ADDENDUM
APPENDICES

ADDENDUM
Appendix A

Letter from NCTA to NCDOT – May 21, 2007

STATE OF NORTH CAROLINA
TURNPIKE AUTHORITY

MICHAEL F. EASLEY
GOVERNOR

1578 MAIL SERVICE CENTER, RALEIGH, N.C. 27699-1578

DAVID W. JOYNER
EXECUTIVE DIRECTOR

May 21, 2007

Deborah M. Barbour, P.E.
Director of Preconstruction
North Carolina Department of Transportation
1541 Mail Service Center
Raleigh, NC 27699-1541

RE: North Carolina Turnpike Authority: Gaston East-West Connector TIP Project U-3321

Dear Ms. Barbour,

Per a conversation between David Joyner of NCTA and Secretary Lyndo Tippett on February 16, 2007, NCTA is now proceeding with only evaluating toll alternatives in the environmental impact statement (EIS) for the Gaston East-West Connector. Non-toll alternatives will not be included in the EIS. This decision will streamline the studies for the EIS and be more cost effective since added studies accounting for the non-toll alternatives will not be needed. This decision was based on the consideration that it would be unlikely for NCDOT to implement the project as a non-toll facility.

Should you see this situation differently, please advise. If you have any questions, or need additional information, please do not hesitate to contact me at (919) 571-3030 or via email at steve.dewitt@ncturnpike.org.

Sincerely,

Steven D. DeWitt, P.E.
Chief Engineer

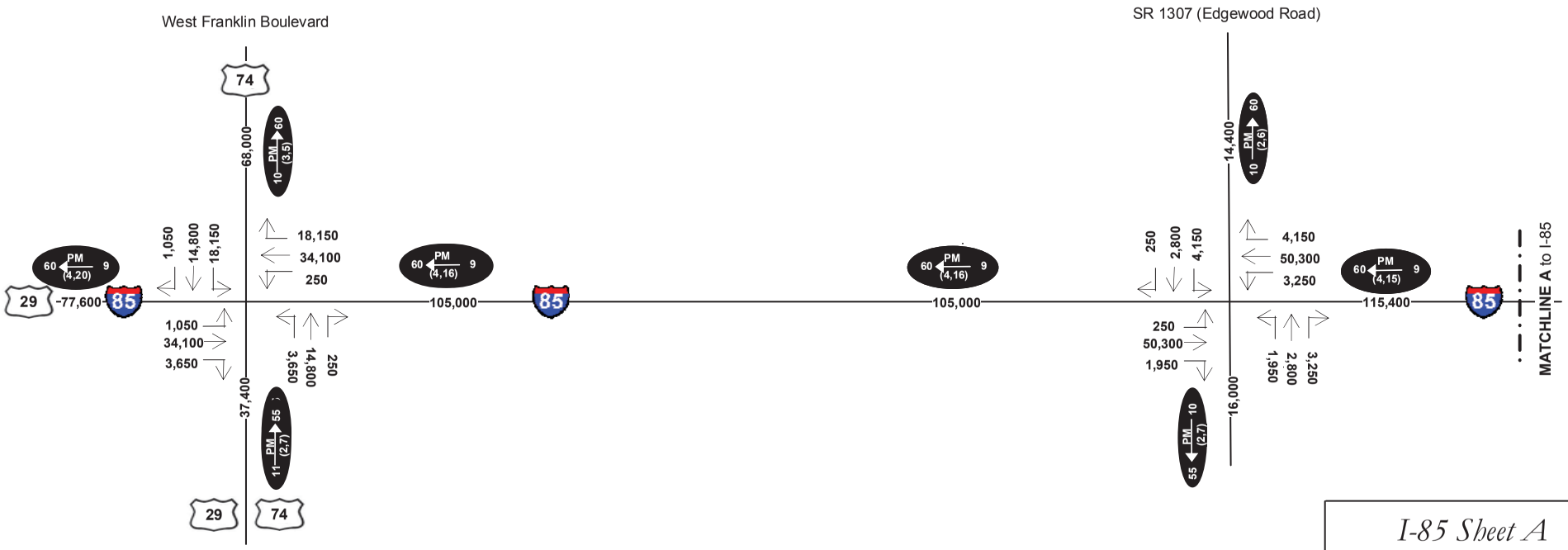
cc: Jennifer Harris, P.E., NCTA

ADDENDUM
Appendix B

Year 2030 Traffic Forecasts
Prepared by Martin / Alexiou / Bryson
May 2008

I-85 Mainline

No-Build Alternative



I-85 Sheet A

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Fax: 919-829-0329

Transportation Planning - Traffic Engineering

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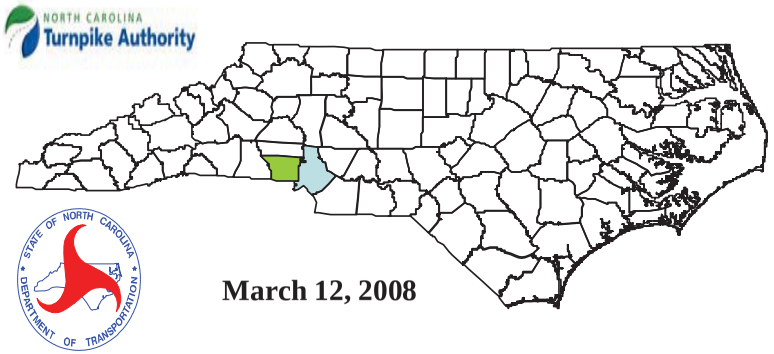
NCDOT Division 12
Gaston County, North Carolina



Not to Scale

March 12, 2008

2030 NO-BUILD ALTERNATIVE DAILY FORECAST VOLUMES (without Improvements)

LEGEND

K PM (d, t) D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
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I-85 Mainline

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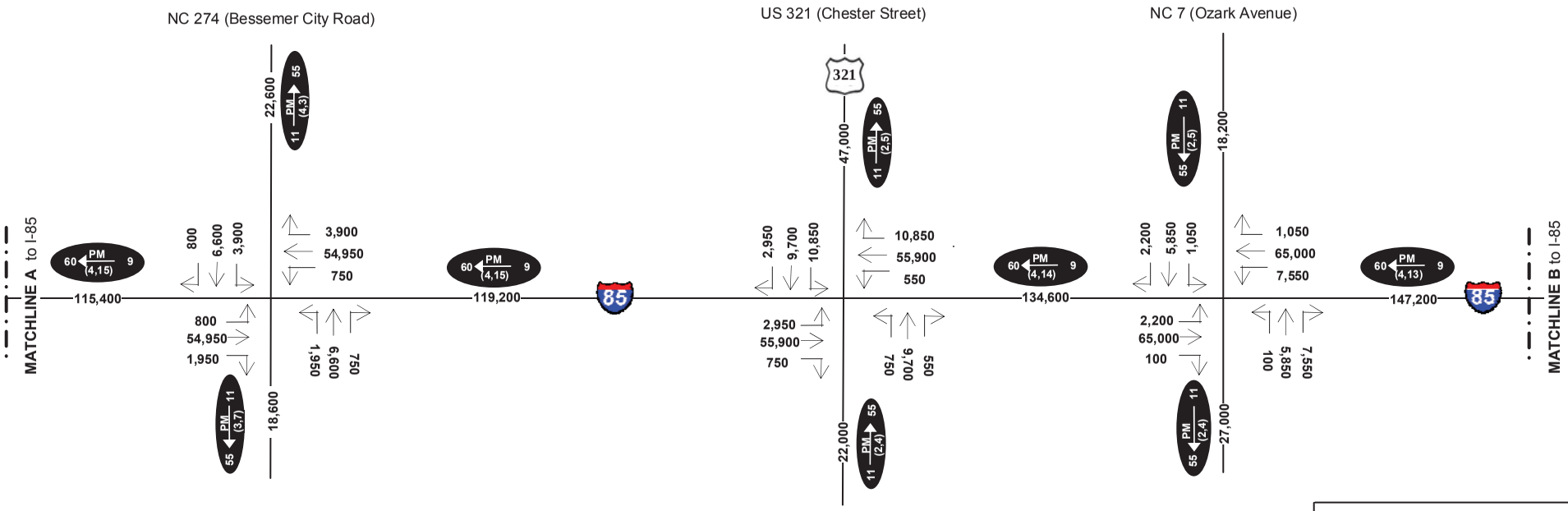

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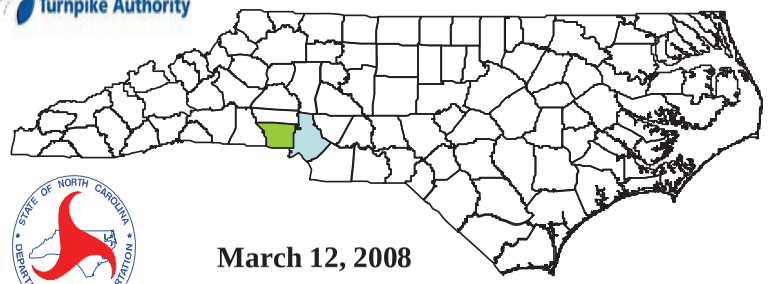

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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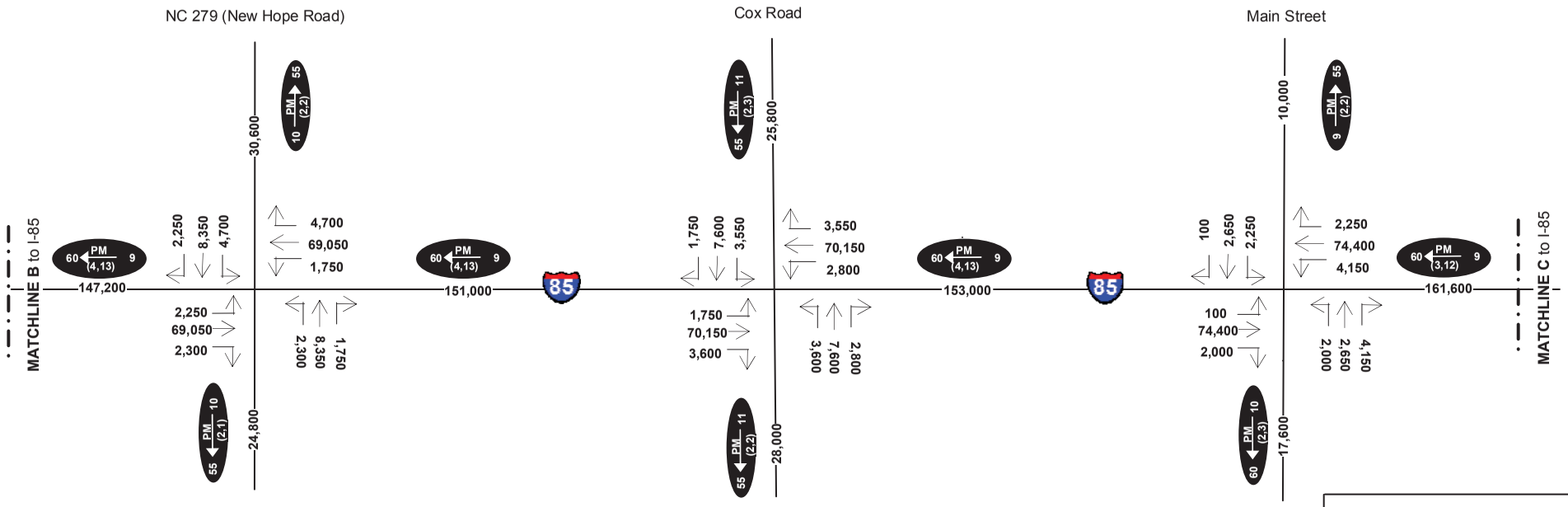

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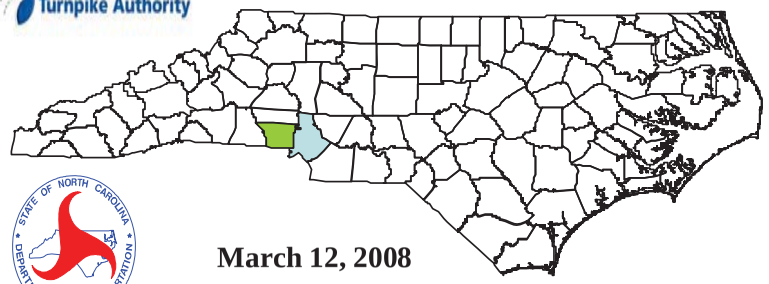

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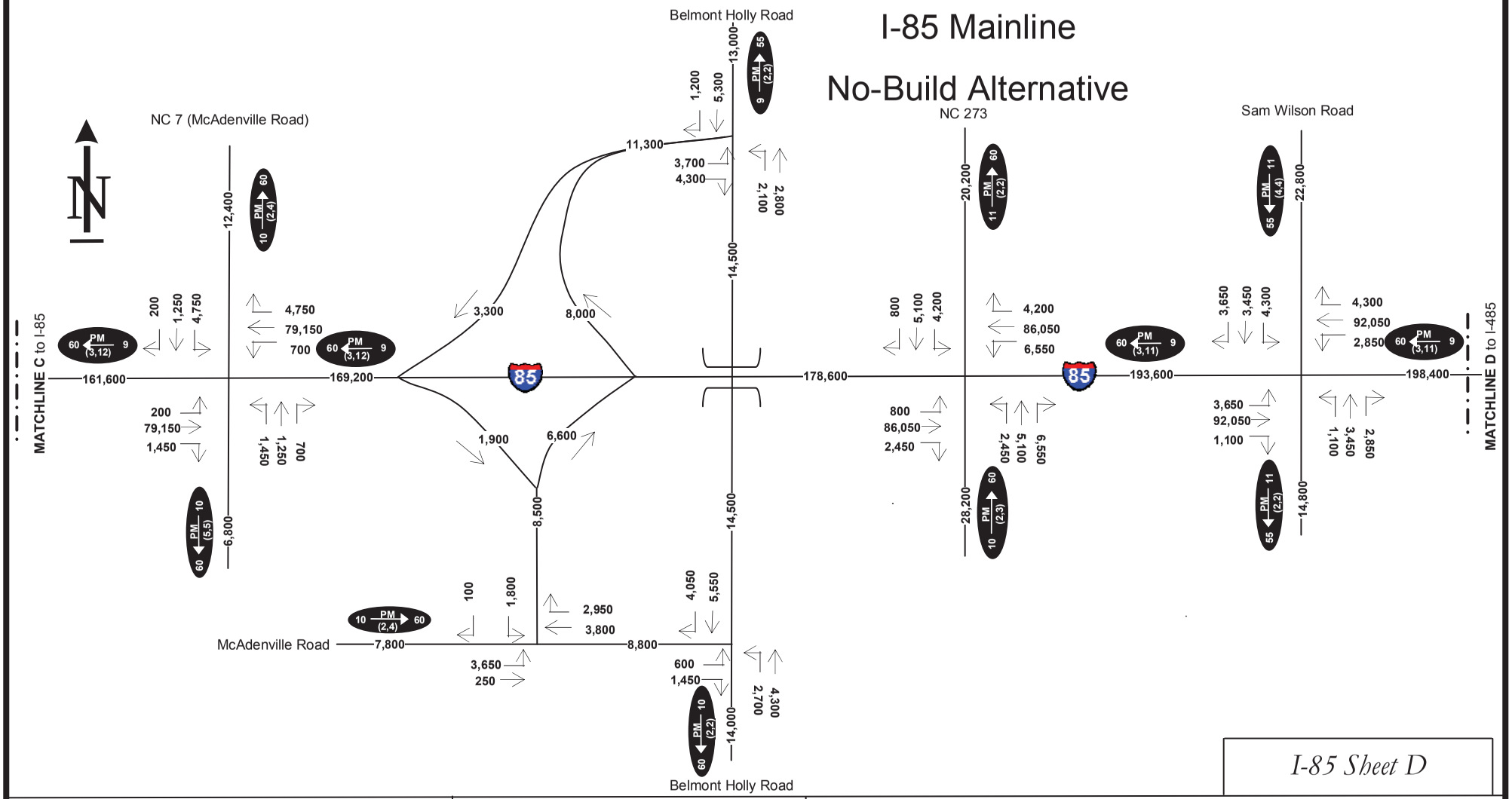

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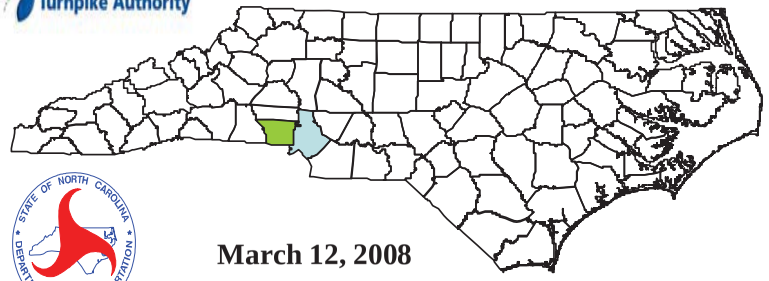

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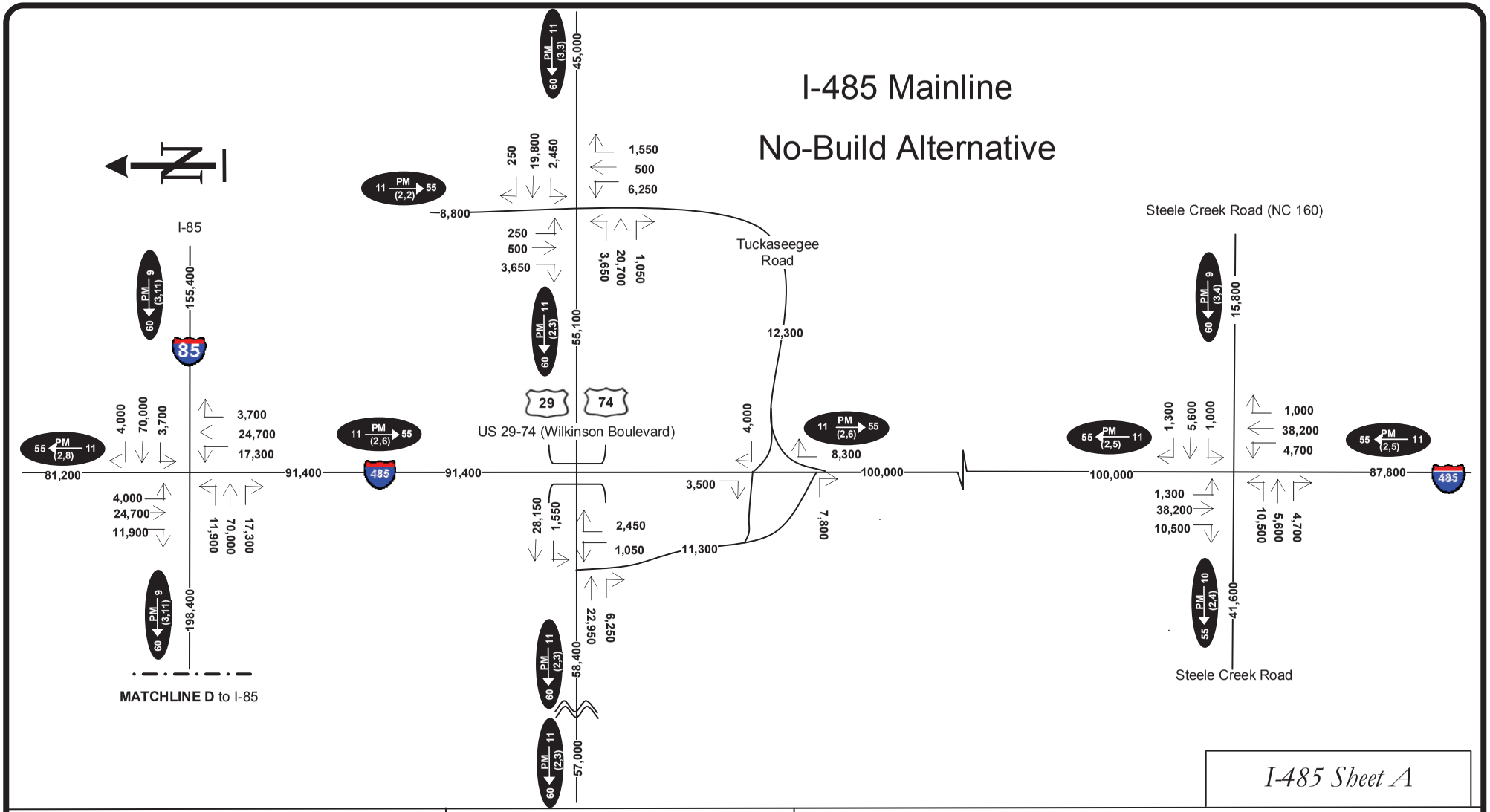

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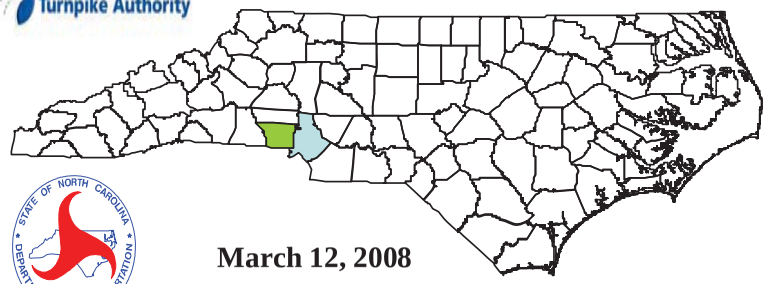

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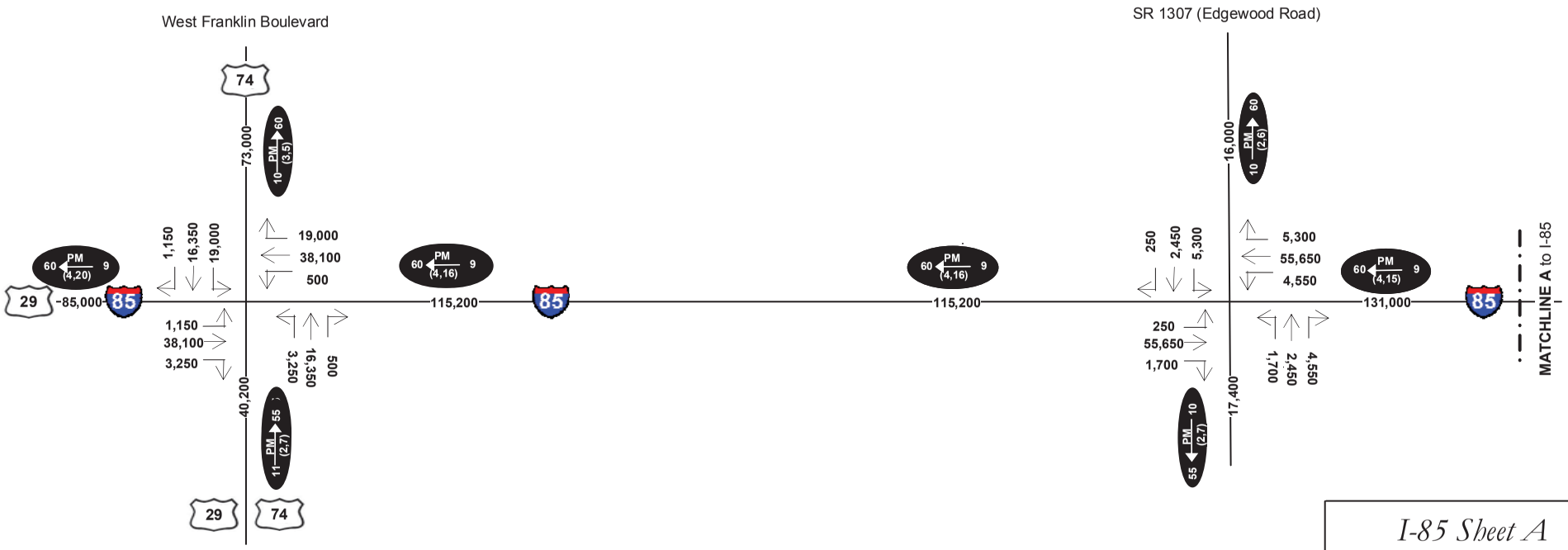

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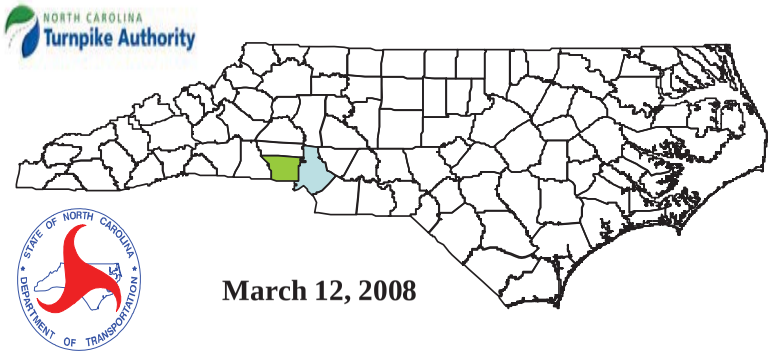

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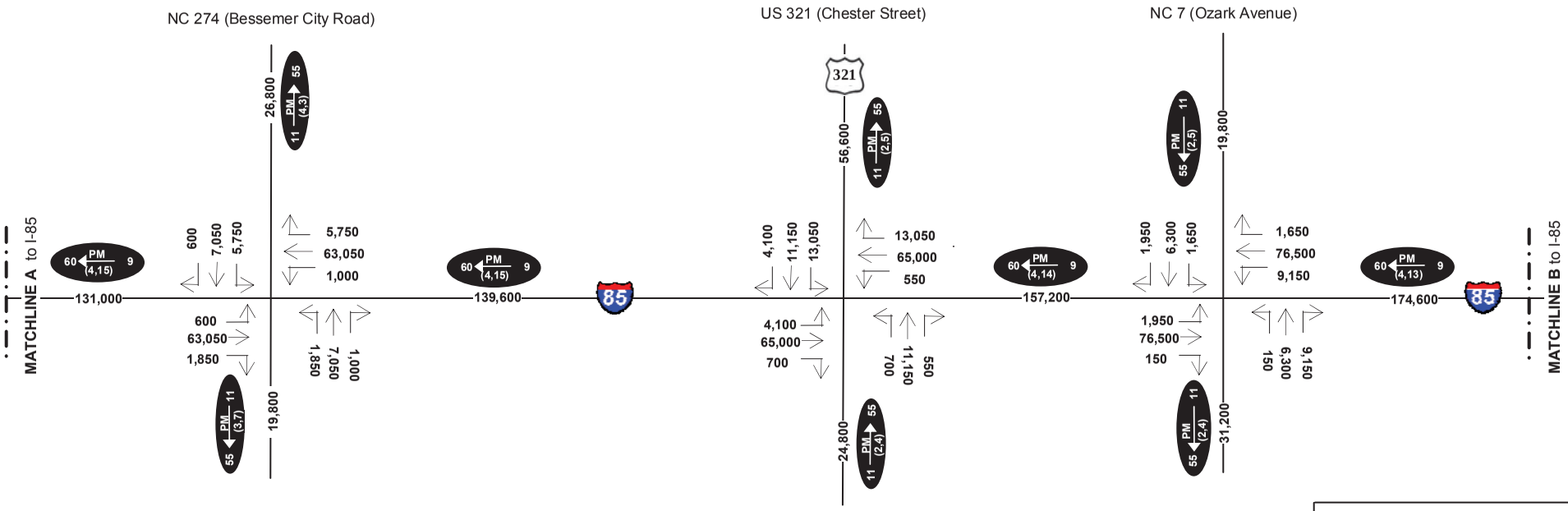

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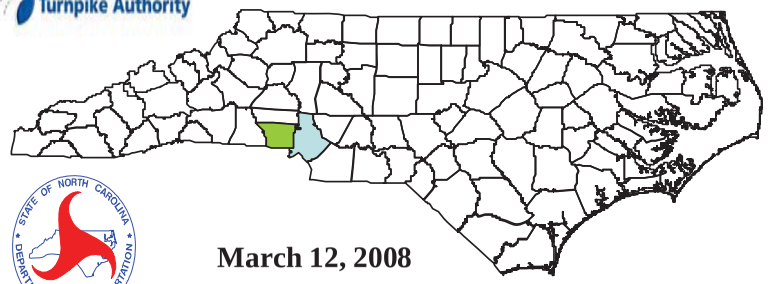

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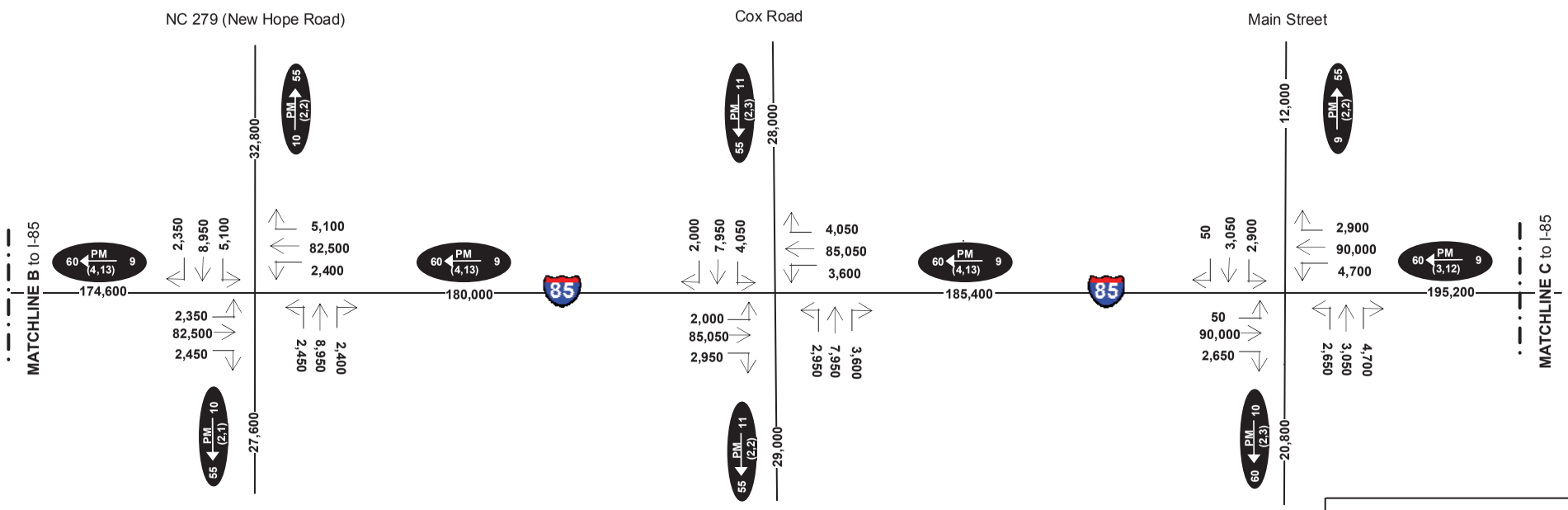

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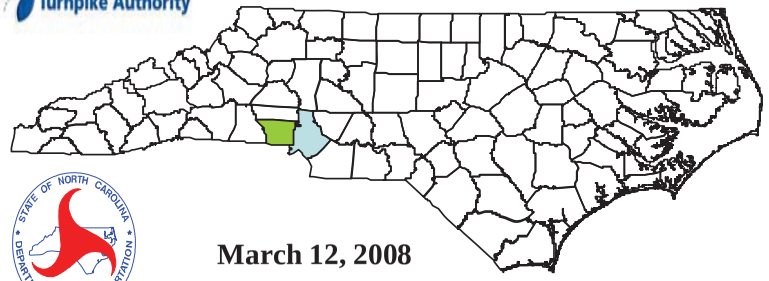

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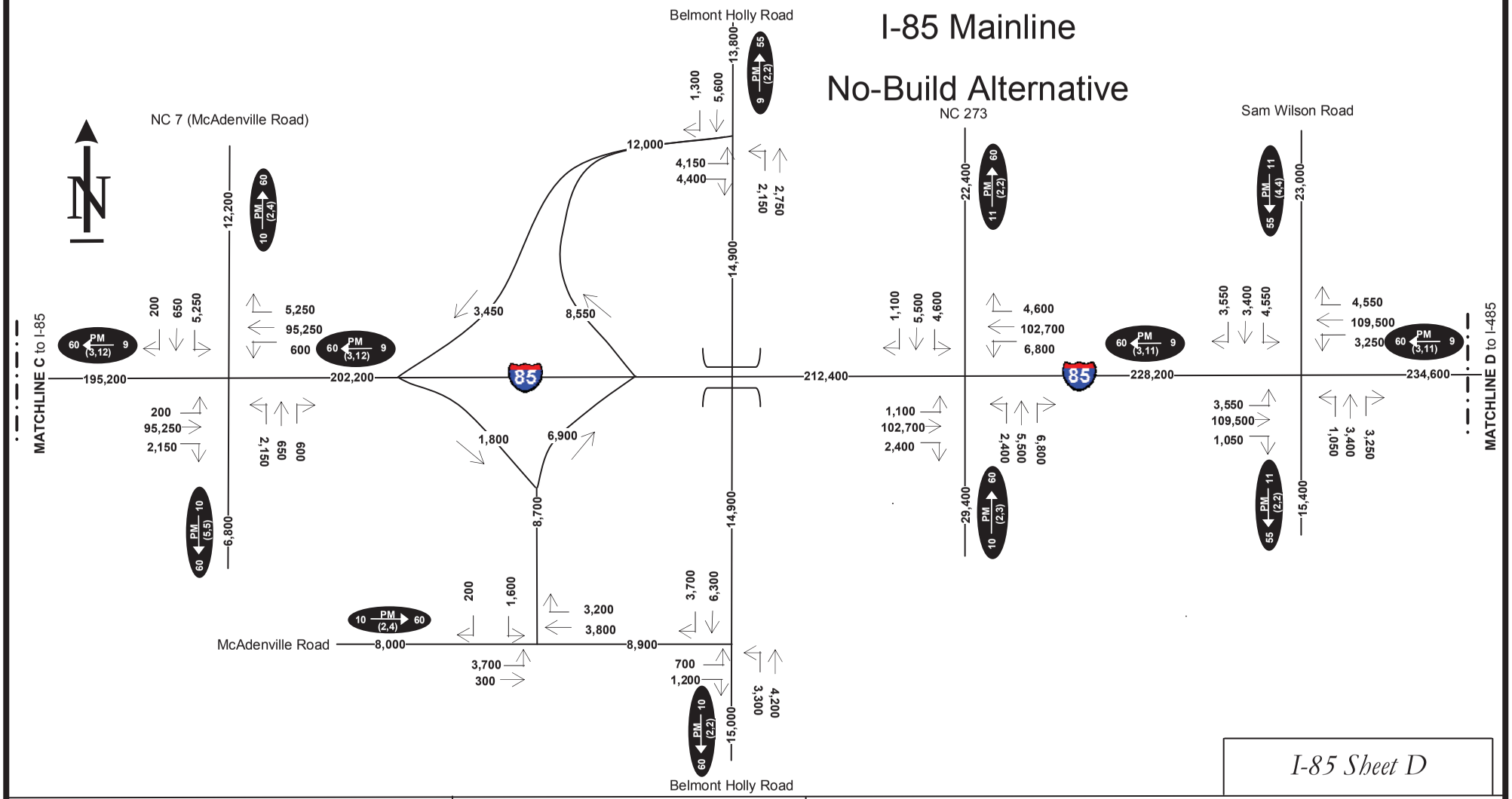

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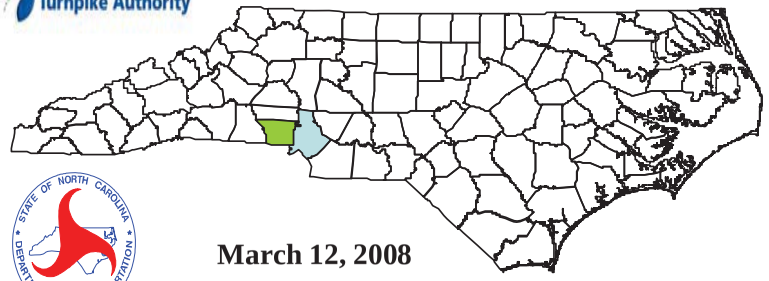

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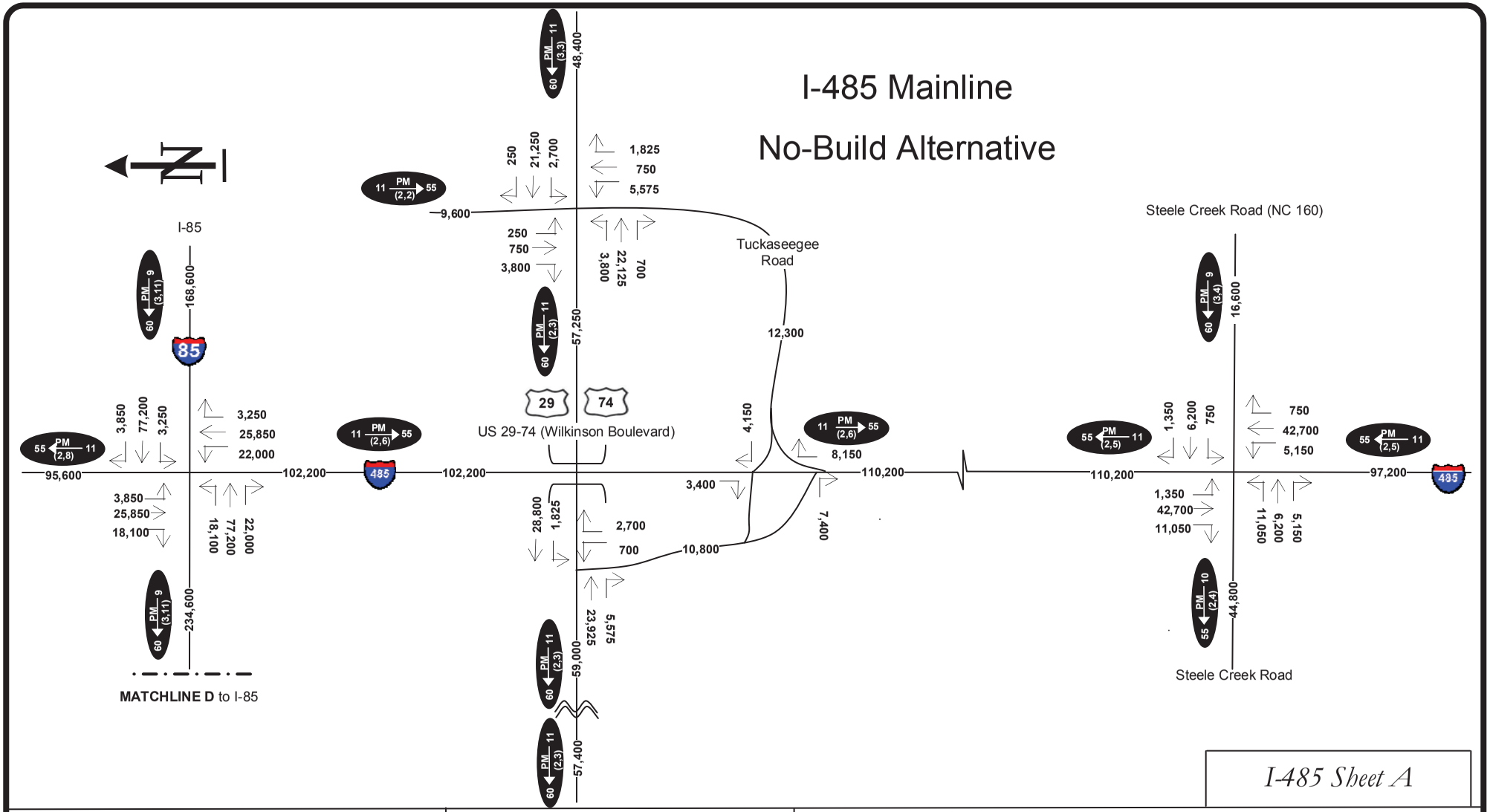

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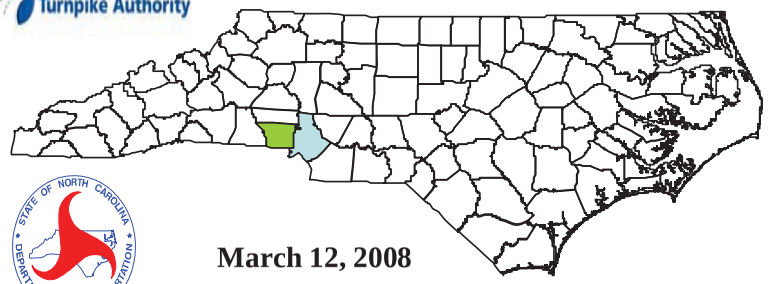

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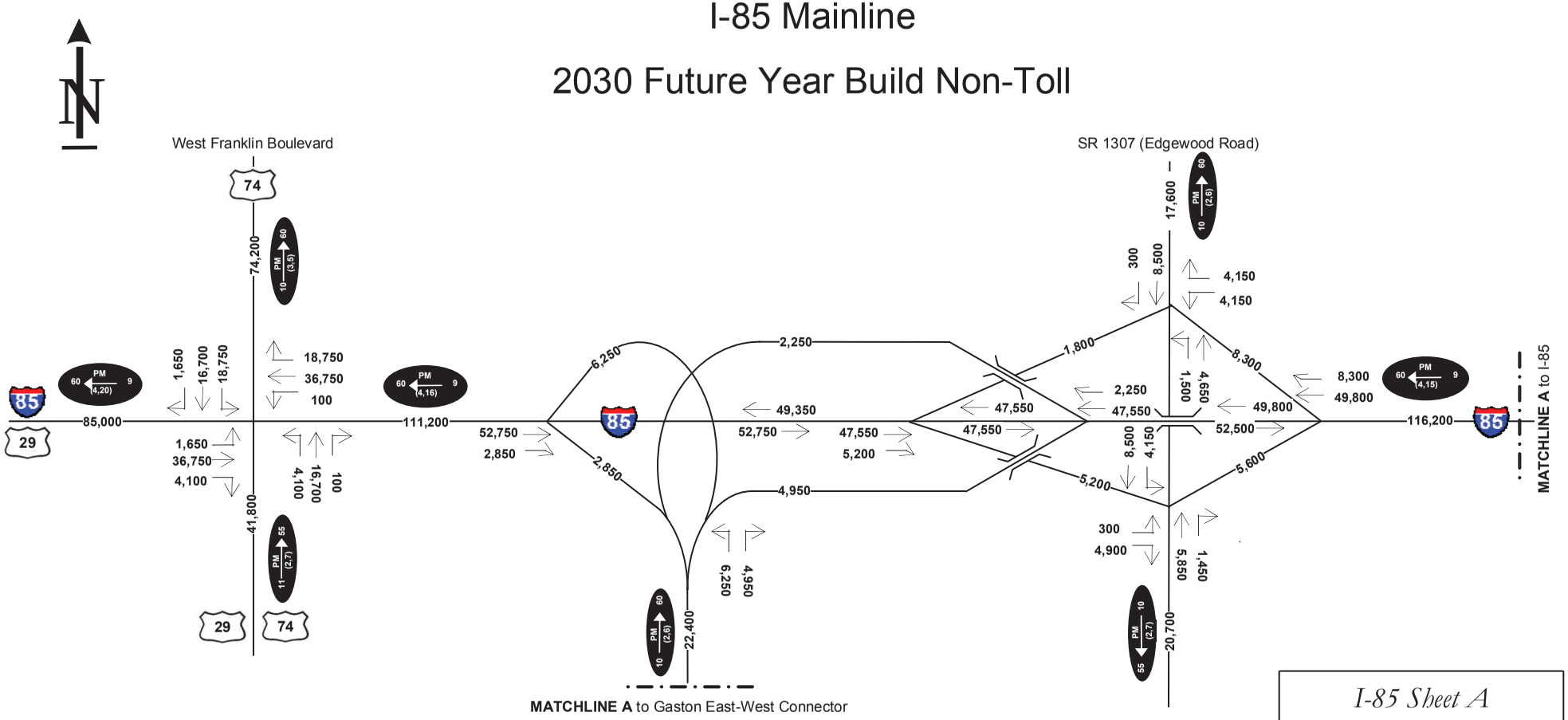
I-85 Mainline

2030 Future Year Build Non-Toll



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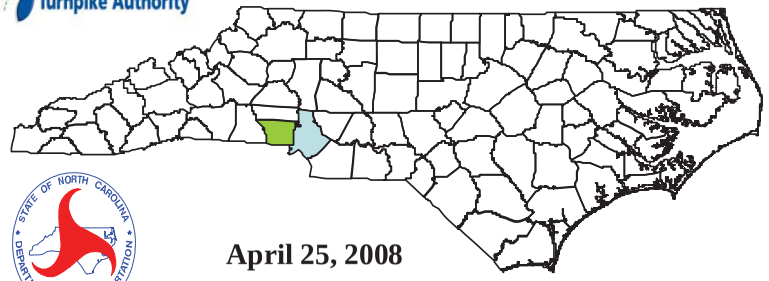

Not to Scale

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April 25, 2008

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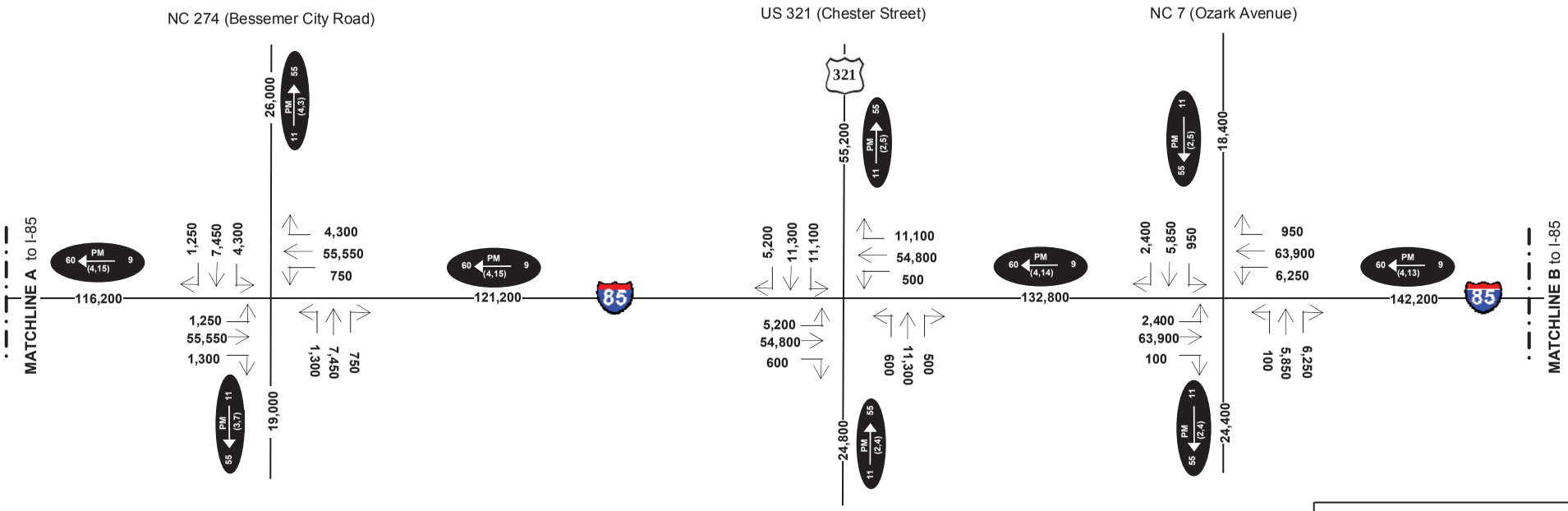

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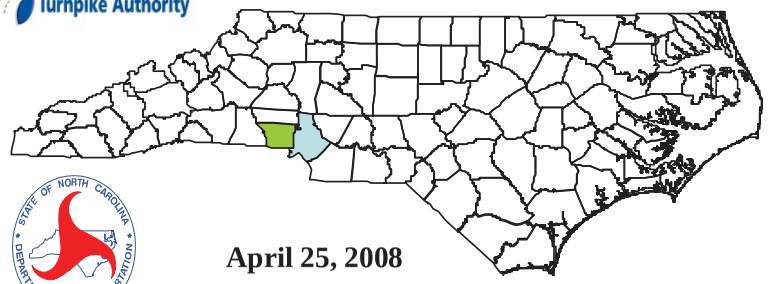

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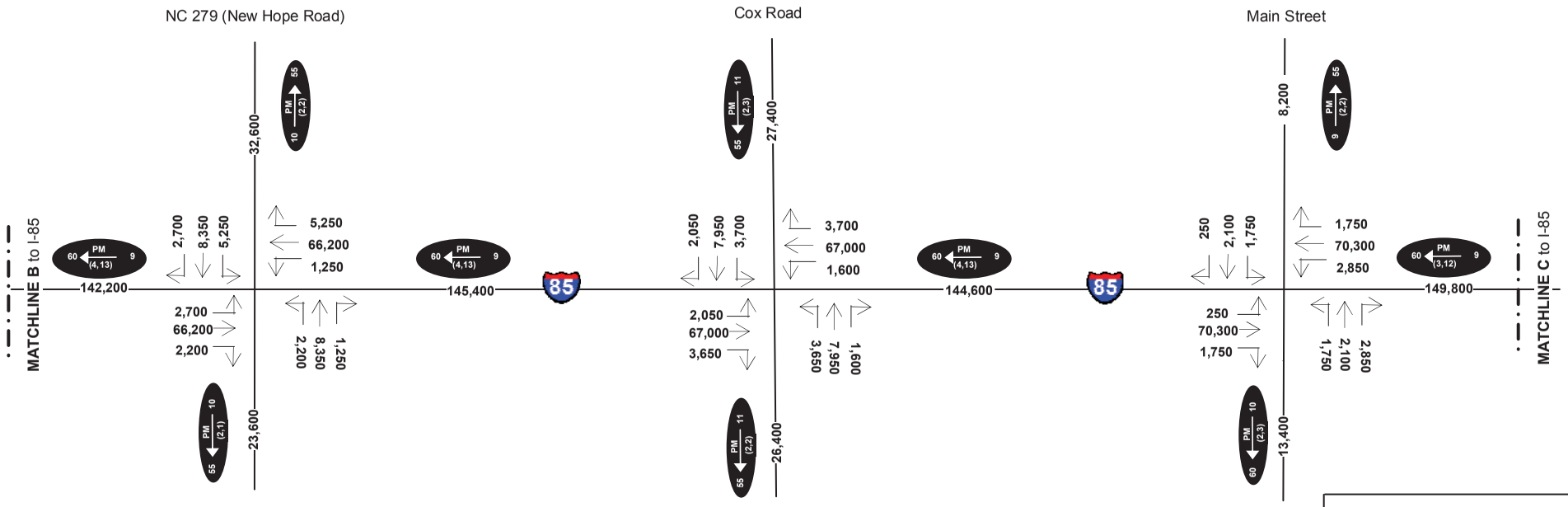

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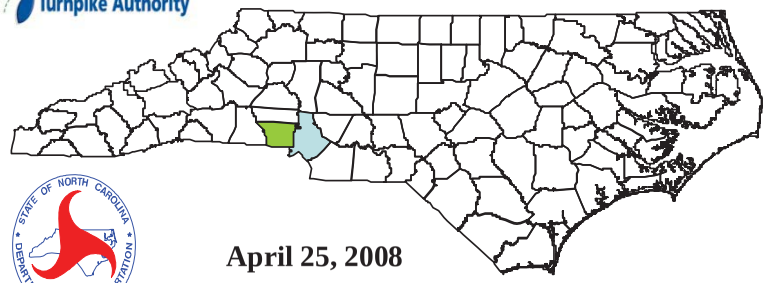

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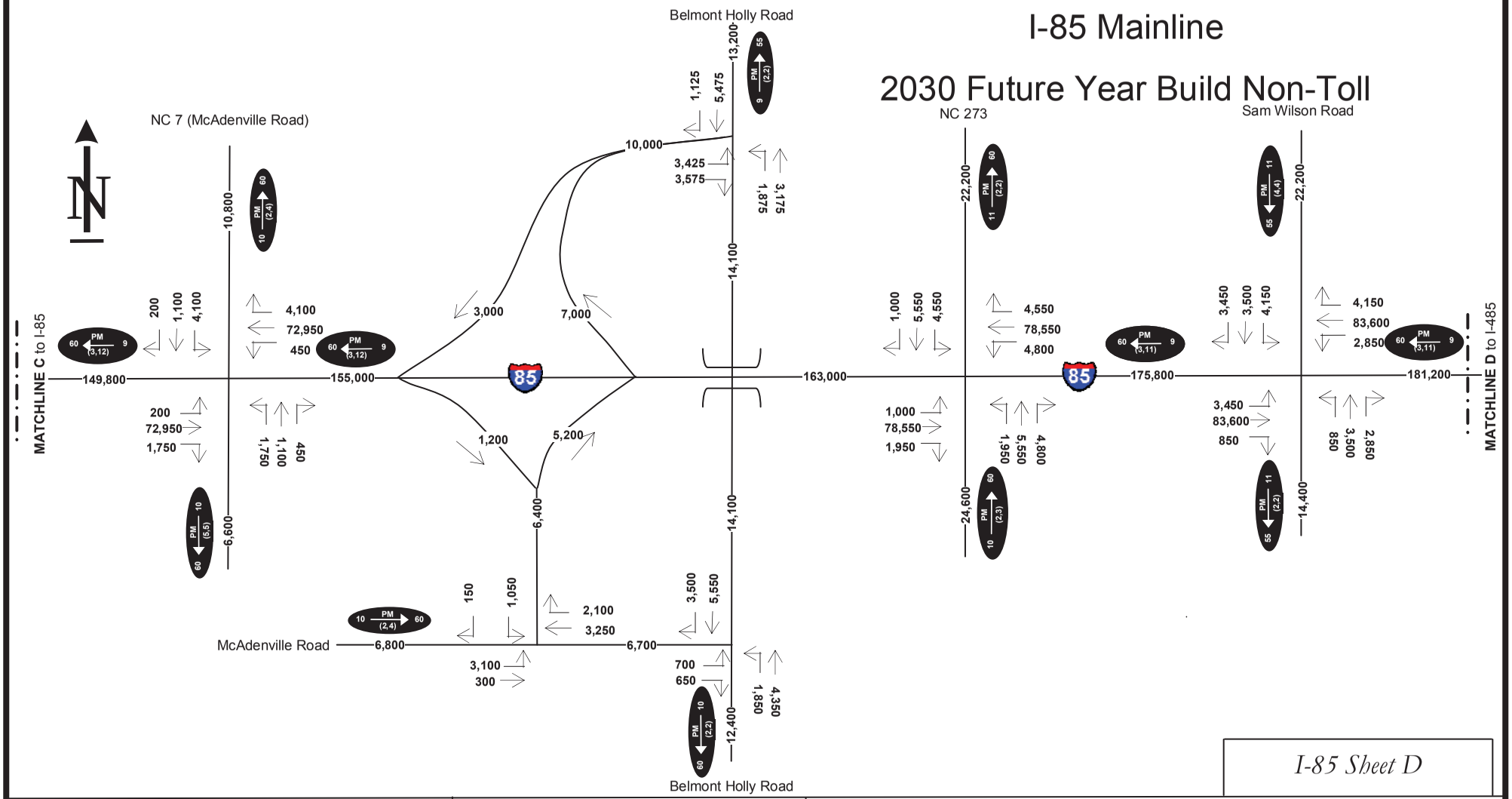

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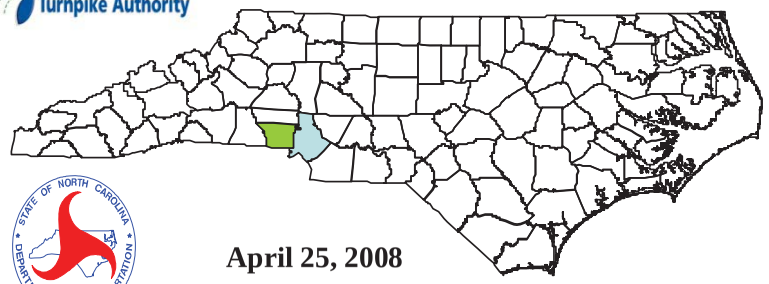

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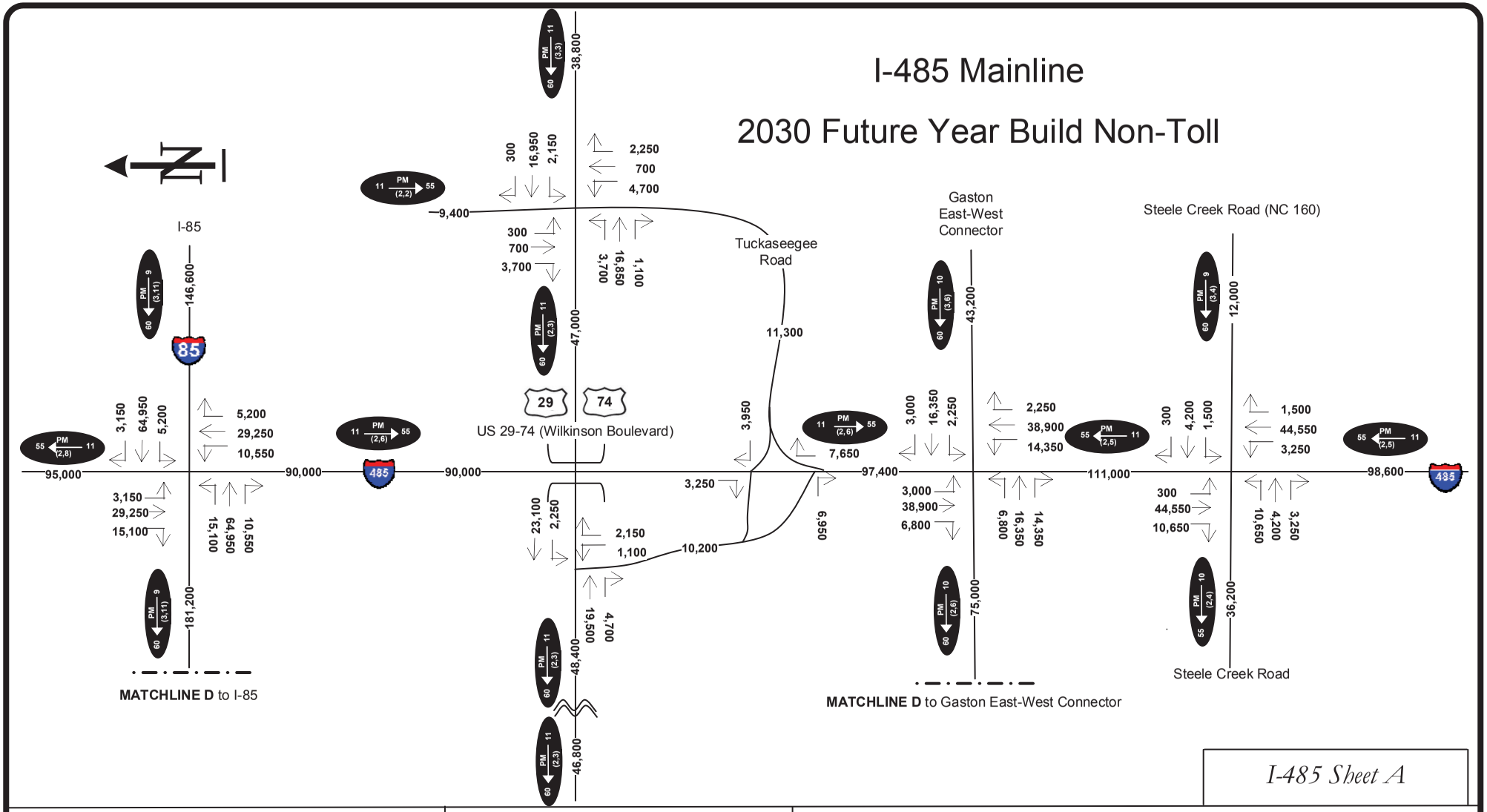

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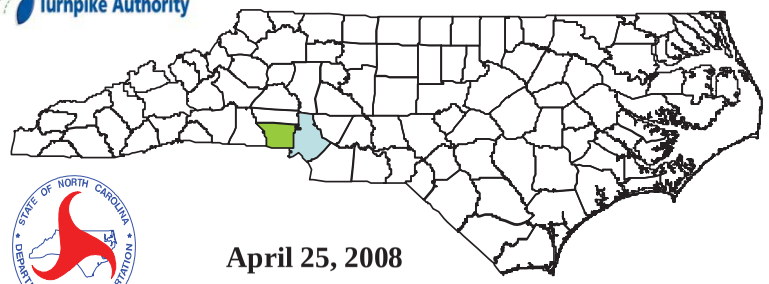

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(with Gaston E-W Connector)

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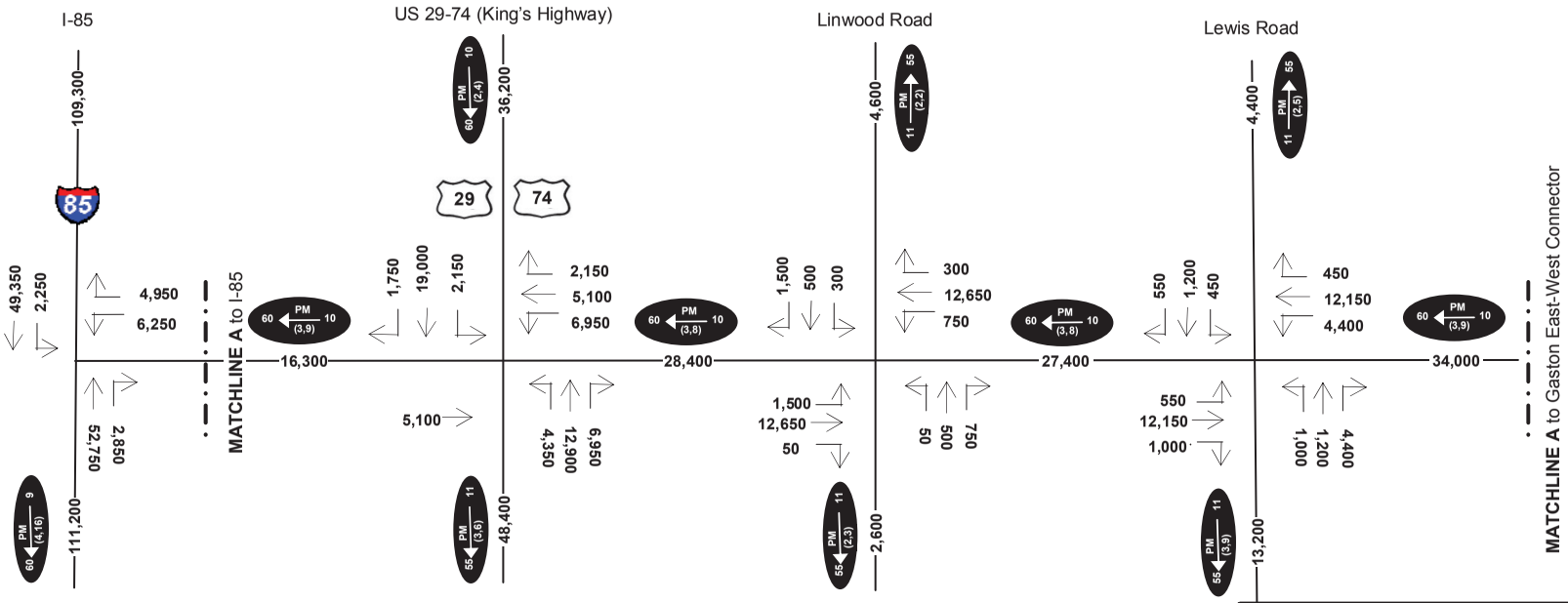
K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

Gaston East-West Connector Mainline

2030 Future Year Build Non-Toll



Gaston E-W Sheet A

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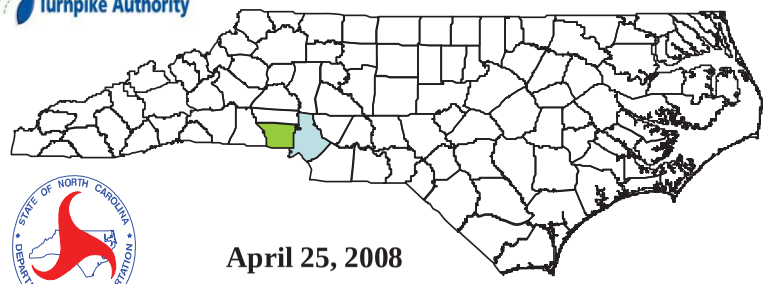
Transportation Planning - Traffic Engineering

PROJECT

TIP Project No. U-3321,
Gaston East-West Connector
NCDOT Division 12
Gaston County, North Carolina

NORTH CAROLINA Turnpike Authority



Not to Scale

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

April 25, 2008

2030 BUILD NON-TOLL ALTERNATIVE
DAILY
FORECAST VOLUMES

LEGEND

K PM (d, t) D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
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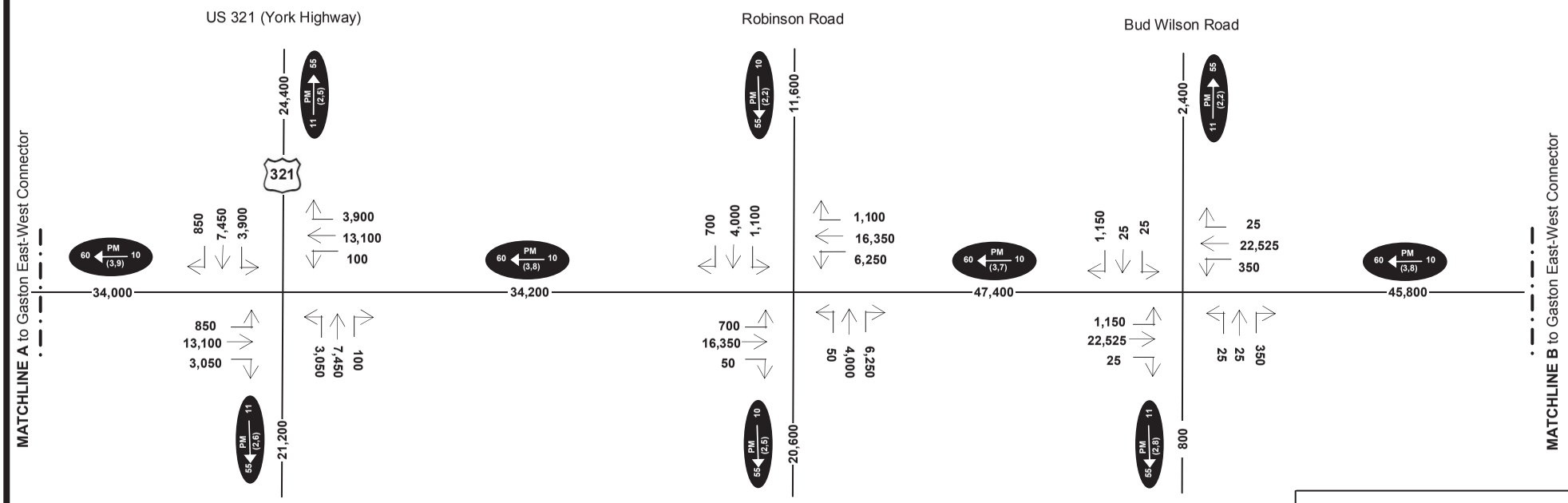
Gaston East-West Connector Mainline

2030 Future Year Build Non-Toll



Gaston E-W Sheet B

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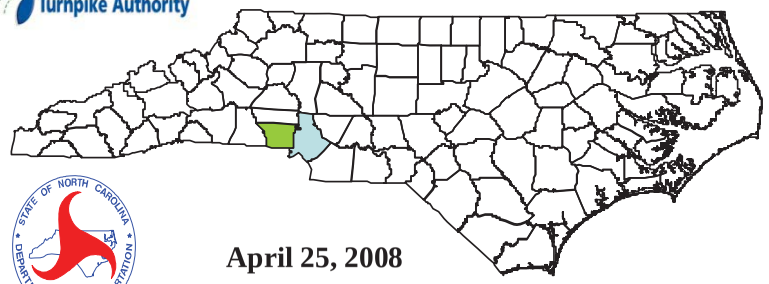

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

April 25, 2008

2030 BUILD NON-TOLL ALTERNATIVE
DAILY
FORECAST VOLUMES

LEGEND

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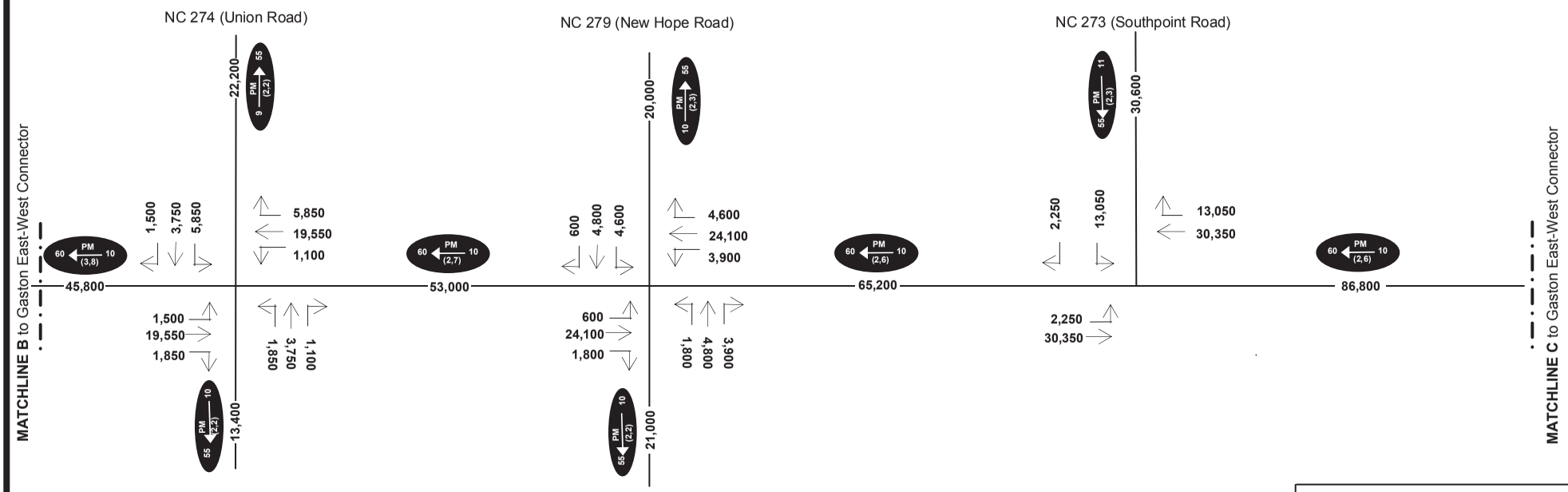
Gaston East-West Connector Mainline

2030 Future Year Build Non-Toll



Gaston E-W Sheet C

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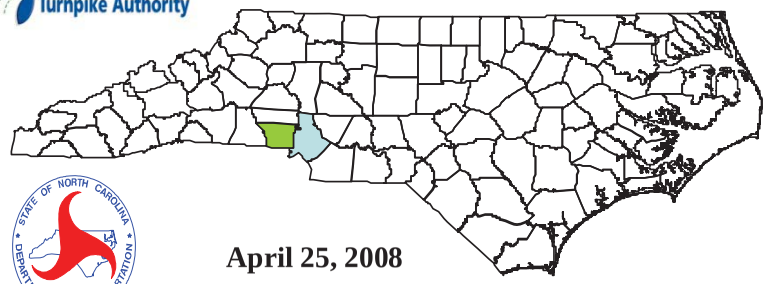

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

April 25, 2008

2030 BUILD NON-TOLL ALTERNATIVE
DAILY
FORECAST VOLUMES

LEGEND

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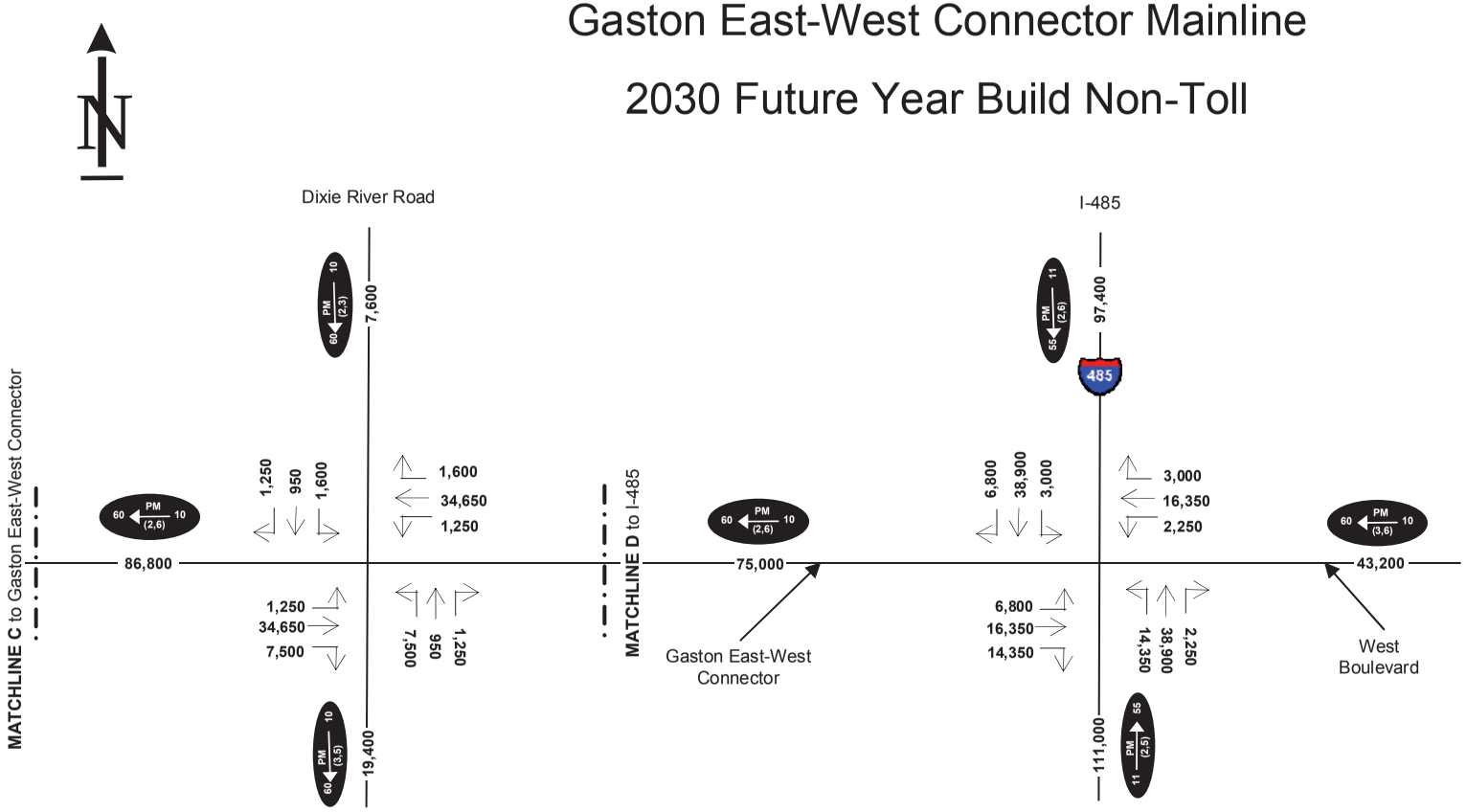
Gaston East-West Connector Mainline

2030 Future Year Build Non-Toll



Gaston E-W Sheet D

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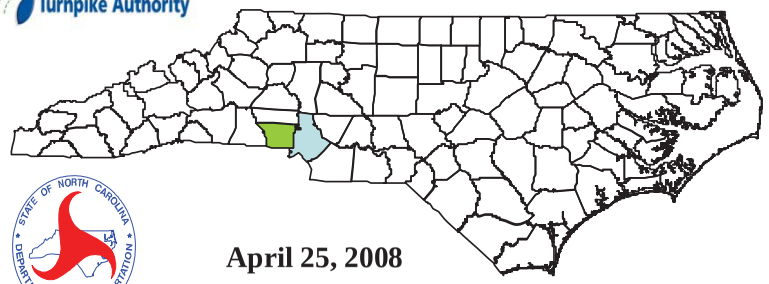

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2030 BUILD NON-TOLL ALTERNATIVE
DAILY
FORECAST VOLUMES

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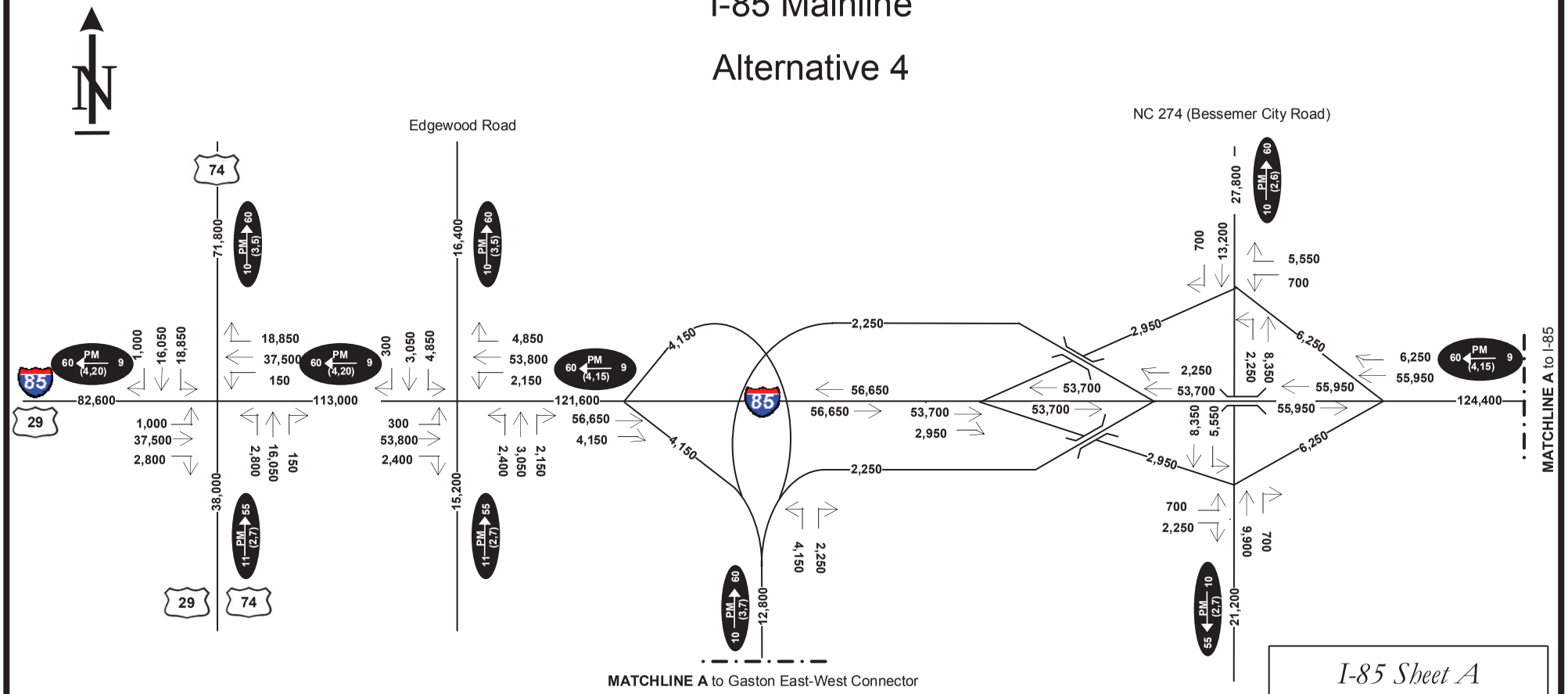
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

April 25, 2008

I-85 Mainline

Alternative 4



I-85 Sheet A

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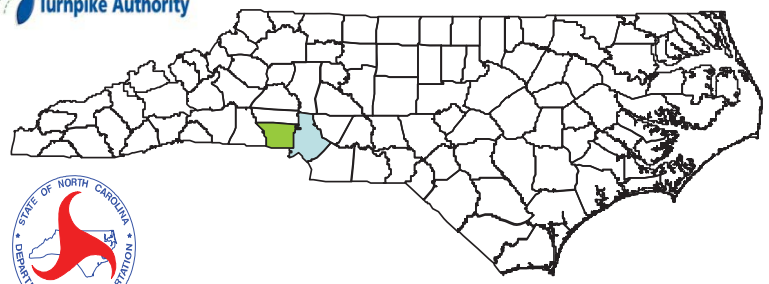

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 4
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

K PM D (d, t)

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
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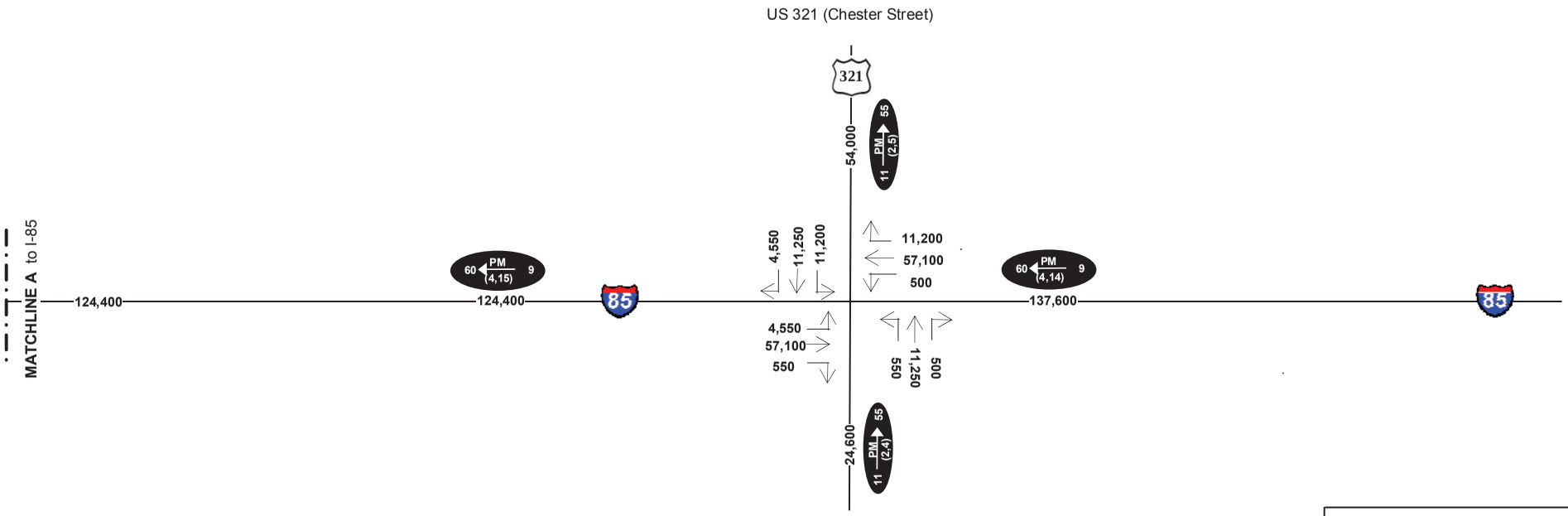
I-85 Mainline

Alternative 4



I-85 Sheet B

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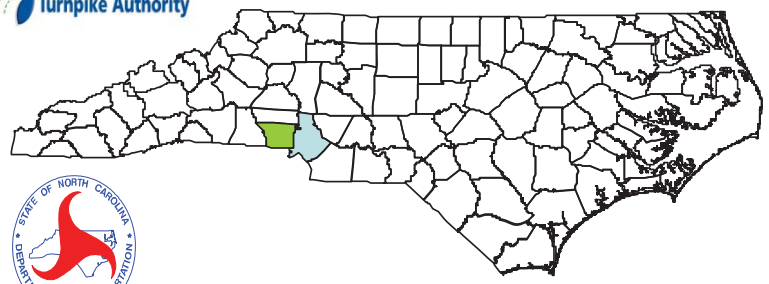

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 4
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

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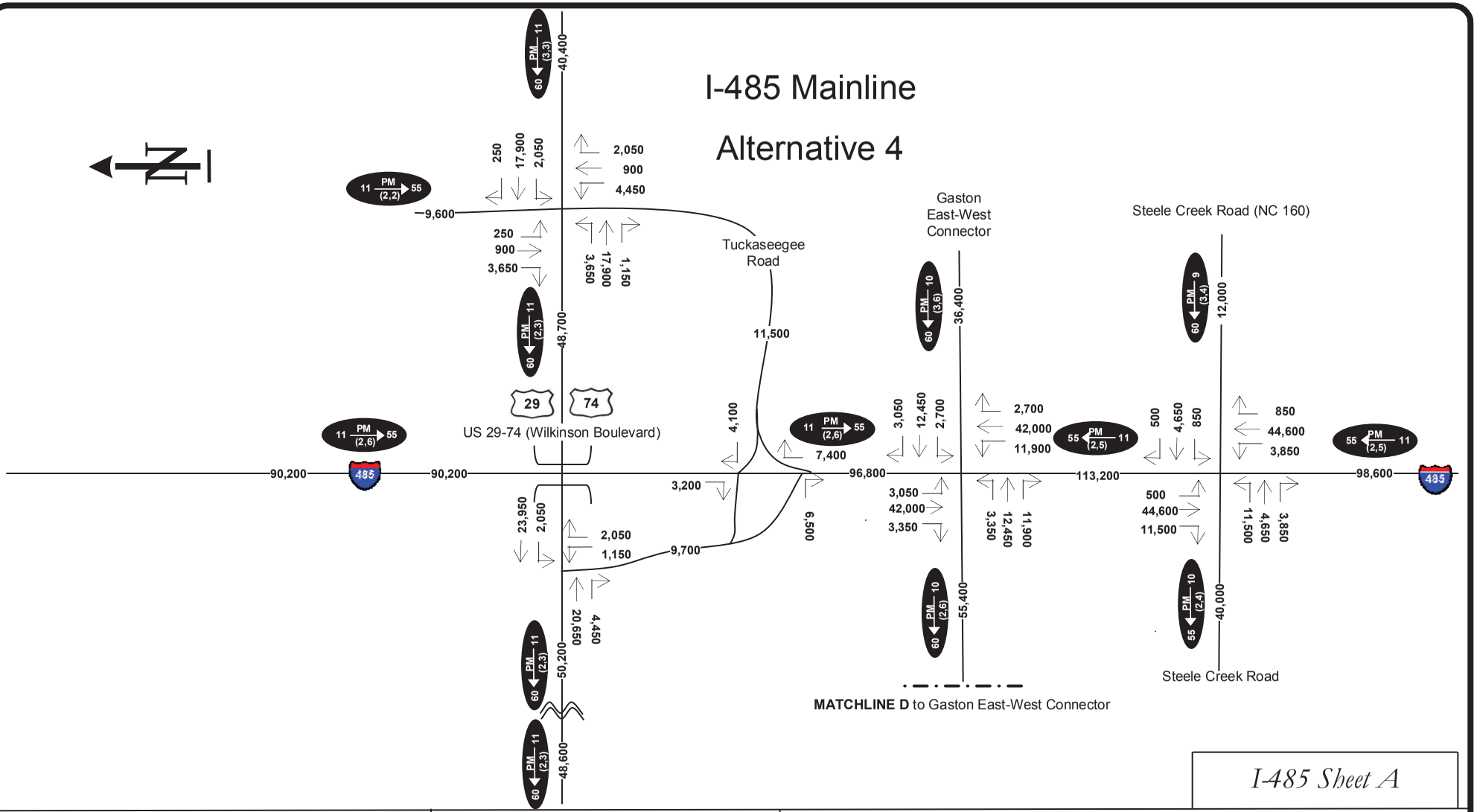

I-485 Sheet A

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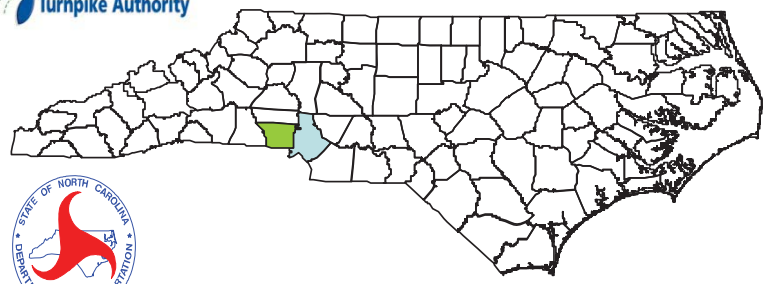

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

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DAILY TOLL
FORECAST VOLUMES
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LEGEND

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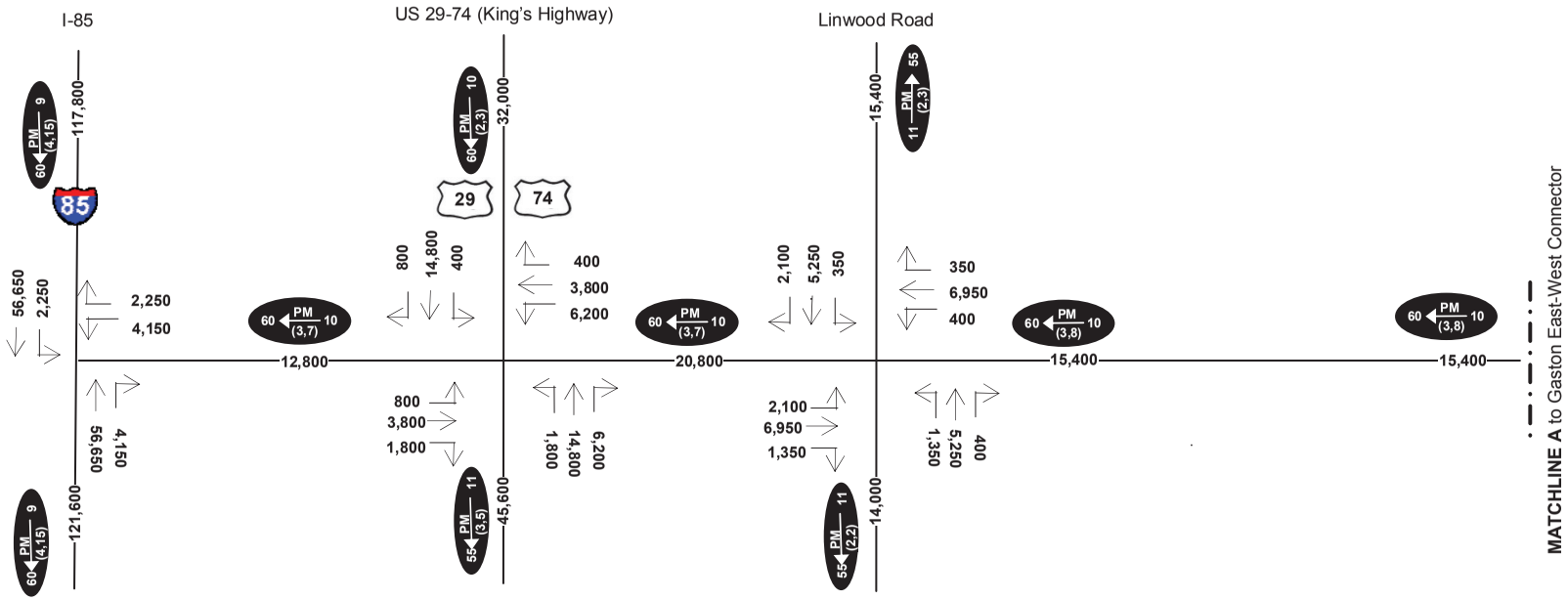
Gaston East-West Connector Mainline

Alternative 4



Gaston E-W Sheet A

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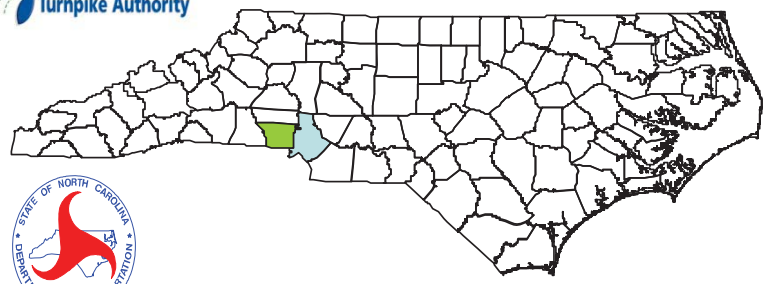

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2030 ALTERNATIVE 4
DAILY TOLL
FORECAST VOLUMES

LEGEND

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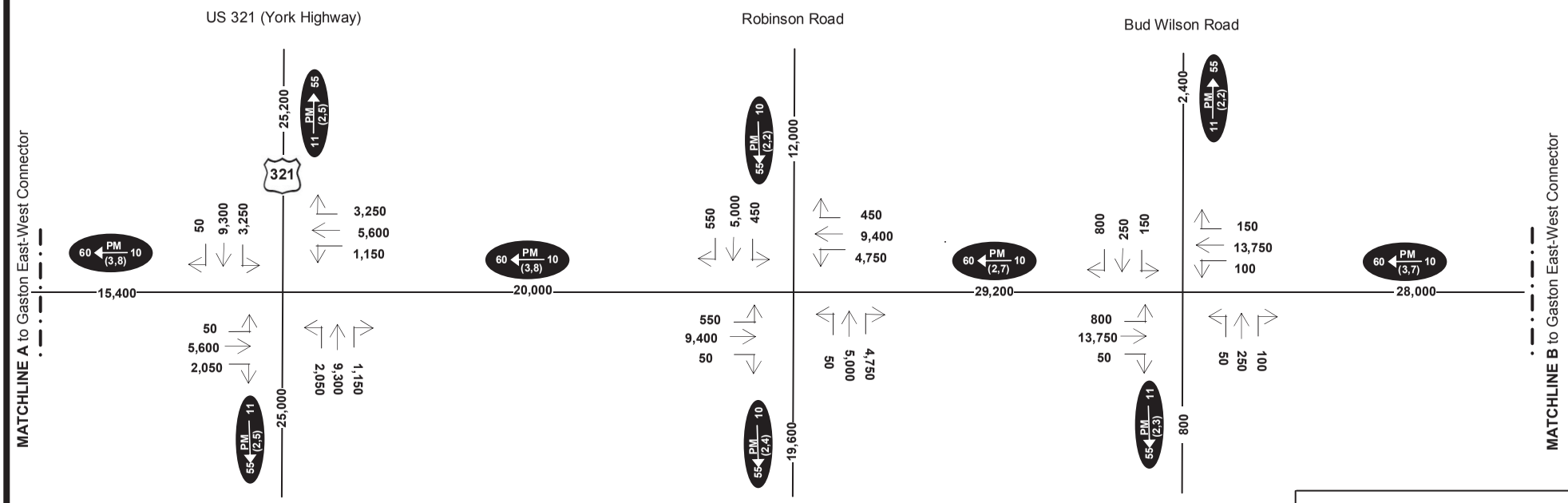
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

Gaston East-West Connector Mainline

Alternative 4



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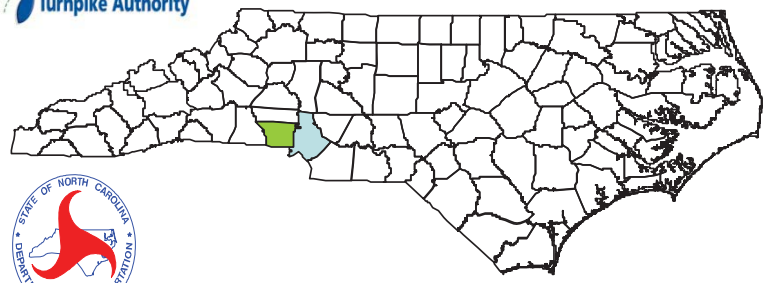

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2030 ALTERNATIVE 4
DAILY TOLL
FORECAST VOLUMES

LEGEND

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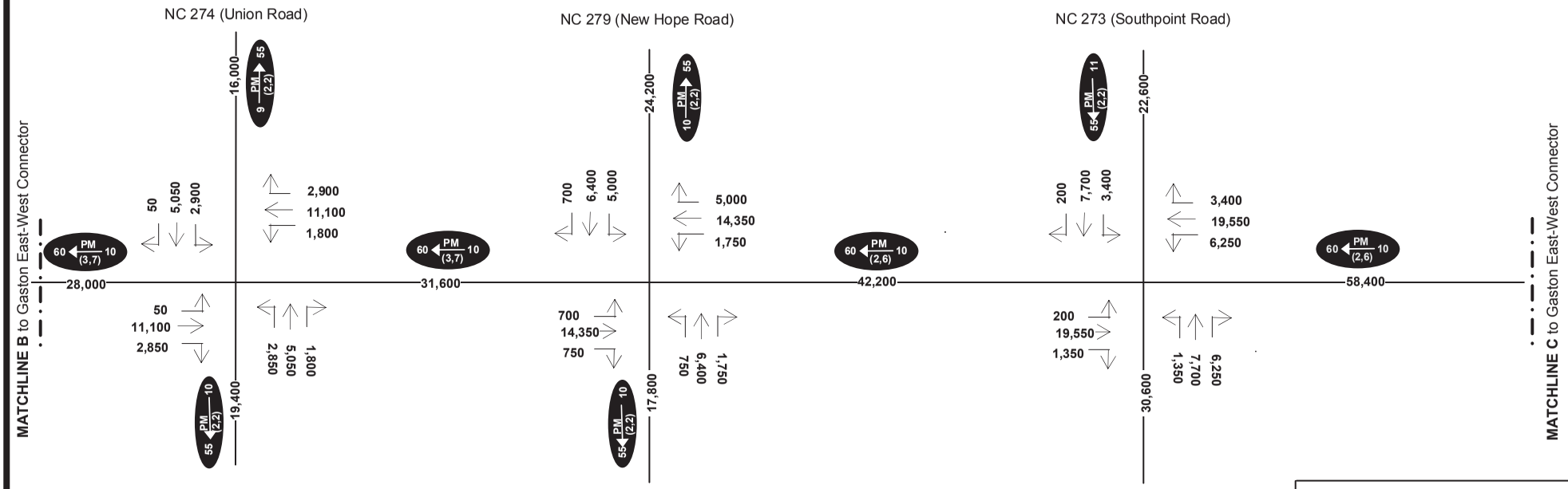
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

Gaston East-West Connector Mainline

Alternative 4



Gaston E-W Sheet C

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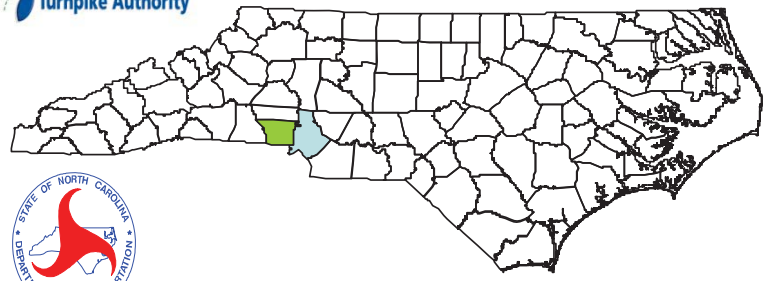

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2030 ALTERNATIVE 4
DAILY TOLL
FORECAST VOLUMES

LEGEND

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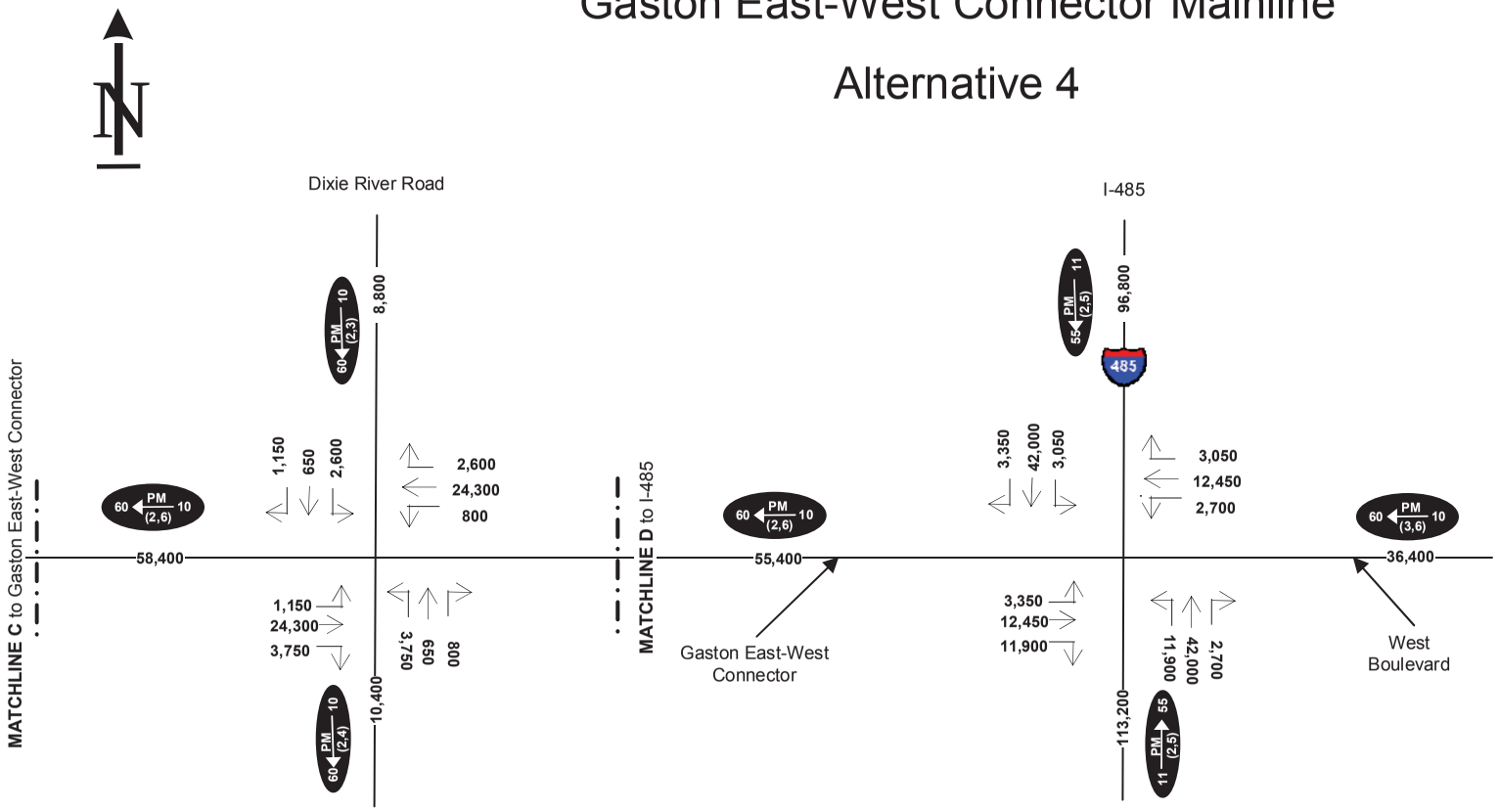
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

Gaston East-West Connector Mainline

Alternative 4



Gaston E-W Sheet D

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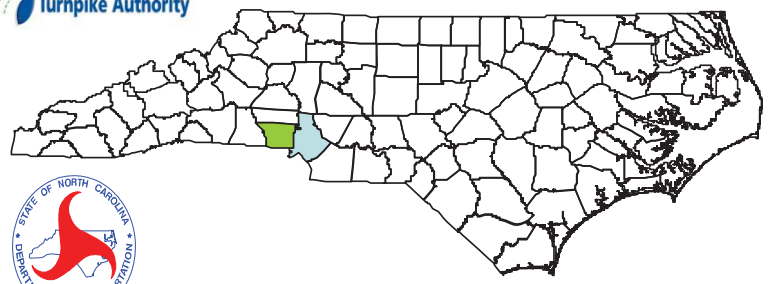

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2030 ALTERNATIVE 4
DAILY TOLL
FORECAST VOLUMES

LEGEND

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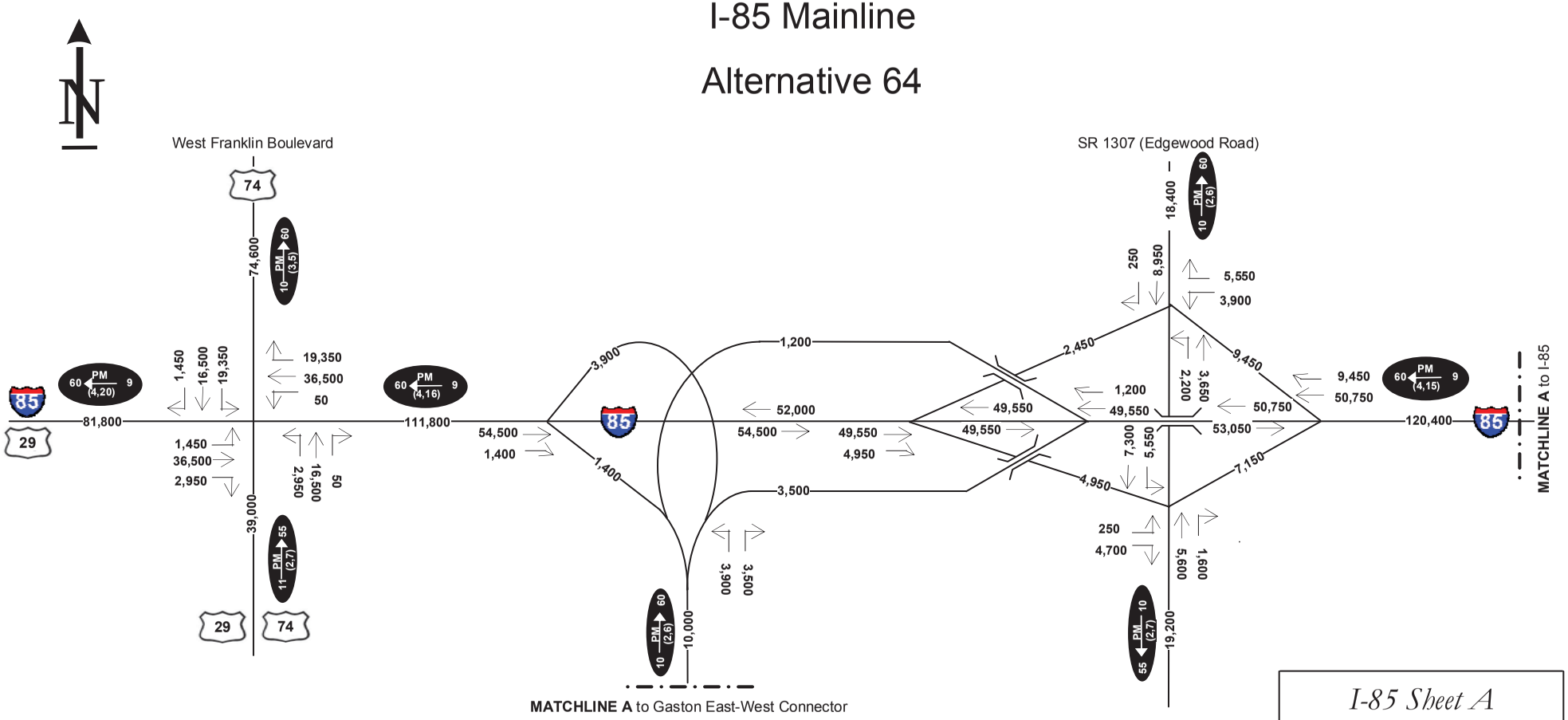
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

I-85 Mainline

Alternative 64



I-85 Sheet A

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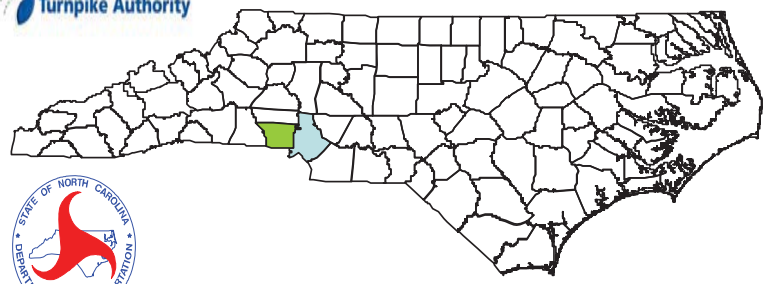

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2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

K PM (d, t) D

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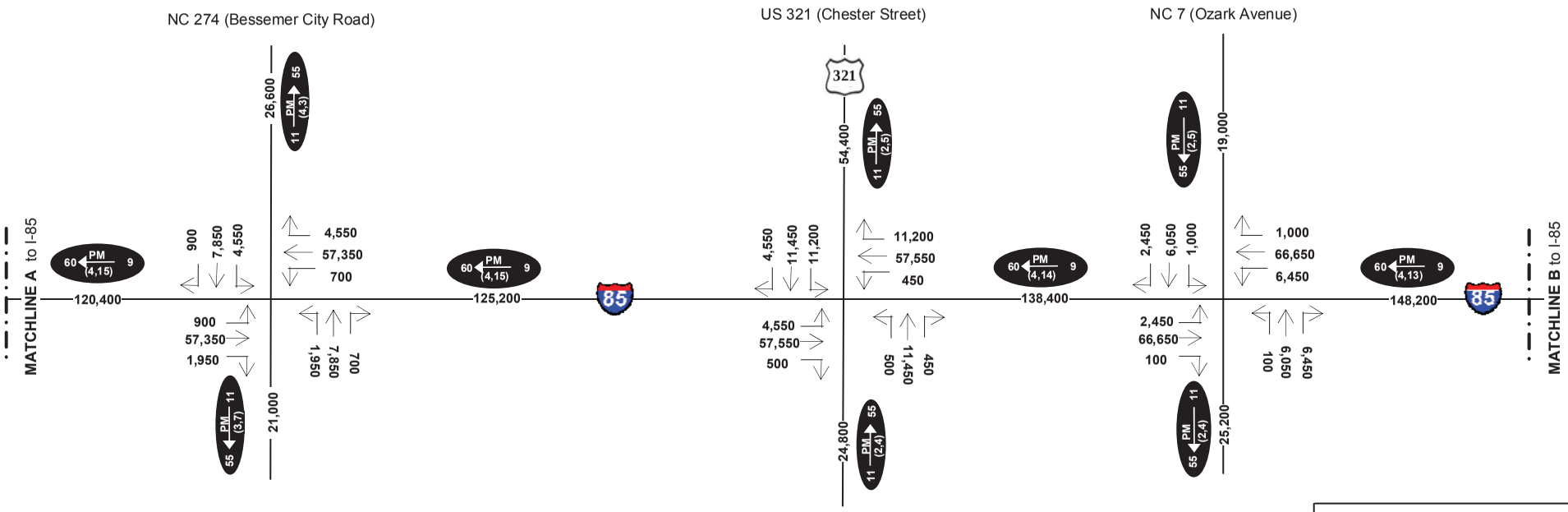
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

I-85 Mainline

Alternative 64



I-85 Sheet B

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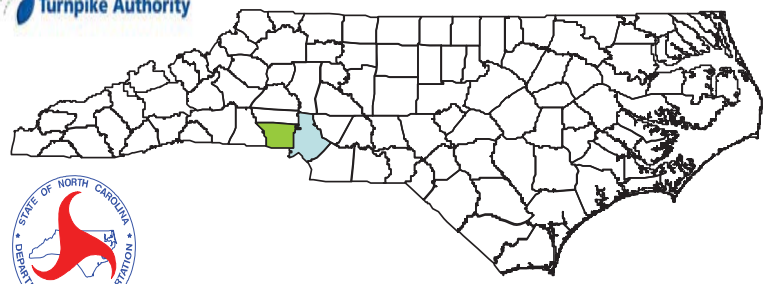

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2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

PM (d, t) K → D

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November 14, 2007

I-85 Mainline

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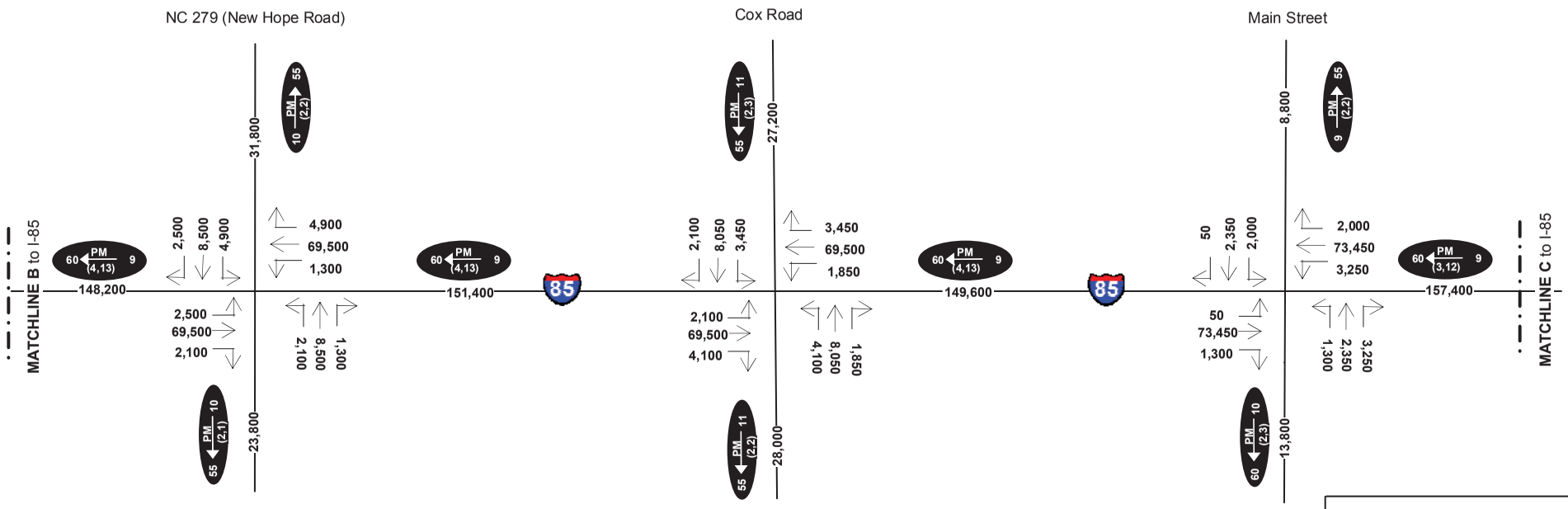

I-85 Sheet C

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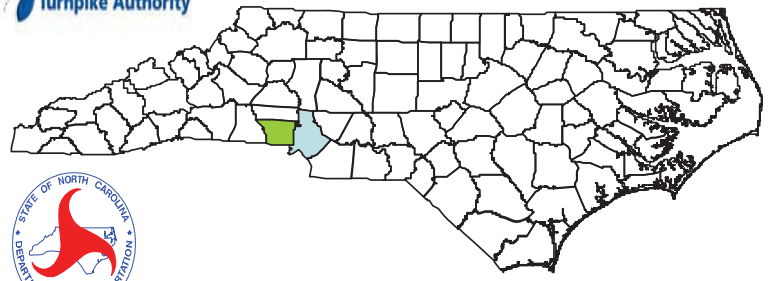

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Not to Scale

November 14, 2007

2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

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PM	PM Peak Period
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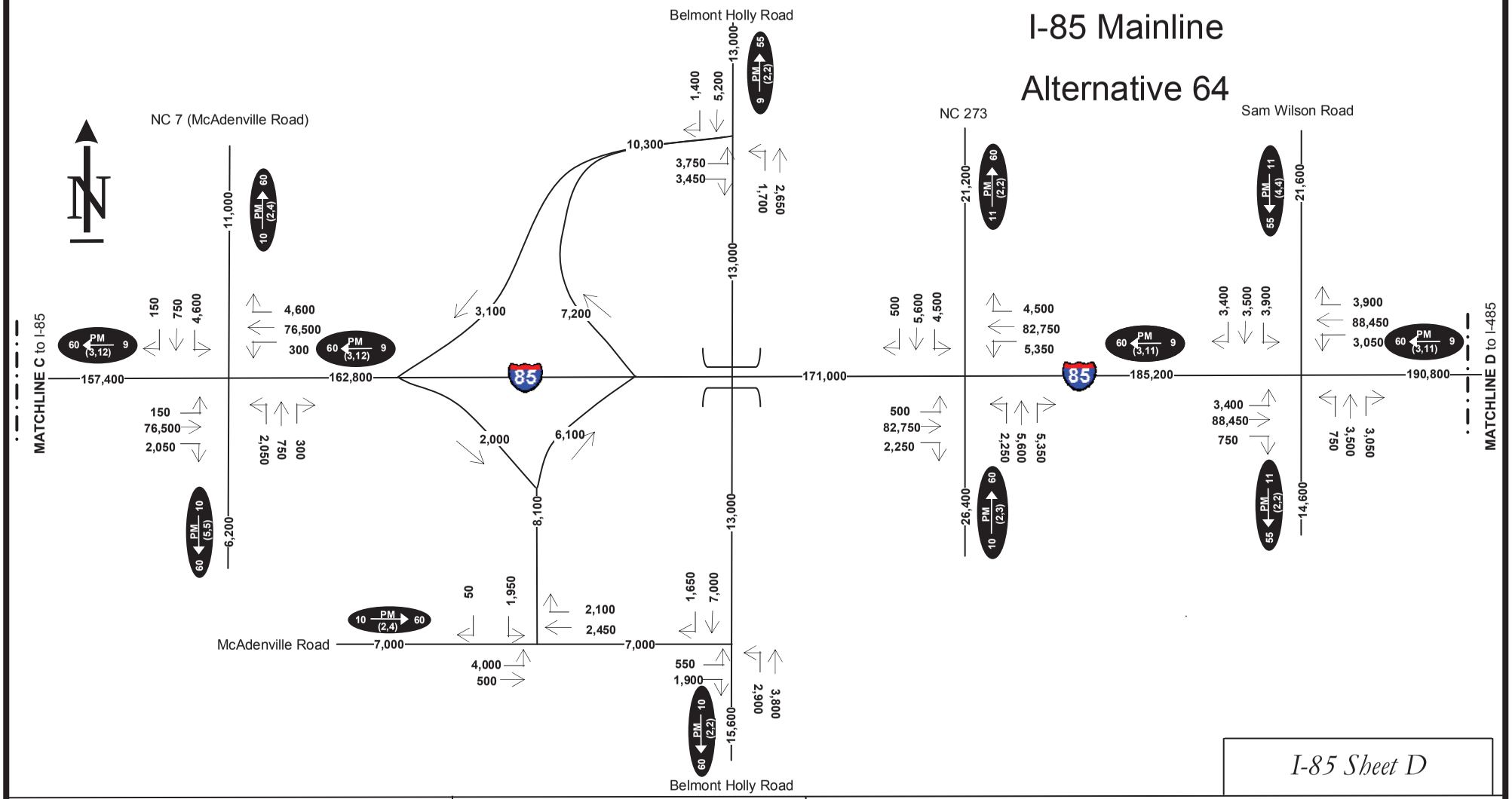
Alternative 64



I-85 Sheet D

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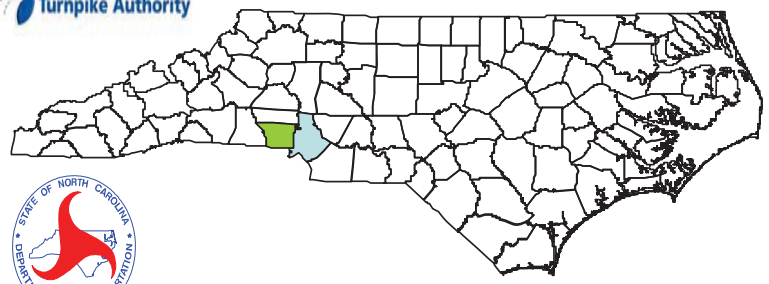

Not to Scale

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

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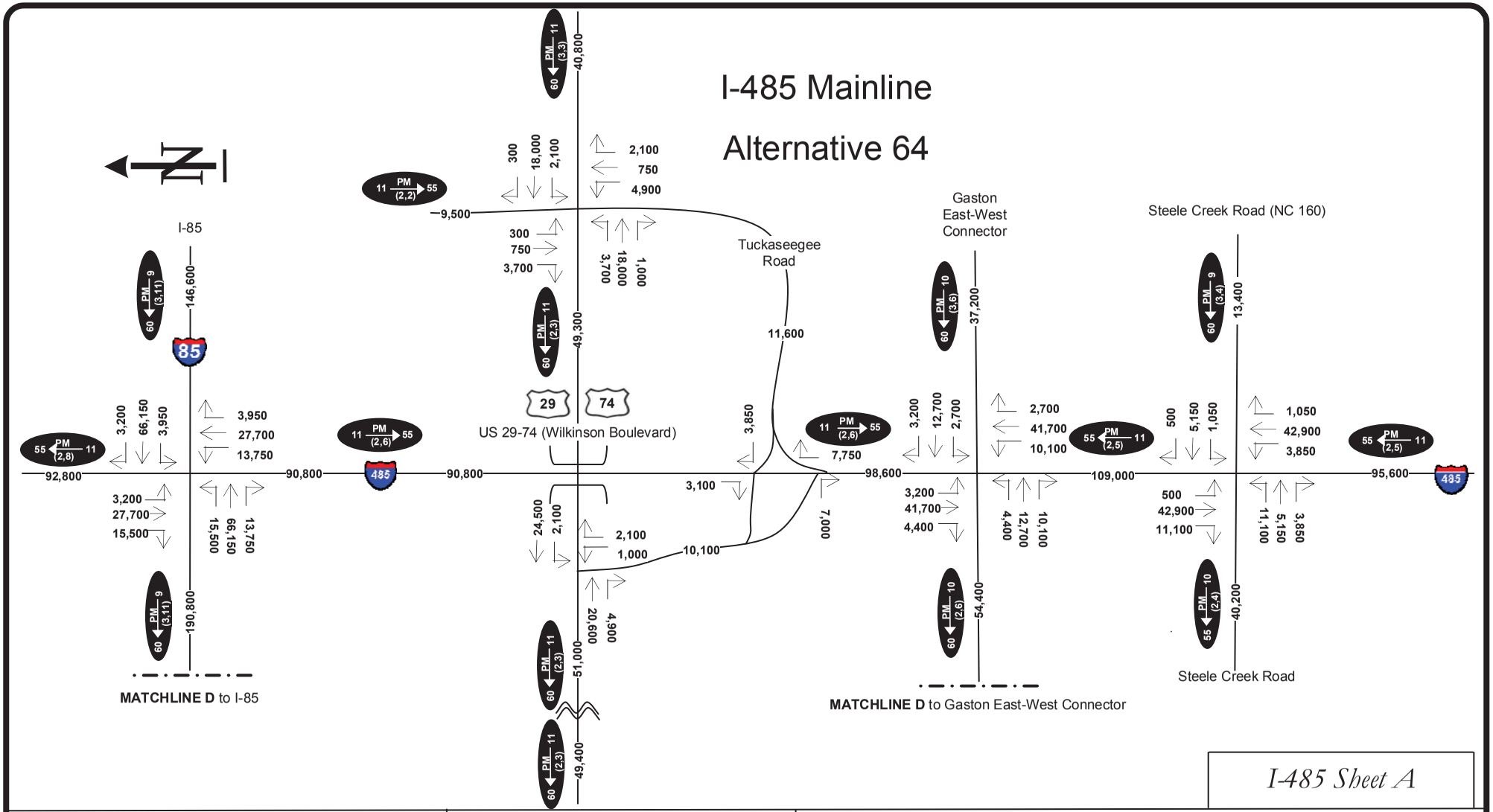

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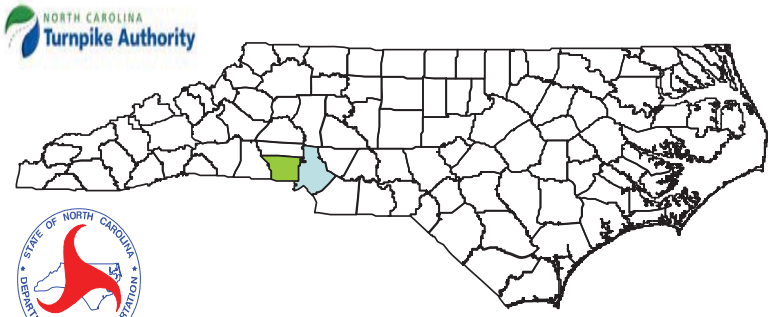
Transportation Planning - Traffic Engineering

PROJECT

TIP Project No. U-3321,
Gaston East-West Connector
NCDOT Division 12
Gaston County, North Carolina



Not to Scale

2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

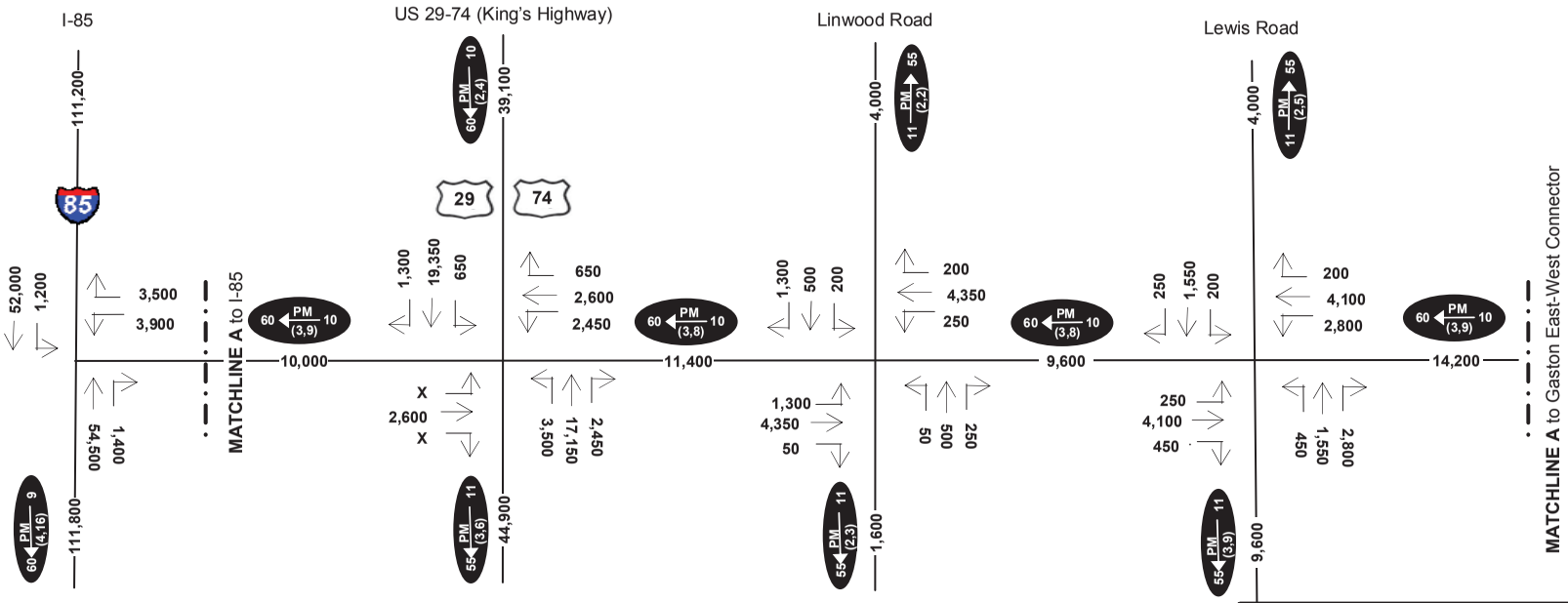
K PM (d, t) D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

November 14, 2007

Gaston East-West Connector Mainline

Alternative 64



Gaston E-W Sheet A

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Transportation Planning - Traffic Engineering

PROJECT

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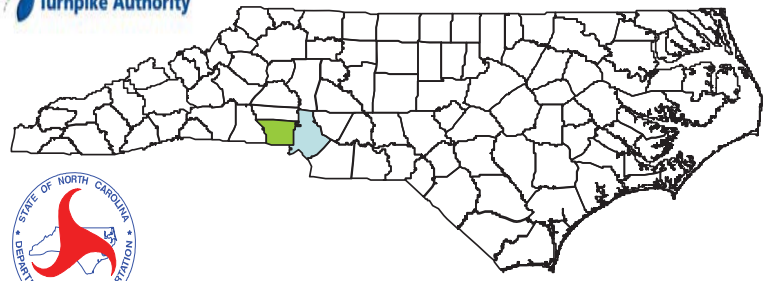
NCDOT Division 12
Gaston County, North Carolina

NORTH CAROLINA Turnpike Authority



Not to Scale

2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES

LEGEND

K PM (d, t) D

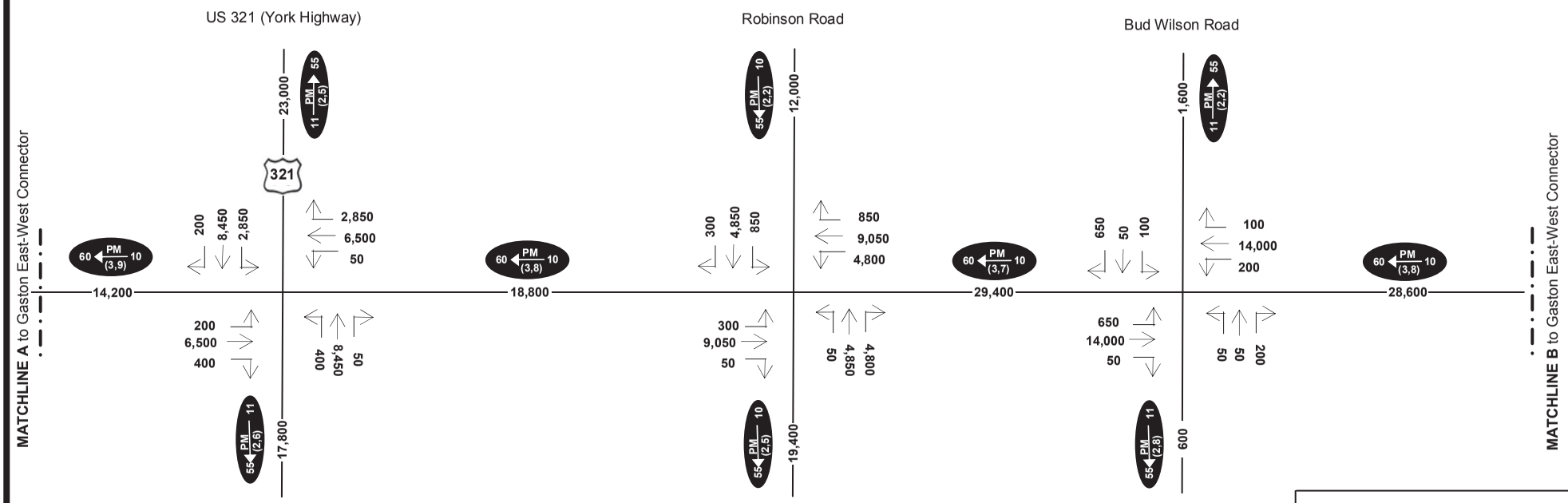
K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

Gaston East-West Connector Mainline

Alternative 64



Gaston E-W Sheet B

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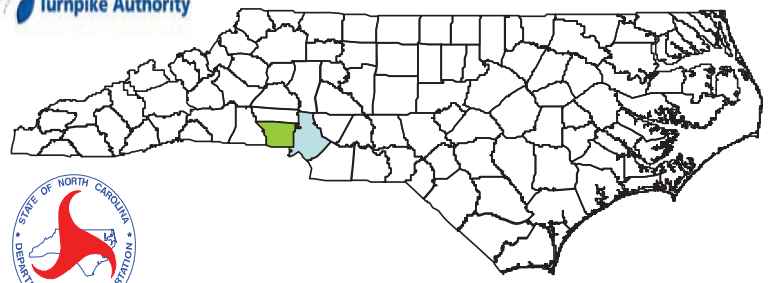


Not to Scale

2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES

LEGEND

K PM (d, t) D

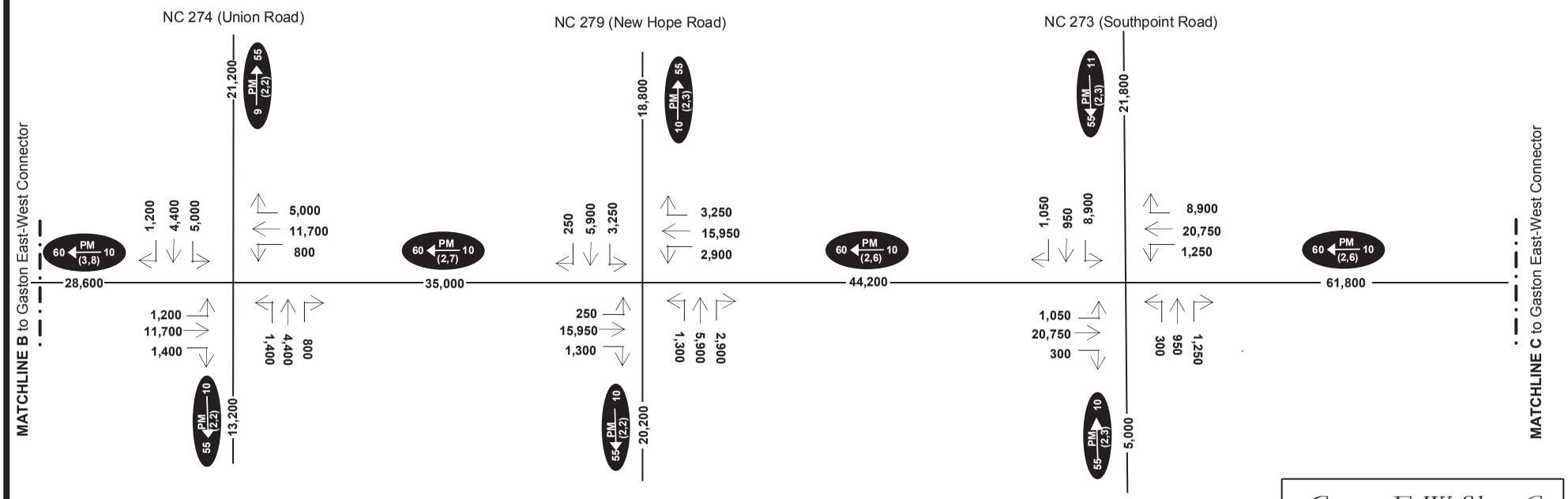
K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

Gaston East-West Connector Mainline

Alternative 64



Gaston E-W Sheet C

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Transportation Planning - Traffic Engineering

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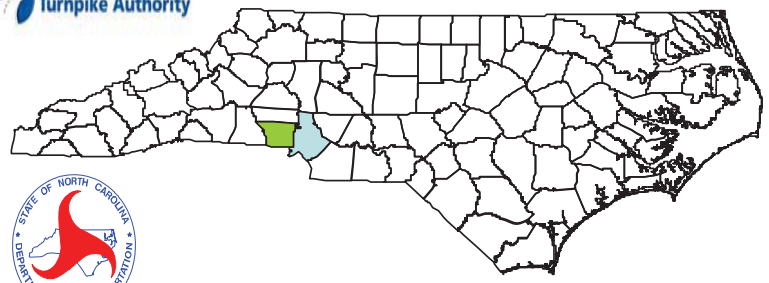


Not to Scale

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES

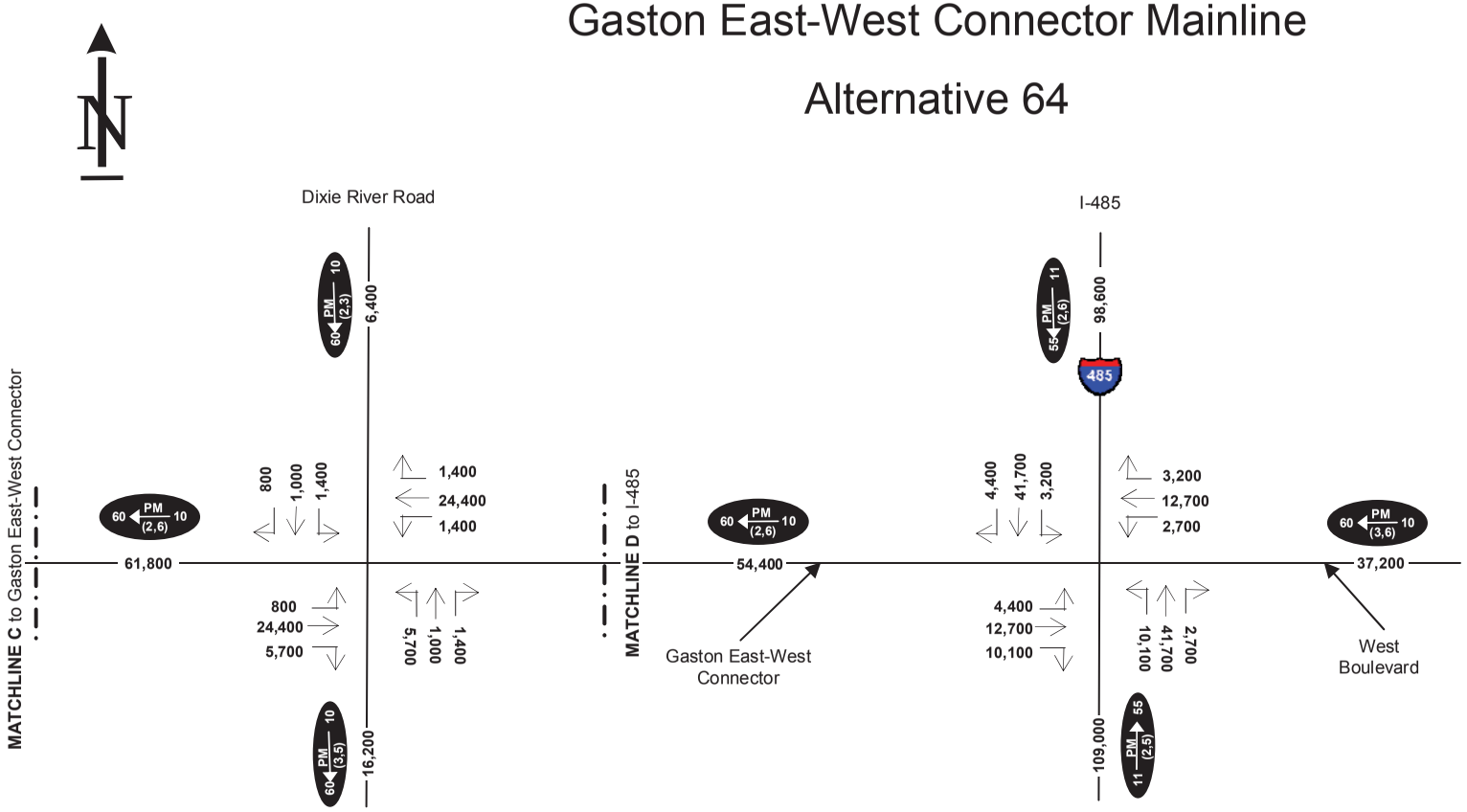
LEGEND

K PM (d, t) D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

Gaston East-West Connector Mainline

Alternative 64



Gaston E-W Sheet D

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PROJECT

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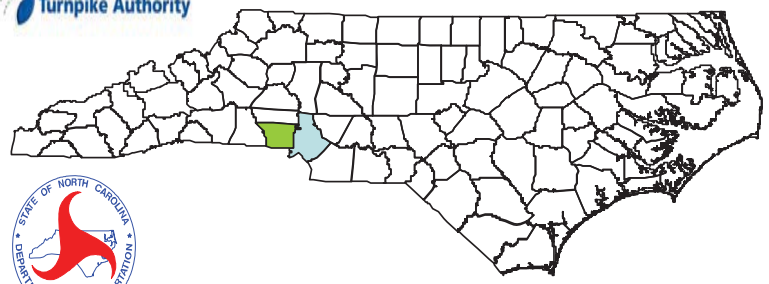
NORTH CAROLINA Turnpike Authority



Not to Scale

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 64
DAILY TOLL
FORECAST VOLUMES

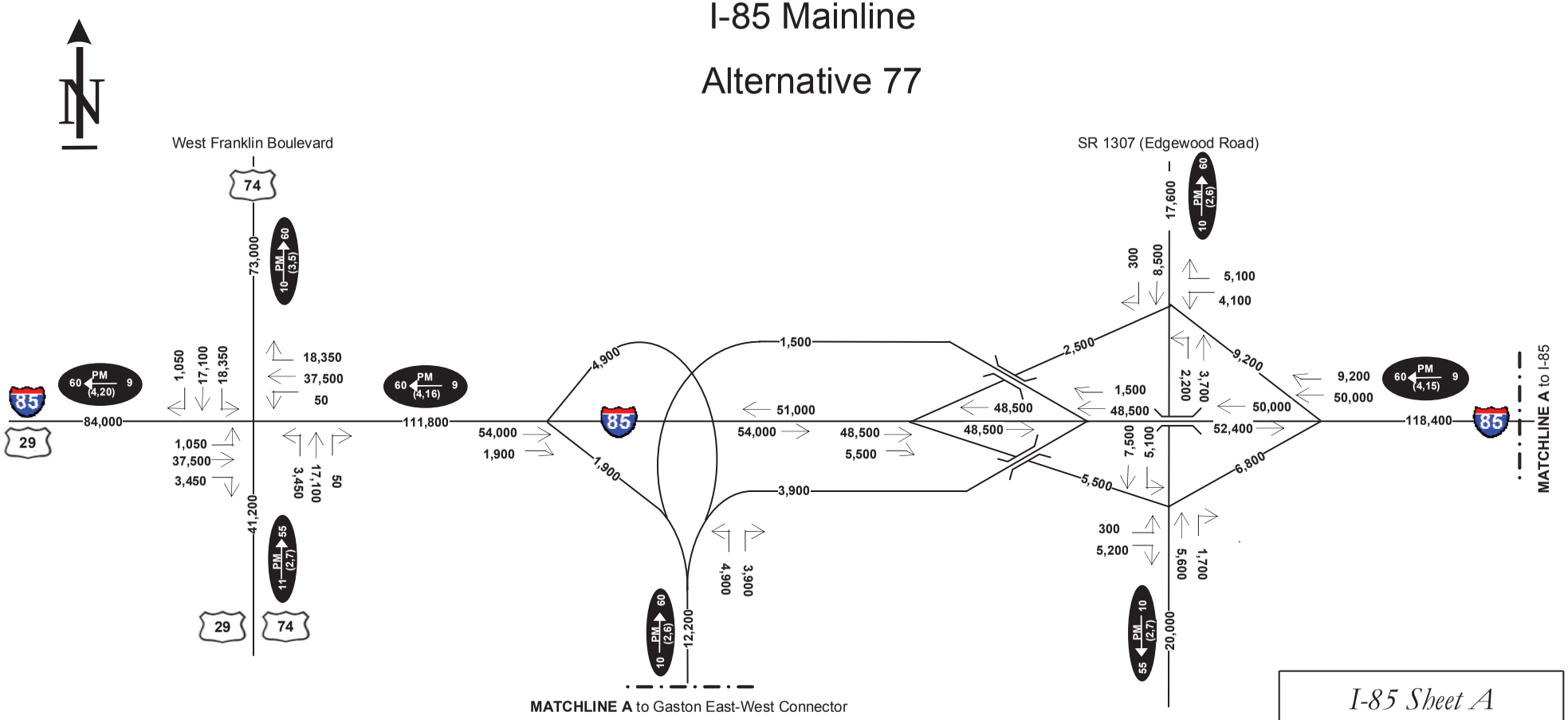
LEGEND

K PM (d, t) D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

I-85 Mainline

Alternative 77



I-85 Sheet A

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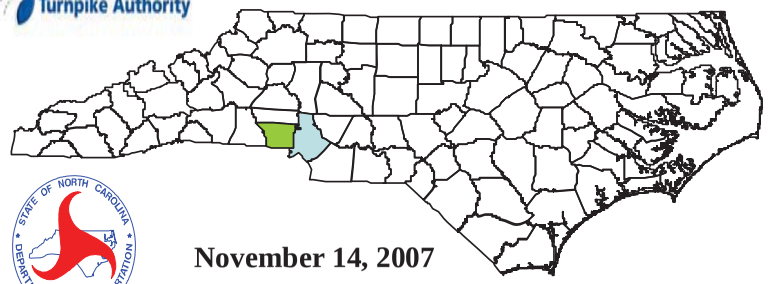
NORTH CAROLINA Turnpike Authority



Not to Scale

2030 ALTERNATIVE 77
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

LEGEND

PM K → D (d, t)

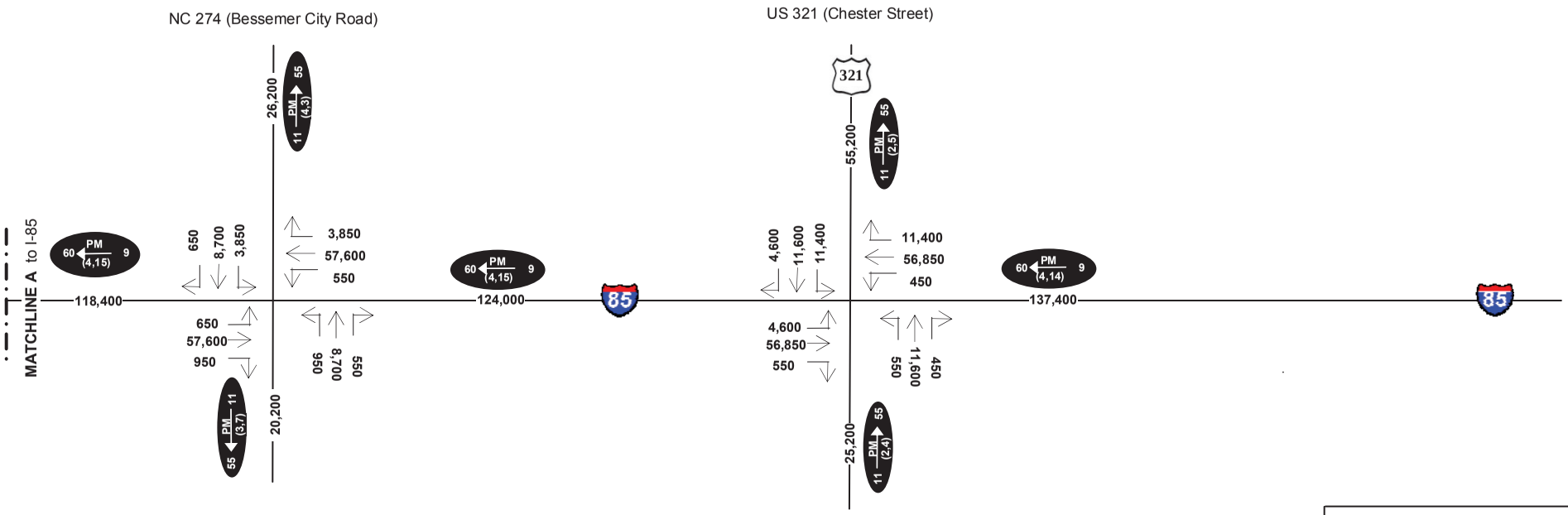
K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

I-85 Mainline

Alternative 77



I-85 Sheet B

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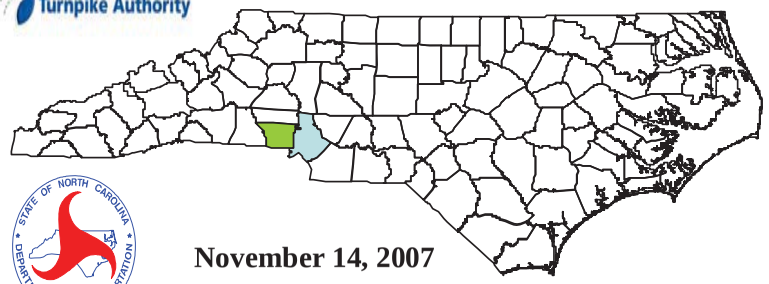
Gaston County, North Carolina

NORTH CAROLINA Turnpike Authority

Not to Scale



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 77
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

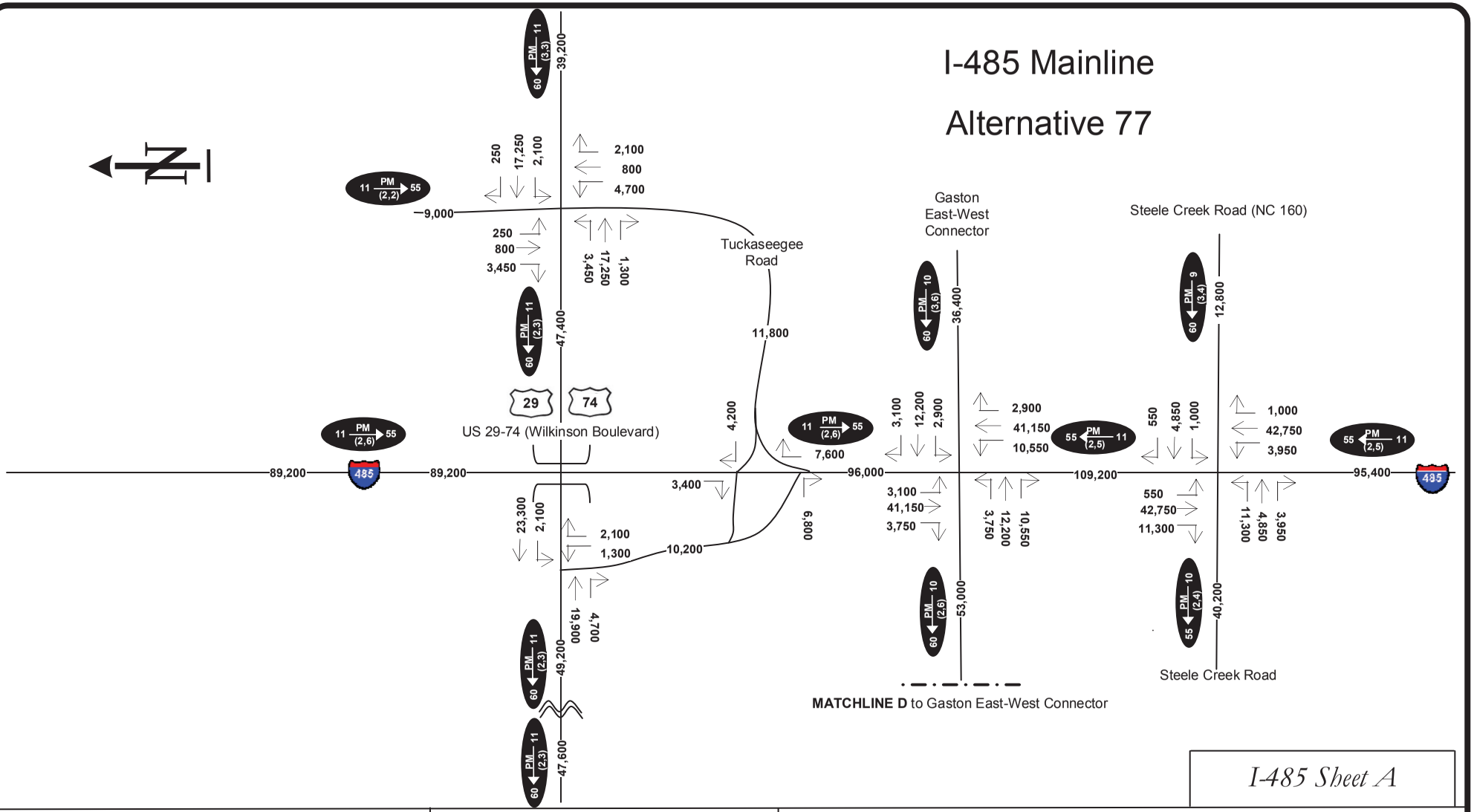
LEGEND

K PM (d, t) D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

I-485 Mainline

Alternative 77



I-485 Sheet A

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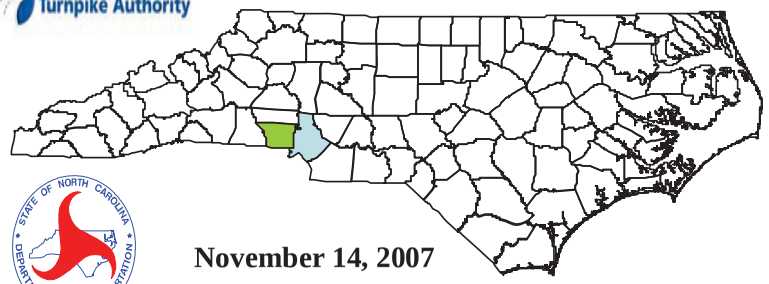
Not to Scale



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 77
DAILY TOLL
FORECAST VOLUMES
(with Gaston E-W Connector)

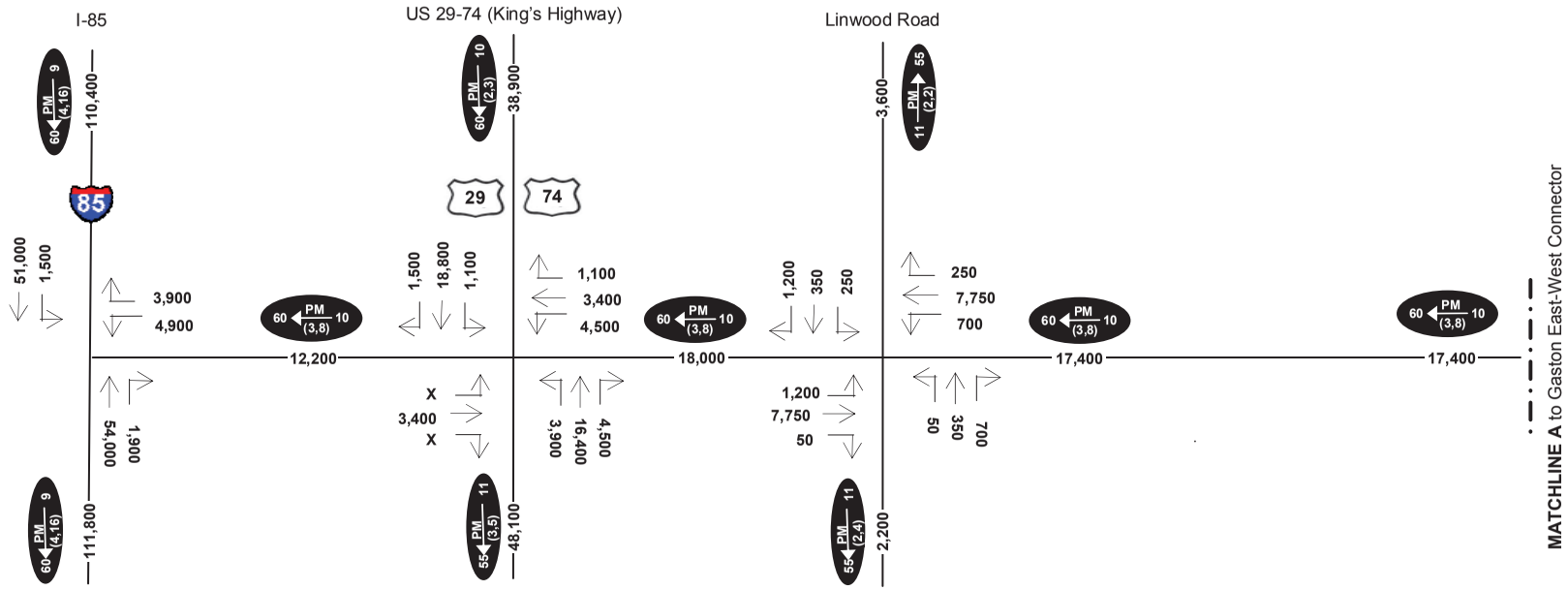
LEGEND

PM (d, t) K → D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

Gaston East-West Connector Mainline

Alternative 77



Gaston E-W Sheet A

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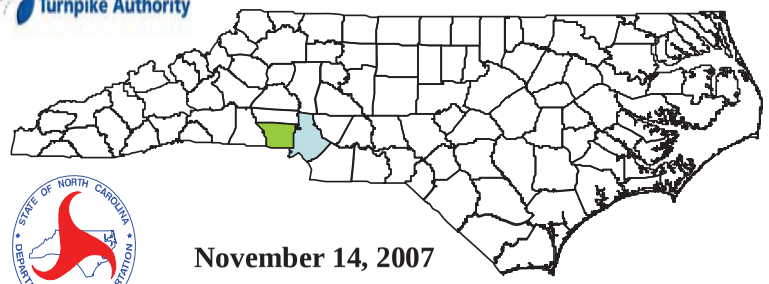


Not to Scale

2030 ALTERNATIVE 77
DAILY TOLL
FORECAST VOLUMES

LEGEND

K PM D (d, t)

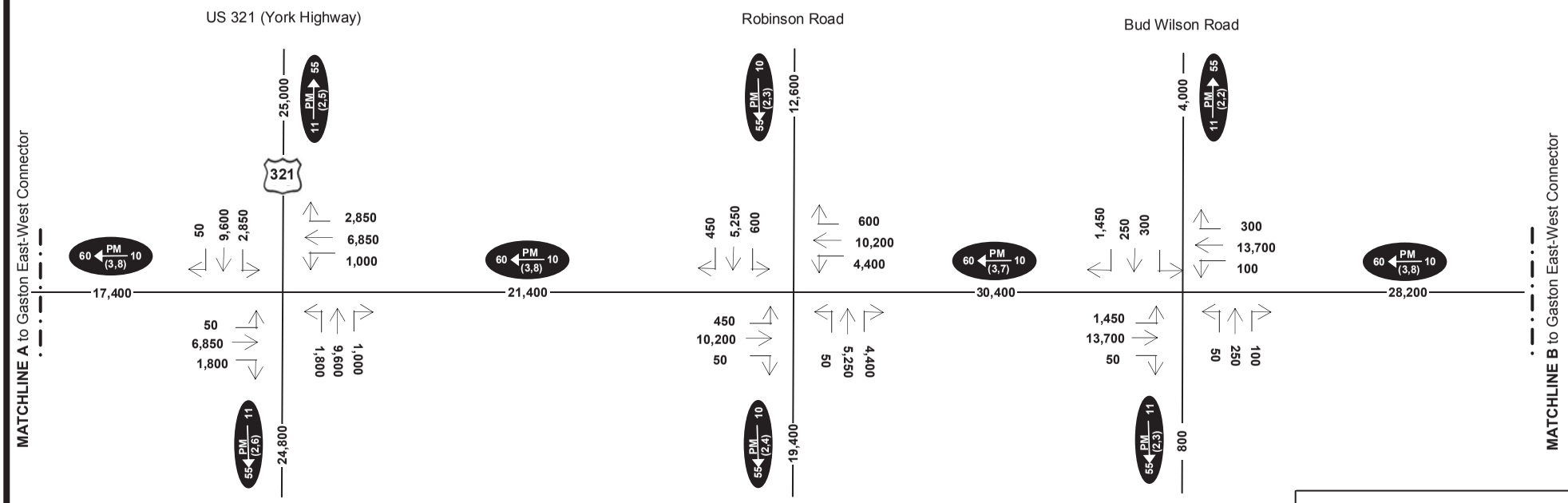
K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

Gaston East-West Connector Mainline

Alternative 77



Gaston E-W Sheet B

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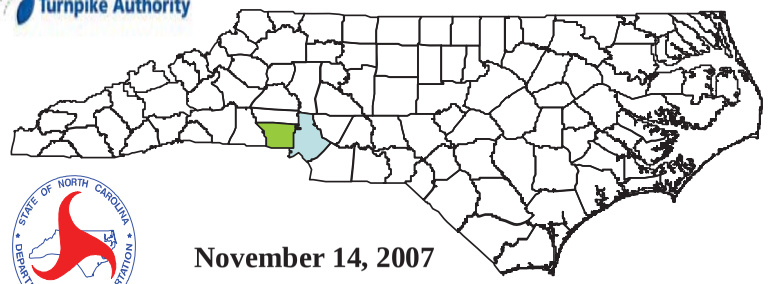


Not to Scale

2030 ALTERNATIVE 77
DAILY TOLL
FORECAST VOLUMES

LEGEND

K PM (d, t) D

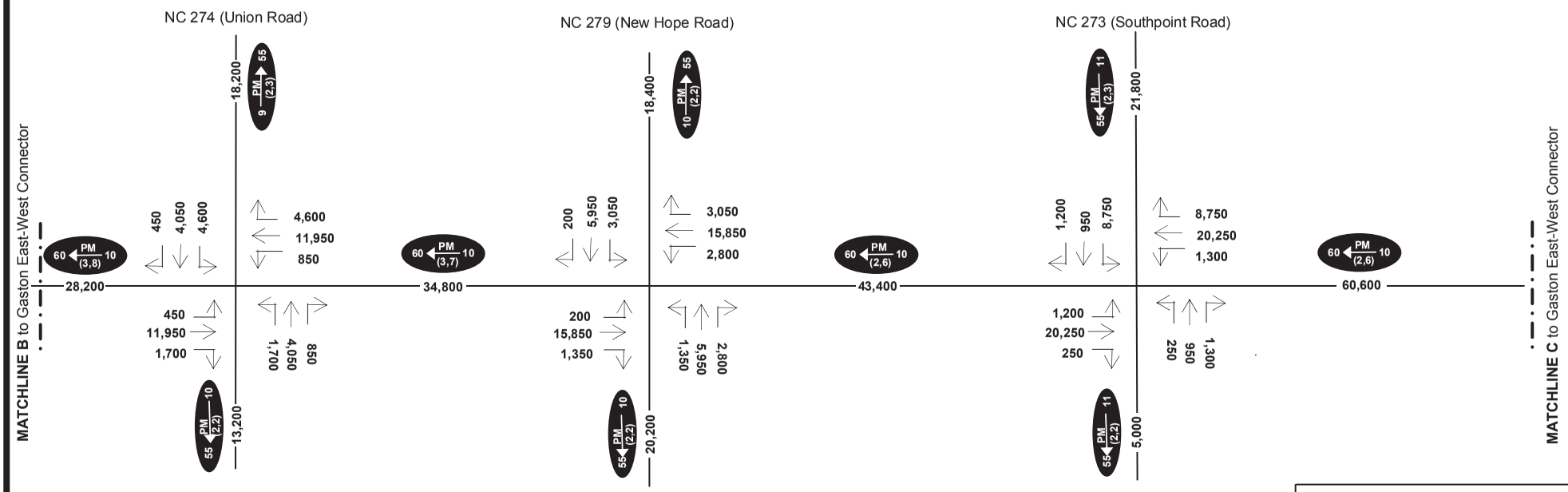
K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

Gaston East-West Connector Mainline

Alternative 77



Gaston E-W Sheet C

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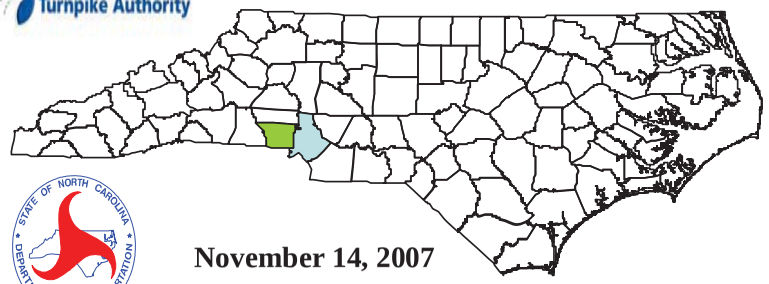


Not to Scale

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

November 14, 2007

2030 ALTERNATIVE 77
DAILY TOLL
FORECAST VOLUMES

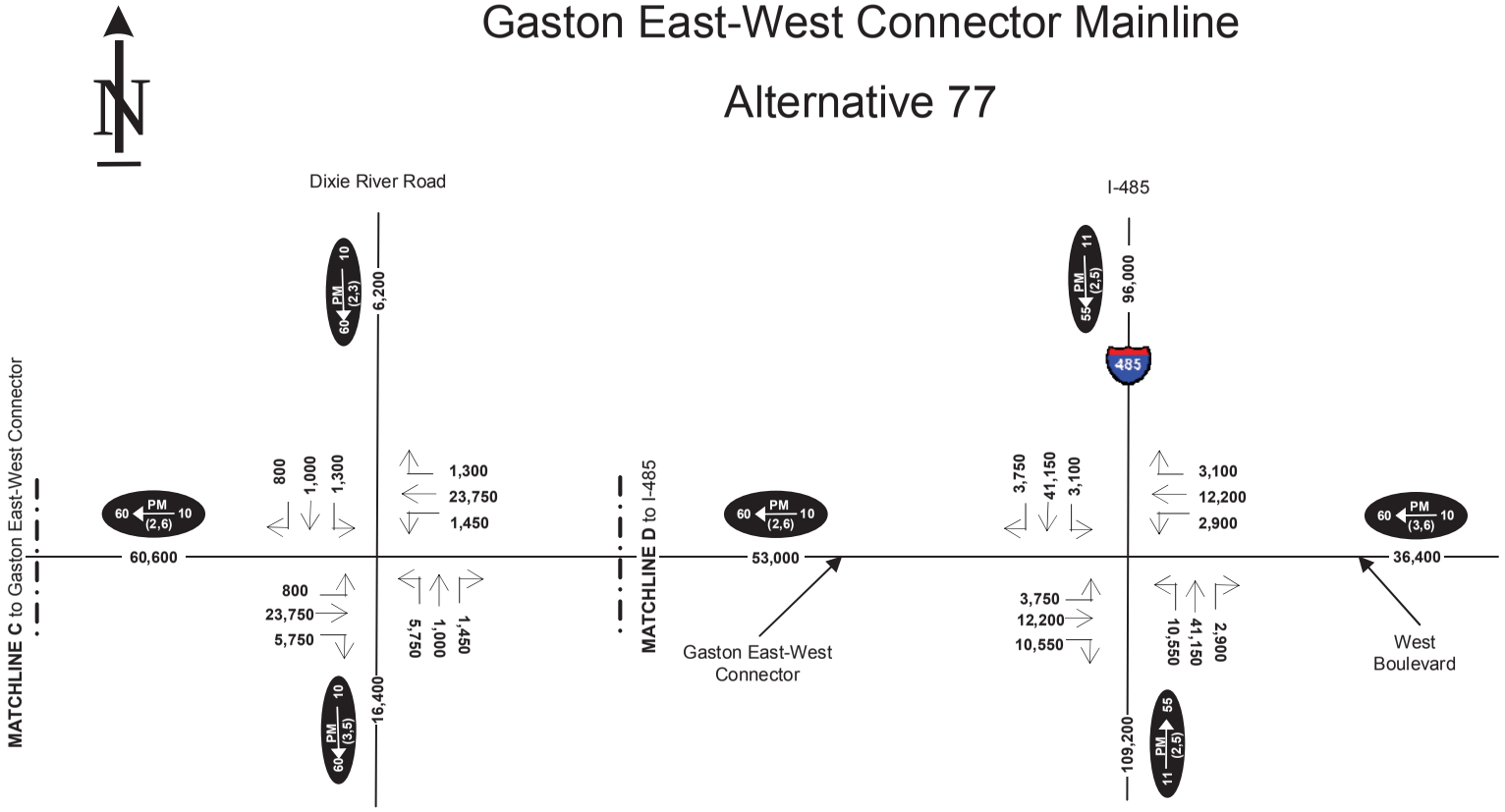
LEGEND

K PM (d, t) D

K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

Gaston East-West Connector Mainline

Alternative 77



Gaston E-W Sheet D

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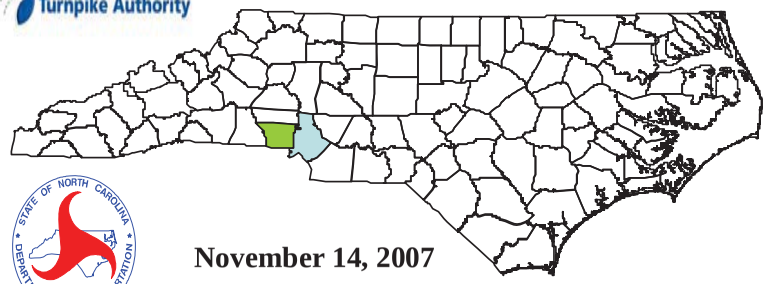


Not to Scale

2030 ALTERNATIVE 77
DAILY TOLL
FORECAST VOLUMES

LEGEND

K PM D (d, t)

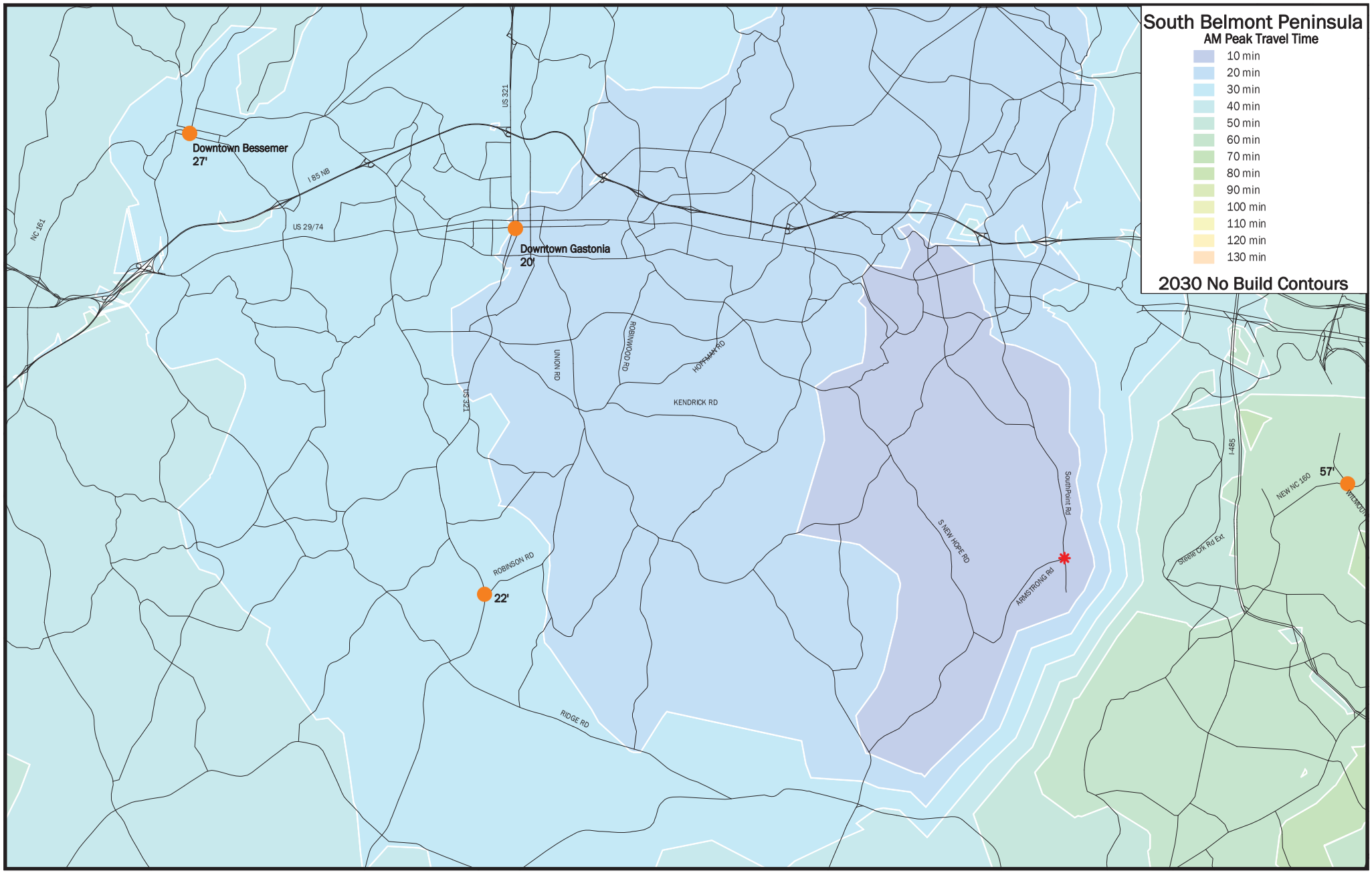
K	Design Hourly Volume (%) = K30
PM	PM Peak Period
D	Directional Split (%)
(d,t)	%Duals, %TT+ST'S
→	Indicates direction **D**; reverse for AM

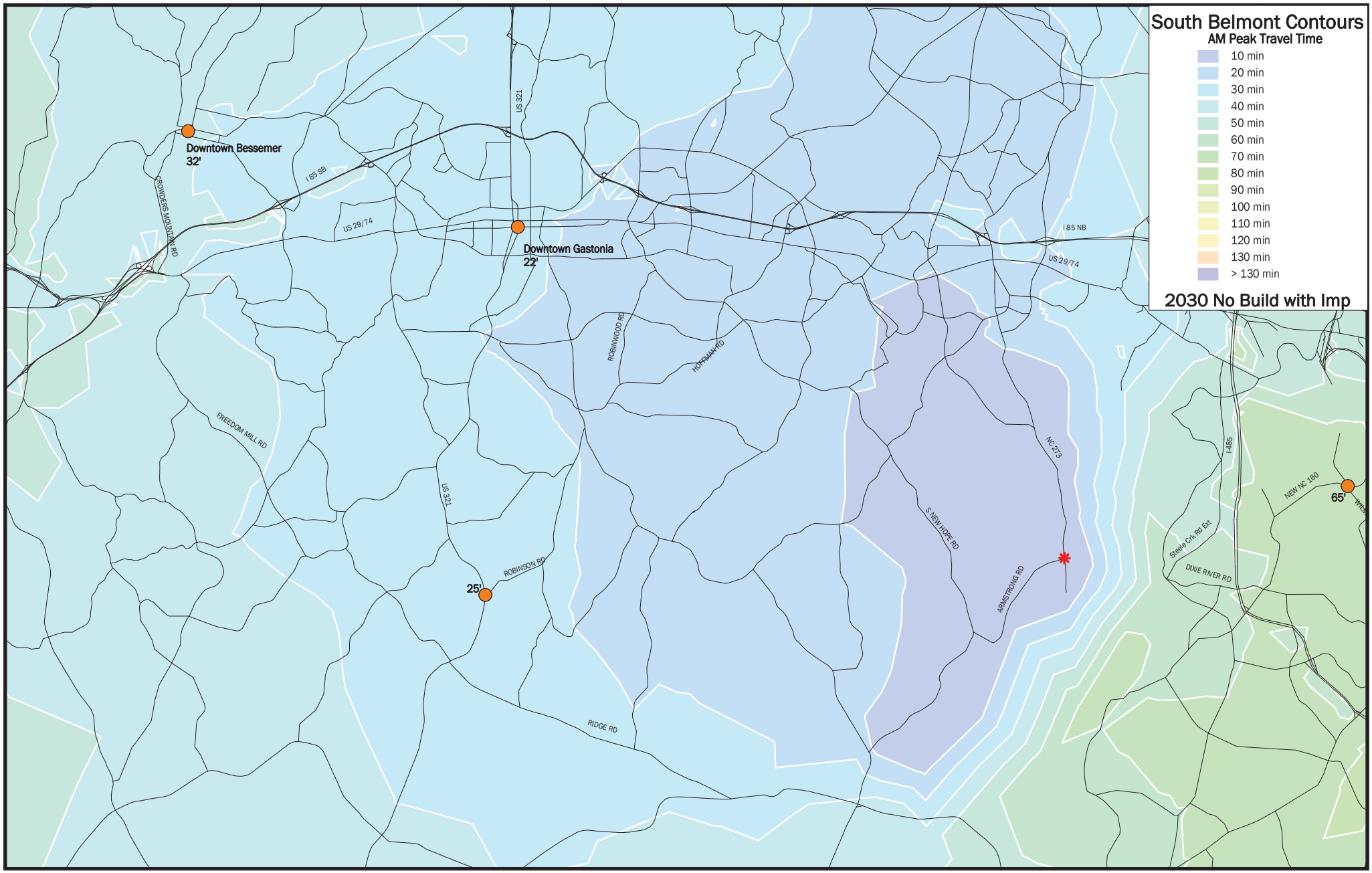
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

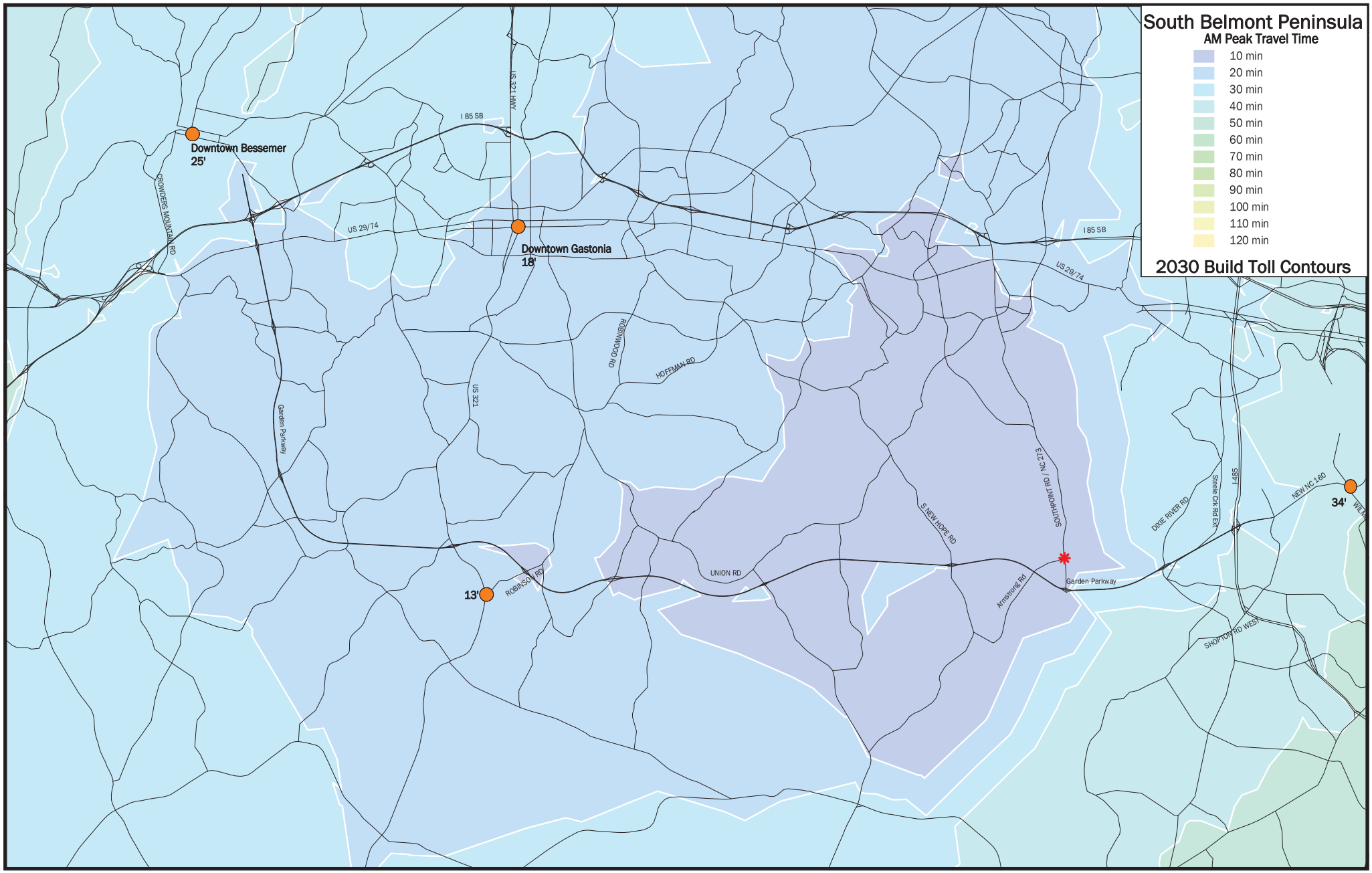
November 14, 2007

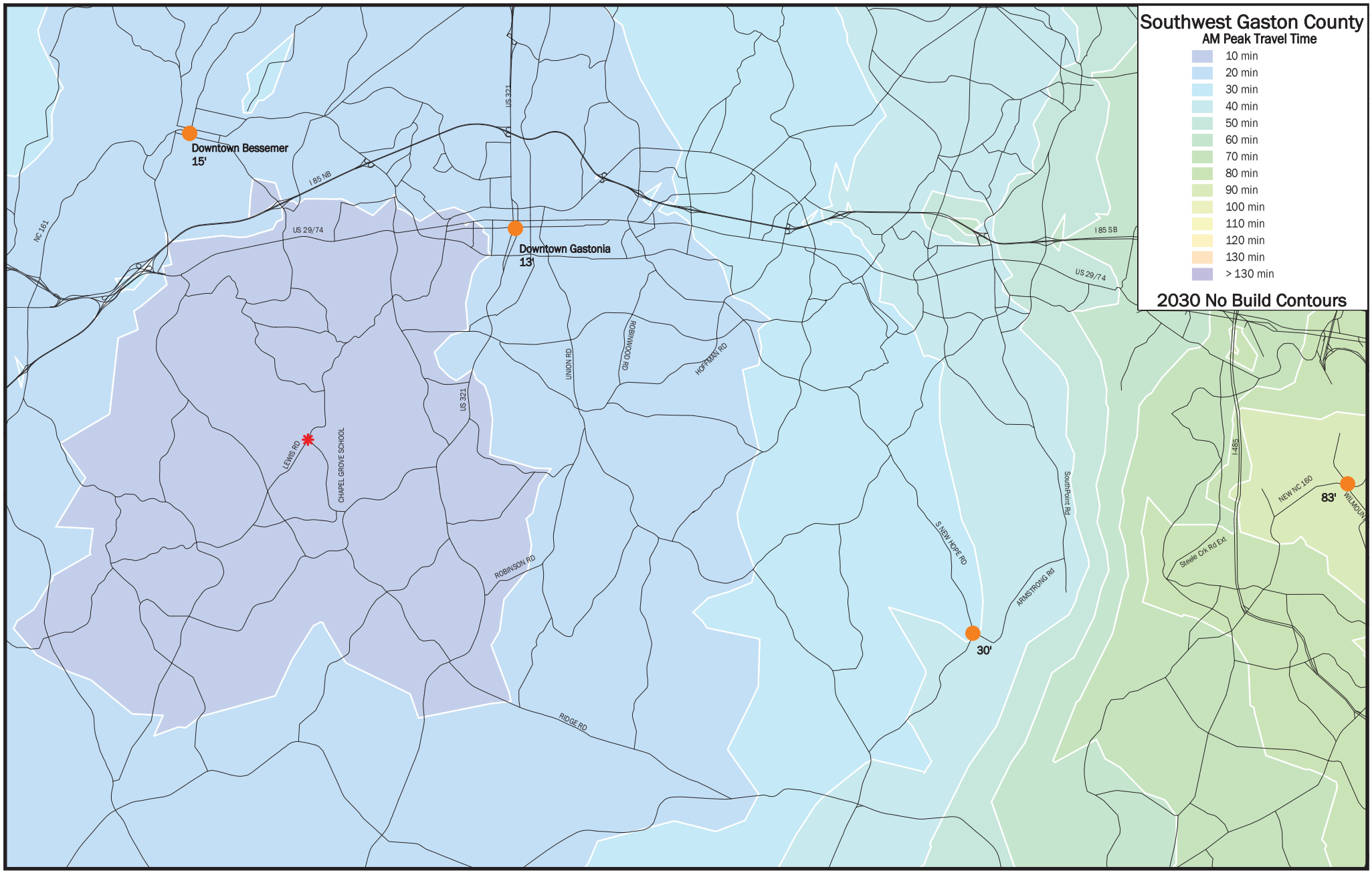
ADDENDUM
Appendix C

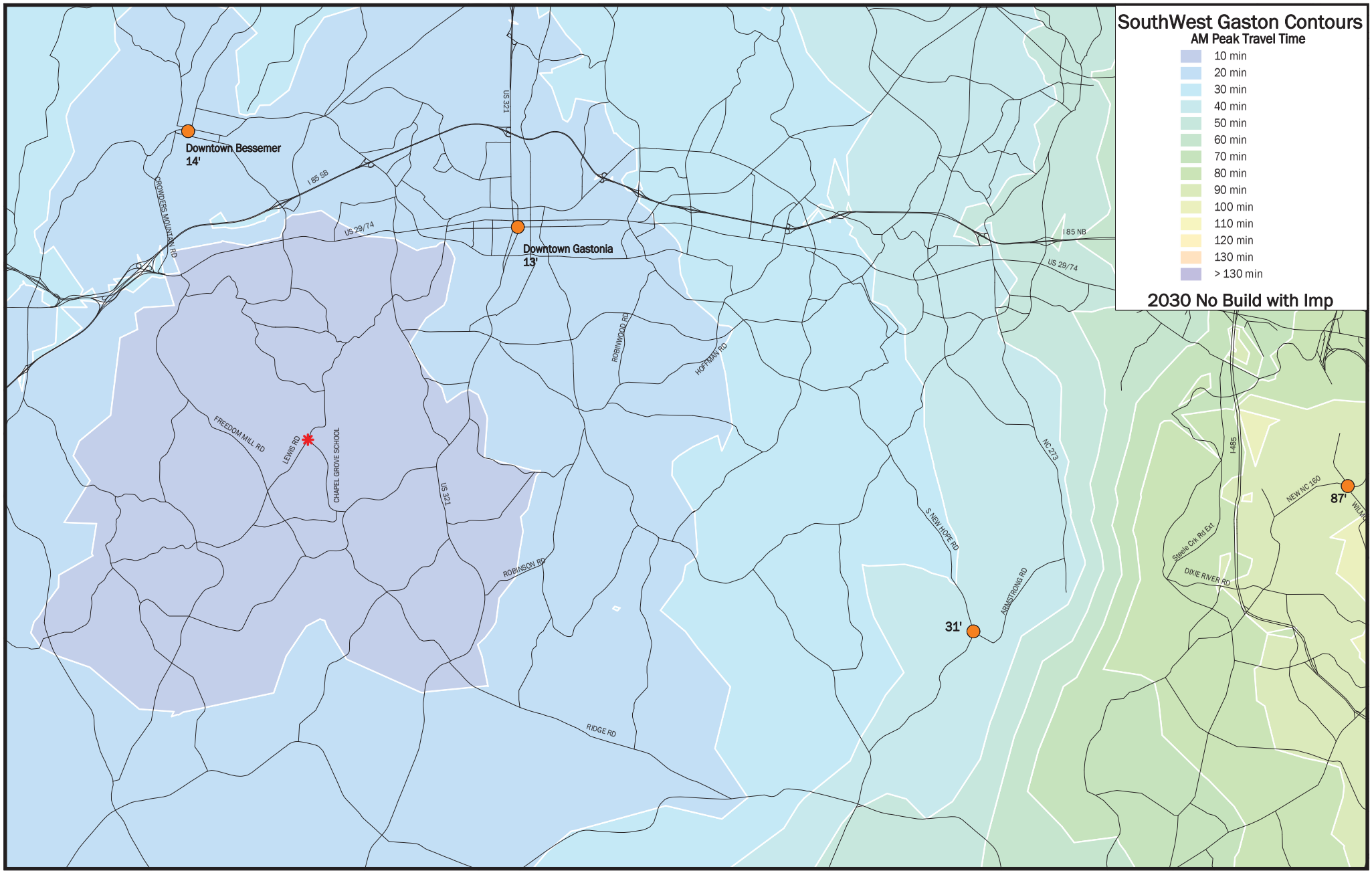
Travel Time Contour Maps from the 2030 Metrolina Model Under the No-Build Alternative, Improve Existing Roadways Alternative (Scenario 4+/4a), and New Location Alternative (Toll Scenario)

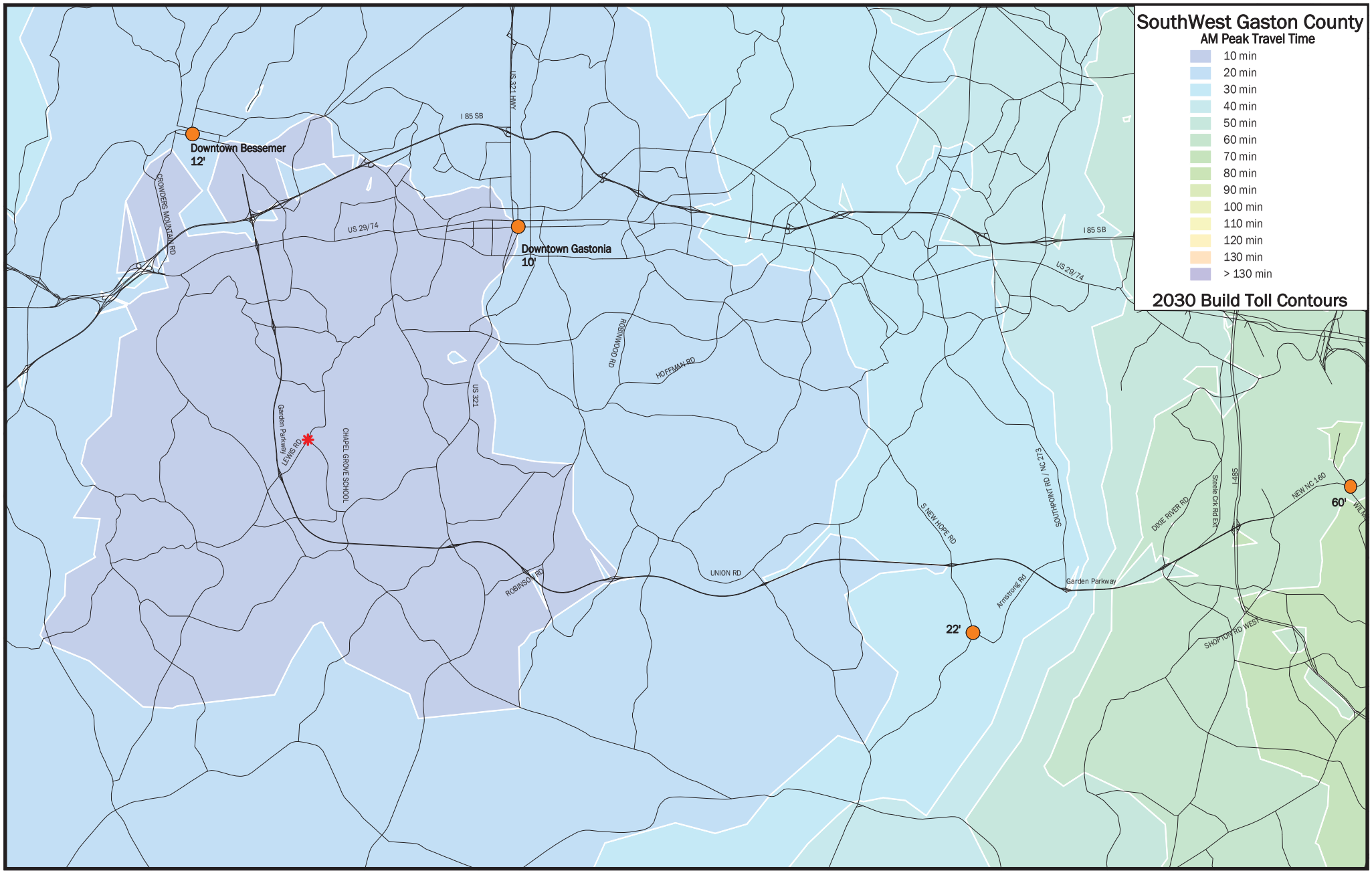

South Belmont Peninsula
AM Peak Travel Time
10 min
20 min
30 min
40 min
50 min
60 min
70 min
80 min
90 min
100 min
110 min
120 min
130 min
2030 No Build Contours
Downtown Bessemer
27'
Downtown Gastonia
20'
22'
57'
I 85 NB
US 29/74
NC 161
US 321
UNION RD
ROBINWOOD RD
HOFFMAN RD
KENDRICK RD
ROBINSON RD
RIDGE RD
S NEW HOPE RD
SouthPoint Rd
ARMSTRONG Rd
I-485
NEW NC 160
Steele Crk Rd Ext


South Belmont Contours
AM Peak Travel Time
10 min
20 min
30 min
40 min
50 min
60 min
70 min
80 min
90 min
100 min
110 min
120 min
130 min
> 130 min
2030 No Build with Imp
Downtown Bessemer
32'
Downtown Gastonia
22'
25'
65'
I 85 SB
I 85 NB
US 29/74
US 321
CROWDERS MOUNTAIN RD
FREEDOM MILL RD
ROBINWOOD RD
HOFFMAN RD
ROBINSON RD
RIDGE RD
NC 273
S NEW HOPE RD
ARMSTRONG RD
I 485
NEW NC 160
Steele Crk Rd Ext
DIXIE RIVER RD


South Belmont Peninsula
AM Peak Travel Time
10 min
20 min
30 min
40 min
50 min
60 min
70 min
80 min
90 min
100 min
110 min
120 min
2030 Build Toll Contours
Downtown Bessemer
25'
Downtown Gastonia
18'
13'
34'
I 85 SB
US 321 HWY
US 29/74
CROWDERS MOUNTAIN RD
Garden Parkway
US 321
HOBWOOD RD
HOFFMAN RD
ROBINSON RD
UNION RD
S NEW HOPE RD
SOUTHPOINT RD / NC 273
Armstrong Rd
Garden Parkway
DIXIE RIVER RD
Steele Crk Rd Ext
I-485
NEW NC 160
SHOPTON RD WEST


Southwest Gaston County
AM Peak Travel Time
10 min
20 min
30 min
40 min
50 min
60 min
70 min
80 min
90 min
100 min
110 min
120 min
130 min
> 130 min
2030 No Build Contours
Downtown Bessemer
15'
Downtown Gastonia
13'
30'
83'
I 85 NB
I 85 SB
US 29/74
US 321
NC 161
LEWIS RD
CHAPEL GROVE SCHOOL
ROBINSON RD
RIDGE RD
UNION RD
ROBINWOOD RD
HOFFMAN RD
S NEW HOPE RD
ARMSTRONG Rd
SouthPoint Rd
I 485
NEW NC 160
Steele Crk Rd Ext


SouthWest Gaston Contours
AM Peak Travel Time
10 min
20 min
30 min
40 min
50 min
60 min
70 min
80 min
90 min
100 min
110 min
120 min
130 min
> 130 min
2030 No Build with Imp
Downtown Bessemer
14'
Downtown Gastonia
13'
31'
87'
I 85 SB
I 85 NB
US 29/74
US 321
CROWDERS MOUNTAIN RD
FREEDOM MILL RD
LEWIS RD
CHAPEL GROVE SCHOOL
ROBINWOOD RD
HOFFMAN RD
ROBINSON RD
RIDGE RD
S NEW HOPE RD
ARMSTRONG RD
NC 273
I 485
NEW NC 160
Steele Crk Rd Ext
DIXIE RIVER RD


SouthWest Gaston County
AM Peak Travel Time
10 min
20 min
30 min
40 min
50 min
60 min
70 min
80 min
90 min
100 min
110 min
120 min
130 min
> 130 min
2030 Build Toll Contours
Downtown Bessemer
12'
Downtown Gastonia
10'
22'
60'
I 85 SB
US 321 HWY
US 29/74
CROWDERS MOUNTAIN RD
LEWIS RD
Garden Parkway
CHAPEL GROVE SCHOOL
US 321
HOBWOOD RD
HOFFMAN RD
ROBINSON RD
UNION RD
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Armstrong Rd
Garden Parkway
DIXIE RIVER RD
Steele Crk Rd Ext
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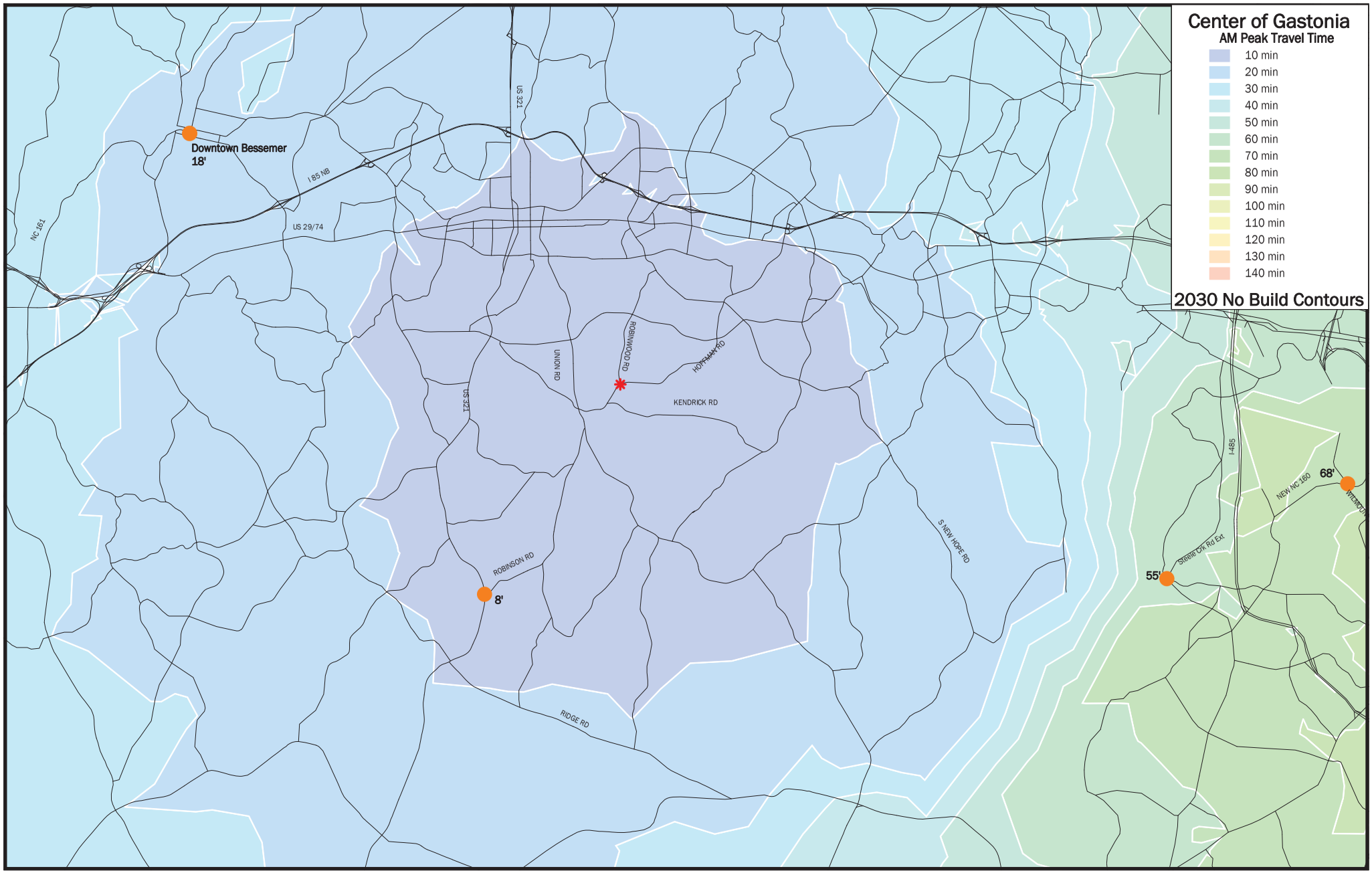
SHOPTON RD WEST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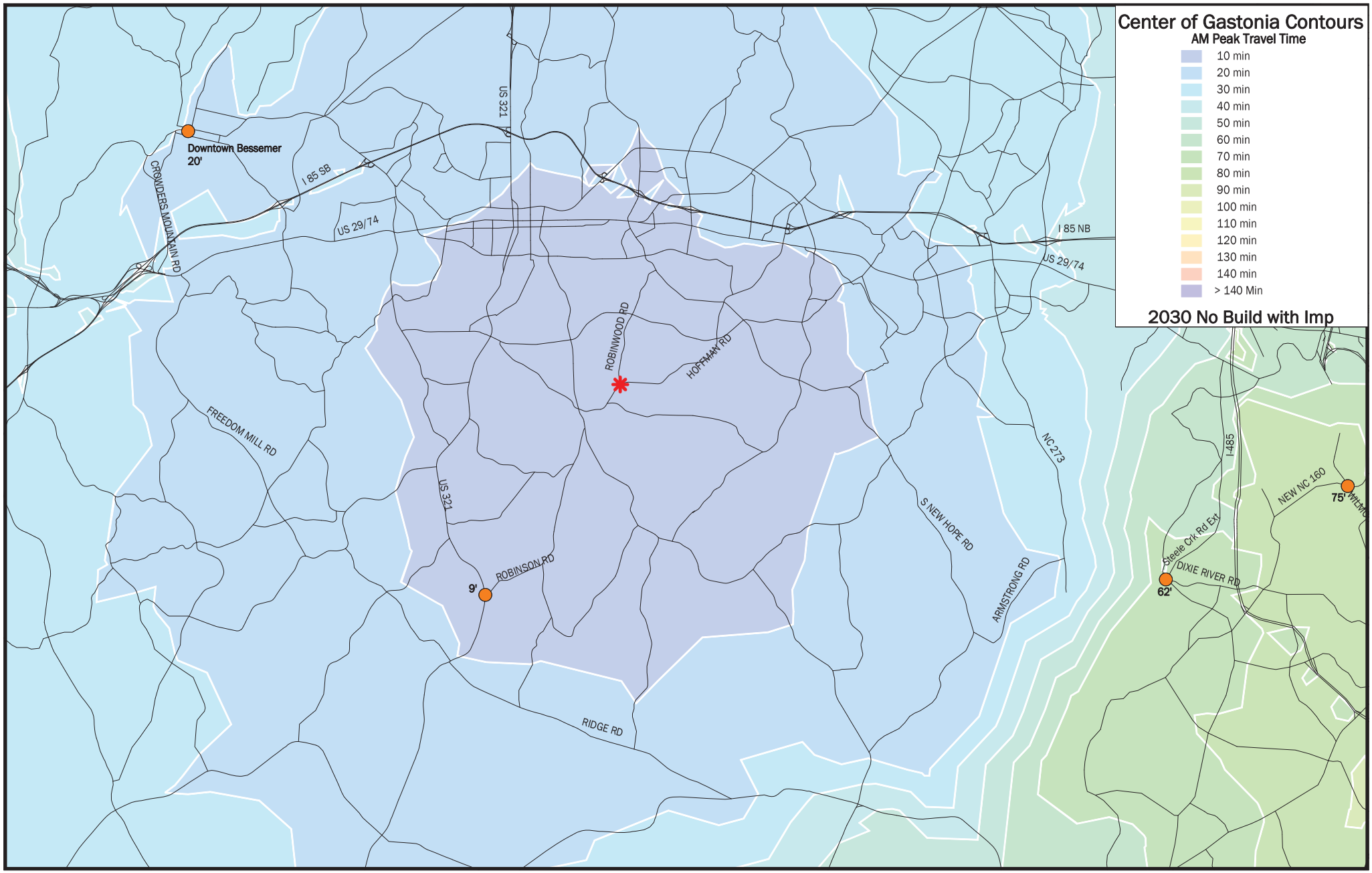
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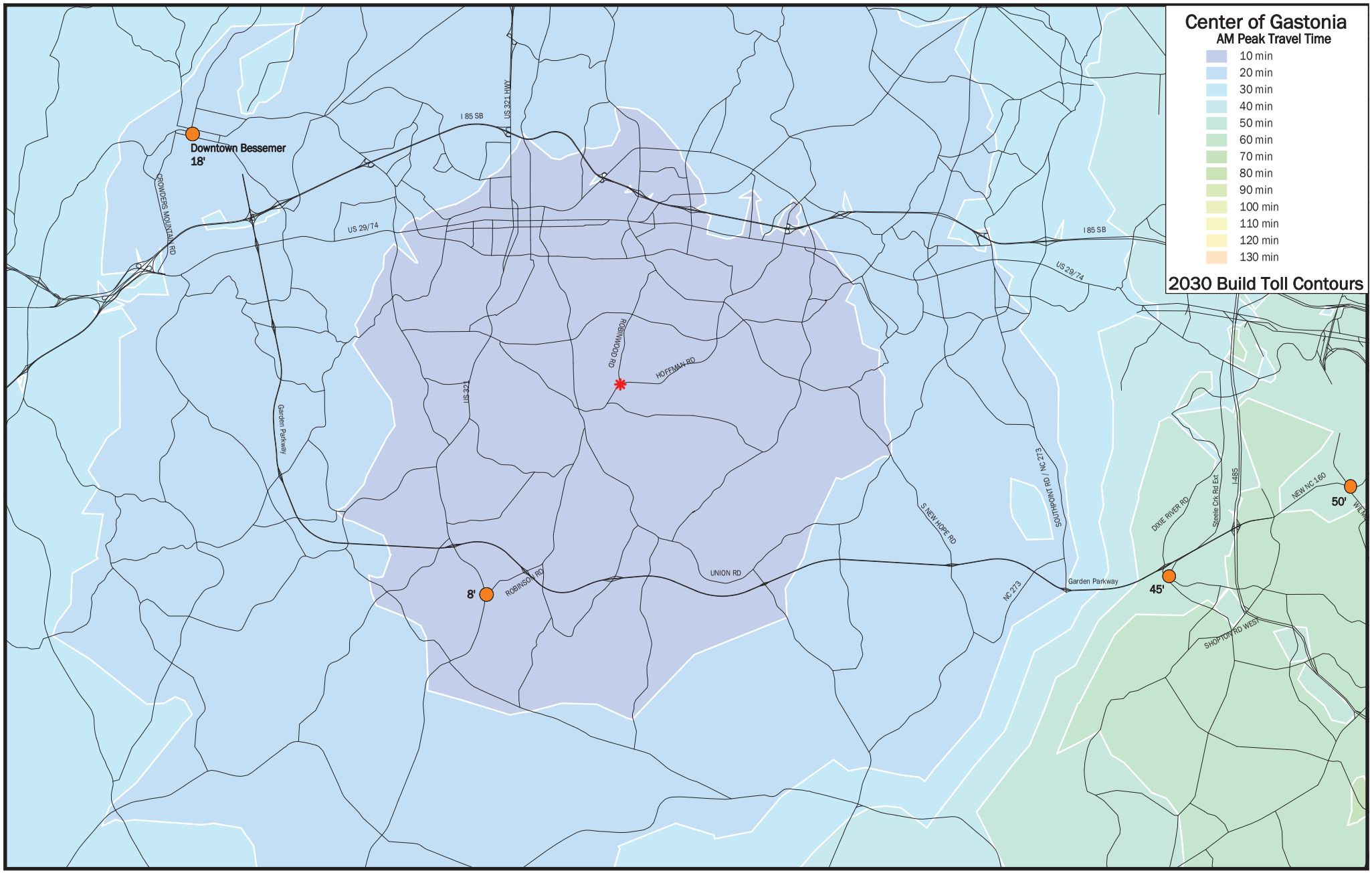
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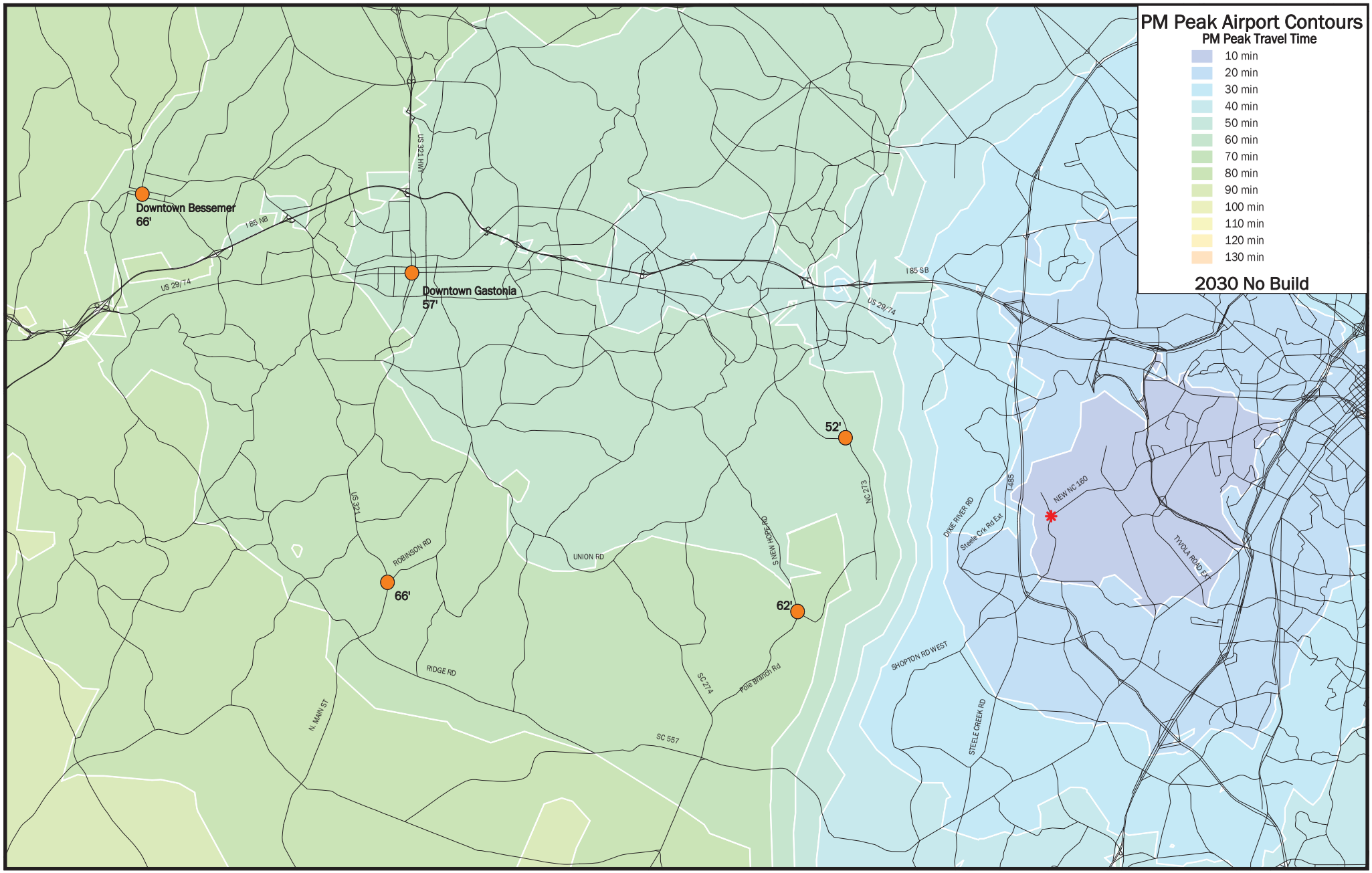
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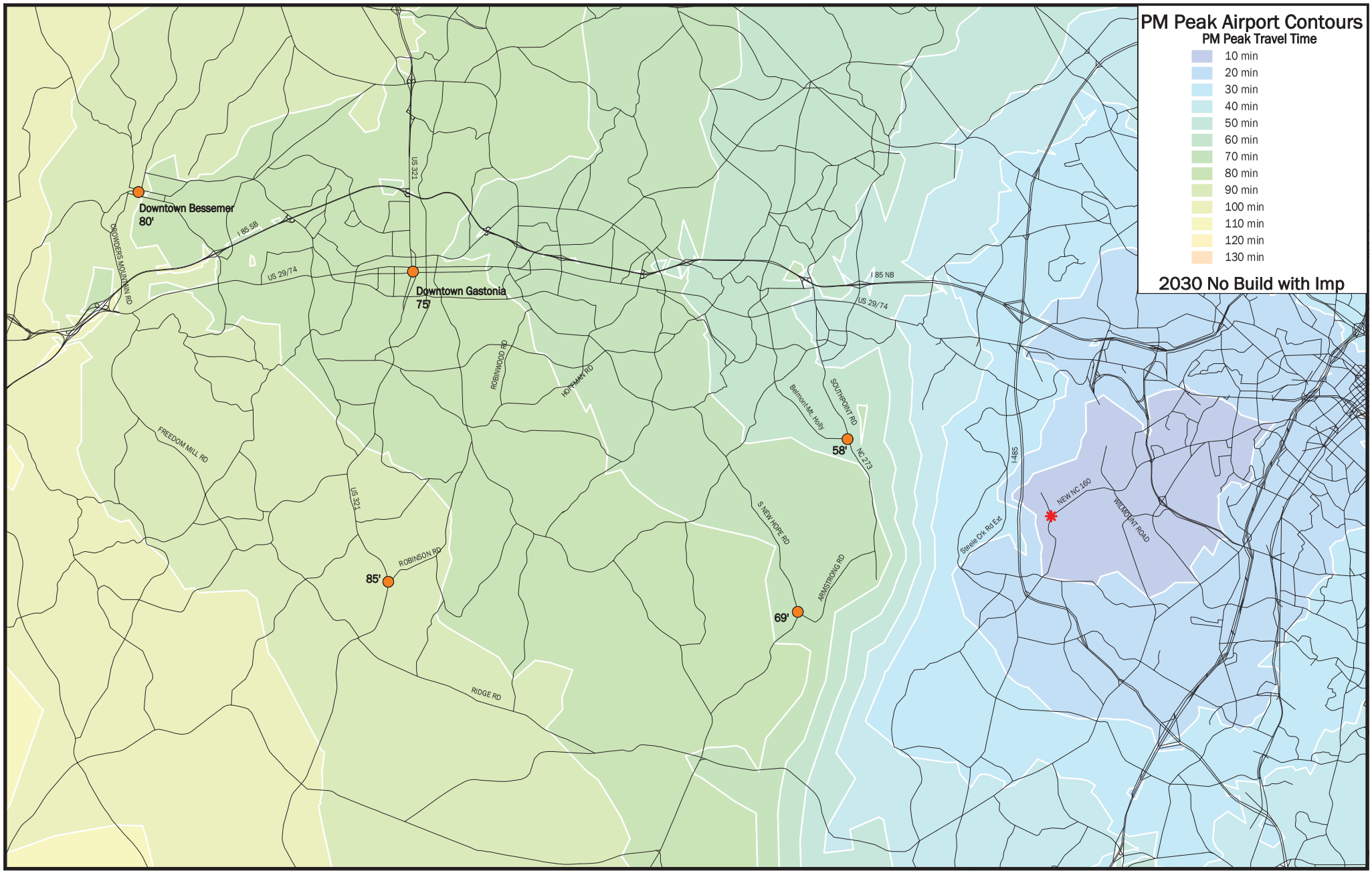
SC 274
Pole Branch Rd
SC 557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Belmont-Mt. Holly
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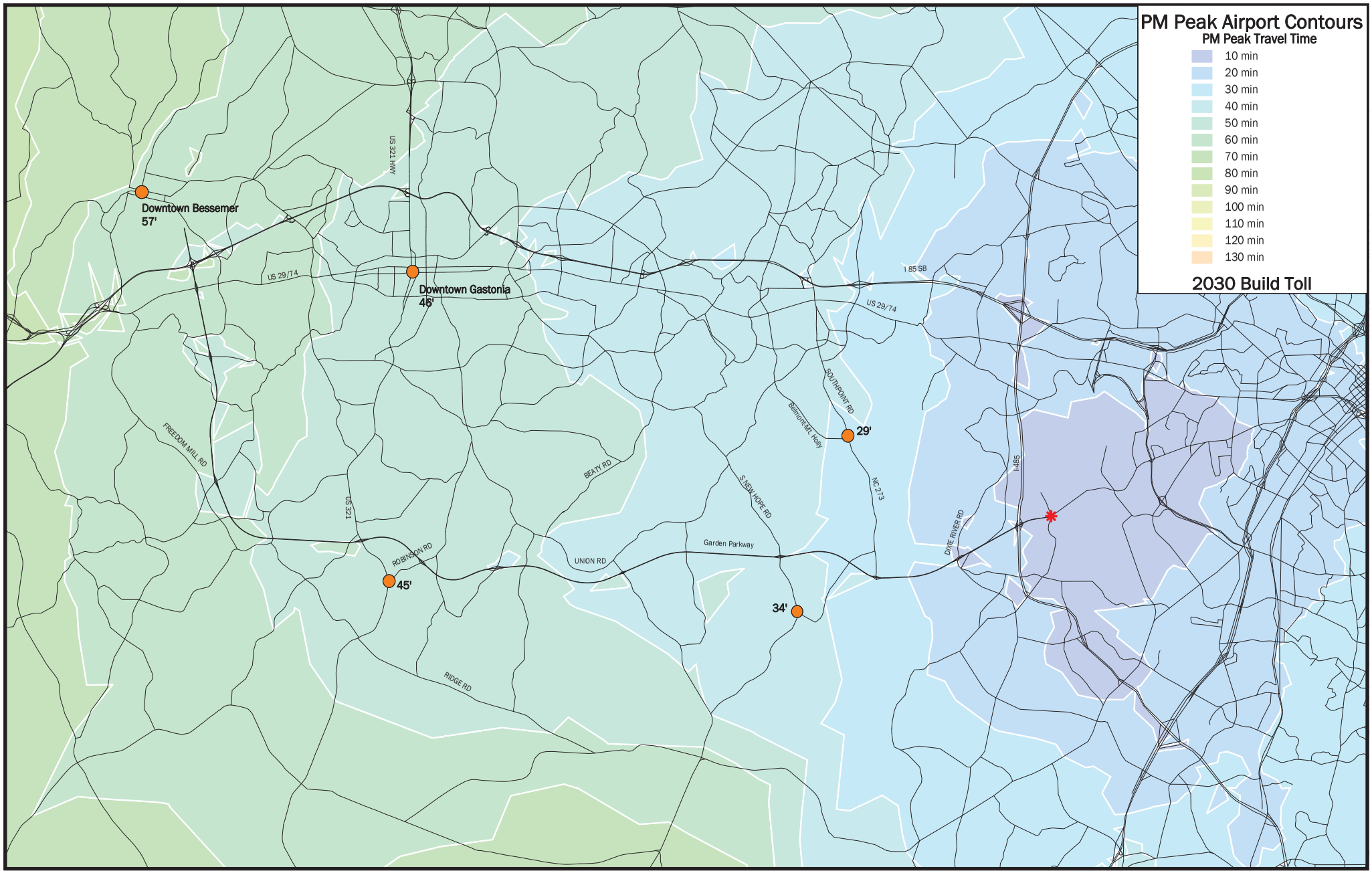
WILKINSON ROAD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RIDGE RD

ADDENDUM
Appendix D

Information Regarding Elimination of Corridor Segment K1D from Detailed Study

1. Letter from Duke Energy to NCTA – August 7, 2007
2. Memorandum from NCDOT Geotechnical Engineering Unit to NCTA – June 1, 2007
3. Teleconference Record – NCDOT Structures Unit and PBS&J – June 6, 2007
4. Memorandum from NCDOT Geotechnical Unit to NCDOT Project Development and Environmental Analysis Branch – September 15, 2005
5. Meeting Minutes – Turnpike Environmental Agency Coordination Meeting – September 27, 2007

Duke Energy®

526 Church Street
Charlotte, NC 28202

Mailing Address:
EC10C/PO Box 1006
Charlotte, NC 28202

August 7, 2007

Steve D. DeWitt, P.E.
Chief Engineer
North Carolina Turnpike Authority
1578 Mail Service Center
Raleigh, NC 27699-1578

Dear Mr. DeWitt:

Subject: North Carolina Turnpike Authority: TIP U-3321 Gaston East-West Connector
Allen Steam Station Future Operations

This letter is in response to your July 6, 2007 letter to Mr. Immel requesting information on future operations of the inactive ash basin. Upon review of your map of the proposed alternative segments, it appears that Segment K1D does cross over the retired ash basin. This retired ash basin is bounded by the coal stockpile to the north, the Catawba River to the east and the active ash basin to the south.

The Allen station will be adding new pollution control equipment, flue gas desulfurization – or scrubbers, to comply with the North Carolina Clean Smokestacks Act requirements. See, N.C. Gen. Stat. § 143-215.107D. In conjunction with this modernization, the Allen station is in the process of designing, permitting and constructing a storage area for Coal Combustion Products over the retired ash basin. Initial site investigations have been performed and design work is in progress in preparation for discussions with NCDENR. To obtain the required capacity we are planning to use the entire retired ash basin footprint and rise approximately 150 feet above the current elevation. The storage area will most likely be constructed with a double synthetic liner system with a witness zone between the liners. Construction is currently planned to start in late 2008.

The project team had evaluated several alternatives and sites for the future storage area, however this was the only viable site that provided the required capacity.

I hope I have addressed you request, however if you have any additional questions please feel free to contact me at (704) 382-8691 or e-mail tamanes@duke-energy.com.

Sincerely,

Theodore A. Manes
Project Manager

cc: Steve Immel, Plant Allen Station Manager
Tim Gause, Gaston District Manager

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 1, 2007

MEMORANDUM TO:	Jeff Dayton N.C. Turnpike Authority
FROM:	Njoroge Wainaina State Geotechnical Engineer NCDOT – Geotechnical Engineering Unit
STATE PROJECT:	U-3321
COUNTY:	Gaston
DESCRIPTION:	New Route from I-85 West of Gastonia to NC 160 In Mecklenburg County
SUBJECT:	Geotechnical Report – Segment K1D over the Retired Fly Ash Basin at Allen Steam Station

Duke Energy has conducted a site suitability study at the retired ash basin for the purpose of permitting a new landfill at the site. They have provided data from their subsurface investigation. I have reviewed the available data in order to provide comments to the Transit Authority regarding the feasibility of the site for roadway construction.

The site in question is on the property of Duke Energy, at the Allen Steam Station near Belmont, N.C. The site is a retired ash basin. It was active in the early to mid 1970's. It consists of three to four cells used for storage/disposal of ash waste generated by burning of coal for production of electricity. The ash was hydraulically placed with no engineering control relative to density/compaction. The area is now vegetated. It is bounded to the north, east, and south by dikes. The steam station's active coal pile is just north of the site, an active ash basin is to the south, and the Catawba River just to the east. The size of the site is roughly 2000 feet by 1650 feet.

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FAX: 919-250-4237

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Summary of test data for the ash material:

The ash deposit has a maximum thickness of about fifty eight feet.

Shear Strength parameters for the ash (Triaxial CU, normal stress):

C Lb/ft^2	φ Deg.
210	18.8
0	15.6
950	11.1
380	19.5

One dimensional consolidation: C_c ranged from 0.09 to 0.22. Wet unit weight ranged from 89.8 to 94.0 lb/ft^3.

Standard Penetration Test values in the ash were commonly around 2 blows per foot and did not tend to show any increase with depth.

Groundwater is present across the site at depths of one to ten feet below the existing ground surface.

Interpretation of the test data:

The data indicates that settlement/consolidation will be excessive and non-uniform. This would create an unacceptable condition in the form of waviness of the roadway surface and pavement failure.

The data further indicates considerable potential for embankment failure in the form of deep seated slope instability.

We conclude that roadway construction over the ash basin in its current state would not be feasible.

Potential treatment options include:

Bridge the entire fly ash basin: Bridging the fly ash basin is the only practical alternate that eliminates the risk of potential large magnitudes of differential settlement that may occur. There is risk in considering other treatment options of the fly ash to support an embankment and roadway. Other treatment options are discussed below, however, for feasibility study there is risk in considering them as they may or may not completely perform as expected.

Excavation and replacement of the ash material: This is largely impractical due to the large volumes involved and the high groundwater table.

Dynamic compaction: Minimally effective due to the depth of the ash material, high groundwater, and fine grained nature of the fly ash material.

Pile supported embankment: This is a potentially feasible solution very similar to bridging the fly ash basin. The number of piles would be substantial and more than for a bridge. Piles are typically on 5 foot centers. Many of the piles would be 50’ to 60’ in length. The footprint of the embankment is substantially larger than that of a bridge. Pile supported embankments are typically cost effective if the unsuitable soil is less than 30 feet in depth. A study of the corrosive potential of the ash would be required.

Soil mixing or jet grouting: This potentially could work but would be more expensive than bridging and the entire footprint of the embankment would require treatment.

Prepared by:

Clint Little
NCDOT Regional Geological Engineer

CONFERENCE CALL NOTES

GASTON EAST-WEST CONNECTOR
Gaston and Mecklenburg Counties

Date: June 6, 2007

Time: Afternoon

Place: Via Telephone

Subject: Construction Options Over the Allen Steam Station Fly Ash Basin

Attendees: Tom Koch NCDOT Structures Unit
Jill Gurak PBS&J

Notes:

The purpose of the meeting was to request input from Mr. Koch regarding the recent results of the geotechnical study on the Allen Steam Station Fly Ash Basin. The geotechnical study was performed by the Allen Steam Station. They agreed to share the results with the NC Turnpike Authority. Mr. Clint Little, from NCDOT's Geotechnical Unit reviewed the results of the geotechnical study for NCTA.

A memorandum dated June 1, 2007, from Njoroge Wainaima (NCDOT State Goetechnical Engineer) prepared by Mr. Little provides a summary of Mr. Little's review of the geotechnical data. This memorandum is attached. Mr. Little states that "roadway construction over the ash basin in its current state would not be feasible……Bridging the fly ash basin is the only practical alternate that eliminates the risk of potential large magnitudes of differential settlement that may occur." Pile supported embankments are also "a potentially feasible solution very similar to bridging the fly ash basin…Pile supported embankments are typically cost effective if the unsuitable soil is less than 30 feet in depth."

Based on Mr. Little's comments, Mr. Jeff Dayton of HNTB thought it may be beneficial to discuss these findings with a structural engineer. Mr. Dayton and Mr. Koch could not get in contact before Mr. Dayton left for vacation, so Mr. Dayton asked Mr. Koch to contact me.

Ms. Gurak provided Mr. Koch some background on the Gaston East-West Connector project and the Detailed Study Alternative that passes over the Allen Steam Station's fly ash basin (currently inactive). Currently, preliminary designs are being prepared in support of the Draft Environmental Impact Statement. Just to the west of the fly ash basin is an active rail line used by the steam station. West of the rail line is the Catawba River. These three features are directly adjacent to each other and the rail line and river both must be bridged.

Mr. Koch stated that pile supported embankments would not be feasible for a major roadway in this location due to the long length of embankment needed to traverse the fly ash basin and the depth of ash (up to 58 feet in depth).

A bridge could be feasible, but piers would need to be at least 60 feet long (vertically) to clear the depth of the ash basin. This type of bridge for the subject project would add substantial cost to the alternative over the fly ash basin. There is a bridge on the US 17 Windsor Bypass that is similar in height and length, although it is up in the air rather than sunk into the ground. That bridge is 1,700 feet long with cored slabs each 50 feet long.

Mr. Koch stated he can provide a basic cost for the bridge during the cost estimating stage of the preliminary engineering designs. It is not possible at this time to determine whether the alternatives over the fly ash basin (including the necessary bridging) would be significantly more expensive than the other detailed study alternatives. Once the preliminary designs are completed, construction and right of way costs can be estimated and compared for each detailed study alternative.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

September 15, 2005

LYNDO TIPPETT
SECRETARY

STATE PROJECT:	34922.1.1 (U-3321)
F. A. PROJECT:	STP-1213 (6)
COUNTY:	Gaston-Mecklenburg
DESCRIPTION:	Gaston County East-West Connector from I-85 West of Gastonia to NC 160 in Mecklenburg County

MEMORANDUM TO: Mr. Gregory J. Thorpe, PhD, Director
Project Development and Environmental Analysis Branch

FROM: John L. Pilipchuk, LG, PE, Western Regional Geotechnical Manager
Geotechnical Engineering Unit

Gregory A. Smith, LG, PE, GeoEnvironmental Supervisor
Geotechnical Engineering Unit

SUBJECT: Allen Steam Plant Fly Ash Basins

The GeoEnvironmental Section performed a non-intrusive investigation of two fly ash basins immediately south of Duke Power's Allen Steam Plant property near Belmont. Our findings are to partially assist in determining the suitability of Segments K1B-K1C-K1D for additional study. The northern basin is inactive and vegetated, while the southern basin currently receives approximately 12,000 gallons of fly ash slurry per day. The above segment alignments cross a portion of the northern basin.

Fly ash was placed in the basin via water slurry; the solid material settled out and the water was discharged from the basin into the Catawba River. Typical of such operations, Duke Power practiced no engineering control over consolidation of the ash. The resulting material has low strength and is generally unsuitable as a structural foundation without modifications. Roadway construction across the basin must therefore include considerable in-situ modifications to the ash's physical properties necessary for improved constructability or its excavation and replacement with suitable embankment material.

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TELEPHONE: 919-250-4088
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WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
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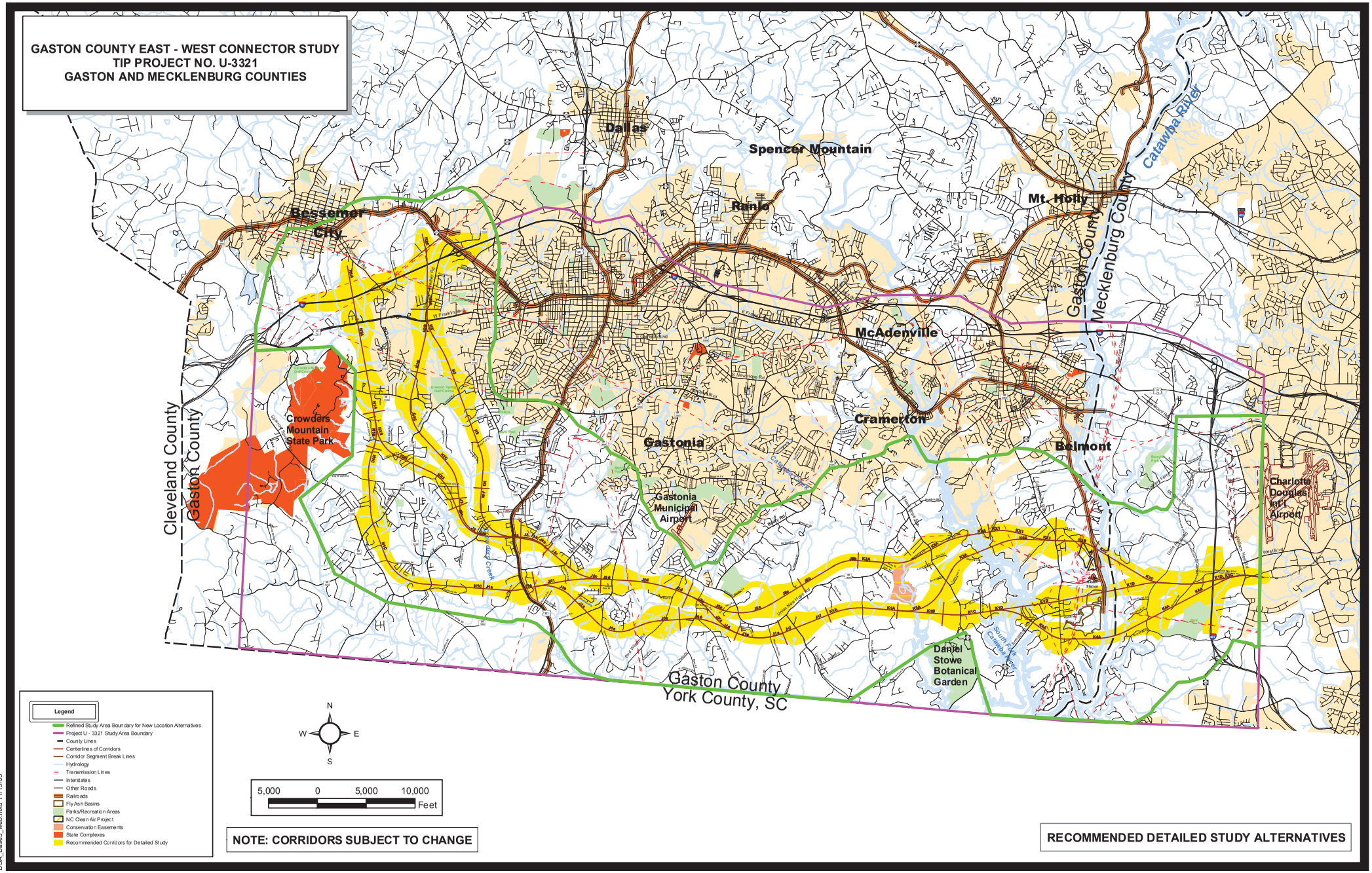
RALEIGH NC 27610

Fly ash usually exhibits physical properties suitable for embankment material when it has been properly dried and compacted. Environmental impacts regarding contaminant concentrations within fly ash generally are not a major concern, as with bottom ash, but appropriate chemical analyses must be performed prior to acceptance of the material.

A geotechnical/geoenvironmental field investigation can be scheduled if more detailed information is needed to make a final decision regarding the status of the segments in question. Please contact Greg Smith, GeoEnvironmental Supervisor, at (919) 250-4088 for additional geoenvironmental information or John Pilipchuk, Western Regional Geotechnical Manager, at (704) 455-8902 for additional geotechnical information.

GASTON COUNTY EAST - WEST CONNECTOR STUDY
TIP PROJECT NO. U-3321
GASTON AND MECKLENBURG COUNTIES



NOTE: CORRIDORS SUBJECT TO CHANGE

RECOMMENDED DETAILED STUDY ALTERNATIVES

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Turnpike Environmental Agency Coordination (TEAC) Meeting - West

MEETING MINUTES
□Draft□

Date□ September 2□, 200□
1□30 pm to 3□20 pm
NC Turnpike Authority Board Room

Pro□ect□ STIP U-3321 Gaston E-W Connector □STP-1213□□□

Gaston E-W Connector Spotlight:

Attendees:

George Hoops, FHWA
Donnie Brew, FHWA
Michael Culp, FHWA
Steve Lund, USACE
Scott McLendon, USACE
□athy Matthews, EPA
Chris Miltscher, EPA
Polly Lespinasse, NCDW□
Marla Chambers, NCWRC
Marella Buncick, USFWS
Dewayne Sykes, NCDOT-Roadway
Dan Grissom, NCDOT-Division 12
Eli□abeth Lusk, NCDOT-NEU
Tony Houser, NCDOT-Roadway
□ristina Solberg, NCDOT-PDEA
Teresa Hart, NCDOT-PDEA
Steve DeWitt, NCTA
Reid Simons, NCTA
□ennifer Harris, NCTA
Ross Andrews, EcoScience Corp.
Michael Gloden, EcoScience Corp.
□eff Dayton, HNTB
□ill Gurak, PBS□□
□im Bereis, PBS□□
Amanda Huber, PBS□□

Presentation Materials □Posted on TEAC Website□:

- Meeting Agenda
- PowerPoint Presentation
- Detailed Study Alternatives □DSAs□Display
- Handout 1- Elimination of Detailed Study Corridor Segment □1D
- Handout 2- NCDOT Geotechnical Report Update for Fly Ash Basin

General Discussion:

- **Purpose** □The purpose of the meeting was to provide further updates on recently completed/ongoing environmental and technical studies, recent correspondence with Duke Power supporting elimination of detailed study corridor segment □1D, and next steps towards the DEIS. The NCTA re□uested comments, issues and concerns from the agencies regarding environmental issues based on the recently completed/ongoing studies.

- **PowerPoint Presentation** □Topics highlighted in the PowerPoint presentation included a summary of the Natural Resources Technical Report □NRTR□, activities related to the recent □Rapanos□decision regarding

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additional USACE forms needed for jurisdictional resources, a summary of findings from the Draft Community Characteristics Report □CCR□, toll traffic forecasting status, information related to the Duke Power Allen Steam Station Fly Ash Basin, current studies/activities, upcoming/future studies and scheduling of field tours.

The presentation material is summari□ed below□

- **Natural Resources Overview**
  - Ross Andrews □EcoScience□provided an overview of the NRTR. Mr. Andrews discussed the various natural communities □terrestrial, animal, and a□uatic□in the study area as well as federally protected species, 303□d□listed streams and wetlands. Mr. Andrews summari□ed the organi□ation of the report and investigations by the three sub-consultants for the three project segments.
  - Mr. Andrews also discussed applying the □Rapanos□jurisdictional forms to the project, the coordination taking place with the USACE, and estimated time to complete additional forms.
  - The NRTR is near completion for submittal to NCDOT for review. After the report is finali□ed, hard copies will be provided to the agencies.

- **Community Characteristics Overview**
  - □im Bereis □PBS□□□provided a summary of findings from the Community Characteristics Report □CCR□including demographic information, community resources, proposed school locations within the corridors for two DSAs and an overview of neighborhoods and communities in the study area.
  - The CCR will be provided to NCDOT for comment. The next step is the Community Impact Assessment □CIA□.

- **Toll Traffic Forecasting Studies**
  - □ill Gurak □PBS□□□noted that MAB and Wilbur Smith Associates are coordinating regarding model assumptions, and that toll scenario traffic forecasts will be completed this year.

- **Duke Power Allen Steam Station Fly Ash Basin**
  - Ms. Gurak presented recently received information related to the Allen Steam Station that warrants consideration of eliminating detailed corridor Segment □1D from detailed study. Segment □1D traverses a retired Fly Ash Basin □approximately □□ acres in si□e□south of the Allen Steam Station main plant.
  - Duke Power provided their plans for the retired Fly Ash Basin in an August □, 200□ memo. Duke Power is planning to construct a landfill on the Fly Ash Basin site, with construction anticipated to begin in 200□. NCDOT□s Geotechnical Unit reviewed the memo and concluded roadway construction over the retired basin would not be feasible. Due to the interference with plant operations and infeasibility for constructing an alignment above the proposed 150-foot high landfill elevation, the NCTA proposed eliminating segment □1D from further consideration for detailed study. This would eliminate □of the 1□DSAs □□, 2□, □5, and □□□. All in attendance agreed that based on the information provided by Duke Power, corridor segment □1D is not feasible, and it is reasonable to eliminate the DSAs that include Segment □1D from further study.

- **Upcoming and Current Studies□Activities**
  - Supplemental Historic Architectural Survey Work is anticipated to be complete in December for additional properties being studied for eligibility. An eligibility meeting with HPO will be scheduled when that work is nearing completion.
  - Louis Berger is undertaking the □ualitative Indirect and Cumulative Effects analysis, and a draft of the report is scheduled to be complete in □anuary.
  - The Preliminary Hydraulic Analysis Report is on schedule for completion in late October.
  - Existing Noise Measurements are scheduled for October.
  - Work on Farmland Soils and Natural Resource Conservation Service coordination is underway.
  - After completion of the field verification meetings, additional progress on the preliminary designs and determinations of eligibility by the HPO, it is believed that some of the DSA corridors may be candidates for elimination prior to inclusion in the DEIS. As this information becomes available, it will be presented to the environmental agencies. This information will likely be presented near the end of the year or beginning of 200□.

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- Natural resources field tours will be scheduled as the agencies provide their availability. No representative from HPO was in attendance. NCTA will follow-up and solicit available dates from the agencies and contact HPO regarding their interest in a tour for historic resources.

- **Wrap-up□Next Steps**
  - The October TEAC meeting is anticipated to be a snapshot of project activities.
  - Concurrence Point 2A Meeting is tentatively scheduled for early 200□.
  - A Preliminary DEIS is scheduled for delivery to the NCTA in □une 200□.

Q□A:

What is the status of the Biological Conclusion for bald eagles?
Bald eagle surveys were conducted in 200□/200□ and no evidence of bald eagles nests were found in the study corridor. In addition, following these surveys, bald eagles were de-listed.

Do the attendees agree that Detailed Study Corridor Segment K1D should be eliminated from further study?
All attendees were in agreement that, based on the information provided by Duke Power, corridor Segment □1D is not feasible, and it is reasonable to eliminate the DSAs that include Segment □1D from further study,

The DEIS needs to address the infeasibility of alternatives that involve improving existing roadways due to the project now being proposed as a toll facility.
This will be discussed in Chapter 2 of the DEIS.

Is this project still in the Merger Process?
Yes, this project is still in the Merger Process. □A discussion ensued whether previous decisions by some agencies to □abstain□at CP 2 precluded those abstaining agencies from participating in future concurrence points in the process.□ Since this project is moving forward as a toll facility □and will be reflected as such in the updated LRTP□, and because improving existing roadways is not feasible for a toll facility according to state law, those agencies that previously abstained agreed that there is an advantage to leaving the project in the Merger Process. A decision was made to bridge the gap between previous Concurrence Point 2 activities and Concurrence forms, and the □new□set of assumptions moving forward. This could be accomplished through a memorandum that describes the history of CP 2 for the project, and activities with regard to DSAs to date. This memo will not only provide history, but will essentially document a □new□CP 2 to reflect the tolling only option and the elimination of Segment □1D.

Did Daniel Stowe Botanical Gardens (DSBG) have any concerns with respect to access? If so, please provide a summary of their concerns to the merger team.
DSBG supports this project. A May 1□, 2003 scoping letter from DSBG is provided with the minutes.

Does the Purpose and Need have to be revisited because of tolling, and what are the implications with the new Section 6002 requirements?
No, because the project□s Purpose and Need is still valid whether the project is tolled or not. Tolling can/will be used in screening the feasibility of alternatives. Notices of Intent □NOI□issued after August 10, 2005 are subject to Section □002. The NOI for Gaston was issued on April 2□, 200□. Per FHWA□s re□uest, a memo will be developed to document early coordination efforts for this project.

When will the NRTR be available?
Once approved by the NCDOT, hard copies will be provided to the team, and it will be posted to the TEAC website. This should be available in October or November.

Previous Action Items:

- None

New Action Items:

- There was a lot of interest in scheduling field tours for natural resources. Agencies will send □ennifer Harris available dates in November and early December for a two-day site visit.

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- Provide a summary of public and agency coordination activities that have occurred for this project up to and through September 20, 2005 □resolution of Concurrence Point 2□.
- Develop a memorandum to document the history of Concurrence Point 2 for this project.
- Provide hard copies of the NRTR to the agencies.

Resolutions:

- Attendees all agreed that construction of a roadway along Detailed Study Corridor Segment □1D is not feasible and Detailed Study Alternatives that contain this segment □DSAs □, 2□, □5, and □□□can be eliminated from further study.

DRAFT