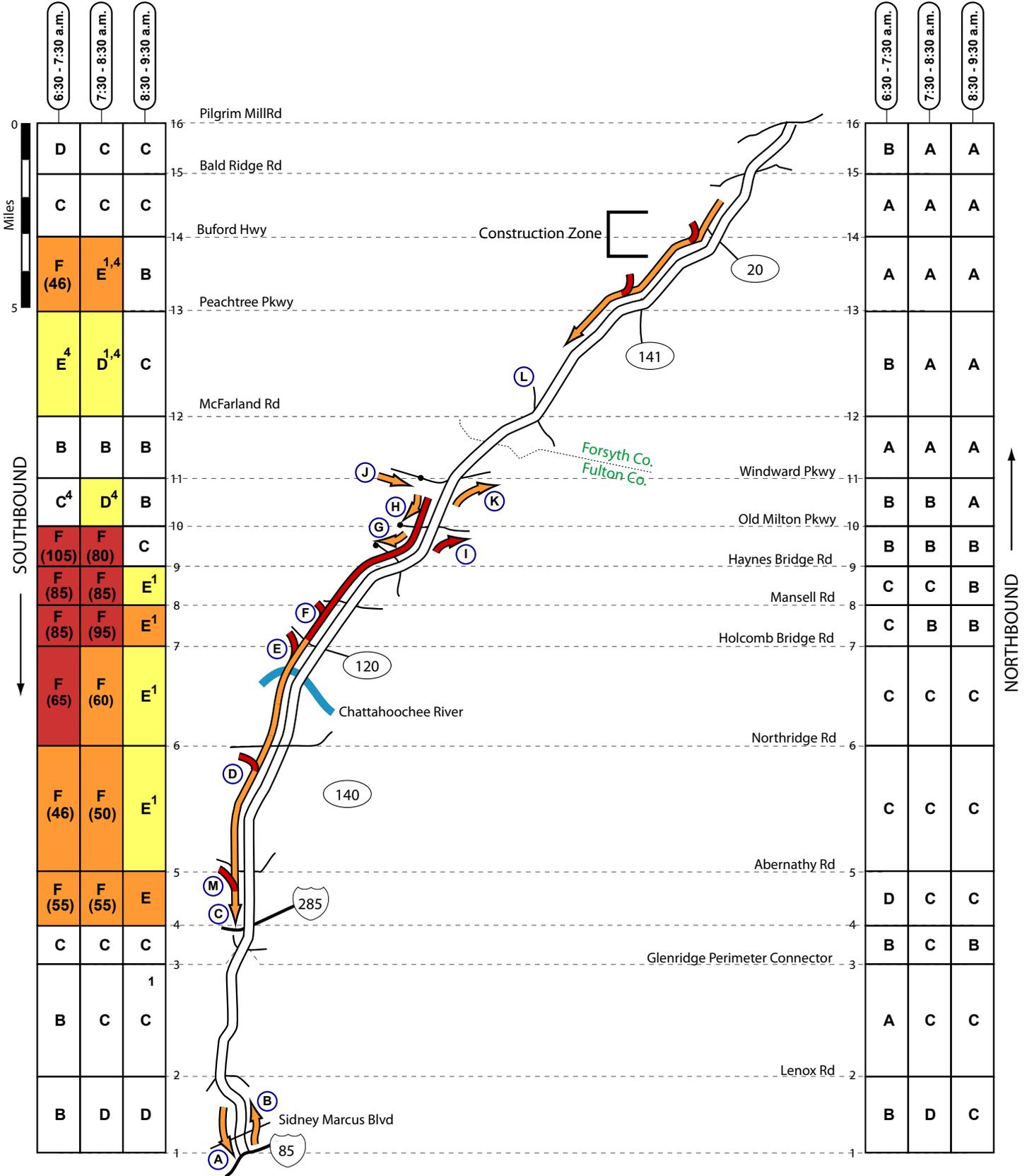
SR 365/US 23 (HALL COUNTY) - EVENING



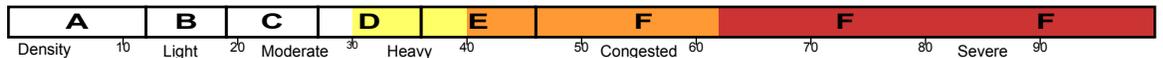
A
 Congestion Type: Platoons
 Location: Between SR 52 & Mud Creek Rd
 Frequency: Intermittent
 Direction: Northbound
 Platoon Populations: 25 to 35 vpl
 Number of Lanes: 2



SR 400 (FORSYTH & FULTON COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 400 (FORSYTH & FULTON COUNTIES) - MORNING

A
 Congestion Type: Mainline Congestion
 Frequency: Intermittently after 7:30 a.m.
 Direction: Southbound
 Location: Between Lenox Rd and I-85
 Queue Length: 1 to 2 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): The head of the queue was found at the merge into congested flow on I-85 at the SR 400 terminus.

B
 Congestion Type: Mainline Congestion
 Frequency: Intermittently after 8:00 a.m.
 Direction: Northbound
 Location: Between I-85 and Lenox Rd
 Queue Length: 1 to 2 miles
 Estimated Speed: 40 to 50 mph
 Potential Cause(s): Merging associated with the Sidney Marcus Blvd and Lenox Rd interchanges.

C
 Congestion Type: Mainline Congestion
 Frequency: Most observations
 Direction: Southbound
 Location: Between Windward Parkway and I-285
 Queue Length: 12 to 14 miles
 Potential Cause(s): Factors contributing to the congestion were: 1) traffic entering at the Mansell Rd, Holcomb Bridge Rd, Northridge Rd and Abernathy Rd interchanges; 2) the lane drop (4 lanes to 3) at the I-285 interchange.

D
 Congestion Type: Entrance Ramp Queue
 Location: Northridge Rd
 Frequency: Peak Hour
 Direction: Southbound
 Queue Population: 30 to 40 vpl
 Number of Lanes: One / Two
 Note: The head of the ramp queue was at the ramp meter; the lane drop (2 lanes to 1) on the entrance ramp appeared to exacerbate the congestion.

E
 Congestion Type: Entrance Ramp Queue
 Location: Holcomb Bridge Rd
 Frequency: Peak Hour
 Direction: Southbound
 Queue Population: 30 to 50 vpl
 Number of Lanes: Four / Two
 Note: The head of the ramp queue was found where vehicles merged into the mainline on SR 400; the lane drop (4 lanes to 2) on the entrance ramp appeared to exacerbate the congestion.

F
 Congestion Type: Entrance Ramp Queue
 Location: Mansell Rd
 Frequency: Peak Hour
 Direction: Southbound
 Queue Population: 40 to 60 vpl
 Number of Lanes: Three / Two / One
 Note: The head of the ramp queue was found where vehicles merged into the mainline on SR 400; the lane drops (3 lane to 2 and 2 lanes to 1) on the entrance ramp appeared to exacerbate the congestion.

G
 Congestion Type: Exit Ramp Queue
 Location: Haynes Bridge Rd
 Frequency: Intermittent
 Direction: Southbound
 Queue Population: 20 to 30 vpl
 Number of Lanes: One Left-Turn Lane (North-westbound)

H
 Congestion Type: Exit Ramp Queue
 Location: SR 120 (Old Milton Pkwy)
 Frequency: Peak Hour
 Direction: Southbound
 Queue Population: 30 to 40 vpl
 Number of Lanes: Two Left-Turn Lanes

I
 Congestion Type: Exit Ramp Queue
 Location: SR 120 (Old Milton Pkwy)
 Frequency: Peak Hour
 Direction: Northbound
 Queue Population: 40 to 60 vpl
 Number of Lanes: One
 Note: When congested, vehicles were queued in the right lane on the ramp; vehicles at the head of the ramp waited to merge into eastbound flow on SR 120. Congestion typically extended back into the right shoulder of SR 400; thru-traffic on SR 400 appeared to bypass the queue without delay.

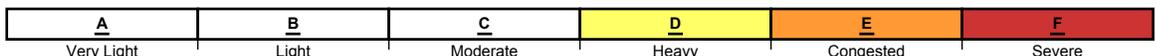
J
 Congestion Type: Congested Cross Road
 Location: Windward Parkway
 Frequency: Intermittent
 Direction: Eastbound
 Queue Population: 20 to 30 vpl
 Number of Lanes: Two

K
 Congestion Type: Exit Ramp Queue
 Location: Windward Parkway
 Frequency: Intermittent
 Direction: Northbound
 Queue Population: 20 to 30 vpl
 Number of Lanes: Two Left-Turn Lanes

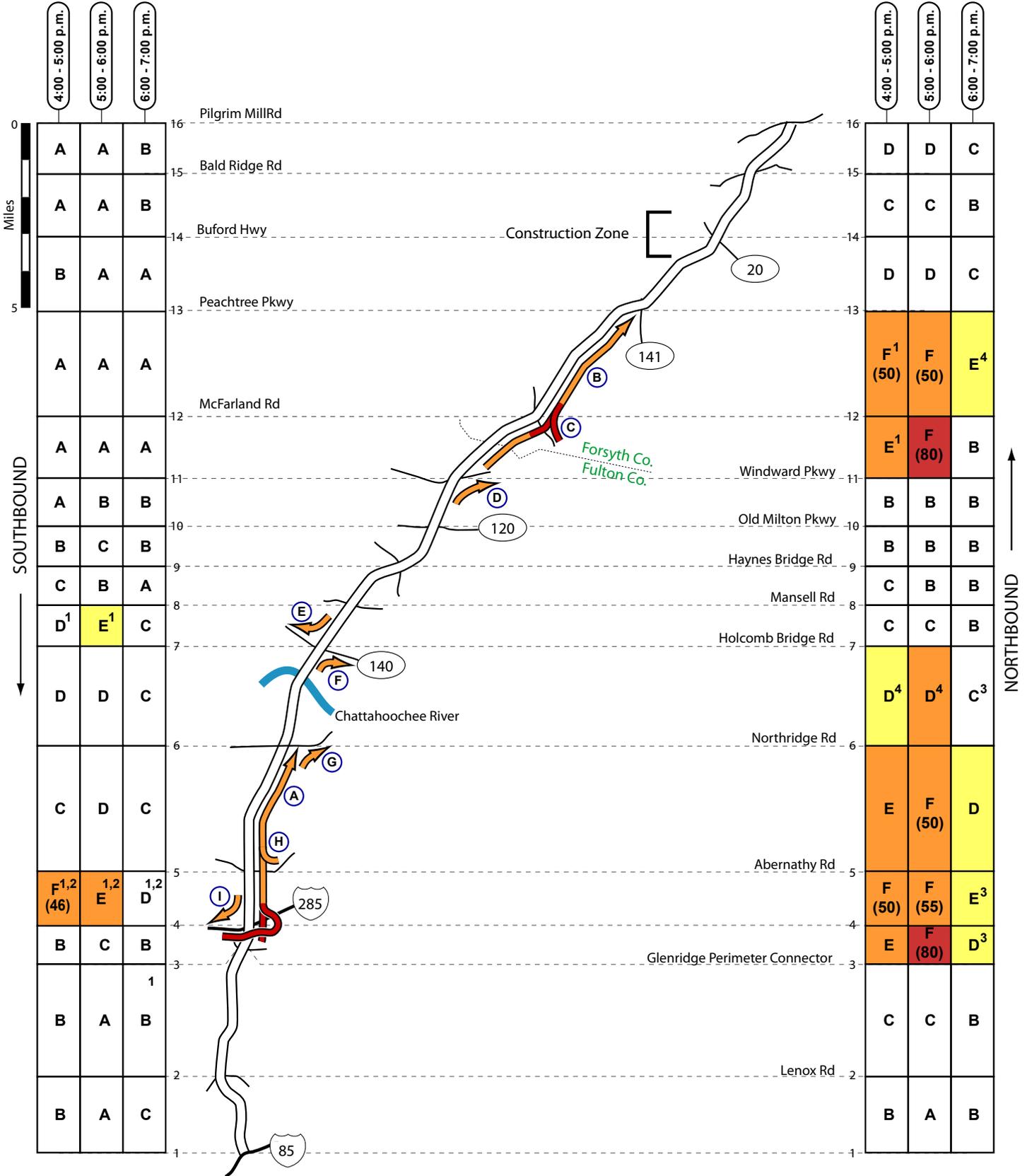
L
 Congestion Type: Mainline Congestion
 Frequency: Most observations
 Direction: Southbound
 Location: Between Bald Ridge Rd and McFarland Rd
 Queue Length: 8 to 9 miles
 Potential Cause(s): Traffic entering at Buford Highway and SR 141 appeared to contribute to the congestion; while congestion persisted south of SR 141, traffic flow typically improved.

M
 Congestion Type: Entrance Ramp Queue
 Location: Abernathy Rd
 Frequency: Peak Hour
 Direction: Southbound
 Queue Population: 20 to 30 vpl
 Number of Lanes: One
 Note: The head of the ramp queue was found where vehicles merged into the mainline on SR 400.

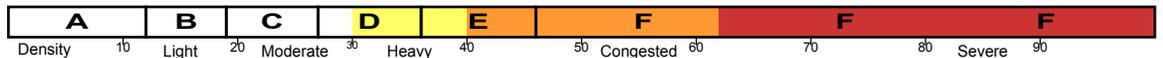
Traffic Quality Rating



SR 400 (FORSYTH & FULTON COUNTIES) - EVENING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

SR 400 (FORSYTH & FULTON COUNTIES) - EVENING

A

Congestion Type: Mainline Congestion
 Frequency: Most observations before 6:30 p.m.
 Direction: Northbound
 Location: Between the Glenridge Perimeter Connector and Northridge Rd
 Queue Length: 5 to 6 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): Congestion appeared to be caused by traffic entering the mainline from eastbound I-285 and Abernathy Rd.

B

Congestion Type: Mainline Congestion
 Frequency: Most observations before 6:30 p.m.
 Direction: Northbound
 Location: Between Windward Parkway and SR 141
 Queue Length: 5 to 7 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): Factors contributing to the congestion included: 1) the series of lane drops (4 lanes to 3 and 3 lanes to 2) approaching McFarland Rd and; 2) traffic entering at McFarland Rd.

C

Congestion Type: Entrance Ramp Queue
 Location: McFarland Rd
 Frequency: Peak Hour
 Direction: Northbound
 Queue Population: 25 to 45 vpl
 Number of Lanes: One / Two
 Note: The head of the ramp queue was found where vehicles merged into the mainline on SR 400; the lane drop (2 lanes to 1) on the entrance ramp appeared to exacerbate the congestion.

D

Congestion Type: Exit Ramp Queue
 Location: Windward Parkway
 Frequency: Intermittent
 Direction: Northbound
 Queue Population: 20 to 25 vpl
 Number of Lanes: Two Left-Turn Lanes

E

Congestion Type: Exit Ramp Queue
 Location: Holcomb Bridge Rd
 Frequency: Peak Hour
 Direction: Southbound
 Queue Population: 40 to 50 vpl
 Number of Lanes: One
 Note: When congested, vehicles were queued in the right lane on the ramp; vehicles at the head of the ramp waited to merge into westbound flow on Holcomb Bridge Rd.

F

Congestion Type: Exit Ramp Queue
 Location: Holcomb Bridge Rd
 Frequency: Peak Hour
 Direction: Northbound
 Queue Population: 40 to 50 vpl
 Number of Lanes: One
 Note: When congested, vehicles were queued in the right lane on the ramp; vehicles at the head of the ramp waited to merge into eastbound flow on Holcomb Bridge Rd. Congestion typically extended back into the right lane of SR 400; thru-traffic on SR 400 appeared to bypass the queue without delay.

G

Congestion Type: Exit Ramp Queue
 Location: Northridge Rd
 Frequency: Peak Hour
 Direction: Northbound
 Queue Population: 25 to 30 vpl
 Number of Lanes: One

H

Congestion Type: Entrance Ramp Queue
 Location: Abernathy Rd
 Frequency: Peak Hour
 Direction: Northbound
 Queue Population: 40 to 50 vpl
 Number of Lanes: One / Two
 Note: The head of the ramp queue was found where vehicles merged into the mainline on SR 400; the lane drop (2 lanes to 1) on the entrance ramp appeared to exacerbate the congestion.

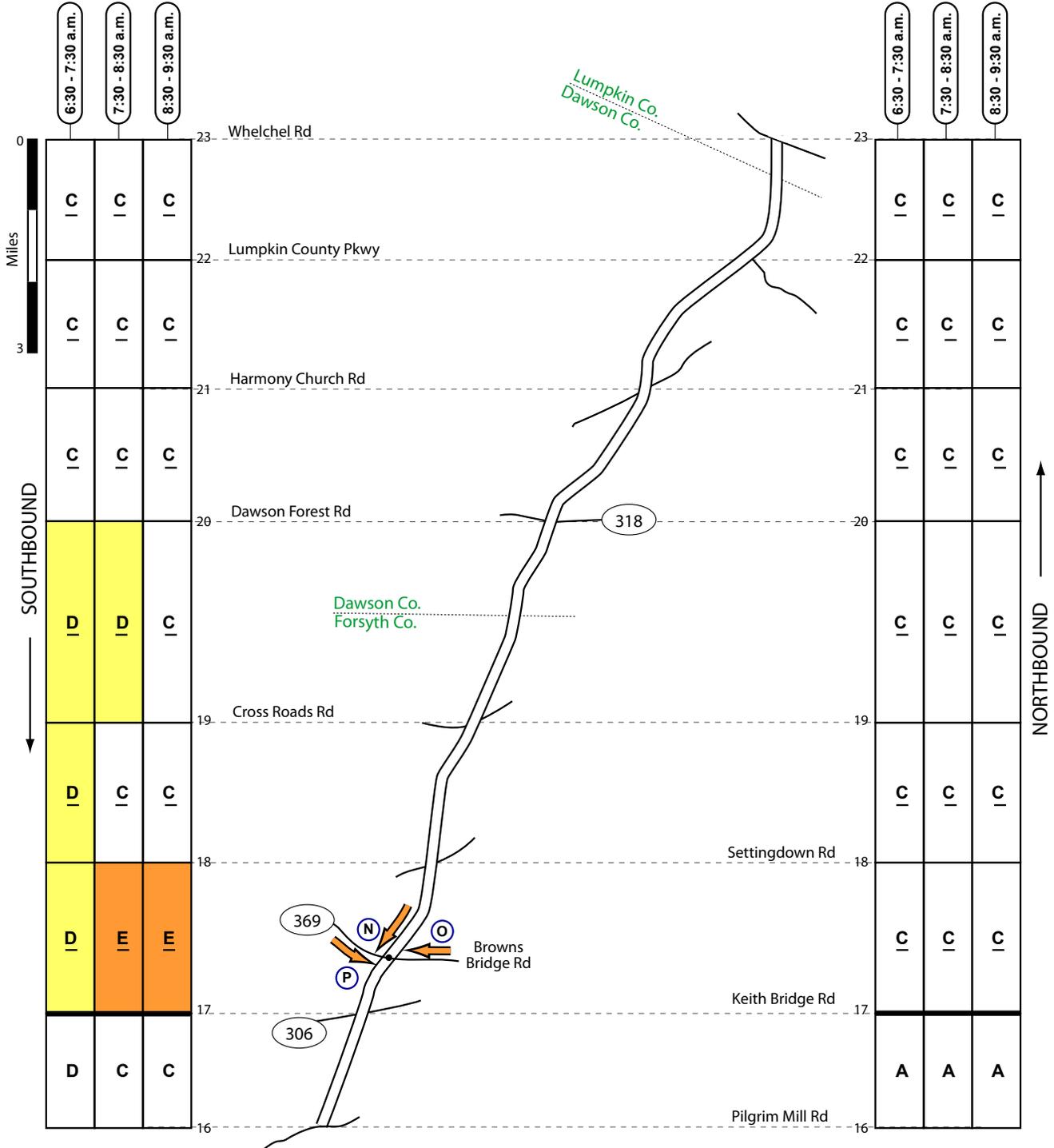
I

Congestion Type: Mainline Congestion
 Frequency: On some days but not others
 Direction: Southbound
 Location: Between Abernathy Rd and I-285
 Queue Length: 1 to 1.5 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): The head of the queue was found on the ramp to I-285 (westbound); congestion typically extended back into the right two lanes on SR 400 (thru-traffic in the left lanes appeared to bypass the queue with little or no delay).

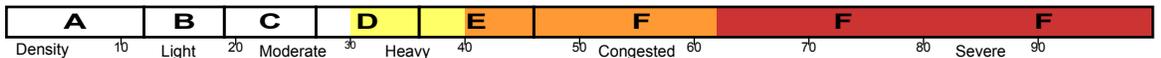
Traffic Quality Rating

A	B	C	D	E	F
Very Light	Light	Moderate	Heavy	Congested	Severe

SR 400 (DAWSON & FULTON COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

²Type 2 nested congestion (more severe in left or right-hand lanes).

³Type 3 nested congestion (present only in the first or second half-hour period).

⁴Type 4 nested congestion (partial length of segment).

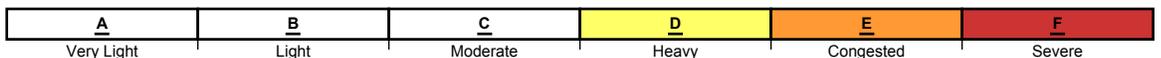
SR 400 (DAWSON & FULTON COUNTIES) - MORNING

N
 Congestion Type: Signal Queue
 Location: SR 369 (Browns Bridge Rd)
 Frequency: Intermittent
 Direction: Southbound
 Queue Populations: 20 to 30 vpl
 Number of Lanes: 2

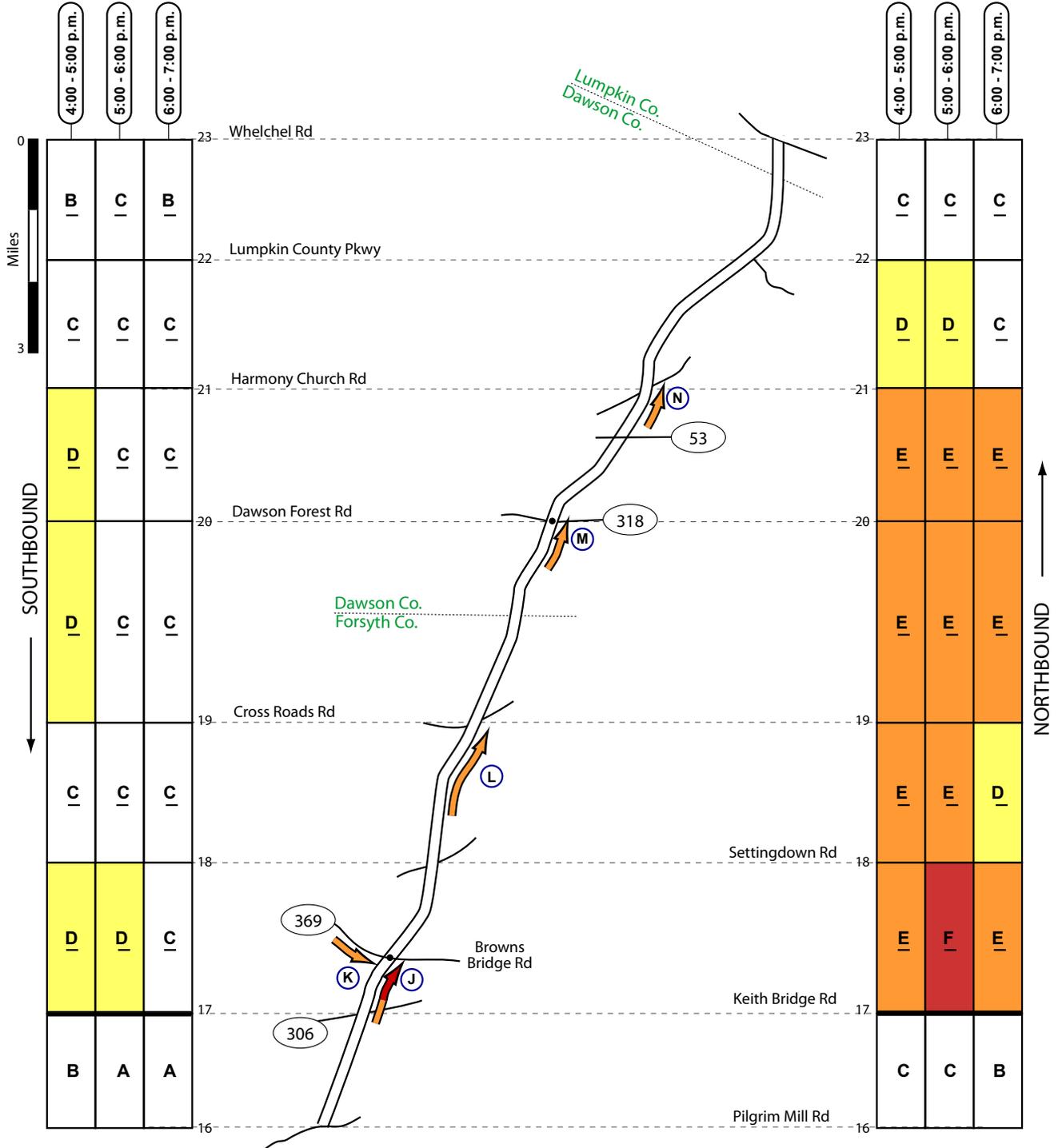
O
 Congestion Type: Congested Cross Road
 Location: SR 369 (Browns Bridge Rd)
 Frequency: Intermittent
 Direction: Westbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 1

P
 Congestion Type: Congested Cross Road
 Location: SR 369 (Browns Bridge Rd)
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 1

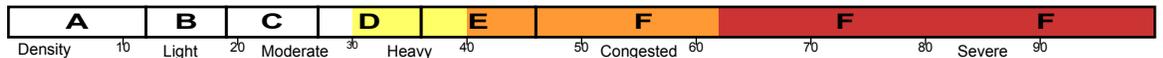
Traffic Quality Rating



SR 400 (DAWSON & FULTON COUNTIES) - EVENING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

²Type 2 nested congestion (more severe in left or right-hand lanes).

³Type 3 nested congestion (present only in the first or second half-hour period).

⁴Type 4 nested congestion (partial length of segment).

SR 400 (DAWSON & FULTON COUNTIES) - EVENING

J

Congestion Type: Signal Queue
 Location: SR 369 (Browns Bridge Rd)
 Frequency: Most observations
 Direction: Northbound
 Queue Populations: 20 to 60 vpl
 Number of Lanes: 2

K

Congestion Type: Congested Cross Road
 Location: SR 369 (Browns Bridge Rd)
 Frequency: Intermittent
 Direction: Eastbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 1

L

Congestion Type: Platoons
 Location: Between Settingdown Rd and Cross Roads Rd
 Frequency: Most observations
 Direction: Northbound
 Platoon Populations: 25 to 35 vpl
 Number of Lanes: 2

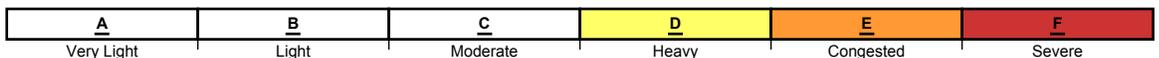
M

Congestion Type: Signal Queue
 Location: SR 318 (Dawson Forest Rd)
 Frequency: Intermittent
 Direction: Northbound
 Queue Populations: 20 to 25 vpl
 Number of Lanes: 2

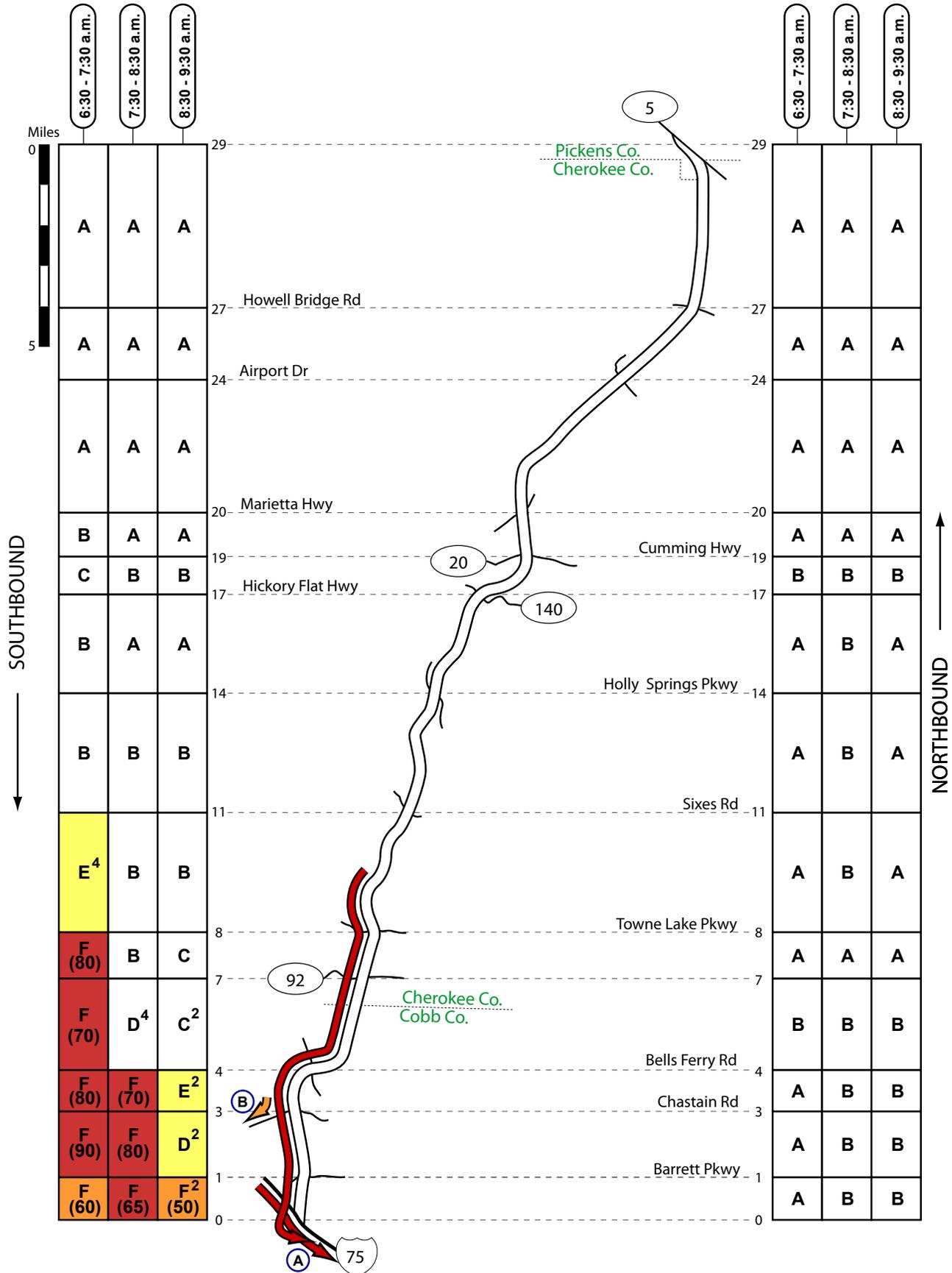
N

Congestion Type: Platoons
 Location: Between SR 318 & Harmony Church Rd
 Frequency: Intermittent
 Direction: Northbound
 Platoon Populations: 25 to 30 vpl
 Number of Lanes: 2
 Note: During some observations, the signals at SR 53 and Harmony Church Rd appeared to generate marginal congestion.

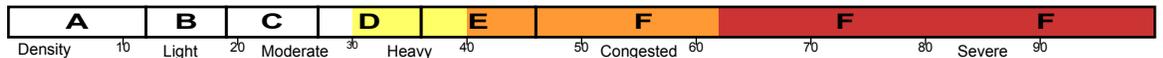
Traffic Quality Rating



I-575 (CHEROKEE & COBB COUNTIES) - MORNING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

³Type 3 nested congestion (present only in the first or second half-hour period).

²Type 2 nested congestion (more severe in left or right-hand lanes).

⁴Type 4 nested congestion (partial length of segment).

I-575 (CHEROKEE & COBB COUNTIES) - MORNING

A

Congestion Type: Mainline Congestion

Frequency: Most observations before 9:00 a.m.

Direction: Southbound

Location: Between Sixes Rd and I-75

Queue Length: 3 to 9 miles

Estimated Speed: 20 to 45 mph

Potential Cause(s): During the peak hour (6:30-7:30 a.m.), the tail of the queue on I-575 was typically found between Towne Lake Pkwy and Sixes Rd; between 7:30 and 9:00 a.m., the tail of the queue was typically found between Bells Ferry Rd and SR 92. Traffic entering at the interchanges along this section of I-575 appeared to exacerbate congestion.

B

Congestion Type: Exit Ramp Queue

Location: Chastain Rd

Frequency: Intermittent

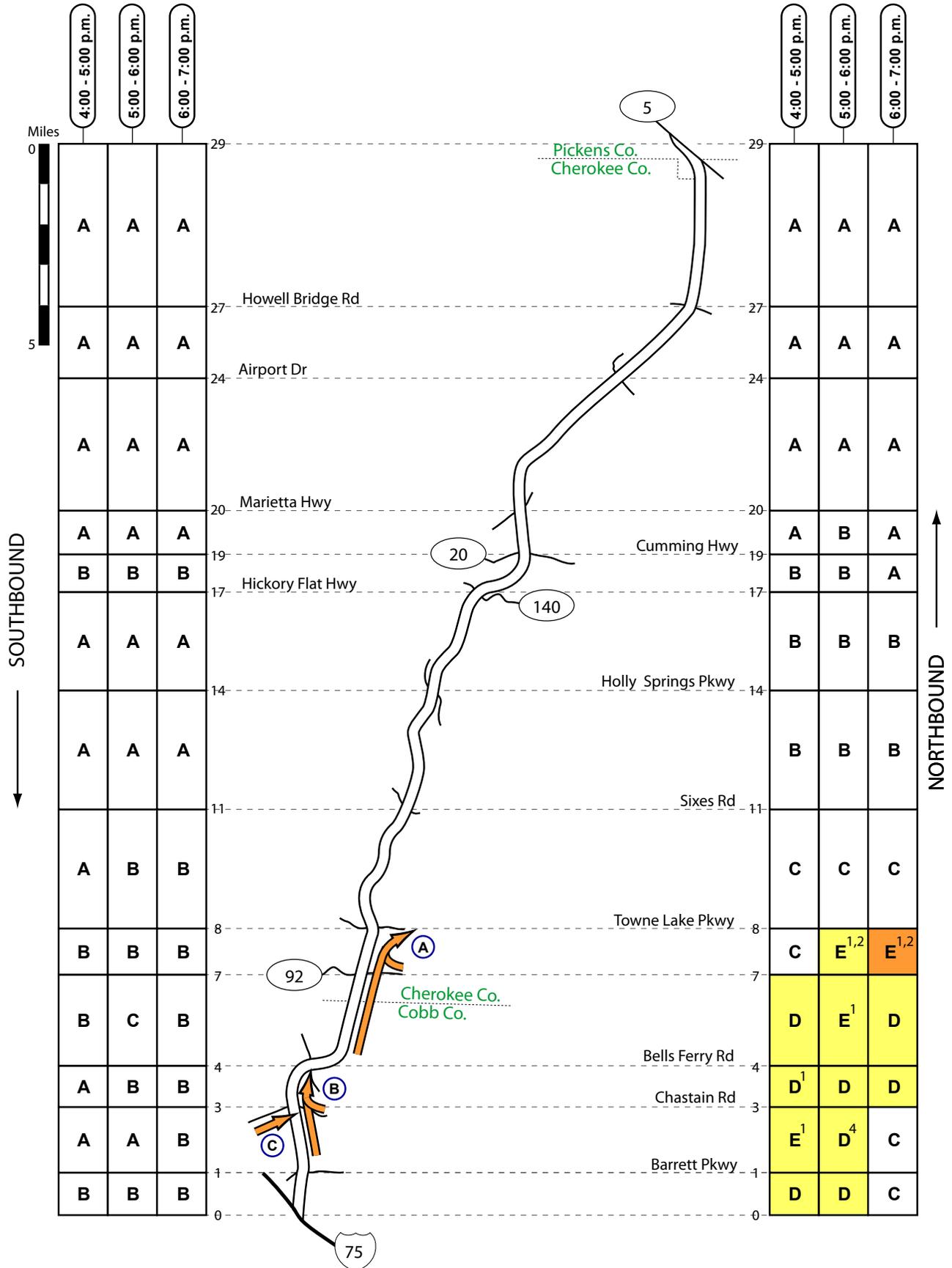
Direction: Southbound

Queue Population: 20 to 30 vpl

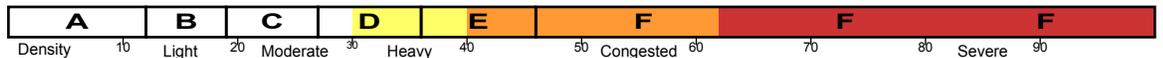
Number of Lanes: One

Note: When congested, vehicles were queued in the right lane; vehicles at the head of the ramp waited to merge into westbound flow on Chastain Rd.

I-575 (CHEROKEE & COBB COUNTIES) - EVENING



Traffic Quality Rating



Superscripts: ¹Type 1 nested congestion (some days, not others).

²Type 2 nested congestion (more severe in left or right-hand lanes).

³Type 3 nested congestion (present only in the first or second half-hour period).

⁴Type 4 nested congestion (partial length of segment).

I-575 (CHEROKEE & COBB COUNTIES) - EVENING

A

Congestion Type: Mainline Congestion

Frequency: Intermittently after 4:30 p.m.

Direction: Northbound

Location: Between Bells Ferry Rd and Towne Lake Pkwy

Queue Length: 3 to 4 miles

Estimated Speed: 35 to 50 mph

Potential Cause(s): The head of the queue was found on the ramp to Towne Lake Parkway; congestion extended back into the right lane (and eventually across both lanes) of I-575.

B

Congestion Type: Mainline Congestion

Frequency: Intermittently before 5:30 p.m.

Direction: Northbound

Location: Between Barrett Pkwy and Bells Ferry Rd

Queue Length: 2 to 3 miles

Estimated Speed: 40 to 50 mph

Potential Cause(s): Traffic entering at Chastain Rd

C

Congestion Type: Congested Cross Road

Location: Chastain Rd

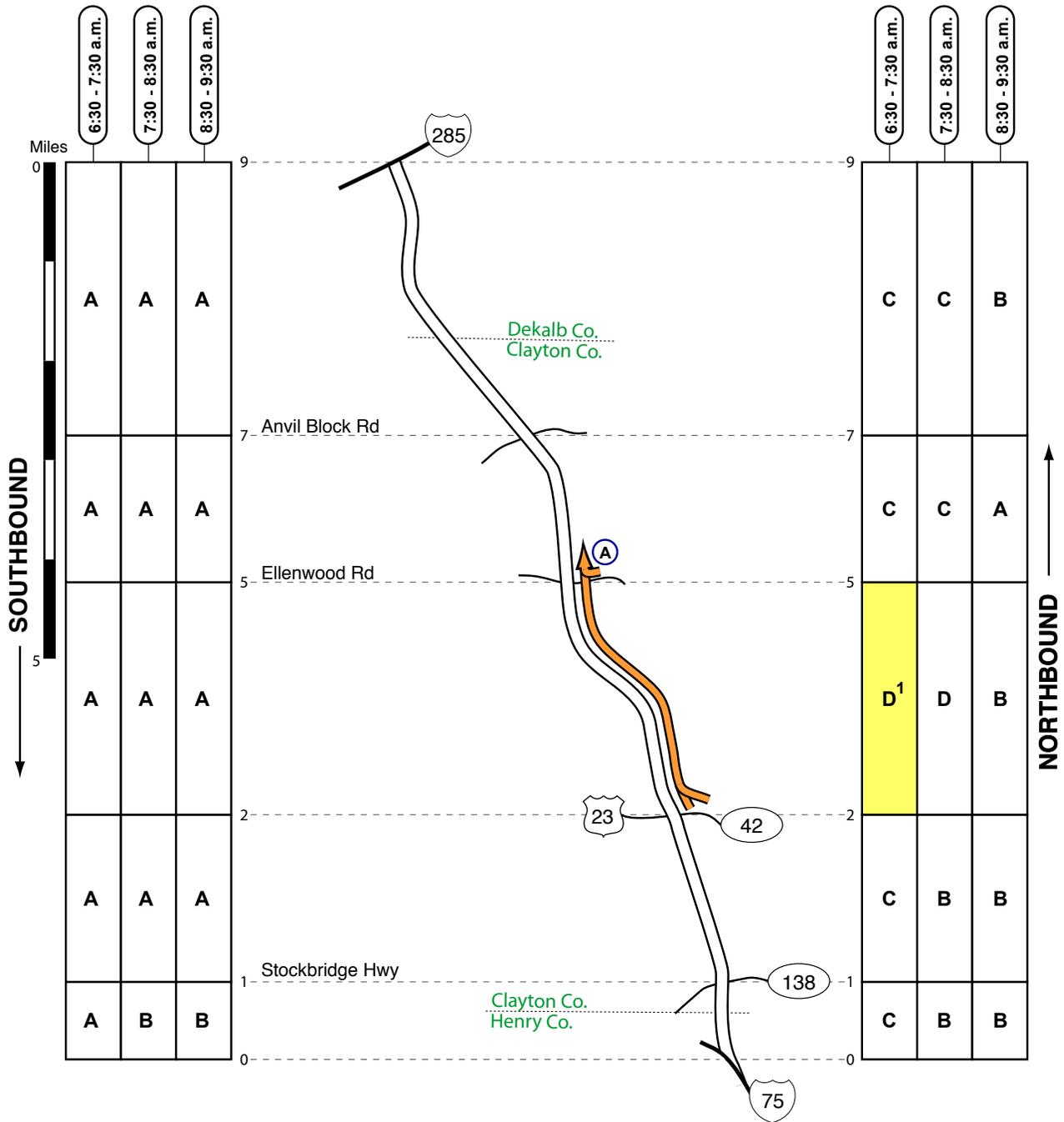
Frequency: Intermittent

Direction: Eastbound

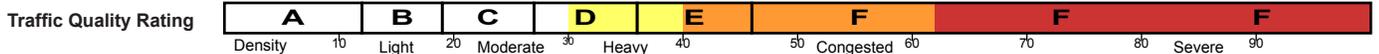
Queue Population: 20 to 25 vpl

Number of Lanes: Two Left-Turn Lanes

I-675 (DEKALB/CLAYTON & HENRY COUNTIES) - MORNING

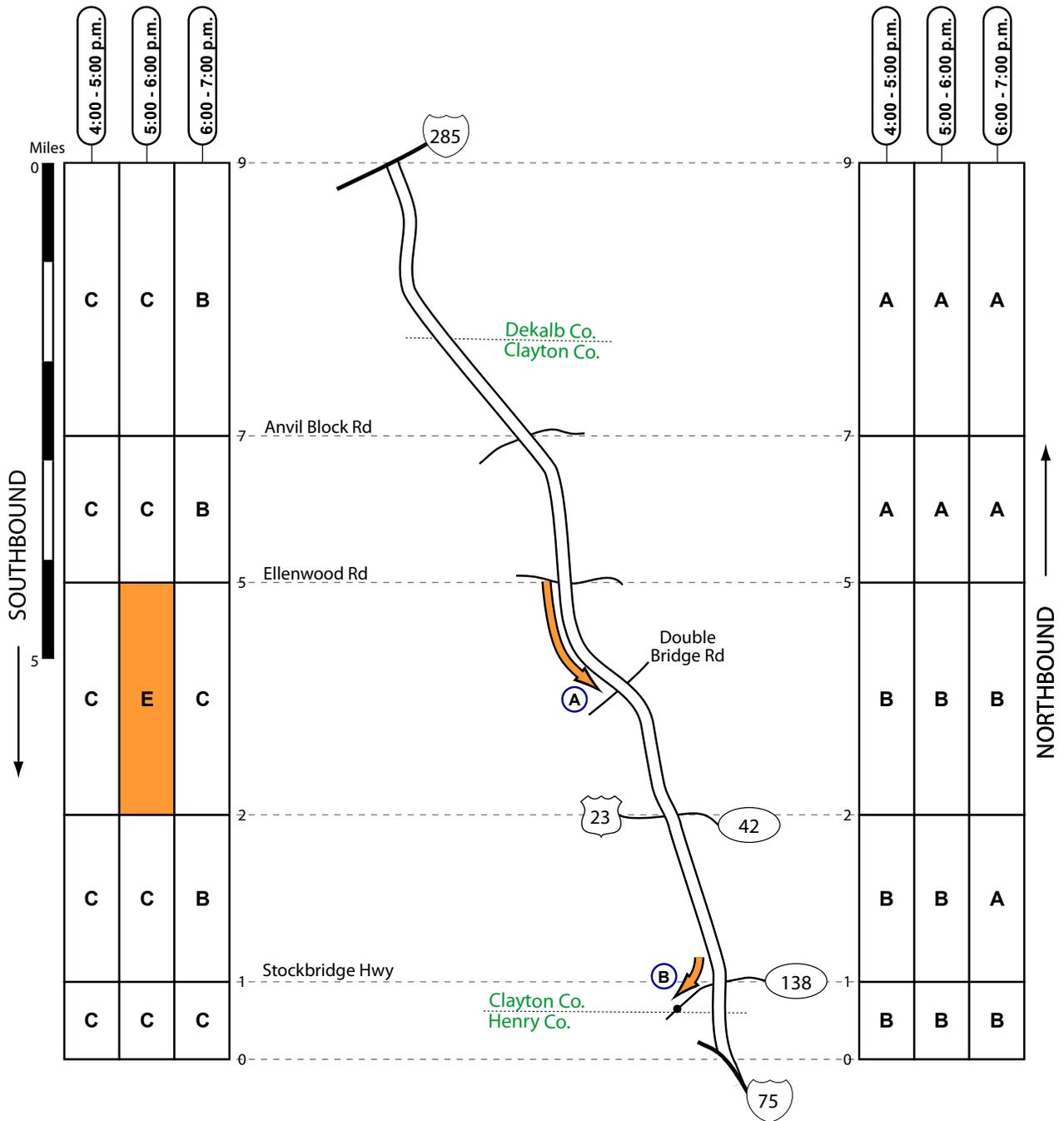


A
 Congestion Type: Mainline Congestion
 Frequency: Intermittently before 7:30 a.m.
 Direction: Northbound
 Location: Between SR 42 and Ellenwood Rd
 Queue Length: 2 to 3 miles
 Estimated Speed: 40 to 50 mph
 Potential Cause(s): Factors contributing to the congestion were: 1) the geometrics of the road (sharp bends) and: 2) traffic entering at the SR 42 and Ellenwood Rd interchanges.



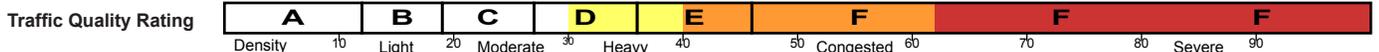
Superscripts: ¹ Type 1 nested congestion (some days, not others). ² Type 2 nested congestion (more severe in left or right-hand lanes). ³ Type 3 nested congestion (present only in the first or second half-hour period). ⁴ Type 4 nested congestion (partial length of segment).

I-675 (DEKALB/CLAYTON & HENRY COUNTIES) - EVENING



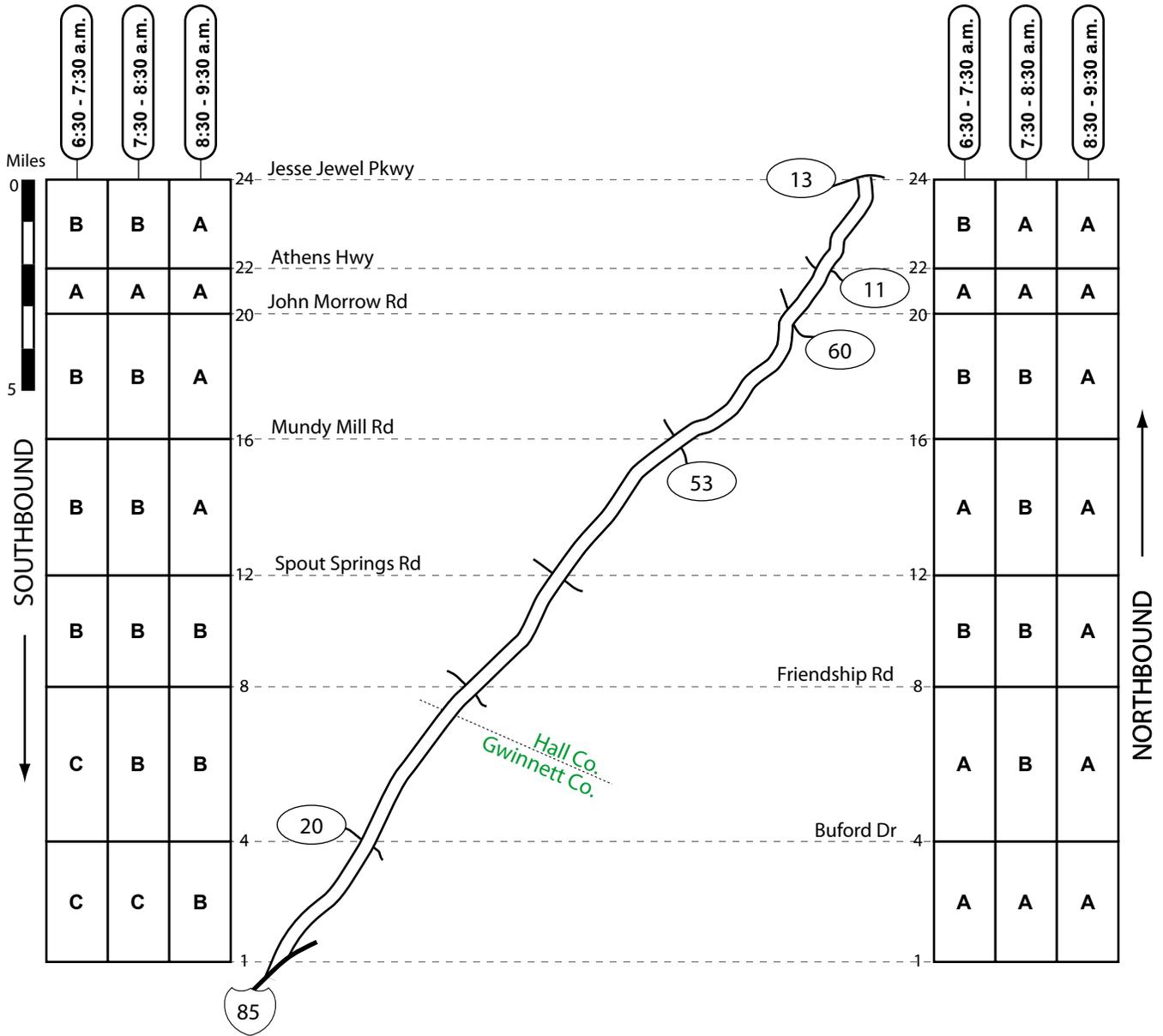
A
 Congestion Type: Mainline Congestion
 Frequency: Peak Hour
 Direction: Southbound
 Location: Between Ellenwood Rd and SR 42
 Queue Length: 1 to 2 miles
 Estimated Speed: 30 to 50 mph
 Potential Cause(s): Lane drop (3 lanes to 2) at Double Bridge Rd

B
 Congestion Type: Exit Ramp Queue
 Location: Stockbridge Hwy
 Frequency: Intermittent
 Direction: South-eastbound
 Queue Population: 20 to 40 vpl
 Number of Lanes: One Left-Turn Lane

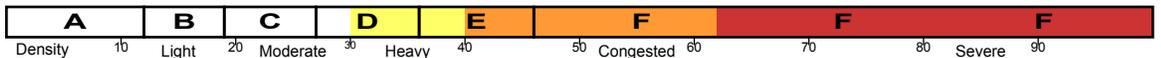


Superscripts: ¹Type 1 nested congestion (some days, not others). ²Type 2 nested congestion (more severe in left or right-hand lanes). ³Type 3 nested congestion (present only in the first or second half-hour period). ⁴Type 4 nested congestion (partial length of segment).

I-985 (HALL & GWINNETT COUNTIES) - MORNING



Traffic Quality Rating



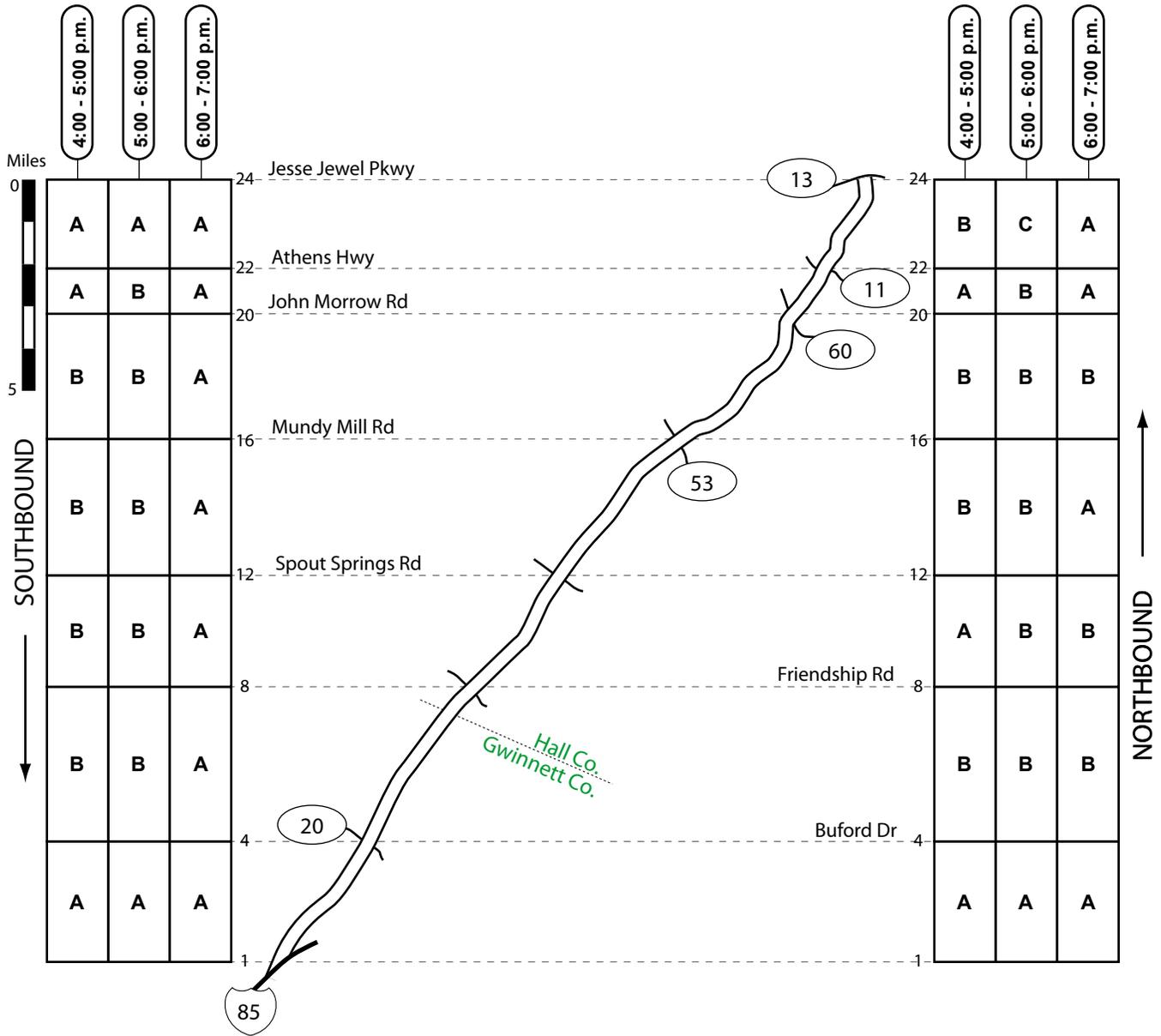
Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

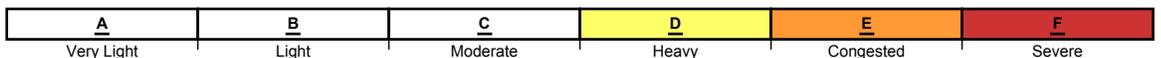
² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

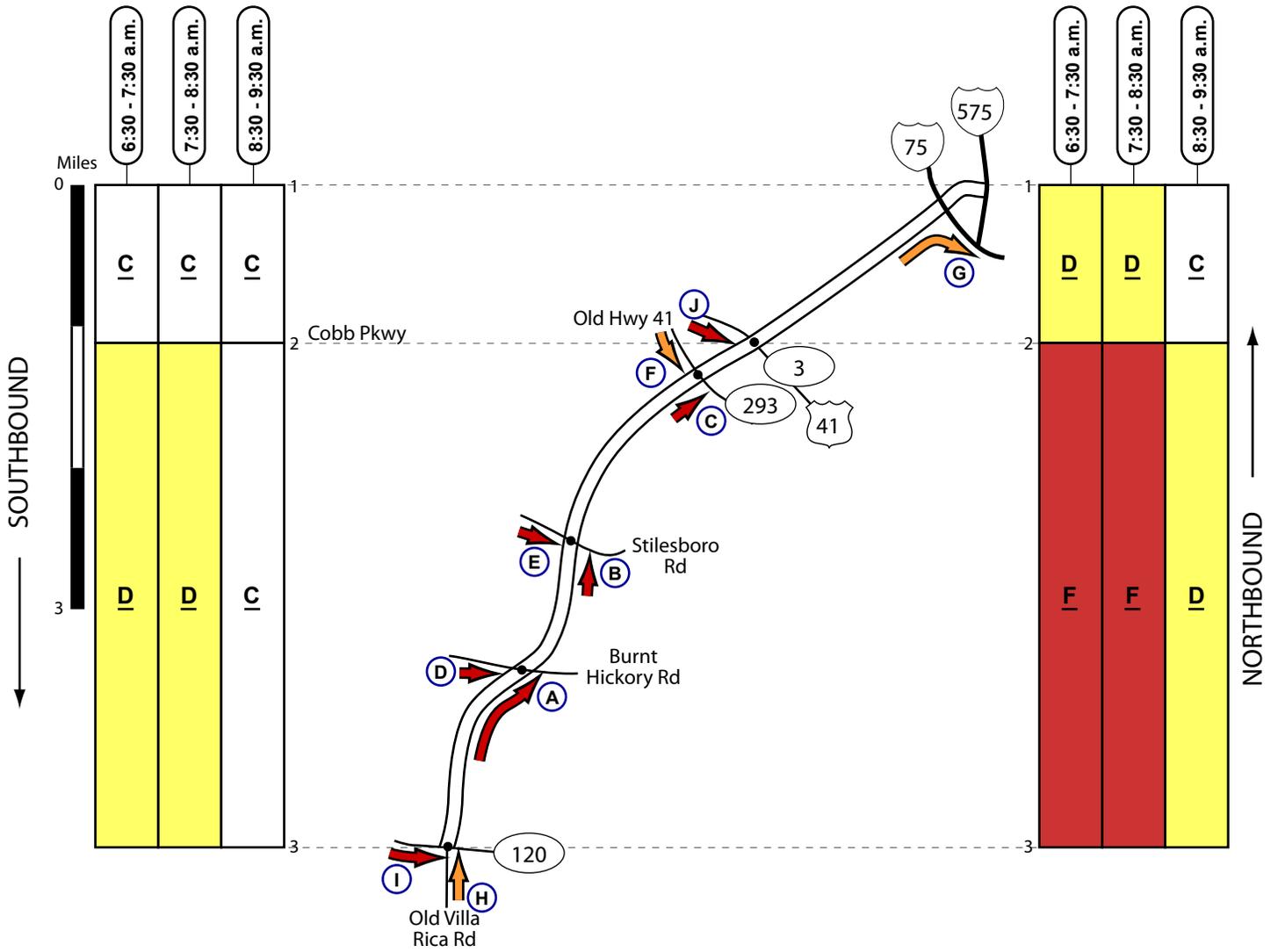
I-985 (HALL & GWINNETT COUNTIES) - EVENING



Traffic Quality Rating



BARRETT PARKWAY/RIDGEWAY ROAD (COBB COUNTY) - MORNING



Traffic Quality Rating



Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

BARRETT PARKWAY/RIDGEWAY ROAD (COBB COUNTY) - MORNING

A

Congestion Type: Signal Queue
Location: Burnt Hickory Rd
Frequency: Most observations
Direction: Northbound
Queue Populations: 35 to 115 vpl
Number of Lanes: 2
Note: During the peak period, queue populations at the signal typically exceeded 100 vehicles per lane (two lanes).

B

Congestion Type: Signal Queue
Location: Stilesboro Rd
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

C

Congestion Type: Signal Queue
Location: Old Hwy 41 (SR 293)
Frequency: Most observations
Direction: Northbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 2

D

Congestion Type: Congested Cross Road
Location: Burnt Hickory Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1

E

Congestion Type: Congested Cross Road
Location: Stilesboro Rd
Frequency: Most observations
Direction: Eastbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 1

F

Congestion Type: Congested Cross Road
Location: Old Hwy 41 (SR 293)
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1

G

Congestion Type: Entrance Ramp Queue
Location: I-75
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 70 vpl
Number of Lanes: 1
Note: In some cases, congestion on the entrance ramp at I-75 backed into the right lane on Barrett Pkwy; congestion was also found intermittently at the upstream signal at Cobb Place Blvd (right lane only).

H

Congestion Type: Congested Cross Road
Location: Old Villa Rica Rd
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 2

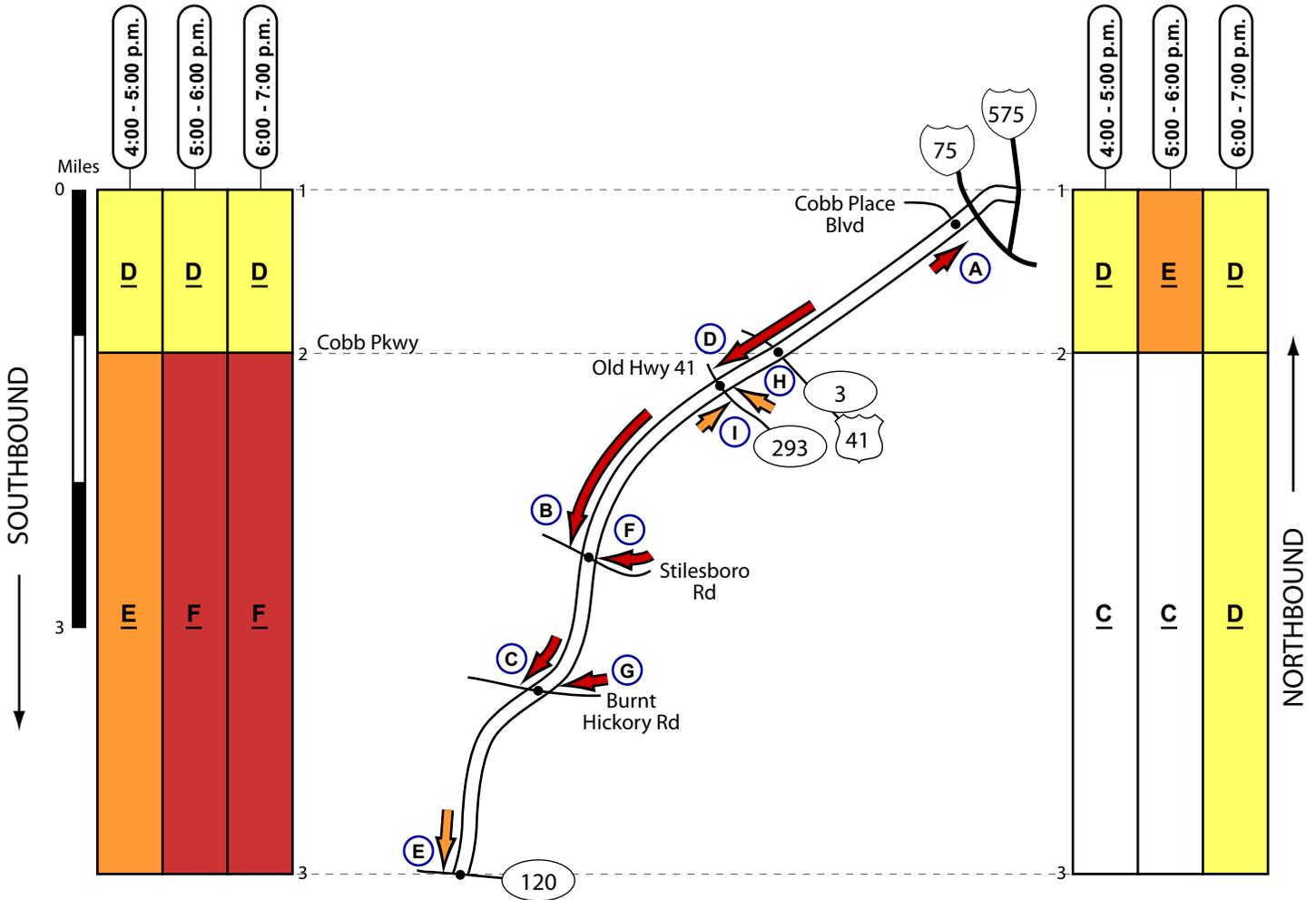
I

Congestion Type: Congested Cross Road
Location: SR 120
Frequency: Intermittent
Direction: Eastbound
Queue Populations: 20 to 60 vpl
Number of Lanes: 2

J

Congestion Type: Congested Cross Road
Location: SR 3/US 41
Frequency: Most observations before 8:00 a.m.
Direction: Southbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 2

BARRETT PARKWAY/RIDGEWAY ROAD (COBB COUNTY) - EVENING



Traffic Quality Rating

A	B	C	D	E	F
Very Light	Light	Moderate	Heavy	Congested	Severe

Superscripts: ¹ Type 1 nested congestion (some days, not others).

³ Type 3 nested congestion (present only in the first or second half-hour period).

² Type 2 nested congestion (more severe in left or right-hand lanes).

⁴ Type 4 nested congestion (partial length of segment).

BARRETT PARKWAY/RIDGEWAY ROAD (COBB COUNTY) - EVENING**A**

Congestion Type: Signal Queue
Location: Cobb Place Blvd
Frequency: Peak Hour
Direction: Northbound
Queue Populations: 20 to 35 vpl
Number of Lanes: 3

B

Congestion Type: Signal Queue
Location: Stilesboro Rd
Frequency: Most observations
Direction: Southbound
Queue Populations: 40 to 130 vpl
Number of Lanes: 2

C

Congestion Type: Signal Queue
Location: Burnt Hickory Rd
Frequency: Most observations
Direction: Southbound
Queue Populations: 30 to 45 vpl
Number of Lanes: 2

D

Congestion Type: Signal Queue
Location: Old Hwy 41 (SR 293)
Frequency: Most observations
Direction: Southbound
Queue Populations: 25 to 90 vpl
Number of Lanes: 2

E

Congestion Type: Signal Queue
Location: SR 120 (Dallas Hwy)
Frequency: Intermittent
Direction: Southbound
Queue Populations: 20 to 30 vpl
Number of Lanes: 2

Note: In some cases, southbound congestion was found at the first signal north of SR 120 (commercial businesses).

F

Congestion Type: Congested Cross Road
Location: Stilesboro Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 80 vpl
Number of Lanes: 1

G

Congestion Type: Congested Cross Road
Location: Burnt Hickory Rd
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1

H

Congestion Type: Congested Cross Road
Location: Old Hwy 41 (SR 293)
Frequency: Intermittent
Direction: Westbound
Queue Populations: 20 to 40 vpl
Number of Lanes: 1

I

Congestion Type: Signal Queue
Location: Old Hwy 41 (SR 293)
Frequency: Intermittent
Direction: Northbound
Queue Populations: 20 to 25 vpl
Number of Lanes: 1

Note: When congested, vehicles in the left-turn bay extended back into the left lane on Barrett Pkwy.

APPENDIX A

PROCEDURE FOR DETERMINING LEVEL-OF-SERVICE

PART ONE: UNINTERRUPTED-FLOW HIGHWAYS

PART TWO: INTERRUPTED-FLOW HIGHWAYS

Introduction

Overlapping aerial photography can document many useful characteristics of traffic flow on highway networks. The photographs can be invaluable for screening problem sites, winning support for ideas, and explaining decisions to others. If formal rules and procedures are applied to the analysis of aerial photographs, the photography can provide a cost-effective basis for periodically rating the performance of large highway systems on a link-by-link basis.

Background

On motorized vehicle highways, traffic flow is normally measured in terms of three basic parameters: *volume*, *speed*, and *density*. These parameters are related mathematically such that, if only two are known, the third can be calculated (volume equals speed times density). Other useful flow parameters related to speed are *travel time* and *delay* between specific points on a system.

The *Highway Capacity Manual (HCM)*, updated in 2000 by the Transportation Research Board of the National Research Council, is an authoritative governmental resource that has established a simplified concept by which the performance of all types of transportation facilities can be described and compared. This concept is called *level of service*, or *LOS*. For each type of facility, a single traffic flow parameter – the one deemed most appropriate by the committee that publishes the manual – is chosen to be the basis for defining six rating categories. These categories are represented by the letters “A” through “F”, ranging from the most favorable rating of LOS A (indicating high service quality associated with lightly-used facilities) to the poorest rating of LOS F (indicating a facility burdened by congestion or other undesirable performance characteristics). This LOS system, introduced in 1965 version of the HCM and revised periodically since, has been widely adopted for evaluating existing highway systems and planning future improvements. Because six LOS classes are easier to understand than tables of numbers, LOS has been widely used in the political process. In some jurisdictions, LOS standards are even found in legislation attempting to guide facility planning or control real estate development.

Part One: Uninterrupted-flow highways (grade-separated highways without signals)

Summary

The defining parameter for HCM LOS on freeways and other uninterrupted-flow highways is the *density* of traffic flow (in units of passenger cars per lane per mile). Density was chosen as the basis for HCM LOS because, when traffic flows without interruption, traffic density relates mathematically to both speed and volume. This means that a single LOS

measure based on density provides not only general speed information, but also provides an approximation of how heavily the facility is utilized. It also indicates where demand has exceeded capacity, resulting in congestion and delays. (Speed is less desirable as a defining basis for LOS because uninterrupted-flow highways can process high volumes of traffic at high speeds; ratings based on speed alone might not differentiate clearly between facilities that were heavily or lightly utilized.) The most common way to determine LOS on an existing freeway is to measure the speed and volume of the traffic, and then calculate the density. Another method is to determine density directly from aerial photographs, which allows for cost effective data collection across very large highway networks. (This also affords the other benefits of aerial photography, which often shows the underlying causes of congestion as well as conditions on interchange ramps, merges and crossroads.) Accordingly, when Skycomp evaluates the performance of uninterrupted-flow highway facilities, Skycomp derives traffic densities from aerial photographs and then determines density-based HCM LOS ratings.

As discussed above, the LOS rating system uses the letters “A” through “F” to describe traffic conditions: LOS “A” represents superior traffic conditions (very light traffic), while LOS “F” represents poor traffic conditions (congested flow involving various degrees of delay). These letters are assigned based on how densely cars are traveling on the road. Research has shown that for all densities below 40 pcplpm, vehicles generally move at or close to normal highway speed; LOS “A” through “E” represent these densities according to the following table (pcplpm):

- LOS “A”:** densities from **zero to 11** (very light traffic);
- LOS “B”:** densities from **12 to 18** (light to moderate traffic);
- LOS “C”:** densities from **19 to 26** (moderate traffic);
- LOS “D”:** densities from **27 to 35** (moderate to heavy traffic);
- LOS “E”:** densities from **36 to approx. 45** (heavy traffic, but still at speeds close to free-flow)

At densities greater than **40**, speeds typically decrease and traveler delays are incurred. Because flow at all densities greater than **46** (approximately) are regarded as LOS “F”, this report attaches actual densities to all LOS “F” ratings. Accordingly:

- LOS “F”:**
- Densities from **46 to 60** indicate delay involving minor degrees of slowing; average speeds usually range between 50 and 30 mph;
 - Densities from **60 to 80** indicate traffic flow at average speeds usually ranging between 40 and 15 mph;
 - Densities from **80 to 100** indicate congested traffic flow, with some stopping possible; average speeds usually range between 10 and 25 mph;
 - Densities above **100** indicate severe congestion, with considerable stop-and-go flow likely. For reference, densities above 120 almost always indicate the presence of unusual events (accidents, roadwork, etc.). The practical maximum value for density measurements is **180**; the theoretical maximum value is **264** (at 20 feet per vehicle).

Data Reduction Procedures

From overlapping time-stamped photographs, densities by highway segment were determined by manual counts taken along the entire segment length. Vehicles were classified as cars, trucks, buses, or tractor-trailers when counted; later, passenger-car equivalents (pce's) were derived according to the following table:

<u>Vehicle type:</u>	<u>PCE's:</u>
cars	1
buses	1.5
trucks	1.5
tractor-trailers	2.0

Data that were atypical due to roadwork or to known or suspected incidents were coded for exclusion from the averaging process. All data were then entered into a microcomputer database program, which performed the following tasks: 1) samples were grouped by time slice; 2) average densities were calculated; and 3) densities were converted into service levels "A" through "F". The computer then prepared matrices showing each averaged service level rating plotted by time and highway segment. These data matrices were then copied into the traffic quality tables, which are provided in this report.

In the tables, all LOS F conditions (congested traffic flow) have been darkly shaded; this permits quick identification of locations experiencing demand at levels exceeding capacity. Because LOS "F" encompasses a wide range of densities, the actual density values are entered next to the "F"; using the travel characteristics in the density ranges provided above, the nature of the flow in LOS F segments can be determined.

While examining the photography, data technicians also identified side streets and on/off ramps that were congested. Where these problems were recurring, descriptive narratives were prepared.

Part Two: Interrupted-flow highways (highways with traffic signals)

Summary

Density is not an appropriate performance measure for interrupted-flow arterials since density measurements will fluctuate widely with uneven flow caused by traffic signals. Accordingly, the defining parameter of HCM LOS on interrupted-flow highways is *average travel speed*, which is calculated from travel time. Travel time is commonly measured by inserting probe vehicles into a traffic stream (called "floating cars"), and recording travel times between key intersections; an alternative method is to record and match hundreds of license plate numbers at various points along a study corridor, and then calculate the associated travel times and speeds. These methods are widely used on commuter highways of all types, and have the advantage of providing actual HCM LOS on interrupted-flow highways – something that aerial photography cannot do on a large-scale basis.

Travel time methods are limited, however, in that they do not provide information regarding how heavily facilities are being used (that is normally accomplished with some form of volume determination). They also do not provide insight as to the underlying causes of congestion, or the degree to which congestion exists on cross streets or along merging routes. Aerial

photography can provide this information, with the added benefit that the actual photographs can be used for inspection or documentation. For example, without traveling to the field, transportation specialists can view bottlenecks, look for causes, and sometimes even consider the feasibility of potential corrective actions. For example, is the problem caused by a specific turning movement within the intersection? Might it be feasible to add a turning lane? Are cross streets free of congestion (so we can consider adding “green” signal-time to the primary route)? How much worse has this become over the last three years? Should we include this site on our study list? The photographs then become supporting documentation for subsequent recommendations by engineers and funding decisions by elected officials.

Therefore, even though aerial photography cannot supply HCM LOS on interrupted-flow highways, the potential benefits of the approach are such that Skycomp was asked to develop a *surrogate* LOS performance measure – one that could be obtained cost-effectively from aerial photography, and could be used to monitor and document facility performance over time.

Surrogate LOS rating system developed by Skycomp.

Skycomp began by recognizing that the *HCM* supplies qualitative descriptions of the general nature of traffic flow associated with each LOS. For example, for LOS A, the *HCM* states:

“LOS A describes primarily free-flow operations at average travel speeds, [usually about 90% of the free flow speed for the given street class]. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.” (*Travel-time definition highlighted in brackets.*)

At the other extreme, the *HCM* states:

“LOS F is characterized by urban street flow at extremely low speeds, [typically one-third to one-fourth of the free-flow speed]. Intersection congestion is likely at critical signalized locations, with high delays, high volumes and extensive queuing.”

Because aerial photographs show actual conditions on each highway link, they can be used to classify general levels of demand and congestion in a manner reasonably consistent with the six *HCM* descriptions. Skycomp developed and formalized such a system, which was introduced in 1995*. This rating system was developed under the following constraints:

- Like HCM LOS, the surrogate rating scale must consist of six classes labeled “A” through “F”. These classes must cover the full range of traffic conditions found on interrupted-flow highways, from empty to densely congested highways, with reasonable gradations in between. Ratings must be generally consistent with the qualitative descriptions of traffic flow associated with each LOS class in the HCM.
- The procedure must produce consistent results, so that different trained persons will generally assign the same ratings when analyzing with the same photographs.
- The procedure must produce ratings that are not be sensitive to the time the photographs were taken relative to the signal cycle.

Definition of Surrogate LOS Performance Ratings

Skycomp’s system relies on assessing the nature of vehicle platoons and the extent of queuing found at signalized intersections. Accordingly, the six surrogate LOS performance ratings used in this survey of interrupted-flow highways are defined as follows. (Because they are surrogate LOS measures, they are underlined for differentiation from HCM LOS):

Surrogate LOS Performance Rating A:

— Very few vehicles are using the highway; the highway is virtually deserted. *[HCM qualitative description for LOS A: Vehicles are completely unimpeded in their ability to maneuver within the traffic stream; free-flow operations.]*

Surrogate LOS Performance Rating B:

— Traffic flow is light; there is little or no grouping of vehicles (“platooning”). *[HCM qualitative description for LOS B: reasonably unimpeded operations; ability to maneuver only slightly restricted.]*

Surrogate LOS Performance Rating C:

—Traffic flow is moderate (not heavy, not light). There are enough vehicles to form into distinct platoons, but platoon populations do not exceed 15 vehicles per lane. *[HCM qualitative description for LOS C: stable operations; some restrictions to ability to maneuver.]*

Surrogate LOS Performance Rating D:

—Traffic flow is heavy; there are many cars on the road. Significant queuing is found at signals, but all queued vehicles are expected to clear the signal on “green” (there are less than 20 vehicles per lane queued at all signals in the segment). Platoons contain at least 15 but do not exceed 25 vehicles per lane. *[HCM qualitative description for LOS D: borders on unstable flow where small increases in flow may cause substantial decreases in travel speed.]*

Surrogate LOS Performance Rating E:

— Traffic flow is congested. The segment may contain one or two signalized intersections with queues of more than 20 vehicles per lane (all vehicles may not clear on “green”). Platoon populations exceed 25 vehicles per lane. (On long one-lane segments, the movement of vehicles may resemble a funeral procession, with little opportunity for side-traffic to enter the roadway.) *[HCM qualitative description for LOS E: significant delays and low average travel speeds; typical causes include adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.]*

Surrogate LOS Performance Rating F:

— Traffic flow is severely congested. This involves vehicles backing through an upstream signal, or for the length of the segment; a series of closely-spaced intersections with more than 20 vehicles per lane queued at each; or the segment contains one severely congested intersection, with more than 40 vehicles per lane queued approaching the signal (it may take two or more signal cycles to clear the intersection). *[HCM qualitative description for LOS F: flow at extremely low speeds; high delays and extensive queuing likely at critical intersections.]*

These are the definitions that were used in evaluating the interrupted-flow highways for each of the surveys conducted in 1999, 2002 and 2005.

Photo analysis procedures

Prior to the beginning of photo analysis, each surveyed highway was segmented into sections between major intersections or crossroads (segments were normally two to three miles in length; however, some segments were as short as one mile or as long as five miles, depending primarily on the density of traffic signals).

Ratings were assigned one segment at a time, by direction. For each rating, all associated photographs were laid out and oriented for simultaneous viewing. The analyst began by considering the definition of surrogate LOS C, and determining if the conditions warranted that definition. If so, the assignment was made. If not, the analyst adjusted the rating upward or downward as warranted by the conditions.

In the event that an incident or temporary roadwork significantly affected the rating, the evaluator attached a code that would later exclude the affected data from being compared to the results of other survey flights.

After a quality-control review by the senior analyst, all individual ratings were digitized and entered into a computer database program for compilation and evaluation. Ratings were printed by time slice and by day, so that unusual ratings could be identified. For example, if "B" or "C" ratings were assigned on three days and an "E" rating on one day, the photography was checked for possible error or incident. If the data were clearly atypical but a cause could not be identified, a code "u" ("unknown") was attached to the data (like the incident and roadwork codes, this would flag the data for exclusion when determining predominant ratings).

Skycomp's senior analyst then reviewed the photography at each bottleneck location (performance rating "E" or "F"), verified the traffic quality ratings assigned by the analyst, and prepared a text entry summarizing details at the site. For example:

Summary detail note (US 78 - Morning):
Congestion Type: Signal Queue
Intersection: Wisteria Dr
Frequency: Most observations
Direction: Westbound
Queue Populations: 20 to 100 vehicles per lane
Number of Lanes: One

For each bottleneck, one set of photographs was also selected at the time which best illustrated the congestion that was found. Digital versions of these photos were then labeled as appropriate, and set aside for incorporation later into the interactive digital slide show.

Next, revisions were made to the database as appropriate, and reports were generated which grouped all non-excluded ratings by segment and time slice. Skycomp's senior analyst then examined each group to determine which rating was predominant. Once determined, the predominant rating for each segment and time slice was entered the traffic quality rating tables that comprise the main body of the printed report.

* (Skycomp developed its system to the HCM LOS descriptions that were current in 1995. The qualitative descriptions associated with each LOS rating were not materially revised in HCM 2000.)

APPENDIX B

METHODOLOGY DESCRIPTION

Procedures for obtaining speed/density samples for calibration of the Van Aerde Speed / Density Model

BACKGROUND

In the spring of 1995, Skycomp collected data to compare the speed of vehicles through congested freeway zones with corresponding densities obtained from aerial photographs. The purpose was to explore the relationship between the two, and, given a reasonable correlation, to prepare a model by which vehicle speeds could be estimated from aerial density photographs.

The program was conceived and executed by the Metropolitan Washington (D.C.) Council of Governments (MWCOCG). Aerial data were collected by Skycomp; analysis of the data and calibration of the Van Aerde speed/density model were conducted by MWCOCG (draft paper included in this appendix).

A secondary objective was to evaluate the accuracy of aerial speed and density measurements by comparing them to data collected by traditional methods (floating cars and loop detectors embedded in the pavement).

Accordingly, segments of freeway were chosen to be surveyed that: 1) were expected to generate congested traffic flow; and 2) either contained a loop detector station or would accommodate quick turnarounds for multiple floating car runs. Thus, while data were being collected in the air (290 speed samples were obtained from the air, along with corresponding densities), loop detector or floating car data were collected concurrently on the ground.

The outcome of this study was a finding that travel speeds across congested freeway segments could be determined with reasonable accuracy using only aerial density photographs. It was also found that speeds and densities obtained through aerial techniques closely matched data obtained using the traditional ground methods.

PROCEDURES TO OBTAIN SPEED / DENSITY SAMPLES:

The observer/photographer followed the following procedure to obtain all speed/density samples: he first flew along the selected survey segment while taking time-stamped overlapping density photographs of the entire segment; next, at the upstream end, he selected a target “floating” car for tracking; he photographed the target as it entered and departed the segment, while simultaneously timing its run to the nearest second. He then took an “after” density photo set; and then recorded the following information on a clipboard: the time of the sample, the target vehicle description, lane(s) traveled, elapsed time, and any special notes. This procedure was repeated for each speed/density data point.

In the actual course of sampling, this procedure was modified in several ways. First, where cars were moving at high (free-flow) speeds, the density did not change significantly between samples; thus sometimes three or more floating cars were timed between density runs.

Another modification done in-flight is as follows: the observer noted in several cases that the density set taken before the target vehicle went through better reflected the conditions the car encountered than the density set taken after the vehicle went through (or vice versa). This was usually due to a delay in changing film, extra maneuvering the airplane, or any other event which delayed the “after” density sample for several minutes after the completion of the run. While normally the density associated with each speed sample was an average of the “before” and “after” density sets, in these cases only the “before” or “after” density set would be used (as directed by the observer).

With regard to selection of target vehicles, the plan was to select cars that reflected the average speed of traffic, just as floating car drivers are instructed to approximate the speed of traffic flow. Fortunately, vehicles have little freedom to choose their speeds in the congested density ranges (above 40 pcplpm). So, for example, almost any vehicle in a congested traffic stream in the middle lane of three will give a suitable floating car measurement. Even tractor-trailers (unless heavily loaded and traveling uphill) moved at the same speed as passenger cars. Thus the criteria the observer used in selecting each target vehicle was 1) is it in the correct lane; and 2) does the vehicle stand out so that it is easy to keep track of?

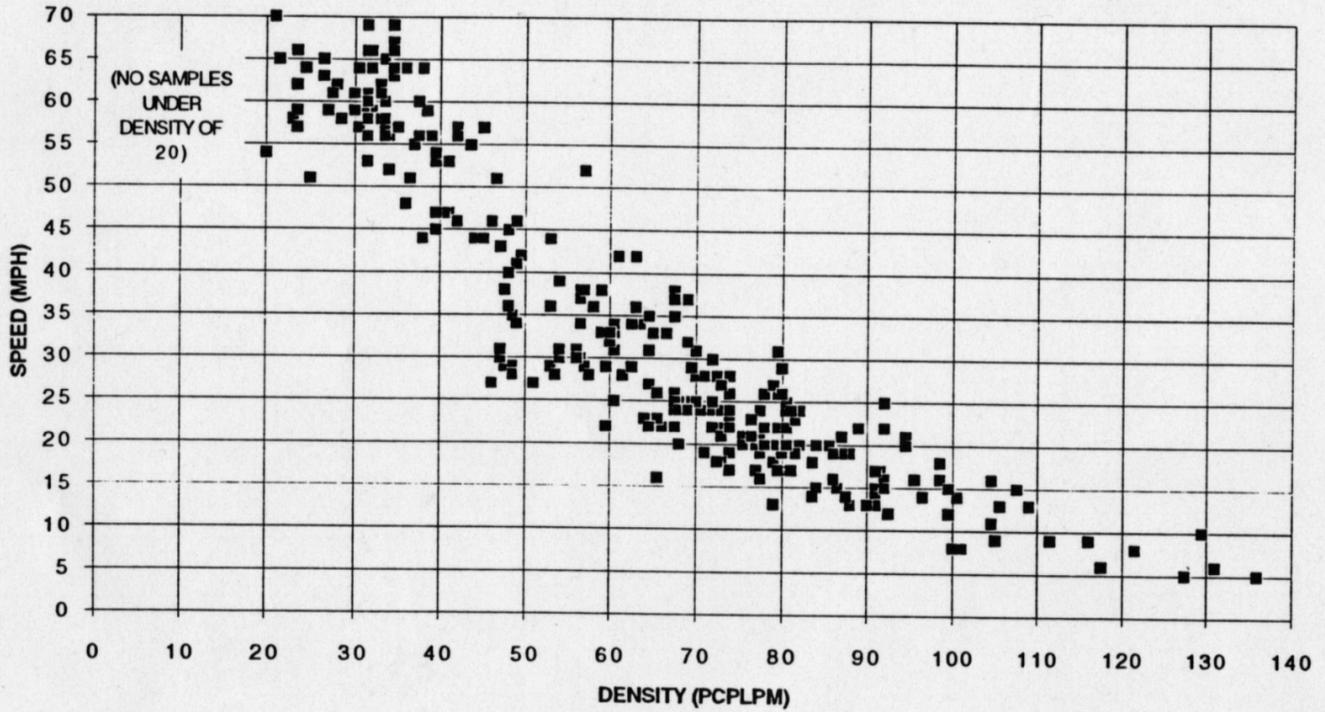
Also, in the event that the highway had four travel lanes in one direction, alternating samples were taken from both middle lanes.

In the event that a driver switched lanes while being tracked, the observer noted the lane change and also noted which lane the car spent the majority of time in (this is the lane for which a density count would be made later). In several cases (infrequently), the observer abandoned tracking certain vehicles when: 1) the driver made multiple lane changes, trying to beat the average speed of traffic; 2) the driver switched lanes and changed speeds obviously and significantly; 3) the vehicle turned out to be a heavily loaded truck which delayed the traffic stream; or 4) the observer “lost” the vehicle being tracked. Also, for the samples made with traffic traveling at free-flow speeds, vehicles were abandoned which proved to be traveling significantly faster or slower than the average speed of traffic.

In the event that the target vehicle moved to the right lane in apparent preparation to exit, the observer often was able to switch tracking to another vehicle that had been just behind or ahead of the original vehicle in the same lane (and used the newly adopted vehicle to complete the sample). This was necessary because in some cases six or seven minutes had been invested in the tracking of a specific vehicle, and it was important to avoid wasting that time where possible.

It should also be pointed out that speeds were not tracked for very slow moving queues (densities over 120 / MWCOG samples only). Instead, density runs were made at 5 or 10 minute intervals, such that later on the ground the same vehicles could be found in succeeding sets of density photos; this allowed computation of speeds and associated densities.

ALL SKYCOMP DATA SAMPLES



DATA PROCESSING

After each flight, a topographic map was prepared for each zone which showed the starting and stopping points for each tracked car. Measurements were then made of the segment length (distance traveled). Then each tracked vehicle was entered into the computer database, including:

1. vehicle description
2. time-of-day
3. initial lane and subsequent lane changes
4. precise travel time (from stopwatch or time-lapse photographs)
5. density-photo preference, if any (default was to average the before- and after- density samples)
6. any special notes pertaining to that vehicle.

After the photos had been processed, each set of overlapping “density” photographs was taped together into a “mosaic” that showed each entire segment. Then vehicles in the required lane(s) were counted, listed by “car”, “truck”, “tractor-trailer” and “bus”. These totals were translated into passenger-car equivalents (PCE’s) using the following values:

<u>Vehicle type:</u>	<u>PCE's:</u>
cars	1
trucks	1.5
tractor-trailers	2.0
buses	1.5

(It should be noted that the distinction between “cars” and “trucks” could not be cleanly made, since there are many varieties of light and heavy pick-ups (both covered and uncovered). In general, a pick-up or van had to be at least twice the size of an average-sized car to be considered a “truck”.)

PCE’s were then divided by segment length to calculate densities. These density samples were then matched to corresponding speed samples; each speed/density data pair was then plotted on the chart.

CALIBRATION OF THE VAN AERDE MODEL

Van Aerde Model
DRAFT -- 15 Feb 96

The main advantages to a single-regime model are that boundaries between regimes do not have to be defined; and curves from adjacent regimes do not have to be spliced at the boundaries. A single-regime model allows for a more subjective and repeatable calibration process. This will be especially true if more data from the high-speed end of the curve is ever incorporated into this process.

The disadvantages to this particular model are that it expresses this project's independent variable as a function of the dependent variable; and that it is a non-linear function. These disadvantages make performing the initial calibration more difficult. However, once SAS programs for the task are written, they can be used again usually with a minimum of effort.

The procedure for calibration was as follows: 1) The model's equation was coded into a spreadsheet so that the shape could be defined by recognizable parameters: two points that the curve passes through, the free-flow speed, and the speed at capacity. By overlaying this curve with the scatter plot of the observations, initial estimates of the parameters were made. 2) The initial parameter estimates, the equation, and the observations were used in a SAS PROC NLIN job to machine-calibrate the parameter estimates. 3) A second SAS program translated the calibrated equation into a look-up table that expresses speed as a function of density. 4) The results of the SAS work were imported into a spreadsheet for plotting and for calculation of prediction intervals.

Two outstanding technical issues related to this procedure are determination of the free-flow speed, and calculation of prediction intervals.

The free-flow speed for best fit can be determined by the PROC NLIN program, as are all other parameters. Due to the lack of data at the low-density region of the model, PROC NLIN returns a very high free-flow speed. Additional data from MD SHA was used to calculate a free-flow speed for general application on the Beltway. The calibration of the model presented here resulted from forcing the free-flow speed to match the SHA data analysis.

The prediction intervals shown in the current plot were calculated after the model was translated. This may have not been appropriate. PROC NLIN calculates prediction intervals directly as it calibrates the model. Those prediction intervals express density as a function of speed, however. Work is in progress to translate them, and to otherwise arrive at the most appropriate method of determining prediction intervals. Since a single-regime model is more suitable in a computerized process, and for lack of significant difference in performance, the Van Aerde model is preferred over earlier approaches examined by MWCOG staff and presented before subcommittees.

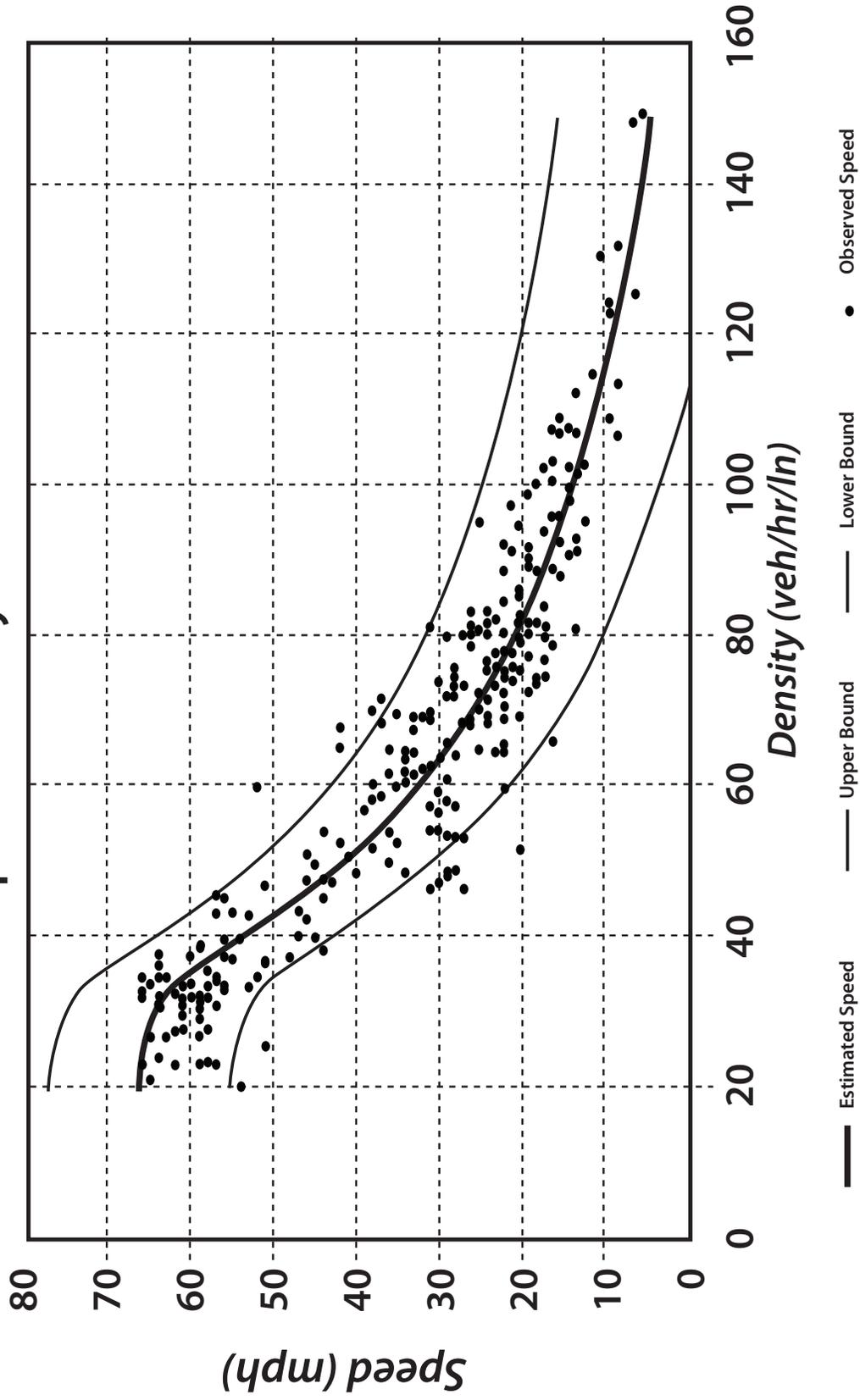
**Speed-Density Calibration
 Van Aerde Single Regime Model**

free-flow spd = 67 mph / c1 = 0.00512 / c2 = 0.0114 / c3 = 0.000342

	DENSITY (veh/ln/mi)	SPEED (mph)	VOLUME (veh/ln/hr)		DENSITY (veh/ln/mi)	SPEED (mph)	VOLUME (veh/ln/hr)
free-flow	0	67.0	0				
	20	66.4	1,328		80	20.7	1655
	25	65.8	1,661		85	18.6	1580
	30	64.6	1,946		90	16.7	1503
	35	61.3	2,144		95	15.0	1425
capacity	39	55.8	2,190		100	13.5	1350
	40	54.7	2,189		105	12.1	1271
	45	47.8	2,153		110	10.9	1197
	50	41.9	2,094		115	9.7	1117
	55	36.8	2,025		120	8.7	1043
	60	32.6	1,954		125	7.7	963
	65	28.9	1,880		130	6.8	885
	70	25.8	1,806		135	6.0	810
	75	23.1	1,731		140	5.2	729
					187	0	0 jam

Draft 15 February 1996

Van Aerde Single Regime Model Speed-Density Calibration



Van Aerde Single Regime Model

