PLAN 2040 Conformity Determination Report

EXHIBIT 1A

Interagency Review of Planning Assumptions

Used in Regional Emissions Analysis

For Atlanta Eight-Hour Ozone Nonattainment Area

Interagency Consultation Meeting

Atlanta Regional Commission

The ARC will be conducting a conformity analysis under the eight-hour ozone standard as part of the conformity determination for the PLAN 2040 RTP / FY 2012-2017 TIP for the 20 county nonattainment area.

Below is a detailed listing of the procedures and planning assumptions for the upcoming conformity analysis of the PLAN 2040 RTP.

Section 1: General Methods and Assumptions

1) Modeling Methodology: Estimate link-level VMT and congested flow speeds using ARC 20-county travel demand model that corresponds to the 20-county eight-hour ozone nonattainment area

2) Conformity Test
   a) Nonattainment Classification - Moderate
   b) Motor Vehicle Emission Budget (MVEB) Test[1]
      i. NOx: 306.75 tpd
      ii. VOC: 172.27 tpd

3) Conformity Analysis Years: 2016, 2020, 2030, 2040

4) Modeling Start Date: March 2011. This start date is defined by the ARC as the initiation of the first model run for the Plan 2040 RTP, begun when all datasets needed for the model run were completed.

5) Interagency Consensus on Planning Assumptions: January 25, 2011.

Section 2: Travel Demand Modeling Assumptions

1) Calibration Year: 2000 (with some 2005 interim validations and benchmarking thereafter)
2) Project Listing: Project listings will be provided in electronic format to Interagency Consultation Group for review in the first quarter of 2011.
   a) Regionally Significant and Federally Funded
   b) Regionally Significant and Non-Federally Funded
3) Demographic Data: Provided as separate attachment
4) Speed Data: Free-flow Speed by Area Type and Facility Type[2]

[1] MVEB established as part of Atlanta Early Progress State Implementation Plan for year 2006. Federal Register notice of adequacy published April 9, 2007 (72 FR 17550), with an effective date of April 24, 2007.

[2] Within the ARC travel demand and emission modeling process, free flow speeds are adjusted to reflect the increase in delay and travel time on a roadway segment as traffic volumes build and congestion levels increase. Link-level congested flow speeds are used to estimate NOx and VOC emissions as required by Sections 93.122(b)(i)(iv) and 93.122(b)(2) of the Transportation Conformity Rule.

		Area Type							
	Facility Type	Urban Very High Density	Urban High Density	Urban Medium Density	Urban Low Density	Suburban	Exurban	Rural	Metered Ramps
0	Zone Centroid Connectors	7	11	11	11	11	14	14	
1	Interstate / Freeway Free Flow	55	58	58	61	61	63	65	
2	Parkway	50	50	55	55	57	60	60	
3	HOV Buffer Separated	55	58	58	61	61	63	65	
4	HOV Barrier Separated	55	58	58	61	61	63	65	
5	High Speed Ramp / CD Road	50	50	55	55	57	60	60	15
6	Medium Speed Ramp	50	50	50	50	50	50	50	10
7	Low Speed Ramp	40	40	40	40	40	40	40	10
8	Loop Ramp	30	30	30	30	30	30	30	10
9	Off Ramp w/ Intersection	25	25	25	25	25	25	25	
10	On Ramp w/ Intersection	40	40	40	40	40	40	40	5
11	Expressway	40	42	45	48	52	55	60	
12	Principal Arterial - Class I	26	30	33	36	42	46	55	
13	Principal Arterial - Class II	24	27	30	34	40	44	48	
14	Minor Arterial - Class I	22	25	28	31	38	42	45	
15	Minor Arterial - Class II	20	23	26	29	34	38	42	
16	HOV - Arterial (all classes)	20	27	30	33	36	39	42	
17	Major Collector	18	22	25	28	31	34	38	
18	Minor Collector	15	18	21	24	27	30	35	
19	Planned Ramps w/ Intersections	30	30	30	30	30	30	30	5
20	Planned Directional Ramps	45	45	45	45	45	45	45	10

5) Transit Modeling
   a) Model recalibrated to 2000 transit ridership estimates, provided by transit operators
   b) Reflects results from the 2001-2002 Transit On Board Survey, with preliminary adjustments from 2009 Transit On Board Survey
   c) Routes updated to reflect current operating plans

d) Transit mode split is estimated using the mode choice model
   i) Estimates individual modal trips from the person trip movements developed in the trip distribution model.
   ii) Composed of three nested logit models:
      (1) Home based work trips, which includes home based university trips;
      (2) Home based other trips, which include home based other, home based shopping and home based grade school; and
      (3) Non-home based trips.
   iii) The mode choice model is organized in terms of seven characteristics:
      (1) Mathematical structure;
      (2) Trip purposes and choice sets;
      (3) Limitations on choice sets;
      (4) Analysis of transit access;
      (5) Treatment of HOV lanes;
      (6) Stratification by income groups; and
      (7) Analysis of alternative transit paths.

e) Transit Fare Modeling
   i) Fare structure and operating plans supplied by the local transit operators
      (1) Fares remain constant over time, across all network years
      (2) Fares reflect current transit operating plans
   ii) Transit fare structure uses a fare matrix on a zone to zone level with a universal fare structure (flat fare) for all bus and rail lines
      (1) Changes to the existing fare structure and service frequency are coded directly into the model
      (2) Current fare values in the model are weighted according to the percentage of riders using a discounted fare pass; changes to these assumptions can be incorporated directly into the model
      (3) Peak and off-peak fares are equivalent

f) 2009 Transit On Board Survey interim adjustments
   i) Update of regional transit travel targets based on a preliminary expansion of the raw on-board survey data
      (1) Modifications to express bus and BRT transfer constants
      (2) Modifications to travel demand model estimates of zero-car transit work trips
      (3) Modifications to travel demand model estimates of kiss-and-ride passenger access and use of transit system
      (4) Overall evaluation of all modal constants
      (5) Refinement to park-and-ride lot assumptions
      (6) Updated walk connector and percent walk procedures
   ii) Modified transit skimming procedures
   iii) Re-calibrated air passenger model
   iv) Assessment of travel demand model understanding of market segments and travel patterns relative to the on-board survey records

Section 3: Emissions Modeling Assumptions

1) Emissions Factor Model: MOBILE6.2.03
2) Eight Hour Ozone Standard MOBILE6.2.03 Inputs (13-county portion)[3]
   a) Average hourly temperature and relative humidity and average daily barometric pressure for the 10 highest ozone days, 2000 – 2002
   b) Stage II refueling
      i) Started in 1992
      ii) Three phase in years
      iii) 81% efficiency
   c) Anti-tampering program
      i) Started in 1982
      ii) Covers model years 1975 – 1995
      iii) All LDG vehicle types are covered
      iv) Annual program
      v) 97% compliance
      vi) Catalyst removal only
   d) I/M Program
      i) Exhaust and Evaporative (OBD and gas cap pressure test) for 1996 and newer vehicles
         (1) Began in 1982
         (2) Annual inspection required
         (3) Computerized test and repair OBD – Exhaust
         (4) Computerized test and repair OBD & GC - Evaporative
         (5) Applies to all LDG vehicle types
         (6) Three year grace period
         (7) 3% waiver rate for all vehicles – Exhaust test
         (8) 0% waiver rate for all vehicles – Evaporative test
         (9) 97% compliance
      ii) Exhaust and Evaporative test for 1975 – 1995 vehicles
         (1) Began in 1982
         (2) Annual inspection required
         (3) Computerized test and repair ASM 2525/5015 Phase-in – Exhaust
         (4) Computerized test and repair GC – Evaporative
         (5) Applies to all LDG vehicle types
         (6) 3% waiver rate for all vehicles – Exhaust
         (7) 0% waiver rate for all vehicles – Evaporative
         (8) 97% compliance
         (9) 25 year and older model years are exempt
   e) Fuel - Phase 2 Low Sulfur, Low RVP Georgia Gasoline[4]

[3] For the eight-hour ozone standard there are two sets of MOBILE6 input files, one for the 13 counties that make up the former one-hour ozone nonattainment area in which a specific set of emission control measures is in place and one for the seven "ring" counties. For each set, the input files contain the same assumptions for all analysis years (2010, 2020, and 2030).

[4] In 2002, Georgia's two-phase gasoline sulfur control program limited average sulfur in gasoline sold in the 13-county Atlanta area and in 12 surrounding counties to 150 parts per million (ppm). In addition, there was a

i) 100% market share of 10% ethanol-blend gasoline (E10) assumed
ii) volatility waiver for E10 allows 1.0 psi RVP increase

f) 2002 regional fleet age distribution
i) Derived from R.L. Polk & Co. registration data for 13-county area
ii) Applied to 15 of the 16 MOBILE6.2.03 composite vehicle classifications – LDV, LDT1, LDT2, LDT3, LDT4, HDV2B, HDV3, HDV4, HDV5, HDV6, HDV7, HDV8, HDBS, HDBT, MC
(1) Default for HDV8B
(2) Default VMT fractions

3) Eight Hour Ozone Standard MOBILE6.2.03 Inputs (7-county portion)
a) Average hourly temperature and relative humidity and average daily barometric pressure for the 10 highest ozone days, 2000 – 2002
b) No Stage II refueling
c) No anti-tampering program
d) No I/M program
e) Fuel - Phase 2 Low Sulfur, Low RVP Georgia Gasoline
i) 100% market share of 10% ethanol-blend gasoline (E10) assumed
ii) volatility waiver for E10 allows 1.0 psi RVP increase

f) 2002 regional fleet age distribution
i) Derived from R.L. Polk & Co. registration data for 7 county area
ii) Applied to 15 of the 16 MOBILE6.2.03 composite vehicle classifications – LDV, LDT1, LDT2, LDT3, LDT4, HDV2B, HDV3, HDV4, HDV5, HDV6, HDV7, HDV8, HDBS, HDBT, MC
(1) Default for HDV8B
(2) Default VMT fractions

4) VMT adjustment factors
a) Calculated for year 2000
b) HPMS adjustment in base year of calibration in accordance with Section 93.122(b)(3) of the Transportation Conformity Rule which recommends that HPMS adjustment factors be developed to reconcile travel model estimates of VMT in base year of validation to HPMS estimates for the same period
c) Summer (seasonal) adjustment to convert from average annual VMT to summer-season VMT[5]
d) Factors applied to VMT estimates generated by ARC travel demand model for 13-county portion and 7-county portion of 20-county modeling domain, separately.

VMT Adjustment Factors

Functional Class Name	Factor for 13 County Area	Factor for 7 County Area
Rural Interstate	0.67	0.89
Rural Principal Arterial	1.02	0.99

seasonal (June 1 to September 15) 7.0 pounds per square inch (psi) Reid vapor pressure cap on gasoline sold in this Phase 1 area. In 2003, Phase 2 of Georgia's gasoline rule reduced average sulfur to 30 ppm year-round and added 20 additional counties to the sulfur and RVP control program.

[5] *Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources*, Section 3.4.2.6, EPA420-R-92-009, USEPA Office of Air and Radiation, Office of Mobile Sources, 1992.

Rural Min. Arterial	1.16	0.98
Rural Major Collector	0.88	1.81
Rural Minor Collector	1.07	1.81
Rural Local	0.64	1.10
Urban Interstate	1.05	0.86
Urban, Other Freeway	2.44	0.85
Urban Principal Arterial	0.67	0.97
Urban Minor Arterial	1.21	0.96
Urbanized Collector	1.21	1.80
Urbanized Local	0.95	1.06

5) Off-Model Calculations
   a) Senior I/M Exemption (emissions debit)
      i) The Senior I/M Exemption calculated for year 2002 is conservatively high and will be added to the regional emission inventories for each analysis year.

6) TCMs
   a) No additional credit is taken in the emissions modeling process for SIP TCMs
   b) Listed below is a TCM status report

Description	ARC Project #	GDOT PI #	TIP	Status
HOV LANES Sponsor – GDOT	AR 073B	713760	98-00, 99-01	Under construction*
I-85N from Chamblee-Tucker Rd to SR 316 (HOT Lanes), I-85 @ SR 316, Interchange Reconstruction	GW-AR 053A GW-AR 053B	110530	01-03 02-04 03-05 05-10	Implemented Implemented
ATLANTIC STATION, 17th STREET BRIDGE Sponsor – City of Atlanta A – Bridge and Southbound off ramps C – Northside Dr over Norfolk Southern Railroad to Atlantic Station D – Northbound off ramp to 17th Street Bridge, Williams St Relocation	AT-AR 224A AT-AR 224C AT-AR 224D	714190 0001297 0001298	00-02 01-03 02-04 03-05 05-10	A – Implemented C – Implemented D – Implemented
CLEAN FUEL BUSES Sponsors – MARTA and CCT	M-AR 232	N/A	94-95	Implemented
EXPRESS BUS ROUTES Sponsor – MARTA	M-R 160 M-R 162	770632 770632	94-96	Implemented
IMPROVE / EXPAND BUS SERVICE Sponsor – MARTA	M-R 161	770633	96-98	Implemented
INTERSECTION UPGRADE, COORDINATION & COMPUTERIZATION Sponsor(s) – GDOT in partnership with local	AT 089	04Y108	93-95	Implemented
	CL 094	770600	94-96	Implemented
	CO 249	770601	94-96	Implemented

Description	ARC Project #	GDOT PI #	TIP	Status
Jurisdictions	DK 118	770603	94-96	Implemented
	FN 086	770605	94-96	Implemented
	FS 068	770605	94-96	Implemented
	GW 135	170950	94-96	Implemented
	R 098	04418	93-95	Implemented
	R 098	770391	94-96	Implemented
ITS – ADVANCED TRAFFIC MANAGEMENT SYSTEM / INCIDENT MANAGEMENT PROGRAM Sponsor – GDOT I-75/I-85 within I-285, Northern portion of I-285 between I-75 and I-85	R 098	770391	94-96	Implemented
CLEAN FUELS REVOLVING LOAN PROGRAM Sponsor – GEFA	R 195	770790, 770795	96-98	Implemented
HOV LANES Sponsor – GDOT I-75 and I-85 within I-285	R 174	320H94	94-96	Implemented
PARK & RIDE LOTS Sponsor(s) – Douglas & Rockdale Counties Douglas County – Chapel Hill @ I-20, Rockdale County – Sigman @ I-20	DO 211C		94-96	Implemented
REGIONAL COMMUTE OPTIONS & HOV MARKETING PROGRAMS Sponsor(s) – GDOT	R 159	770631	94-96	Implemented
SIGNAL PREEMPTION Sponsor – MARTA	M-R 164	770636	94-96	Implemented
TRANSIT INCENTIVES PROGRAM Sponsor - MARTA	M-AR 231A M-AR 231B	771031 771119	98-00 99-01 00-02	Implemented
TRANSPORTATION MANAGEMENT ASSOCIATIONS Sponsor – ARC	AR 221A AR 221B AR 221C AR 221E AR 221F	771033 771140 771141 0000570 0000571	98-00 99-01 00-02 01-03	Implemented
UNIVERSITY RIDESHARE PROGRAM Sponsor - ARC	AR 220A AR 220B AR 220C AR 220D AR 200E	771032 771113 0000351 0000567 0000568	98-00 99-01 00-02 01-03 02-04	Implemented

* This project was substituted for the HOV lane. The substitution was adopted on November 5, 2009 by EPA's concurrence letter.

EXHIBIT 1B

Interagency Review of Planning Assumptions

Used in Regional Emissions Analysis

For Atlanta PM2.5 Nonattainment Area

Interagency Consultation Meeting

Atlanta Regional Commission

The ARC will be conducting a conformity analysis under the PM2.5 standard as part of the conformity determination for the PLAN 2040 RTP / FY 2012-2017 TIP for the 20 county nonattainment area.

Below is a detailed listing of the procedures and planning assumptions for the upcoming conformity analysis of the PLAN 2040 RTP.

Section 1: General Methods and Assumptions

1) Modeling Methodology
   a) Estimate link-level VMT and congested flow speeds using ARC 20-county travel demand model that corresponds to the 20 *full-county* portion of the PM2.5 nonattainment area
   b) Estimate VMT for Heard and Putnam *partial-county* areas using historical traffic count data derived from GDOT's Annual Traffic Count (ATC) program database
      i) ATC data provided by county by traffic count station
      ii) Traffic count growth trends for each analysis year estimated through linear regression using the most recent six years of consecutive traffic count data available
   c) Estimate congested flow speeds for Heard and Putnam *partial-county* areas using VMT-weighted speed by HPMS functional class, extrapolated from ARC travel demand model for each analysis year
2) Conformity Test
   a) Nonattainment Classification - Basic
      i) No-Greater-Than-Base-Year interim emissions test
         (1) 2002 base year
         (2) Base year emissions to be developed as part of conformity analysis as provided for in preamble to the eight-hour ozone and PM2.5 Transportation Conformity Rule[6]. Base year emissions will be established using the same modeling methodology presented above.
3) Conformity Analysis Years: 2016, 2020, 2030, 2040
4) Modeling Start Date: March 2011. This start date is defined by the ARC as the initiation of the first model run for the PLAN 2040 RTP Update and FY 2008-2013 TIP, begun when all datasets needed for the model run were completed.
5) Interagency Consensus on Planning Assumptions: January 25, 2011

Section 2: Travel Demand Modeling Assumptions

1) Calibration Year: 2000 (with some 2005 interim validations and benchmarking thereafter)
2) Project Listing: Project listings will be provided in electronic format to Interagency Consultation Group for review in the first quarter of 2011.
   a) Regionally Significant and Federally Funded
   b) Regionally Significant and Non-Federally Funded
3) Demographic Data: Provided as separate attachment
4) Speed Data: Free-flow Speed by Area Type and Facility Type[7]

[6] Federal Register, Vol. 69, No.126, July 1, 2004, p. 40015, first column.

[7] Within the ARC travel demand and emission modeling process, free flow speeds are adjusted to reflect the increase in delay and travel time on a roadway segment as traffic volumes build and congestion levels increase. Link-level congested flow speeds are used to estimate NOx and VOC emissions as required by Sections 93.122(b)(i)(iv) and 93.122(b)(2) of the Transportation Conformity Rule.

		Area Type							
	Facility Type	Urban Very High Density	Urban High Density	Urban Medium Density	Urban Low Density	Suburban	Exurban	Rural	Metered Ramps
0	Zone Centroid Connectors	7	11	11	11	11	14	14	
1	Interstate / Freeway Free Flow	55	58	58	61	61	63	65	
2	Parkway	50	50	55	55	57	60	60	
3	HOV Buffer Separated	55	58	58	61	61	63	65	
4	HOV Barrier Separated	55	58	58	61	61	63	65	
5	High Speed Ramp / CD Road	50	50	55	55	57	60	60	15
6	Medium Speed Ramp	50	50	50	50	50	50	50	10
7	Low Speed Ramp	40	40	40	40	40	40	40	10
8	Loop Ramp	30	30	30	30	30	30	30	10
9	Off Ramp w/ Intersection	25	25	25	25	25	25	25	
10	On Ramp w/ Intersection	40	40	40	40	40	40	40	5
11	Expressway	40	42	45	48	52	55	60	
12	Principal Arterial - Class I	26	30	33	36	42	46	55	
13	Principal Arterial - Class II	24	27	30	34	40	44	48	
14	Minor Arterial - Class I	22	25	28	31	38	42	45	
15	Minor Arterial - Class II	20	23	26	29	34	38	42	
16	HOV - Arterial (all classes)	20	27	30	33	36	39	42	
17	Major Collector	18	22	25	28	31	34	38	
18	Minor Collector	15	18	21	24	27	30	35	
19	Planned Ramps w/ Intersections	30	30	30	30	30	30	30	5
20	Planned Directional Ramps	45	45	45	45	45	45	45	10

5) Transit Modeling
   a) Model recalibrated to 2000 transit ridership estimates, provided by transit operators
   b) Reflects results from the 2001-2002 Transit On Board Survey, with preliminary adjustments from 2009 Transit On Board Survey
   c) Routes updated to reflect current operating plans
   d) Transit mode split is estimated using the mode choice model
      i) Estimates individual modal trips from the person trip movements developed in the trip distribution model.
      ii) Composed of three nested logit models:
         (1) Home based work trips, which includes home based university trips;
         (2) Home based other trips, which include home based other, home based shopping and home based grade school; and
         (3) Non-home based trips.
      iii) The mode choice model is organized in terms of seven characteristics:
         (1) Mathematical structure;
         (2) Trip purposes and choice sets;
         (3) Limitations on choice sets;
         (4) Analysis of transit access;
         (5) Treatment of HOV lanes;
         (6) Stratification by income groups; and
         (7) Analysis of alternative transit paths.
   e) Transit Fare Modeling
      i) Fare structure and operating plans supplied by the local transit operators
         (1) Fares remain constant over time, across all network years
         (2) Fares reflect current transit operating plans
      ii) Transit fare structure uses a fare matrix on a zone to zone level with a universal fare structure (flat fare) for all bus and rail lines
         (1) Changes to the existing fare structure and service frequency are coded directly into the model
         (2) Current fare values in the model are weighted according to the percentage of riders using a discounted fare pass; changes to these assumptions can be incorporated directly into the model
         (3) Peak and off-peak fares are equivalent
   f) 2009 Transit On Board Survey interim adjustments
      i) Update of regional transit travel targets based on a preliminary expansion of the raw on-board survey data
         (1) Modifications to express bus and BRT transfer constants
         (2) Modifications to travel demand model estimates of zero-car transit work trips
         (3) Modifications to travel demand model estimates of kiss-and-ride passenger access and use of transit system
         (4) Overall evaluation of all modal constants
         (5) Refinement to park-and-ride lot assumptions
         (6) Updated walk connector and percent walk procedures
      ii) Modified transit skimming procedures
      iii) Re-calibrated air passenger model
      iv) Assessment of travel demand model understanding of market segments and travel patterns relative to the on-board survey records

Section 3: Emissions Modeling Assumptions

1) Emissions Factor Model: MOBILE6.2.03
2) PM2.5 Standard MOBILE6.2.03 Inputs (13-county portion)[8]

Annual averages of the hourly average temperature and relative humidity for each hour of each month; and annual average of the daily average barometric pressure for each month; 2000 – 2002

a) Stage II refueling
    i) Started in 1992
    ii) Three phase in years
    iii) 81% efficiency
b) Anti-tampering program
    i) Started in 1982
    ii) Covers model years 1975 – 1995
    iii) All LDG vehicle types are covered
    iv) Annual program
    v) 97% compliance
    vi) Catalyst removal only
c) I/M Program
    i) Exhaust and Evaporative (OBD and gas cap pressure test) for 1996 and newer vehicles
        (1) Began in 1982
        (2) Annual inspection required
        (3) Computerized test and repair OBD – Exhaust
        (4) Computerized test and repair OBD & GC - Evaporative
        (5) Applies to all LDG vehicle types
        (6) Three year grace period
        (7) 3% waiver rate for all vehicles – Exhaust test
        (8) 0% waiver rate for all vehicles – Evaporative test
        (9) 97% compliance
    ii) Exhaust and Evaporative test for 1975 – 1995 vehicles
        (1) Began in 1982
        (2) Annual inspection required
        (3) Computerized test and repair ASM 2525/5015 Phase-in – Exhaust
        (4) Computerized test and repair GC – Evaporative
        (5) Applies to all LDG vehicle types
        (6) 3% waiver rate for all vehicles – Exhaust
        (7) 0% waiver rate for all vehicles – Evaporative
        (8) 97% compliance
        (9) 25 year and older model years are exempt
d) Fuel[9]

[8] For the PM2.5 standard there are two sets of MOBILE6 input files, one for the 13 counties that make up the former one-hour ozone nonattainment area in which a specific set of emission control measures is in place and one for the seven "ring" counties plus the portions of Heard and Putnam counties. For each set, the input files contain the same assumptions for all analysis years (2010, 2020, and 2030).

[9] In 2002, Georgia's two-phase gasoline sulfur control program limited average sulfur in gasoline sold in the 13-county Atlanta area and in 12 surrounding counties to 150 parts per million (ppm). In addition, there was a

i) 2002 Base Year: Annual average sulfur and Reid Vapor Pressure (RVP) based on caps in Georgia's Low Sulfur, Low RVP gasoline marketing rule (June – September) and on the monthly sulfur and RVP values in USEPA's National Mobile Inventory Model (NMIM)[10] database (October – May)
ii) 2010 and later: Phase 2 Low Sulfur (30ppm) Georgia Gasoline year-round; annual average RVP based on caps in Georgia's gasoline marketing rule (June-September) and on the monthly RVP values in the NMIM database (October-May)
iii) Diesel sulfur: average of the monthly values in USEPA's NMIM database for each analysis year

e) 2002 regional fleet age distribution
i) Derived from R.L. Polk & Co. registration data for 13-county area
ii) Applied to 15 of the 16 MOBILE6.2.03 composite vehicle classifications – LDV, LDT1, LDT2, LDT3, LDT4, HDV2B, HDV3, HDV4, HDV5, HDV6, HDV7, HDV8, HDBS, HDBT, MC
(1) Default for HDV8B
(2) Default VMT fractions

3) PM2.5 Standard MOBILE6.2.03 Inputs (7-county and partial-county portions)

g) Annual averages of the hourly average temperature and relative humidity for each hour of each month; and annual average of the daily average barometric pressure for each month; 2000 – 2002
h) No Stage II refueling
i) No anti-tampering program
j) No I/M program
k) Fuel
i) 2002 Base Year[11]: Annual average sulfur and RVP based on caps in Georgia's Low Sulfur, Low RVP gasoline marketing rule (June – September) and on the monthly sulfur and RVP values in USEPA's NMIM database (October – May)
ii) 2010 and later: Phase 2 Low Sulfur (30ppm) Georgia Gasoline year-round; annual average RVP based on caps in Georgia's gasoline marketing rule (June-September) and on the monthly RVP values in the NMIM database (October-May)
iii) Diesel sulfur: average of the monthly values in USEPA's NMIM database for each analysis year

l) 2002 regional fleet age distribution
i) Derived from R.L. Polk & Co. registration data for 9 counties (Carroll, Bartow, Hall, Barrow, Walton, Newton, Spalding, Heard, and Putnam)
ii) Applied to 15 of the 16 MOBILE6.2 composite vehicle classifications – LDV, LDT1, LDT2, LDT3, LDT4, HDV2B, HDV3, HDV4, HDV5, HDV6, HDV7, HDV8, HDBS, HDBT, MC
(1) Default for HDV8B

seasonal (June 1 to September 15) 7.0 pounds per square inch (psi) Reid vapor pressure cap on gasoline sold in this Phase 1 area. In 2003, Phase 2 of Georgia's gasoline rule reduced average sulfur to 30 ppm year-round and added 20 additional counties (including Putnam) to the sulfur and RVP control program. Because MOBILE6 shows no effect of oxygenate (e.g., ethanol) on PM2.5, ethanol-blend gasoline was not modeled for the PM2.5 regional emissions analysis.

[10] http://www.epa.gov/oms/nmim.htm

[11] For the 2002 base year *only*, separate emission factors were run for Putnam County because the Low-Sulfur, Low RVP Georgia Gasoline program was not implemented in the county until 2003. This resulted in a fuel blend in Putnam County in 2002 that is not low-sulfur and that has a higher average annual RVP.

(2) Default VMT fractions

4) VMT adjustment factors
   a) Calculated for year 2000
      i) Reflects Section 93.122(b)(3) of the Transportation Conformity Rule which recommends that HPMS adjustment factors be developed to reconcile travel model estimates of VMT in base year of validation to HPMS estimates for the same period.
      ii) Factors applied to VMT estimates generated by ARC travel demand model for 13-county portion and 7-county portion of 20-county modeling domain, separately.

VMT Adjustment Factors

Functional Class Name	Factor for 13 County Area	Factor for 7 County Area
Rural Interstate	0.64	0.85
Rural Prin. Arterial	1.00	0.97
Rural Min. Arterial	1.14	0.97
Rural Major Collector	0.87	1.80
Rural Minor Collector	1.06	1.80
Rural Local	0.64	1.09
Urb. Interstate	1.03	0.85
Urb. Other Fwy	2.38	0.85
Urb. Prin. Arterial	0.68	0.97
Urb. Min. Arterial	1.22	0.97
Urbanized Collector	1.24	1.80
Urbanized Local	0.97	1.09

5) Off-Model Calculations
   a) Senior I/M Exemption (emissions debit)
      i) The Senior I/M Exemption calculated for year 2002 is conservatively high and will be added to the regional emission inventories for each analysis year.
6) TCMs
   a) No additional credit is taken in the emissions modeling process for SIP TCMs
   b) Listed below is a TCM status report

Description	ARC Project #	GDOT PI #	TIP	Status
HOV LANES Sponsor – GDOT	AR 073B	713760	98-00, 99-01	Under construction*

Description	ARC Project #	GDOT PI #	TIP	Status
I-85N from Chamblee-Tucker Rd to SR 316 (HOT Lanes), I-85 @ SR 316, Interchange Reconstruction	GW-AR 053A GW-AR 053B	110530	01-03 02-04 03-05 05-10	Implemented Implemented
ATLANTIC STATION, 17th STREET BRIDGE Sponsor – City of Atlanta A – Bridge and Southbound off ramps C – Northside Dr over Norfolk Southern Railroad to Atlantic Station D – Northbound off ramp to 17th Street Bridge, Williams St Relocation	AT-AR 224A AT-AR 224C AT-AR 224D	714190 0001297 0001298	00-02 01-03 02-04 03-05 05-10	A – Implemented C – Implemented D – Implemented
CLEAN FUEL BUSES Sponsors – MARTA and CCT	M-AR 232	N/A	94-95	Implemented
EXPRESS BUS ROUTES Sponsor – MARTA	M-R 160 M-R 162	770632 770632	94-96	Implemented
IMPROVE / EXPAND BUS SERVICE Sponsor – MARTA	M-R 161	770633	96-98	Implemented
INTERSECTION UPGRADE, COORDINATION & COMPUTERIZATION Sponsor(s) – GDOT in partnership with local Jurisdictions	AT 089	04Y108	93-95	Implemented
	CL 094	770600	94-96	Implemented
	CO 249	770601	94-96	Implemented
	DK 118	770603	94-96	Implemented
	FN 086	770605	94-96	Implemented
	FS 068	770605	94-96	Implemented
	GW 135	170950	94-96	Implemented
	R 098	04418	93-95	Implemented
	R 098	770391	94-96	Implemented
ITS – ADVANCED TRAFFIC MANAGEMENT SYSTEM / INCIDENT MANAGEMENT PROGRAM Sponsor – GDOT I-75/I-85 within I-285, Northern portion of I-285 between I-75 and I-85	R 098	770391	94-96	Implemented
CLEAN FUELS REVOLVING LOAN PROGRAM Sponsor – GEFA	R 195	770790, 770795	96-98	Implemented
HOV LANES Sponsor – GDOT I-75 and I-85 within I-285	R 174	320H94	94-96	Implemented
PARK & RIDE LOTS Sponsor(s) – Douglas & Rockdale Counties Douglas County – Chapel Hill @ I-20, Rockdale County – Sigman @ I-20	DO 211C		94-96	Implemented
REGIONAL COMMUTE OPTIONS & HOV MARKETING PROGRAMS Sponsor(s) – GDOT	R 159	770631	94-96	Implemented
SIGNAL PREEMPTION Sponsor – MARTA	M-R 164	770636	94-96	Implemented
TRANSIT INCENTIVES PROGRAM Sponsor - MARTA	M-AR 231A M-AR 231B	771031 771119	98-00 99-01 00-02	Implemented

Description	ARC Project #	GDOT PI #	TIP	Status
TRANSPORTATION MANAGEMENT ASSOCIATIONS Sponsor – ARC	AR 221A AR 221B AR 221C AR 221E AR 221F	771033 771140 771141 0000570 0000571	98-00 99-01 00-02 01-03	Implemented
UNIVERSITY RIDESHARE PROGRAM Sponsor - ARC	AR 220A AR 220B AR 220C AR 220D AR 200E	771032 771113 0000351 0000567 0000568	98-00 99-01 00-02 01-03 02-04	Implemented

* This project was substituted for the HOV lane. The substitution was adopted on November 5, 2009 by EPA's concurrence letter.

EXHIBIT 1C

Interagency Review of

Population & Employment Planning Assumptions

Used in Regional Emissions Analysis

For Atlanta Eight-Hour Ozone and PM2.5 Nonattainment Areas

Interagency Consultation Meeting

Atlanta Regional Commission

Final IAC Approval: 3/1/11

The ARC will be conducting a conformity analysis under the PM2.5 standard as part of the conformity determination for the PLAN 2040 RTP / FY 2012-2017 TIP for the 20 county nonattainment area.

Below is a detailed listing of the procedures and planning assumptions for the upcoming conformity analysis of the PLAN 2040 RTP.

ARC periodically revises its population and employment forecasts based on best available current information. Each revision is a two-step process. First, new region-level forecasts are produced. These then become region-level controls for census tract and traffic analysis zone (TAZ) forecasts.

The most current region-level control forecasts (PLAN 2040) were completed in spring of 2009. The accompanying table summarizes the new population and employment controls for the updated, 20-county study area.

ARC staff was assisted in the development of these regional forecasts by a Technical Advisory Committee (TAC) of nationally known, local experts on the Atlanta Regional Economy. Chair of the Committee was Dr. Donald Ratajczak, Regents Professor Emeritus of Economics at Georgia State University. Dr. Ratajczak served as director of the Economic Forecasting Center in the J. Mack Robinson College of Business at Georgia State University from 1973 until June 2000 and as a professor of economics in the Andrew Young School of Policy Studies until he retired in 2000. The committee recommended the final adopted forecasts for use by the Commission in 2009.

The second step in the forecasting process uses mathematical models to disaggregate the region-level control population and employment forecasts to “small areas”: the Superdistrict, census tract and traffic analysis zone (TAZ) level. TAZs are nested within census tracts. Census tracts nest within superdistricts. The mathematical models underlying the region-level controls have evolved and become more complex, but ARC’s basic approach is the same today as in 1975.

The TAZ Disaggregator (TAZ-D) model has been used in Plan2040 to disaggregate the regional controls to small areas. This model runs annually and iteratively (unlike the five-year iterative sequence of the previous model small area model, DRAM/EMPAL). The process is fully integrated with the ARC travel demand model, as impedances (travel costs) from the travel model are a significant influence layer for spatial allocation of population and job growth.

Population and job levels from each successive single-year forecast become the base for forecasts in the next model year. First, the Cube/TP+ model analyze base year traffic patterns and produces accessibility measures (impedances or travel costs) within the 20-county forecasted area. Then, the TAZ-D model uses the composite impedances; Superdistrict-level distribution of base-year population, employment and land use; and other spatial influence layers (e.g. like land use, interchange locations, major arterials, transit stations, etc.) to develop grid-level forecasts one year into the future. The size of the grid areas in the TAZ-D model vary by geographic area of the region, as do the weights assigned to various spatial influence factors for growth. The Unified Growth Policy Map (UGPM) was used by the TAZ-D as the baseline source to generate household and job density and/or intensity levels to allocate future growth. The grid-level forecasts are then aggregated back up to the TAZ, tract, and superdistrict levels. The TAZ-

level forecasts then become the input used by the Cube/TP+ model to produce the impedances measure that drives the next iteration of the integrated model run.

All these models are carefully calibrated based on the best and most current data available. Data used in the current effort include 2000 United States Census results, ARC annual estimates of population (using the building permit method from 2000 Census base) for superdistricts and census tracts, ARC annual estimates of employment by industry for superdistricts, tracts and TAZs from the state of Georgia unemployment insurance base file. National forecasts of employment and population were derived from the REMI Policy Insight+ model. The results of ARC travel surveys included the SMARTRAQ household travel survey, transit on-board survey, Hartsfield air passenger survey, travel time studies, speed studies, and others. Highway projects and the schedule for their completion (primary inputs to the Cube/TP+ model) are developed as part of an extensive discussion between ARC staff, local planners, Georgia Department of Transportation and various federal agencies.

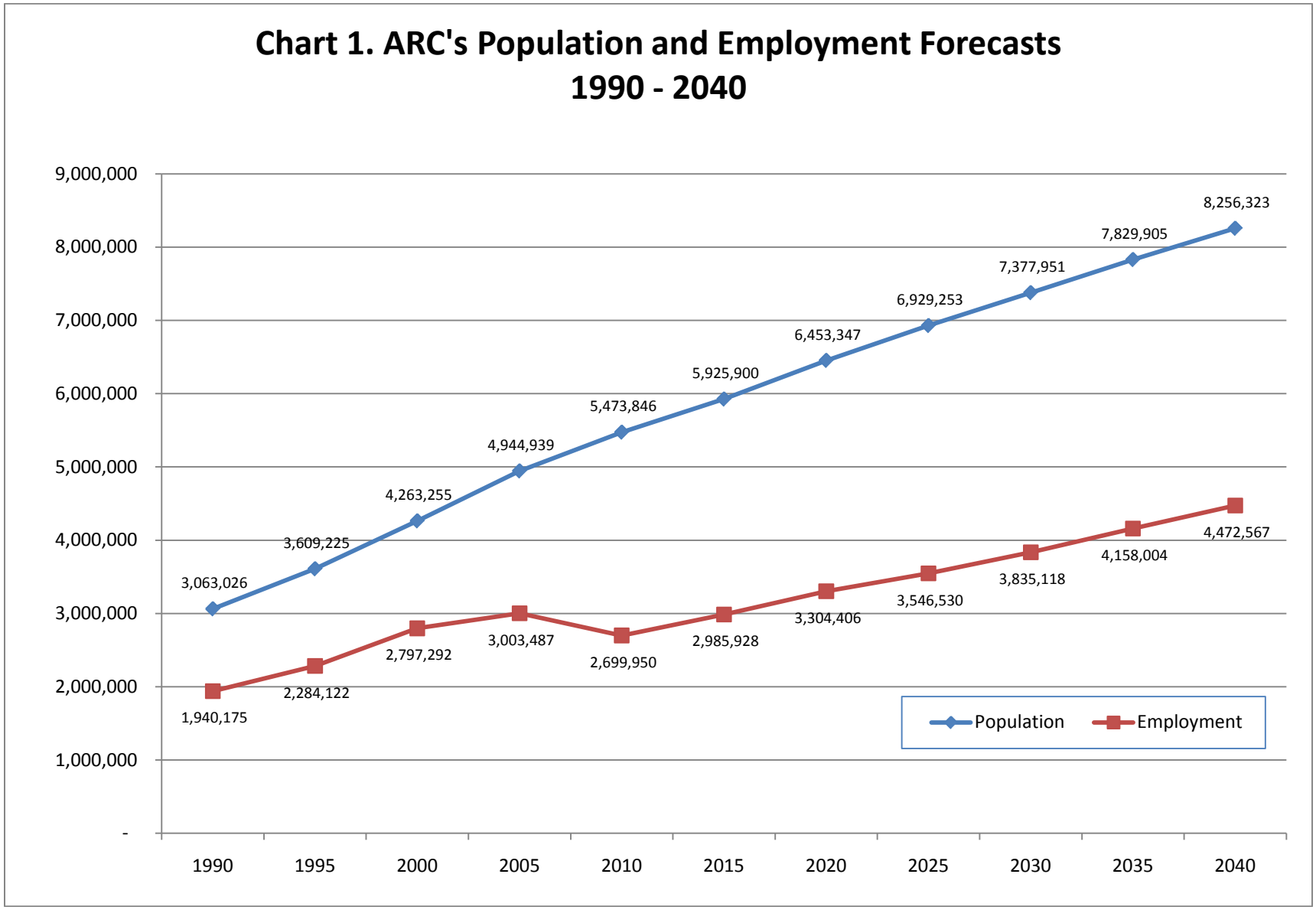
The area modeled by ARC for transportation/air quality purposes expanded from ten (10) to twenty (20) counties over the last 15 years. The 2010 Census and federal conformity analysis requirements may result in further expansion of the nonattainment area. To meet current and future data needs, ARC produced employment estimates by county and census block group for the state of Georgia beginning in 2008, and continues to produce these estimates annually. The counties covered by land-use data produced in the LandPro program is expanded as needed. ARC's population estimates' program area will be expanded as required, from the current 20 counties, using the 2010 Census as a data baseline.

ARC produced tract-level 2010 estimates of population and 2009 small-area estimates of employment for the 20-county study area to support initial iterations of the TAZ-D model. Development of the annual estimates and of the year 2000 calibration database for the nonmember counties was coordinated with the affected county governments and the Regional Development Centers of which they are members.

Post processing adjustments are made to the ARC forecasts to account for expected large scale changes and policy priorities that would not be reflected in historical data. Events such as expected construction of a new highway or policy input restricting development within the region are accounted for directly in the models with the spatial influence layers or density limitations. Factors such as expected job and household growth from the completion of a major development project (i.e. Atlantic Station) or transit-oriented development are incorporated as post processing adjustments to the model output.

The forecasts will be used as part of the 2011 RTP (Plan2040/FY 2012-2017 TIP), scheduled for adoption in August 2011.

Chart 1. ARC's Population and Employment Forecasts 1990 - 2040



CONFORMITY DETERMINATION REPORT

EXHIBIT 2A

MOBILE6.2 Input and Output Files
PLAN 2040/FY 2012-2017 TIP Conformity Analysis

Eight-Hour Ozone Standard

Please Note: MOBILE6.2 Input and Output Files Truncated

A large portion of both the input and output files for the MOBILE6.2 model are identical data for each speed bin and roadway type, i.e., the same data are repeated 65 times, once for each speed scenario corresponding to either arterial or freeway road type. Emission factors are also estimated for ramps and local roadways using the MOBILE6.2 default speed, which cannot be changed by the user. In order to conserve space for both electronic and hardcopy documentation the input and output files were truncated. The input files for the arterial roadway type are presented for a speed of 2.5 mph; only the data which is repeated is removed. Emission factors derived from MOBILE6.2 output for freeway, arterials, locals and ramps are provided.

Complete files can be made available upon request.

Eight-Hour Ozone Nonattainment Area Documentation – 13-County Area:

MOBILE6.2 Year 2016 - Input*

MOBILE6 INPUT FILE:
POLLUTANTS : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74 77 81 84 86 88 90 91 92 92 91 90
88 86 83 82 80 78 76 75 74 73 72 72
FUEL RVP : 7.0

FUEL PROGRAM : 4
150.0 150.0 150.0 90.0 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

STAGE II REFUELING:
92 3 81. 81.

ANTI-TAMP PROG :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE : iminfo-p.d

REG DIST : 02regis2.d

SCENARIO REC : arterial, 13-county part of Atlanta ozone area, 2010, 2.5 mph
CALENDAR YEAR : 2016
EVALUATION MONTH : 7
ALTITUDE : 1
RELATIVE HUMIDITY : 76 68 60 53 49 45 42 40 39 38 38 41
44 49 53 57 61 65 69 70 72 75 78 77
BAROMETRIC PRES : 28.99
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2020 - Input*

```
MOBILE6 INPUT FILE:
POLLUTANTS        : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74  77  81  84  86  88  90  91  92  92  91  90
                     88  86  83  82  80  78  76  75  74  73  72  72
FUEL RVP          : 7.0

FUEL PROGRAM      : 4
  150.0  150.0  150.0   90.0   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG    :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE  : iminfo-p.d

REG DIST          : 02regis2.d
```

```
SCENARIO REC      : arterial, 13-county part of Atlanta ozone area, 2020, 2.5 mph
CALENDAR YEAR     : 2020
EVALUATION MONTH  : 7
ALTITUDE          : 1
RELATIVE HUMIDITY : 76  68  60  53  49  45  42  40  39  38  38  41
                    44  49  53  57  61  65  69  70  72  75  78  77
BAROMETRIC PRES   : 28.99
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2030 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74  77  81  84  86  88  90  91  92  92  91  90
                     88  86  83  82  80  78  76  75  74  73  72  72
FUEL RVP          : 7.0

FUEL PROGRAM      : 4
  150.0  150.0  150.0   90.0   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG    :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE  : iminfo-p.d

REG DIST          : 02regis2.d
```

```
SCENARIO REC      : arterial, 13-county part of Atlanta ozone area, 2030, 2.5 mph
CALENDAR YEAR     : 2030
EVALUATION MONTH  : 7
ALTITUDE          : 1
RELATIVE HUMIDITY : 76  68  60  53  49  45  42  40  39  38  38  41
                    44  49  53  57  61  65  69  70  72  75  78  77
BAROMETRIC PRES   : 28.99
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2040 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74  77  81  84  86  88  90  91  92  92  91  90
                     88  86  83  82  80  78  76  75  74  73  72  72
FUEL RVP          : 7.0

FUEL PROGRAM      : 4
  150.0  150.0  150.0   90.0   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG    :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE  : iminfo-p.d

REG DIST          : 02regis2.d
```

```
SCENARIO REC      : arterial, 13-county part of Atlanta ozone area, 2040, 2.5 mph
CALENDAR YEAR     : 2040
EVALUATION MONTH  : 7
ALTITUDE          : 1
RELATIVE HUMIDITY : 76  68  60  53  49  45  42  40  39  38  38  41
                    44  49  53  57  61  65  69  70  72  75  78  77
BAROMETRIC PRES   : 28.99
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2016 (13 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	2.908	1.003	2.908	1.029
3	2.336	0.964	2.336	0.990
4	1.621	0.914	1.621	0.941
5	1.192	0.885	1.192	0.911
6	1.030	0.833	1.024	0.840
7	0.915	0.795	0.904	0.789
8	0.828	0.767	0.814	0.751
9	0.761	0.746	0.743	0.721
10	0.707	0.728	0.687	0.697
11	0.668	0.701	0.647	0.667
12	0.636	0.679	0.614	0.641
13	0.608	0.660	0.586	0.619
14	0.585	0.643	0.561	0.601
15	0.564	0.629	0.540	0.585
16	0.542	0.615	0.521	0.579
17	0.523	0.603	0.504	0.574
18	0.505	0.592	0.489	0.570
19	0.490	0.582	0.476	0.566
20	0.476	0.573	0.464	0.562
21	0.466	0.565	0.456	0.558
22	0.458	0.557	0.449	0.555
23	0.450	0.550	0.443	0.552
24	0.443	0.544	0.437	0.550
25	0.436	0.539	0.432	0.547
26	0.430	0.534	0.426	0.546
27	0.424	0.529	0.421	0.544
28	0.419	0.525	0.417	0.542
29	0.414	0.522	0.413	0.541
30	0.410	0.518	0.409	0.540
31	0.405	0.516	0.404	0.539
32	0.401	0.515	0.401	0.539
33	0.397	0.514	0.397	0.538
34	0.394	0.512	0.394	0.538

Speed	Arterial		Freeway	
	VOC	Nox	VOC	Nox
35	0.390	0.511	0.390	0.537
36	0.388	0.513	0.388	0.539
37	0.385	0.515	0.385	0.541
38	0.383	0.517	0.383	0.543
39	0.380	0.519	0.380	0.545
40	0.378	0.520	0.378	0.547
41	0.376	0.524	0.376	0.551
42	0.374	0.528	0.374	0.554
43	0.372	0.532	0.372	0.558
44	0.370	0.535	0.370	0.561
45	0.368	0.538	0.368	0.565
46	0.366	0.544	0.366	0.571
47	0.365	0.550	0.365	0.576
48	0.363	0.555	0.363	0.582
49	0.361	0.560	0.361	0.587
50	0.360	0.565	0.360	0.592
51	0.359	0.574	0.359	0.600
52	0.357	0.582	0.357	0.608
53	0.356	0.589	0.356	0.616
54	0.355	0.597	0.355	0.623
55	0.354	0.604	0.354	0.630
56	0.353	0.615	0.353	0.642
57	0.353	0.626	0.353	0.653
58	0.352	0.637	0.352	0.663
59	0.352	0.647	0.352	0.674
60	0.352	0.657	0.352	0.684
61	0.351	0.674	0.351	0.700
62	0.351	0.689	0.351	0.715
63	0.351	0.704	0.351	0.730
64	0.351	0.719	0.351	0.745
65	0.351	0.733	0.351	0.759

Local		Ramp	
VOC	NOx	VOC	NOx
0.608	0.567	0.411	0.542

MOBILE6.2 Year 2020 (13 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	2.309	0.655	2.309	0.664
3	1.854	0.628	1.854	0.637
4	1.286	0.595	1.286	0.604
5	0.945	0.576	0.945	0.584
6	0.814	0.540	0.809	0.535
7	0.721	0.515	0.712	0.500
8	0.651	0.496	0.639	0.474
9	0.596	0.482	0.582	0.453
10	0.553	0.470	0.537	0.437
11	0.520	0.452	0.503	0.416
12	0.493	0.437	0.475	0.399
13	0.470	0.424	0.451	0.384
14	0.450	0.413	0.431	0.372
15	0.433	0.403	0.413	0.361
16	0.414	0.394	0.397	0.357
17	0.397	0.386	0.382	0.355
18	0.382	0.378	0.369	0.352
19	0.369	0.372	0.357	0.350
20	0.357	0.366	0.347	0.348
21	0.349	0.361	0.340	0.346
22	0.342	0.356	0.335	0.344
23	0.335	0.351	0.329	0.342
24	0.329	0.347	0.324	0.341
25	0.324	0.343	0.320	0.339
26	0.319	0.340	0.316	0.338
27	0.314	0.337	0.311	0.337
28	0.310	0.334	0.307	0.337
29	0.305	0.332	0.304	0.336
30	0.302	0.330	0.301	0.335
31	0.298	0.328	0.297	0.335
32	0.295	0.327	0.294	0.334
33	0.291	0.326	0.291	0.334
34	0.288	0.325	0.288	0.334

Speed	Arterial		Freeway	
	VOC	Nox	VOC	Nox
35	0.285	0.324	0.285	0.333
36	0.283	0.326	0.283	0.335
37	0.281	0.327	0.281	0.336
38	0.279	0.328	0.279	0.337
39	0.277	0.330	0.277	0.339
40	0.275	0.331	0.275	0.340
41	0.273	0.333	0.273	0.342
42	0.272	0.336	0.272	0.345
43	0.270	0.338	0.270	0.347
44	0.268	0.340	0.268	0.349
45	0.267	0.342	0.267	0.351
46	0.266	0.346	0.266	0.355
47	0.264	0.350	0.264	0.359
48	0.263	0.353	0.263	0.362
49	0.262	0.356	0.262	0.365
50	0.261	0.359	0.261	0.368
51	0.260	0.364	0.260	0.373
52	0.259	0.369	0.259	0.378
53	0.258	0.374	0.258	0.383
54	0.257	0.379	0.257	0.388
55	0.256	0.383	0.256	0.392
56	0.256	0.390	0.256	0.399
57	0.256	0.397	0.256	0.406
58	0.256	0.404	0.256	0.413
59	0.255	0.410	0.255	0.419
60	0.255	0.416	0.255	0.425
61	0.255	0.426	0.255	0.435
62	0.255	0.435	0.255	0.444
63	0.255	0.445	0.255	0.454
64	0.255	0.453	0.255	0.462
65	0.255	0.462	0.255	0.471

Local		Ramp	
VOC	NOx	VOC	NOx
0.469	0.366	0.299	0.351

MOBILE6.2 Year 2030 (13 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	2.181	0.403	2.181	0.403
3	1.743	0.385	1.743	0.385
4	1.196	0.363	1.196	0.363
5	0.868	0.350	0.868	0.350
6	0.744	0.327	0.739	0.316
7	0.655	0.310	0.647	0.292
8	0.589	0.298	0.578	0.274
9	0.537	0.288	0.525	0.260
10	0.496	0.281	0.482	0.248
11	0.465	0.269	0.450	0.235
12	0.440	0.259	0.424	0.223
13	0.418	0.251	0.402	0.213
14	0.400	0.244	0.383	0.205
15	0.384	0.237	0.367	0.198
16	0.366	0.232	0.351	0.197
17	0.350	0.227	0.337	0.196
18	0.336	0.222	0.324	0.195
19	0.323	0.218	0.313	0.194
20	0.312	0.214	0.303	0.193
21	0.304	0.211	0.297	0.193
22	0.298	0.208	0.292	0.192
23	0.292	0.205	0.287	0.191
24	0.287	0.202	0.282	0.191
25	0.282	0.200	0.278	0.190
26	0.277	0.198	0.274	0.190
27	0.272	0.196	0.270	0.189
28	0.268	0.194	0.266	0.189
29	0.264	0.193	0.263	0.189
30	0.261	0.191	0.260	0.188
31	0.257	0.190	0.256	0.188
32	0.254	0.189	0.253	0.188
33	0.251	0.189	0.251	0.188
34	0.248	0.188	0.248	0.187

Speed	Arterial		Freeway	
	VOC	Nox	VOC	Nox
35	0.246	0.187	0.246	0.187
36	0.243	0.188	0.243	0.188
37	0.241	0.189	0.241	0.189
38	0.239	0.189	0.239	0.189
39	0.238	0.190	0.238	0.190
40	0.236	0.191	0.236	0.191
41	0.234	0.192	0.234	0.192
42	0.233	0.193	0.233	0.193
43	0.231	0.195	0.231	0.195
44	0.229	0.196	0.229	0.196
45	0.228	0.197	0.228	0.197
46	0.227	0.199	0.227	0.199
47	0.225	0.200	0.225	0.200
48	0.224	0.202	0.224	0.202
49	0.223	0.204	0.223	0.204
50	0.222	0.205	0.222	0.205
51	0.221	0.208	0.221	0.208
52	0.220	0.210	0.220	0.210
53	0.219	0.212	0.219	0.212
54	0.219	0.214	0.219	0.214
55	0.218	0.217	0.218	0.217
56	0.218	0.220	0.218	0.220
57	0.218	0.223	0.218	0.223
58	0.217	0.226	0.217	0.226
59	0.217	0.229	0.217	0.229
60	0.217	0.232	0.217	0.232
61	0.217	0.236	0.217	0.236
62	0.217	0.240	0.217	0.240
63	0.217	0.244	0.217	0.244
64	0.217	0.248	0.217	0.248
65	0.217	0.252	0.217	0.252

Local		Ramp	
VOC	NOx	VOC	NOx
0.418	0.210	0.256	0.211

MOBILE6.2 Year 2040 (13 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	2.178	0.388	2.178	0.388
3	1.741	0.370	1.741	0.370
4	1.194	0.349	1.194	0.349
5	0.866	0.336	0.866	0.336
6	0.742	0.314	0.737	0.303
7	0.653	0.298	0.646	0.279
8	0.587	0.286	0.577	0.262
9	0.536	0.277	0.523	0.248
10	0.494	0.269	0.480	0.237
11	0.464	0.258	0.449	0.224
12	0.438	0.248	0.423	0.212
13	0.417	0.240	0.401	0.203
14	0.398	0.233	0.382	0.195
15	0.383	0.228	0.365	0.188
16	0.365	0.222	0.350	0.187
17	0.349	0.217	0.336	0.186
18	0.335	0.213	0.323	0.186
19	0.322	0.209	0.312	0.185
20	0.311	0.205	0.302	0.185
21	0.303	0.202	0.296	0.184
22	0.297	0.199	0.291	0.183
23	0.291	0.197	0.286	0.183
24	0.286	0.194	0.281	0.182
25	0.281	0.192	0.277	0.182
26	0.276	0.190	0.273	0.182
27	0.271	0.188	0.269	0.181
28	0.267	0.186	0.265	0.181
29	0.263	0.185	0.262	0.181
30	0.260	0.183	0.259	0.181
31	0.256	0.182	0.256	0.180
32	0.253	0.182	0.253	0.180
33	0.250	0.181	0.250	0.180
34	0.247	0.180	0.247	0.180

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
35	0.245	0.179	0.245	0.179
36	0.243	0.180	0.243	0.180
37	0.241	0.181	0.241	0.181
38	0.239	0.181	0.239	0.181
39	0.237	0.182	0.237	0.182
40	0.235	0.183	0.235	0.183
41	0.233	0.184	0.233	0.184
42	0.232	0.185	0.232	0.185
43	0.230	0.186	0.230	0.186
44	0.229	0.187	0.229	0.187
45	0.227	0.188	0.227	0.188
46	0.226	0.190	0.226	0.190
47	0.225	0.192	0.225	0.192
48	0.223	0.193	0.223	0.193
49	0.222	0.194	0.222	0.194
50	0.221	0.196	0.221	0.196
51	0.220	0.198	0.220	0.198
52	0.219	0.200	0.219	0.200
53	0.219	0.202	0.219	0.202
54	0.218	0.204	0.218	0.204
55	0.217	0.206	0.217	0.206
56	0.217	0.209	0.217	0.209
57	0.217	0.212	0.217	0.212
58	0.217	0.214	0.217	0.214
59	0.216	0.217	0.216	0.217
60	0.216	0.219	0.216	0.219
61	0.216	0.223	0.216	0.223
62	0.216	0.227	0.216	0.227
63	0.216	0.230	0.216	0.230
64	0.216	0.233	0.216	0.233
65	0.216	0.237	0.216	0.237

Local		Ramp	
VOC	NOx	VOC	NOx
0.417	0.200	0.256	0.203

Eight-Hour Ozone Nonattainment Area Documentation – 7-County Area:

MOBILE6.2 Year 2016 - Input*

MOBILE6 INPUT FILE :
POLLUTANTS : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74 77 81 84 86 88 90 91 92 92 91 90
88 86 83 82 80 78 76 75 74 73 72 72
FUEL RVP : 7.0

FUEL PROGRAM : 4
150.0 150.0 150.0 90.0 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

REG DIST : 02atl_7.d

SCENARIO REC : arterial, Atlanta, 2016, 2.5 mph
CALENDAR YEAR : 2016
EVALUATION MONTH : 7
ALTITUDE : 1
RELATIVE HUMIDITY : 76 68 60 53 49 45 42 40 39 38 38 41
44 49 53 57 61 65 69 70 72 75 78 77
BAROMETRIC PRES : 28.99
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2020 - Input[*]

```
MOBILE6 INPUT FILE :
POLLUTANTS        : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74  77  81  84  86  88  90  91  92  92  91  90
                     88  86  83  82  80  78  76  75  74  73  72  72
FUEL RVP          : 7.0

FUEL PROGRAM      : 4
  150.0  150.0  150.0   90.0   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

REG DIST          : 02atl_7.d
```

```
SCENARIO REC      : arterial, Atlanta, 2020, 2.5 mph
CALENDAR YEAR     : 2020
EVALUATION MONTH  : 7
ALTITUDE          : 1
RELATIVE HUMIDITY : 76  68  60  53  49  45  42  40  39  38  38  41
                    44  49  53  57  61  65  69  70  72  75  78  77
BAROMETRIC PRES   : 28.99
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

[*] Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2030 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74  77  81  84  86  88  90  91  92  92  91  90
                     88  86  83  82  80  78  76  75  74  73  72  72
FUEL RVP          : 7.0

FUEL PROGRAM      : 4
  150.0  150.0  150.0   90.0   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

REG DIST          : 02atl_7.d
```

```
SCENARIO REC      : arterial, Atlanta, 2030, 2.5 mph
CALENDAR YEAR     : 2030
EVALUATION MONTH  : 7
ALTITUDE          : 1
RELATIVE HUMIDITY : 76  68  60  53  49  45  42  40  39  38  38  41
                    44  49  53  57  61  65  69  70  72  75  78  77
BAROMETRIC PRES   : 28.99
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2040 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : HC CO NOx

RUN DATA
HOURLY TEMPERATURES: 74  77  81  84  86  88  90  91  92  92  91  90
                     88  86  83  82  80  78  76  75  74  73  72  72
FUEL RVP          : 7.0

FUEL PROGRAM      : 4
  150.0  150.0  150.0   90.0   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

REG DIST          : 02atl_7.d
```

```
SCENARIO REC      : arterial, Atlanta, 2040, 2.5 mph
CALENDAR YEAR     : 2040
EVALUATION MONTH  : 7
ALTITUDE          : 1
RELATIVE HUMIDITY : 76  68  60  53  49  45  42  40  39  38  38  41
                    44  49  53  57  61  65  69  70  72  75  78  77
BAROMETRIC PRES   : 28.99
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2016 (7 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	5.423	1.711	5.423	1.743
3	4.360	1.641	4.360	1.673
4	3.031	1.554	3.031	1.586
5	2.234	1.502	2.233	1.534
6	1.935	1.415	1.922	1.413
7	1.722	1.353	1.699	1.327
8	1.562	1.307	1.532	1.262
9	1.437	1.271	1.402	1.212
10	1.338	1.242	1.298	1.171
11	1.269	1.198	1.227	1.121
12	1.212	1.161	1.168	1.079
13	1.163	1.130	1.118	1.043
14	1.122	1.103	1.075	1.013
15	1.086	1.080	1.038	0.986
16	1.050	1.058	1.008	0.979
17	1.018	1.038	0.982	0.972
18	0.990	1.021	0.959	0.967
19	0.965	1.005	0.939	0.961
20	0.942	0.991	0.920	0.957
21	0.925	0.978	0.906	0.952
22	0.909	0.966	0.894	0.948
23	0.895	0.955	0.883	0.944
24	0.881	0.945	0.872	0.941
25	0.869	0.936	0.863	0.938
26	0.859	0.929	0.854	0.935
27	0.849	0.921	0.845	0.933
28	0.840	0.915	0.837	0.931
29	0.832	0.909	0.830	0.929
30	0.824	0.903	0.823	0.927
31	0.816	0.900	0.815	0.926
32	0.808	0.898	0.808	0.926
33	0.801	0.895	0.801	0.925
34	0.794	0.893	0.794	0.924

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
35	0.788	0.891	0.788	0.923
36	0.783	0.894	0.783	0.926
37	0.778	0.896	0.778	0.928
38	0.774	0.898	0.774	0.930
39	0.770	0.900	0.770	0.932
40	0.766	0.902	0.766	0.934
41	0.761	0.908	0.761	0.940
42	0.758	0.912	0.758	0.944
43	0.754	0.917	0.754	0.949
44	0.750	0.921	0.750	0.953
45	0.747	0.926	0.747	0.958
46	0.743	0.933	0.743	0.965
47	0.740	0.940	0.740	0.972
48	0.736	0.947	0.736	0.979
49	0.733	0.954	0.733	0.986
50	0.730	0.960	0.730	0.992
51	0.726	0.970	0.726	1.002
52	0.723	0.981	0.723	1.013
53	0.720	0.990	0.720	1.022
54	0.717	1.000	0.717	1.032
55	0.715	1.009	0.715	1.041
56	0.712	1.023	0.712	1.055
57	0.710	1.037	0.710	1.069
58	0.708	1.051	0.708	1.083
59	0.706	1.064	0.706	1.096
60	0.704	1.077	0.704	1.109
61	0.703	1.097	0.703	1.129
62	0.701	1.116	0.701	1.148
63	0.700	1.135	0.700	1.167
64	0.698	1.154	0.698	1.186
65	0.697	1.171	0.697	1.203

Local		Ramp	
VOC	NOx	VOC	NOx
1.149	0.962	0.830	0.961

MOBILE6.2 Year 2020 (7 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	4.176	1.241	4.176	1.252
3	3.358	1.189	3.358	1.200
4	2.336	1.124	2.336	1.136
5	1.723	1.086	1.723	1.097
6	1.487	1.021	1.476	1.005
7	1.319	0.975	1.300	0.940
8	1.193	0.941	1.168	0.891
9	1.095	0.914	1.065	0.853
10	1.017	0.893	0.983	0.822
11	0.961	0.860	0.925	0.784
12	0.914	0.833	0.876	0.753
13	0.875	0.810	0.836	0.726
14	0.841	0.791	0.801	0.704
15	0.812	0.774	0.770	0.684
16	0.782	0.757	0.746	0.680
17	0.755	0.743	0.724	0.676
18	0.732	0.730	0.705	0.673
19	0.711	0.719	0.688	0.670
20	0.692	0.709	0.673	0.667
21	0.678	0.699	0.662	0.664
22	0.666	0.691	0.652	0.662
23	0.654	0.683	0.643	0.660
24	0.643	0.675	0.635	0.658
25	0.634	0.669	0.628	0.656
26	0.625	0.663	0.620	0.654
27	0.617	0.658	0.613	0.653
28	0.610	0.653	0.607	0.652
29	0.603	0.648	0.601	0.651
30	0.597	0.644	0.596	0.650
31	0.590	0.642	0.589	0.649
32	0.584	0.640	0.583	0.648
33	0.578	0.638	0.578	0.648
34	0.573	0.637	0.573	0.647

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
35	0.568	0.635	0.568	0.646
36	0.564	0.637	0.564	0.648
37	0.560	0.639	0.560	0.650
38	0.556	0.640	0.556	0.651
39	0.553	0.642	0.553	0.653
40	0.550	0.643	0.550	0.654
41	0.547	0.646	0.547	0.658
42	0.543	0.650	0.543	0.661
43	0.540	0.653	0.540	0.664
44	0.538	0.656	0.538	0.667
45	0.535	0.659	0.535	0.670
46	0.532	0.664	0.532	0.675
47	0.529	0.668	0.529	0.680
48	0.527	0.673	0.527	0.684
49	0.524	0.677	0.524	0.688
50	0.522	0.681	0.522	0.692
51	0.519	0.688	0.519	0.699
52	0.517	0.694	0.517	0.706
53	0.515	0.701	0.515	0.712
54	0.512	0.707	0.512	0.718
55	0.510	0.712	0.510	0.724
56	0.509	0.722	0.509	0.733
57	0.507	0.730	0.507	0.742
58	0.506	0.739	0.506	0.750
59	0.505	0.747	0.505	0.759
60	0.503	0.755	0.503	0.767
61	0.502	0.768	0.502	0.779
62	0.501	0.780	0.501	0.791
63	0.500	0.792	0.500	0.803
64	0.499	0.803	0.499	0.814
65	0.498	0.814	0.498	0.826

Local		Ramp	
VOC	NOx	VOC	NOx
0.864	0.690	0.599	0.697

MOBILE6.2 Year 2030 (7 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	3.870	0.839	3.870	0.839
3	3.093	0.802	3.093	0.802
4	2.121	0.755	2.121	0.755
5	1.538	0.727	1.538	0.727
6	1.320	0.681	1.310	0.659
7	1.163	0.648	1.146	0.611
8	1.046	0.624	1.023	0.574
9	0.955	0.605	0.928	0.546
10	0.882	0.589	0.852	0.523
11	0.831	0.567	0.799	0.496
12	0.788	0.547	0.755	0.474
13	0.752	0.531	0.718	0.455
14	0.721	0.517	0.686	0.438
15	0.695	0.505	0.658	0.424
16	0.667	0.494	0.636	0.423
17	0.643	0.484	0.616	0.421
18	0.622	0.476	0.598	0.420
19	0.603	0.468	0.583	0.419
20	0.585	0.461	0.568	0.418
21	0.573	0.454	0.558	0.417
22	0.561	0.448	0.549	0.416
23	0.551	0.443	0.541	0.415
24	0.541	0.438	0.534	0.415
25	0.532	0.433	0.527	0.414
26	0.524	0.429	0.520	0.413
27	0.517	0.425	0.514	0.413
28	0.511	0.422	0.508	0.412
29	0.504	0.419	0.503	0.412
30	0.499	0.416	0.498	0.411
31	0.493	0.414	0.492	0.410
32	0.487	0.412	0.487	0.410
33	0.482	0.411	0.482	0.409
34	0.477	0.410	0.477	0.409

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
35	0.472	0.408	0.472	0.408
36	0.469	0.409	0.469	0.409
37	0.465	0.410	0.465	0.410
38	0.462	0.411	0.462	0.411
39	0.459	0.412	0.459	0.412
40	0.456	0.413	0.456	0.413
41	0.453	0.414	0.453	0.414
42	0.450	0.416	0.450	0.416
43	0.447	0.418	0.447	0.418
44	0.445	0.419	0.445	0.419
45	0.442	0.421	0.442	0.421
46	0.440	0.423	0.440	0.423
47	0.437	0.425	0.437	0.425
48	0.435	0.427	0.435	0.427
49	0.432	0.430	0.432	0.430
50	0.430	0.432	0.430	0.432
51	0.428	0.435	0.428	0.435
52	0.426	0.438	0.426	0.438
53	0.424	0.441	0.424	0.441
54	0.422	0.443	0.422	0.443
55	0.420	0.446	0.420	0.446
56	0.419	0.450	0.419	0.450
57	0.417	0.454	0.417	0.454
58	0.416	0.458	0.416	0.458
59	0.415	0.461	0.415	0.461
60	0.414	0.465	0.414	0.465
61	0.413	0.470	0.413	0.470
62	0.412	0.475	0.412	0.475
63	0.411	0.480	0.411	0.480
64	0.410	0.485	0.410	0.485
65	0.409	0.490	0.409	0.490

Local		Ramp	
VOC	NOx	VOC	NOx
0.744	0.439	0.498	0.463

MOBILE6.2 Year 2040 (7 County) – Output

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
2.5	3.866	0.814	3.865	0.814
3	3.089	0.778	3.089	0.778
4	2.117	0.732	2.117	0.732
5	1.535	0.705	1.535	0.705
6	1.316	0.660	1.306	0.638
7	1.160	0.628	1.143	0.590
8	1.043	0.604	1.020	0.555
9	0.952	0.586	0.925	0.527
10	0.879	0.571	0.849	0.505
11	0.828	0.549	0.796	0.478
12	0.786	0.530	0.753	0.456
13	0.750	0.514	0.715	0.438
14	0.719	0.501	0.684	0.422
15	0.692	0.489	0.656	0.408
16	0.665	0.478	0.634	0.407
17	0.641	0.469	0.614	0.406
18	0.619	0.461	0.596	0.405
19	0.600	0.453	0.580	0.405
20	0.583	0.446	0.566	0.404
21	0.570	0.440	0.556	0.403
22	0.559	0.434	0.547	0.402
23	0.549	0.429	0.539	0.402
24	0.539	0.424	0.532	0.401
25	0.530	0.420	0.525	0.401
26	0.522	0.416	0.518	0.400
27	0.515	0.412	0.512	0.399
28	0.509	0.409	0.506	0.399
29	0.502	0.406	0.501	0.399
30	0.497	0.403	0.496	0.398
31	0.491	0.401	0.490	0.398
32	0.485	0.400	0.485	0.397
33	0.480	0.398	0.480	0.397
34	0.475	0.397	0.475	0.396

Speed	Arterial		Freeway	
	VOC	NOx	VOC	NOx
35	0.470	0.396	0.470	0.396
36	0.467	0.396	0.467	0.396
37	0.463	0.397	0.463	0.397
38	0.460	0.398	0.460	0.398
39	0.457	0.399	0.457	0.399
40	0.454	0.399	0.454	0.399
41	0.451	0.401	0.451	0.401
42	0.448	0.403	0.448	0.403
43	0.446	0.404	0.446	0.404
44	0.443	0.405	0.443	0.405
45	0.440	0.407	0.440	0.407
46	0.438	0.409	0.438	0.409
47	0.435	0.411	0.435	0.411
48	0.433	0.413	0.433	0.413
49	0.431	0.415	0.431	0.415
50	0.428	0.416	0.428	0.416
51	0.426	0.419	0.426	0.419
52	0.424	0.422	0.424	0.422
53	0.422	0.424	0.422	0.424
54	0.420	0.426	0.420	0.426
55	0.418	0.429	0.418	0.429
56	0.417	0.432	0.417	0.432
57	0.415	0.435	0.415	0.435
58	0.414	0.439	0.414	0.439
59	0.413	0.442	0.413	0.442
60	0.412	0.445	0.412	0.445
61	0.411	0.449	0.411	0.449
62	0.410	0.453	0.410	0.453
63	0.409	0.457	0.409	0.457
64	0.408	0.461	0.408	0.461
65	0.407	0.465	0.407	0.465

Local		Ramp	
VOC	NOx	VOC	NOx
0.741	0.422	0.496	0.450

EXHIBIT 2B

MOBILE6.2 Input and Output Files
Envision6/FY 2008-2013 TIP Conformity Analysis

PM2.5 Standard

Please Note: MOBILE6.2 Input and Output Files Truncated

A large portion of both the input and output files for the MOBILE6.2 model are identical data for each speed bin and roadway type, i.e., the same data are repeated 65 times, once for each speed scenario corresponding to either arterial or freeway road type. Emission factors are also estimated for ramps and local roadways using the MOBILE6.2 default speed, which cannot be changed by the user. In order to conserve space for both electronic and hardcopy documentation the input and output files were truncated. The input files for the arterial roadway type are presented for a speed of 2.5 mph; only the data which is repeated is removed. Emission factors derived from MOBILE6.2 output for freeway, arterials, locals and ramps are provided.

Complete files can be made available upon request.

PM2.5 Nonattainment Area Documentation – 13-County Area:

MOBILE6.2 Year 2002 - Input*

MOBILE6 INPUT FILE :
POLLUTANTS : NOx

RUN DATA
HOURLY TEMPERATURES: 55 57 59 62 65 67 68 69 70 70 69 68
66 64 62 61 60 59 58 57 57 56 55 55
FUEL RVP : 9.3

FUEL PROGRAM : 4
174.1 163.0 166.6 110.3 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE : iminfo-p.d

REG DIST : 02regis2.d

SCENARIO REC : arterial, 13-county part of Atlanta PM2.5 area, 2002, 2.5 mph
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
RELATIVE HUMIDITY : 83 81 75 69 64 60 57 55 53 53 54 57
61 65 68 70 73 75 77 79 80 82 83 84
BAROMETRIC PRES : 29.02
PARTICLE SIZE : 2.5
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR : 370.00
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types
2002 estimates used to complete less than base year test

MOBILE6.2 Year 2016 - Input*

MOBILE6 INPUT FILE :
POLLUTANTS : NOx

RUN DATA
HOURLY TEMPERATURES: 55 57 59 62 65 67 68 69 70 70 69 68
66 64 62 61 60 59 58 57 57 56 55 55
FUEL RVP : 9.3

FUEL PROGRAM : 4
174.1 163.0 166.6 110.3 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE : iminfo-p.d

REG DIST : 02regis2.d

SCENARIO REC : arterial, 13-county part of Atlanta PM2.5 area, 2016, 2.5 mph
CALENDAR YEAR : 2016
EVALUATION MONTH : 7
RELATIVE HUMIDITY : 83 81 75 69 64 60 57 55 53 53 54 57
61 65 68 70 73 75 77 79 80 82 83 84
BAROMETRIC PRES : 29.02
PARTICLE SIZE : 2.5
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR : 11.00
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types
2002 estimates used to complete less than base year test

MOBILE6.2 Year 2020 - Input*

MOBILE6 INPUT FILE :
POLLUTANTS : NOx

RUN DATA
HOURLY TEMPERATURES: 55 57 59 62 65 67 68 69 70 70 69 68
66 64 62 61 60 59 58 57 57 56 55 55
FUEL RVP : 9.3

FUEL PROGRAM : 4
174.1 163.0 166.6 110.3 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE : iminfo-p.d

REG DIST : 02regis2.d

SCENARIO REC : arterial, 13-county part of Atlanta PM2.5 area, 2020, 2.5 mph
CALENDAR YEAR : 2020
EVALUATION MONTH : 7
RELATIVE HUMIDITY : 83 81 75 69 64 60 57 55 53 53 54 57
61 65 68 70 73 75 77 79 80 82 83 84
BAROMETRIC PRES : 29.02
PARTICLE SIZE : 2.5
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR : 11.0
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types
2002 estimates used to complete less than base year test

MOBILE6.2 Year 2030 - Input*

MOBILE6 INPUT FILE :
POLLUTANTS : NOx

RUN DATA
HOURLY TEMPERATURES: 55 57 59 62 65 67 68 69 70 70 69 68
66 64 62 61 60 59 58 57 57 56 55 55
FUEL RVP : 9.3

FUEL PROGRAM : 4
174.1 163.0 166.6 110.3 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE : iminfo-p.d

REG DIST : 02regis2.d

SCENARIO REC : arterial, 13-county part of Atlanta PM2.5 area, 2030, 2.5 mph
CALENDAR YEAR : 2030
EVALUATION MONTH : 7
RELATIVE HUMIDITY : 83 81 75 69 64 60 57 55 53 53 54 57
61 65 68 70 73 75 77 79 80 82 83 84
BAROMETRIC PRES : 29.02
PARTICLE SIZE : 2.5
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR : 11.0
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types
2002 estimates used to complete less than base year test

MOBILE6.2 Year 2040 - Input*

MOBILE6 INPUT FILE :
POLLUTANTS : NOx

RUN DATA
HOURLY TEMPERATURES: 55 57 59 62 65 67 68 69 70 70 69 68
66 64 62 61 60 59 58 57 57 56 55 55
FUEL RVP : 9.3

FUEL PROGRAM : 4
174.1 163.0 166.6 110.3 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

STAGE II REFUELING :
92 3 81. 81.

ANTI-TAMP PROG :
82 75 95 22222 11111111 1 11 097. 12111111

I/M DESCRIPT FILE : iminfo-p.d

REG DIST : 02regis2.d

SCENARIO REC : arterial, 13-county part of Atlanta PM2.5 area, 2040, 2.5 mph
CALENDAR YEAR : 2040
EVALUATION MONTH : 7
RELATIVE HUMIDITY : 83 81 75 69 64 60 57 55 53 53 54 57
61 65 68 70 73 75 77 79 80 82 83 84
BAROMETRIC PRES : 29.02
PARTICLE SIZE : 2.5
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR : 11.0
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types
2002 estimates used to complete less than base year test

MOBILE6.2 Year 2002 (13 County) – Output

Speed	Arterial		Freeway	
	PM	NOx	PM	NOx
2.5	0.051	4.054	0.051	4.349
3	0.051	3.923	0.051	4.217
4	0.051	3.759	0.051	4.054
5	0.051	3.660	0.051	3.955
6	0.051	3.475	0.051	3.709
7	0.051	3.343	0.051	3.533
8	0.051	3.244	0.051	3.402
9	0.051	3.167	0.051	3.299
10	0.051	3.106	0.051	3.217
11	0.051	3.007	0.051	3.106
12	0.051	2.925	0.051	3.014
13	0.051	2.855	0.051	2.936
14	0.051	2.795	0.051	2.869
15	0.051	2.744	0.051	2.811
16	0.051	2.691	0.051	2.785
17	0.051	2.645	0.051	2.762
18	0.051	2.604	0.051	2.742
19	0.051	2.567	0.051	2.724
20	0.051	2.534	0.051	2.708
21	0.051	2.504	0.051	2.693
22	0.051	2.477	0.051	2.680
23	0.051	2.452	0.051	2.667
24	0.051	2.429	0.051	2.656
25	0.051	2.408	0.051	2.646
26	0.051	2.392	0.051	2.639
27	0.051	2.377	0.051	2.633
28	0.051	2.363	0.051	2.628
29	0.051	2.350	0.051	2.623
30	0.051	2.337	0.051	2.618
31	0.051	2.334	0.051	2.618
32	0.051	2.331	0.051	2.618
33	0.051	2.328	0.051	2.617
34	0.051	2.325	0.051	2.617

Speed	Arterial		Freeway	
	PM	NOx	PM	NOx
35	0.051	2.322	0.051	2.617
36	0.051	2.333	0.051	2.628
37	0.051	2.342	0.051	2.637
38	0.051	2.352	0.051	2.647
39	0.051	2.360	0.051	2.655
40	0.051	2.369	0.051	2.664
41	0.051	2.388	0.051	2.683
42	0.051	2.406	0.051	2.701
43	0.051	2.423	0.051	2.718
44	0.051	2.440	0.051	2.735
45	0.051	2.455	0.051	2.750
46	0.051	2.483	0.051	2.778
47	0.051	2.510	0.051	2.805
48	0.051	2.536	0.051	2.831
49	0.051	2.560	0.051	2.855
50	0.051	2.584	0.051	2.879
51	0.051	2.624	0.051	2.919
52	0.051	2.662	0.051	2.957
53	0.051	2.699	0.051	2.993
54	0.051	2.734	0.051	3.029
55	0.051	2.768	0.051	3.063
56	0.051	2.823	0.051	3.118
57	0.051	2.876	0.051	3.171
58	0.051	2.928	0.051	3.223
59	0.051	2.977	0.051	3.272
60	0.051	3.025	0.051	3.320
61	0.051	3.103	0.051	3.398
62	0.051	3.177	0.051	3.472
63	0.051	3.250	0.051	3.545
64	0.051	3.320	0.051	3.615
65	0.051	3.388	0.051	3.683

Local		Ramp	
PM	NOx	PM	NOx
0.051	2.369	0.051	2.380

MOBILE6.2 Year 2016 (13 County) – Output

PM Emission Factor (constant at all speeds) = 0.0159

Speed	Arterial	Freeway
	NOx	NOx
2.5	0.993	1.019
3	0.958	0.985
4	0.915	0.941
5	0.888	0.915
6	0.840	0.848
7	0.806	0.800
8	0.780	0.764
9	0.760	0.736
10	0.744	0.713
11	0.719	0.684
12	0.698	0.660
13	0.680	0.639
14	0.664	0.621
15	0.651	0.606
16	0.638	0.601
17	0.626	0.597
18	0.616	0.593
19	0.607	0.590
20	0.598	0.587
21	0.591	0.584
22	0.584	0.582
23	0.578	0.579
24	0.572	0.577
25	0.567	0.575
26	0.562	0.574
27	0.559	0.573
28	0.555	0.572
29	0.551	0.571
30	0.548	0.570
31	0.547	0.570
32	0.546	0.570
33	0.545	0.570
34	0.544	0.570

Speed	Arterial	Freeway
	NOx	NOx
35	0.543	0.570
36	0.546	0.572
37	0.548	0.574
38	0.550	0.577
39	0.552	0.579
40	0.554	0.581
41	0.559	0.585
42	0.563	0.589
43	0.567	0.593
44	0.571	0.597
45	0.574	0.601
46	0.580	0.607
47	0.586	0.613
48	0.592	0.618
49	0.598	0.624
50	0.603	0.629
51	0.612	0.638
52	0.620	0.646
53	0.628	0.654
54	0.636	0.662
55	0.643	0.669
56	0.655	0.681
57	0.667	0.693
58	0.678	0.704
59	0.688	0.715
60	0.699	0.725
61	0.715	0.741
62	0.731	0.757
63	0.746	0.773
64	0.761	0.788
65	0.776	0.802

Local	Ramp
NOx	NOx
0.585	0.586

MOBILE6.2 Year 2020 (13 County) – Output

PM Emission Factor (constant at all speeds) = 0.0141

Speed	Arterial	Freeway
	NOx	NOx
2.5	0.638	0.647
3	0.616	0.625
4	0.587	0.596
5	0.570	0.579
6	0.539	0.534
7	0.516	0.502
8	0.500	0.478
9	0.486	0.459
10	0.476	0.444
11	0.459	0.425
12	0.445	0.409
13	0.433	0.395
14	0.423	0.383
15	0.415	0.373
16	0.406	0.370
17	0.399	0.368
18	0.392	0.366
19	0.386	0.364
20	0.381	0.363
21	0.376	0.361
22	0.371	0.360
23	0.367	0.358
24	0.363	0.357
25	0.360	0.356
26	0.357	0.356
27	0.355	0.355
28	0.352	0.355
29	0.350	0.354
30	0.348	0.354
31	0.347	0.354
32	0.347	0.354
33	0.346	0.354
34	0.345	0.354

Speed	Arterial	Freeway
	NOx	NOx
35	0.345	0.354
36	0.346	0.355
37	0.348	0.357
38	0.349	0.358
39	0.351	0.360
40	0.352	0.361
41	0.355	0.364
42	0.358	0.367
43	0.360	0.369
44	0.363	0.372
45	0.365	0.374
46	0.369	0.378
47	0.373	0.382
48	0.376	0.385
49	0.380	0.389
50	0.383	0.392
51	0.389	0.398
52	0.394	0.403
53	0.399	0.408
54	0.404	0.413
55	0.408	0.417
56	0.416	0.425
57	0.423	0.432
58	0.430	0.439
59	0.436	0.445
60	0.443	0.452
61	0.453	0.462
62	0.463	0.471
63	0.472	0.481
64	0.481	0.490
65	0.490	0.499

Local	Ramp
NOx	NOx
0.375	0.380

MOBILE6.2 Year 2030 (13 County) – Output

PM Emission Factor (constant at all speeds) = 0.0129

Speed	Arterial	Freeway
	NOx	NOx
2.5	0.376	0.376
3	0.363	0.363
4	0.346	0.346
5	0.335	0.335
6	0.316	0.306
7	0.302	0.285
8	0.292	0.269
9	0.284	0.257
10	0.277	0.247
11	0.267	0.235
12	0.258	0.224
13	0.251	0.216
14	0.245	0.208
15	0.240	0.202
16	0.235	0.201
17	0.230	0.201
18	0.226	0.200
19	0.223	0.200
20	0.220	0.199
21	0.217	0.199
22	0.214	0.199
23	0.212	0.199
24	0.210	0.198
25	0.208	0.198
26	0.206	0.198
27	0.204	0.198
28	0.203	0.198
29	0.202	0.198
30	0.200	0.198
31	0.200	0.198
32	0.199	0.198
33	0.199	0.198
34	0.198	0.198

Speed	Arterial	Freeway
	NOx	NOx
35	0.198	0.198
36	0.199	0.199
37	0.200	0.200
38	0.201	0.201
39	0.202	0.202
40	0.203	0.203
41	0.204	0.204
42	0.206	0.206
43	0.207	0.207
44	0.208	0.208
45	0.210	0.210
46	0.212	0.212
47	0.214	0.214
48	0.216	0.216
49	0.217	0.217
50	0.219	0.219
51	0.222	0.222
52	0.224	0.224
53	0.227	0.227
54	0.229	0.229
55	0.232	0.232
56	0.235	0.235
57	0.238	0.238
58	0.242	0.242
59	0.245	0.245
60	0.248	0.248
61	0.252	0.252
62	0.257	0.257
63	0.261	0.261
64	0.265	0.265
65	0.269	0.269

Local	Ramp
NOx	NOx
0.210	0.228

MOBILE6.2 Year 2040 (13 County) – Output

PM Emission Factor (constant at all speeds) = 0.0127

Speed	Arterial	Freeway
	NOx	NOx
2.5	0.361	0.361
3	0.348	0.348
4	0.331	0.331
5	0.321	0.321
6	0.303	0.293
7	0.289	0.272
8	0.279	0.257
9	0.272	0.245
10	0.265	0.235
11	0.256	0.223
12	0.248	0.214
13	0.241	0.205
14	0.235	0.198
15	0.230	0.192
16	0.225	0.192
17	0.221	0.191
18	0.217	0.191
19	0.214	0.191
20	0.211	0.191
21	0.208	0.190
22	0.205	0.190
23	0.203	0.190
24	0.201	0.190
25	0.199	0.190
26	0.198	0.190
27	0.196	0.190
28	0.195	0.190
29	0.194	0.190
30	0.192	0.190
31	0.192	0.190
32	0.191	0.190
33	0.191	0.190
34	0.190	0.190

Speed	Arterial	Freeway
	NOx	NOx
35	0.190	0.190
36	0.191	0.191
37	0.192	0.192
38	0.193	0.193
39	0.194	0.194
40	0.194	0.194
41	0.196	0.196
42	0.197	0.197
43	0.199	0.199
44	0.200	0.200
45	0.201	0.201
46	0.203	0.203
47	0.205	0.205
48	0.206	0.206
49	0.208	0.208
50	0.210	0.210
51	0.212	0.212
52	0.214	0.214
53	0.217	0.217
54	0.219	0.219
55	0.221	0.221
56	0.224	0.224
57	0.227	0.227
58	0.230	0.230
59	0.233	0.233
60	0.235	0.235
61	0.239	0.239
62	0.243	0.243
63	0.247	0.247
64	0.250	0.250
65	0.254	0.254

Local	Ramp
NOx	NOx
0.200	0.220

PM2.5 Nonattainment Area Documentation – 9-County Area:

MOBILE6.2 Year 2002 - Input*

MOBILE6 INPUT FILE :
POLLUTANTS : NOx

RUN DATA
HOURLY TEMPERATURES: 55 57 59 62 65 67 68 69 70 70 69 68
66 64 62 61 60 59 58 57 57 56 55 55
FUEL RVP : 9.3

FUEL PROGRAM : 4
174.1 163.0 166.6 110.3 30.0 30.0 30.0 30.0
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0
1000.0 1000.0 1000.0 1000.0 150.0 150.0 87.0 87.0
80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0

REG DIST : 02atl_9.d

SCENARIO REC : arterial, 7+ county Atlanta PM2.5 area, 2002, 2.5 mph
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
RELATIVE HUMIDITY : 83 81 75 69 64 60 57 55 53 53 54 57
61 65 68 70 73 75 77 79 80 82 83 84
BAROMETRIC PRES : 29.02
PARTICLE SIZE : 2.5
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR : 370.00
AVERAGE SPEED : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2016 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : NOx

RUN DATA
HOURLY TEMPERATURES: 55  57  59  62  65  67  68  69  70  70  69  68
                     66  64  62  61  60  59  58  57  57  56  55  55
FUEL RVP          : 9.3

FUEL PROGRAM      : 4
  174.1  163.0  166.6  110.3   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

REG DIST          : 02atl_9.d
```

```
SCENARIO REC      : arterial, 7+ county Atlanta PM2.5 area, 2016, 2.5 mph
CALENDAR YEAR     : 2016
EVALUATION MONTH  : 7
RELATIVE HUMIDITY : 83  81  75  69  64  60  57  55  53  53  54  57
                    61  65  68  70  73  75  77  79  80  82  83  84
BAROMETRIC PRES   : 29.02
PARTICLE SIZE     : 2.5
PARTICULATE EF    : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR     : 11.0
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2020 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : NOx

RUN DATA
HOURLY TEMPERATURES: 55  57  59  62  65  67  68  69  70  70  69  68
                     66  64  62  61  60  59  58  57  57  56  55  55
FUEL RVP          : 9.3

FUEL PROGRAM      : 4
  174.1  163.0  166.6  110.3   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

REG DIST          : 02atl_9.d
```

```
SCENARIO REC      : arterial, 7+ county Atlanta PM2.5 area, 2020, 2.5 mph
CALENDAR YEAR     : 2020
EVALUATION MONTH  : 7
RELATIVE HUMIDITY : 83  81  75  69  64  60  57  55  53  53  54  57
                    61  65  68  70  73  75  77  79  80  82  83  84
BAROMETRIC PRES   : 29.02
PARTICLE SIZE     : 2.5
PARTICULATE EF    : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR     : 11.00
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2030 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : NOx

RUN DATA
HOURLY TEMPERATURES: 55  57  59  62  65  67  68  69  70  70  69  68
                     66  64  62  61  60  59  58  57  57  56  55  55
FUEL RVP          : 9.3

FUEL PROGRAM      : 4
  174.1  163.0  166.6  110.3   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

REG DIST          : 02atl_9.d
```

```
SCENARIO REC      : arterial, 7+ county Atlanta PM2.5 area, 2030, 2.5 mph
CALENDAR YEAR     : 2030
EVALUATION MONTH  : 7
RELATIVE HUMIDITY : 83  81  75  69  64  60  57  55  53  53  54  57
                    61  65  68  70  73  75  77  79  80  82  83  84
BAROMETRIC PRES   : 29.02
PARTICLE SIZE     : 2.5
PARTICULATE EF    : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR     : 11.00
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2040 - Input*

```
MOBILE6 INPUT FILE :
POLLUTANTS        : NOx

RUN DATA
HOURLY TEMPERATURES: 55  57  59  62  65  67  68  69  70  70  69  68
                     66  64  62  61  60  59  58  57  57  56  55  55
FUEL RVP          : 9.3

FUEL PROGRAM      : 4
  174.1  163.0  166.6  110.3   30.0   30.0   30.0   30.0
   30.0   30.0   30.0   30.0   30.0   30.0   30.0   30.0
 1000.0 1000.0 1000.0 1000.0  150.0  150.0   87.0   87.0
   80.0   80.0   80.0   80.0   80.0   80.0   80.0   80.0

REG DIST          : 02atl_9.d
```

```
SCENARIO REC      : arterial, 7+ county Atlanta PM2.5 area, 2040, 2.5 mph
CALENDAR YEAR     : 2040
EVALUATION MONTH  : 7
RELATIVE HUMIDITY : 83  81  75  69  64  60  57  55  53  53  54  57
                    61  65  68  70  73  75  77  79  80  82  83  84
BAROMETRIC PRES   : 29.02
PARTICLE SIZE     : 2.5
PARTICULATE EF    : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV
PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR     : 11.00
AVERAGE SPEED     : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN
```

* Speed scenario repeated for 3.0-65.0 mph, ramps, local, and freeway (2.5-65 mph) road types

MOBILE6.2 Year 2002 (9 County) – Output

Speed	Arterial		Freeway	
	PM	NOx	PM	NOx
2.5	0.057	4.884	0.057	5.205
3	0.057	4.721	0.057	5.042
4	0.057	4.518	0.057	4.839
5	0.057	4.396	0.057	4.717
6	0.057	4.178	0.057	4.425
7	0.057	4.022	0.057	4.216
8	0.057	3.905	0.057	4.059
9	0.057	3.814	0.057	3.938
10	0.057	3.741	0.057	3.840
11	0.057	3.627	0.057	3.711
12	0.057	3.532	0.057	3.603
13	0.057	3.451	0.057	3.512
14	0.057	3.382	0.057	3.434
15	0.057	3.322	0.057	3.366
16	0.057	3.262	0.057	3.339
17	0.057	3.209	0.057	3.314
18	0.057	3.161	0.057	3.292
19	0.057	3.119	0.057	3.273
20	0.057	3.081	0.057	3.255
21	0.057	3.047	0.057	3.239
22	0.057	3.016	0.057	3.225
23	0.057	2.987	0.057	3.212
24	0.057	2.961	0.057	3.199
25	0.057	2.937	0.057	3.188
26	0.057	2.918	0.057	3.181
27	0.057	2.900	0.057	3.175
28	0.057	2.884	0.057	3.169
29	0.057	2.869	0.057	3.163
30	0.057	2.855	0.057	3.158
31	0.057	2.851	0.057	3.158
32	0.056	2.847	0.056	3.158
33	0.056	2.843	0.056	3.158
34	0.056	2.840	0.056	3.158

Speed	Arterial		Freeway	
	PM	NOx	PM	NOx
35	0.056	2.836	0.056	3.157
36	0.056	2.847	0.056	3.168
37	0.056	2.857	0.056	3.178
38	0.056	2.866	0.056	3.188
39	0.056	2.875	0.056	3.197
40	0.056	2.884	0.056	3.205
41	0.056	2.904	0.056	3.225
42	0.056	2.923	0.056	3.244
43	0.056	2.941	0.056	3.262
44	0.056	2.958	0.056	3.280
45	0.056	2.975	0.056	3.296
46	0.056	3.004	0.056	3.326
47	0.056	3.033	0.056	3.354
48	0.056	3.060	0.056	3.381
49	0.056	3.085	0.056	3.407
50	0.056	3.110	0.056	3.432
51	0.056	3.152	0.056	3.474
52	0.056	3.193	0.056	3.514
53	0.056	3.232	0.056	3.553
54	0.056	3.269	0.056	3.591
55	0.056	3.306	0.056	3.627
56	0.056	3.364	0.056	3.686
57	0.056	3.421	0.056	3.742
58	0.056	3.476	0.056	3.797
59	0.056	3.529	0.056	3.850
60	0.056	3.580	0.056	3.901
61	0.056	3.662	0.056	3.983
62	0.056	3.742	0.056	4.063
63	0.056	3.819	0.056	4.140
64	0.056	3.893	0.056	4.215
65	0.056	3.966	0.056	4.287

Local		Ramp	
PM	NOx	PM	NOx
0.056	2.896	0.057	2.879

MOBILE6.2 Year 2016 (9 County) – Output

PM Emission Factor (constant at all speeds) = 0.0173

Speed	Arterial	Freeway
	NOx	NOx
2.5	1.724	1.756
3	1.660	1.692
4	1.581	1.613
5	1.534	1.566
6	1.453	1.450
7	1.395	1.367
8	1.352	1.305
9	1.318	1.256
10	1.291	1.218
11	1.249	1.169
12	1.215	1.128
13	1.185	1.094
14	1.160	1.065
15	1.138	1.039
16	1.117	1.034
17	1.099	1.029
18	1.082	1.024
19	1.068	1.020
20	1.054	1.017
21	1.043	1.014
22	1.032	1.011
23	1.022	1.008
24	1.013	1.006
25	1.004	1.004
26	0.997	1.002
27	0.991	1.001
28	0.985	1.000
29	0.980	0.999
30	0.974	0.998
31	0.973	0.998
32	0.971	0.998
33	0.969	0.998
34	0.968	0.998

Speed	Arterial	Freeway
	NOx	NOx
35	0.966	0.998
36	0.970	1.002
37	0.973	1.005
38	0.976	1.008
39	0.979	1.011
40	0.981	1.013
41	0.987	1.019
42	0.993	1.025
43	0.998	1.030
44	1.003	1.035
45	1.008	1.040
46	1.016	1.048
47	1.024	1.056
48	1.031	1.063
49	1.038	1.070
50	1.045	1.077
51	1.057	1.089
52	1.067	1.099
53	1.078	1.110
54	1.088	1.120
55	1.097	1.130
56	1.113	1.145
57	1.128	1.160
58	1.142	1.174
59	1.156	1.188
60	1.169	1.201
61	1.190	1.222
62	1.210	1.242
63	1.229	1.261
64	1.248	1.280
65	1.267	1.299

Local	Ramp
NOx	NOx
1.010	1.058

MOBILE6.2 Year 2020 (9 County) – Output

PM Emission Factor (constant at all speeds) = 0.0148 or 0.0149

Speed	Arterial	Freeway
	NOx	NOx
2.5	1.243	1.254
3	1.197	1.208
4	1.139	1.151
5	1.105	1.116
6	1.046	1.029
7	1.003	0.967
8	0.972	0.920
9	0.947	0.884
10	0.927	0.855
11	0.897	0.819
12	0.871	0.789
13	0.850	0.763
14	0.831	0.742
15	0.815	0.723
16	0.800	0.720
17	0.787	0.717
18	0.775	0.715
19	0.765	0.713
20	0.755	0.712
21	0.747	0.710
22	0.739	0.709
23	0.732	0.707
24	0.725	0.706
25	0.719	0.705
26	0.714	0.704
27	0.710	0.704
28	0.705	0.704
29	0.701	0.703
30	0.698	0.703
31	0.696	0.703
32	0.695	0.703
33	0.694	0.703
34	0.693	0.703

Speed	Arterial	Freeway
	NOx	NOx
35	0.692	0.703
36	0.694	0.705
37	0.696	0.708
38	0.698	0.710
39	0.700	0.712
40	0.702	0.714
41	0.706	0.718
42	0.710	0.722
43	0.714	0.725
44	0.717	0.729
45	0.721	0.732
46	0.726	0.738
47	0.731	0.743
48	0.736	0.748
49	0.741	0.753
50	0.746	0.757
51	0.753	0.764
52	0.760	0.772
53	0.767	0.778
54	0.774	0.785
55	0.780	0.791
56	0.790	0.801
57	0.799	0.810
58	0.808	0.819
59	0.817	0.828
60	0.825	0.837
61	0.838	0.850
62	0.851	0.862
63	0.863	0.875
64	0.875	0.887
65	0.887	0.898

Local	Ramp
NOx	NOx
0.724	0.771

MOBILE6.2 Year 2030 (9 County) – Output

PM Emission Factor (constant at all speeds) = 0.0130 or 0.0131

Speed	Arterial	Freeway
	NOx	NOx
2.5	0.820	0.820
3	0.789	0.789
4	0.749	0.749
5	0.726	0.726
6	0.685	0.663
7	0.656	0.618
8	0.635	0.585
9	0.618	0.559
10	0.604	0.538
11	0.583	0.513
12	0.566	0.492
13	0.551	0.474
14	0.539	0.459
15	0.528	0.445
16	0.518	0.445
17	0.509	0.445
18	0.501	0.445
19	0.494	0.445
20	0.488	0.445
21	0.483	0.445
22	0.477	0.444
23	0.473	0.444
24	0.468	0.444
25	0.464	0.444
26	0.461	0.444
27	0.458	0.444
28	0.455	0.445
29	0.452	0.445
30	0.449	0.445
31	0.448	0.445
32	0.447	0.445
33	0.447	0.445
34	0.446	0.445

Speed	Arterial	Freeway
	NOx	NOx
35	0.445	0.445
36	0.446	0.446
37	0.448	0.448
38	0.449	0.449
39	0.450	0.450
40	0.452	0.452
41	0.454	0.454
42	0.456	0.456
43	0.458	0.458
44	0.460	0.460
45	0.462	0.462
46	0.465	0.465
47	0.468	0.468
48	0.470	0.470
49	0.473	0.473
50	0.475	0.475
51	0.479	0.479
52	0.482	0.482
53	0.486	0.486
54	0.489	0.489
55	0.492	0.492
56	0.497	0.497
57	0.501	0.501
58	0.505	0.505
59	0.509	0.509
60	0.513	0.513
61	0.519	0.519
62	0.524	0.524
63	0.530	0.530
64	0.535	0.535
65	0.540	0.540

Local	Ramp
NOx	NOx
0.454	0.515

MOBILE6.2 Year 2040 (9 County) – Output

PM Emission Factor (constant at all speeds) = 0.0127

Speed	Arterial	Freeway
	NOx	NOx
2.5	0.361	0.361
3	0.348	0.348
4	0.331	0.331
5	0.321	0.321
6	0.303	0.293
7	0.289	0.272
8	0.279	0.257
9	0.272	0.245
10	0.265	0.235
11	0.256	0.223
12	0.248	0.214
13	0.241	0.205
14	0.235	0.198
15	0.230	0.192
16	0.225	0.192
17	0.221	0.191
18	0.217	0.191
19	0.214	0.191
20	0.211	0.191
21	0.208	0.190
22	0.205	0.190
23	0.203	0.190
24	0.201	0.190
25	0.199	0.190
26	0.198	0.190
27	0.196	0.190
28	0.195	0.190
29	0.194	0.190
30	0.192	0.190
31	0.192	0.190
32	0.191	0.190
33	0.191	0.190
34	0.190	0.190

Speed	Arterial	Freeway
	NOx	NOx
35	0.190	0.190
36	0.191	0.191
37	0.192	0.192
38	0.193	0.193
39	0.194	0.194
40	0.194	0.194
41	0.196	0.196
42	0.197	0.197
43	0.199	0.199
44	0.200	0.200
45	0.201	0.201
46	0.203	0.203
47	0.205	0.205
48	0.206	0.206
49	0.208	0.208
50	0.210	0.210
51	0.212	0.212
52	0.214	0.214
53	0.217	0.217
54	0.219	0.219
55	0.221	0.221
56	0.224	0.224
57	0.227	0.227
58	0.230	0.230
59	0.233	0.233
60	0.235	0.235
61	0.239	0.239
62	0.243	0.243
63	0.247	0.247
64	0.250	0.250
65	0.254	0.254

Local	Ramp
NOx	NOx
0.200	0.220

EXHIBIT 3A – VMT ESTIMATES FOR PUTNAM COUNTY, PM2.5 STANDARD

Traffic Count Station	2008 Corridor Volume	HPMS Functional Class	Length (Feet)	Length (Miles)	Historical TC Volume						Historical VMT						Linear Extrapolation				
					2003	2004	2005	2006	2007	2008	2003	2004	2005	2006	2007	2008	2010	2020	2030	2016	2040
0000	720	8	24633	4.67							2,882	3,654	2,794	3,893	3,755	3,357	3,875	4,953	6,032	4,522	7,110
0000	840	9	281875	53.39							38,528	48,846	37,357	52,035	50,195	44,876	51,795	66,213	80,632	60,446	95,051
0118	10690	2	41095	7.78	7,740	12,890	7,650	12,470	12,460	10,690	60,241	100,324	59,541	97,056	96,978	83,202	101,183	141,833	182,483	125,573	223,133
0121	8800	2	9406	1.78	10,340	7,800	9,690	10,190	9,320	8,800	18,419	13,895	17,261	18,152	16,602	15,676	16,668	16,668	16,668	16,668	16,668
0138	5280	6	13984	2.65	5,080	5,610	4,960	5,740	5,490	5,280	13,454	14,858	13,136	15,202	14,540	13,984	14,679	15,753	16,828	15,324	17,902
0141	4890	2	278	0.05	5,380	3,960	5,080	5,970	5,050	4,890	21,607	15,904	20,402	23,977	20,282	19,639	21,185	23,147	25,109	22,362	27,071
0141	4890	6	20927	3.96																	
0192	2950	7	1781	0.34	3,160	2,570	2,620	3,060	3,270	2,950	1,066	867	884	1,032	1,103	995	1,056	1,199	1,343	1,142	1,486
0211	10560	2	845	0.16	7,970	8,110	8,190	8,340	10,660	10,560	1,276	1,298	1,311	1,335	1,707	1,691	1,863	2,812	3,762	2,433	4,711
8005	720	8	24096	4.56							2,819	3,574	2,734	3,808	3,673	3,284	3,790	4,845	5,900	4,423	6,955
8019	840	9	2659	0.50							363	461	352	491	474	423	489	625	761	570	897
											160,656	203,681	155,773	216,979	209,308	187,125	216,581	278,049	339,517	253,462	400,985

Columns A - D from GDOT 2004 RC Database - Provided to ARC 12.08.05
Column B volumes updated in 2011
Columns F-K from GDOT Annual Traffic Count Program
Less than base year test established at 2002 values

Percent of Rural Local/Rural Minor Collector VMT, Year 2008:

TC0000, FC8	6%
TC0000, FC9	86%
TC8005, FC8	6%
TC8019, FC9	1%

EXHIBIT 3B – PUTNAM COUNTY RURAL LOCAL AND RURAL MINOR COLLECTOR VMT ESTIMATES

HISTORICAL PUTNAM COUNTY NONATTAINMENT AREA VMT ESTIMATES
3/29/11

Putnam County Statistics	2003	2004	2005	2006	2007	2008
Putnam County VMT (AADVMT)[1]	787,866	696,109	747,060	797,968	804,964	789,000
Putnam County Mileage (Centerline)[1]	564.62	563.8	563.8	563.8	563.8	563.8
Putnam County Square Miles[2]	345	345	345	345	345	345
Putnam County NAA Square Miles[2]	42.96	42.96	42.96	42.96	42.96	42.96
% Putnam County NAA Mileage	14	14	14	14	14	14
% Putnam County NAA Square Miles	12	12	12	12	12	12

Putnam County NAA is approximately 12% of Putnam County in geographic size and 14% in roadway mileage. However, if it was assumed that Putnam County NAA carried approximately 12-14% of VMT (proportionally) then the total Putnam County NAA VMT would be less than what historical traffic count data indicates. i.e., the Putnam County NAA carries more VMT than its size would indicate. For this reason, 2008 traffic count data for the Putnam County NAA is estimated using the GDOT RC database[3] and calculated as a percentage of total Putnam County VMT for the same year, from the GDOT 445 report[1]. This percentage is then applied to years 2003-2007 to estimate historical Putnam County NAA VMT. Detailed documentation will be provided in the conformity addendum for the 2040 RTP and FY 12-17 TIP.

2008 Putnam County NAA VMT Estimates	
Putnam County NAA VMT	187,098
Putnam County VMT	789,000
% 2008 Putnam County NAA VMT	23.71%

Historical Putnam County NAA VMT	2003	2004	2005	2006	2007	2008
Putnam County NAA VMT	160,656	203,681	155,773	216,979	209,308	187,098

There are no historical data for Rural Local and Rural Minor Collector VMT (denoted by 0000 and 8000 series traffic count ID). These data are estimated by subtracting the NAA VMT for functional classes greater than Rural Local and Rural Minor Collector from the total NAA VMT for each year.

Putnam County NAA Rural Local and Rural Minor Collector VMT Estimates	2003	2004	2005	2006	2007	2008
NAA VMT (Non Local, Non Min Coll)	116,063	147,146	112,535	156,753	151,211	135,186
Rural Local/MinColl NAA VMT	44,593	56,535	43,237	60,226	58,097	51,912

1. GDOT 445 Series Report - http://www.dot.state.ga.us/dot/plan-prog/transportation_data/400reports/index.shtml
2. Georgia Environmental Protection Division, Air Protection Branch
3. GDOT 2004 Roadway Characteristics Database

PLAN 2040 Conformity Determination Report

EXHIBIT 4 - EMISSION ESTIMATES FOR PUTNAM COUNTY NONATTAINMENT AREA

EMISSION ESTIMATES FOR PUTNAM COUNTY NONATTAINMENT AREA
2030 RTP / FY 08-13 TIP CONFORMITY ANALYSIS, PM2.5 STANDARD

HPMS Functional Classification	VMT	Speed	2002 Base Year Emission Factors								PM2.5 (tpd)	NOx (tpd)	PM2.5 (tpy)	NOx (tpy)
			PM2.5 EF				Nox EF							
			FWY	ART	RAMP	LOC	FWY	ART	RAMP	LOC				
Rural Principal Arterial (2)	40,549	39		0.0582				2.9260			0.003	0.131	0.950	47.736
Rural Principal Arterial (2)	83,311	54	0.0582		0.0590		3.6450		2.9270		0.005	0.329	1.953	120.255
Rural Minor Arterial (6)	34,872	38		0.0582				2.917			0.002	0.112	0.817	40.927
Rural Major Collector (7)	1,130	38		0.0582				2.917			0.000	0.004	0.026	1.326
Rural Minor Collector (8)	12,699	36		0.0582				2.897			0.001	0.041	0.297	14.802
Rural Local (9)	48,239	18				0.0582				2.961	0.003	0.157	1.130	57.470
Total	220,800										0.014	0.774	5.173	282.516

NOTE:
1. Allocation of HPMS VMT by functional classification to particular drive cycle emission factor based on MOBILE6 technical guidance (January 2002), Section 4.2.

2. Subset of Rural Principal Arterial VMT that operate under freeway driving conditions (facility type > 11 and ffs > 50mph) are allocated to freeway and ramp drive cycle emission factors, 92% and 8%, respectively. To calculate the subset of Rural Principal Arterial VMT that meet the "freeway" criteria, the percentage of VMT that meets these criteria is estimated using the 20-county travel model, 7-county region only, and applied to the HPMS VMT for the Putnam County NAA.

	2002
2002 travel model RPA VMT =	1,625,429
2002 travel model RPA VMT (freeway) =	1,093,304
Percent travel model RPA VMT (freeway)=	67.3%
2002 Putnam NAA RPA HPMS VMT =	123,860
Putnam NAA RPA HPMS VMT (freeway) =	83,311
Putnam NAA RPA HPMS VMT (non-freeway) =	40,549

3. Congested Speeds are extrapolated from ARC travel model, 7-county region only, for each analysis year using networks developed for 2030 RTP / FY 08-13 TIP.

EMISSION ESTIMATES FOR PUTNAM COUNTY NONATTAINMENT AREA
2040 RTP / FY 12-17 TIP CONFORMITY ANALYSIS, PM2.5 STANDARD

HPMS Functional Classification	VMT	Speed	2016 Emission Factors											
			PM2.5 EF				Nox EF				PM2.5 (tpd)	NOx (tpd)	PM2.5 (tpy)	NOx (tpy)
			FWY	ART	RAMP	LOC	FWY	ART	RAMP	LOC				
Rural Principal Arterial (2)	57,662	34		0.0173				0.9660			0.001	0.061	0.401	22.411
Rural Principal Arterial (2)	88,189	54	0.0173		0.0173		1.1300		1.0580		0.002	0.109	0.614	39.891
Rural Minor Arterial (6)	37,719	36		0.0173				0.966			0.001	0.040	0.263	14.660
Rural Major Collector (7)	1,142	34		0.0173				0.968			0.000	0.001	0.008	0.445
Rural Minor Collector (8)	8,945	35		0.0173				0.966			0.000	0.010	0.062	3.477
Rural Local (9)	61,016	16				0.0173				1.01	0.001	0.068	0.425	24.795
Total	254,672										**0.005**	**0.290**	**1.773**	**105.678**

NOTE:
1. Allocation of HPMS VMT by functional classification to particular drive cycle emission factor based on MOBILE6 technical guidance (January 2002), Section 4.2.

2. Subset of Rural Principal Arterial VMT that operate under freeway driving conditions (facility type > 11 and ffs > 50mph) are allocated to freeway and ramp drive cycle emission factors, 92% and 8%, respectively. To calculate the subset of Rural Principal Arterial VMT that meet the "freeway" criteria, the percentage of VMT that meets these criteria is estimated using the 20-county travel model, 7-county region only, and applied to the HPMS VMT for the Putnam County NAA.

	2016
2016 travel model RPA VMT =	1,643,720
2016 travel model RPA VMT (freeway) =	993,879
Percent travel model RPA VMT (freeway)=	60.5%
2016 Putnam NAA RPA HPMS VMT =	145,850
Putnam NAA RPA HPMS VMT (freeway) =	88,189
Putnam NAA RPA HPMS VMT (non-freeway) =	57,662

3. Congested Speeds are extrapolated from ARC travel model, 7-county region only, for each analysis year using networks developed for 2040 RTP / FY 12-17 TIP.

EMISSION ESTIMATES FOR PUTNAM COUNTY NONATTAINMENT AREA
2040 RTP / FY 12-17 TIP CONFORMITY ANALYSIS, PM2.5 STANDARD

HPMS Functional Classification	VMT	Speed	2020 Emission Factors											
			PM2.5 EF				Nox EF				PM2.5 (tpd)	NOx (tpd)	PM2.5 (tpy)	NOx (tpy)
			FWY	ART	RAMP	LOC	FWY	ART	RAMP	LOC				
Rural Principal Arterial (2)	64,659	35		0.0149				0.6930			0.001	0.049	0.388	18.028
Rural Principal Arterial (2)	97,873	53	0.0149		0.0149		0.7850		0.7710		0.002	0.085	0.587	30.868
Rural Minor Arterial (6)	38,149	35		0.0149				0.693			0.001	0.029	0.229	10.637
Rural Major Collector (7)	1,199	33		0.0149				0.694			0.000	0.001	0.007	0.335
Rural Minor Collector (8)	9,798	34		0.0149				0.693			0.000	0.007	0.059	2.732
Rural Local (9)	66,838	16				0.0149				0.724	0.001	0.053	0.401	19.470
Total	278,515										**0.005**	**0.225**	**1.670**	**82.070**

NOTE:
1. Allocation of HPMS VMT by functional classification to particular drive cycle emission factor based on MOBILE6 technical guidance (January 2002), Section 4.2.

2. Subset of Rural Principal Arterial VMT that operate under freeway driving conditions (facility type > 11 and ffs > 50mph) are allocated to freeway and ramp drive cycle emission factors, 92% and 8%, respectively. To calculate the subset of Rural Principal Arterial VMT that meet the "freeway" criteria, the percentage of VMT that meets these criteria is estimated using the 20-county travel model, 7-county region only, and applied to the HPMS VMT for the Putnam County NAA.

	2020
2020 travel model RPA VMT =	1,754,352
2020 travel model RPA VMT (freeway) =	1,056,431
Percent travel model RPA VMT (freeway)=	60.2%
2020 Putnam NAA RPA HPMS VMT =	162,531
Putnam NAA RPA HPMS VMT (freeway) =	97,873
Putnam NAA RPA HPMS VMT (non-freeway) =	64,659

3. Congested Speeds are extrapolated from ARC travel model, 7-county region only, for each analysis year using networks developed for 2040 RTP / FY 12-17 TIP.

EMISSION ESTIMATES FOR PUTNAM COUNTY NONATTAINMENT AREA
2040 RTP / FY 12-17 TIP CONFORMITY ANALYSIS, PM2.5 STANDARD

HPMS Functional Classification	VMT	Speed	2030 Emission Factors											
			PM2.5 EF				Nox EF				PM2.5 (tpd)	NOx (tpd)	PM2.5 (tpy)	NOx (tpy)
			FWY	ART	RAMP	LOC	FWY	ART	RAMP	LOC				
Rural Principal Arterial (2)	80,261	39		0.0131				0.4470			0.001	0.040	0.423	14.435
Rural Principal Arterial (2)	123,973	51	0.0131		0.0131		0.4790		0.5150		0.002	0.066	0.653	24.036
Rural Minor Arterial (6)	39,223	31		0.0131				0.449			0.001	0.019	0.207	7.086
Rural Major Collector (7)	1,343	31		0.0131				0.449			0.000	0.001	0.007	0.243
Rural Minor Collector (8)	11,932	33		0.0131				0.447			0.000	0.006	0.063	2.146
Rural Local (9)	81,393	16				0.0131				0.454	0.001	0.041	0.429	14.868
Total	338,125										**0.005**	**0.172**	**1.782**	**62.813**

NOTE:
1. Allocation of HPMS VMT by functional classification to particular drive cycle emission factor based on MOBILE6 technical guidance (January 2002), Section 4.2.

2. Subset of Rural Principal Arterial VMT that operate under freeway driving conditions (facility type > 11 and ffs > 50mph) are allocated to freeway and ramp drive cycle emission factors, 92% and 8%, respectively. To calculate the subset of Rural Principal Arterial VMT that meet the "freeway" criteria, the percentage of VMT that meets these criteria is estimated using the 20-county travel model, 7-county region only, and applied to the HPMS VMT for the Putnam County NAA.

	2030
2030 travel model RPA VMT =	2,040,464
2030 travel model RPA VMT (freeway) =	1,238,589
Percent travel model RPA VMT (freeway)=	60.7%
2030 Putnam NAA RPA HPMS VMT =	204,234
Putnam NAA RPA HPMS VMT (freeway) =	123,973
Putnam NAA RPA HPMS VMT (non-freeway) =	80,261

3. Congested Speeds are extrapolated from ARC travel model, 7-county region only, for each analysis year using networks developed for 2040 RTP / FY 12-17 TIP.

EMISSION ESTIMATES FOR PUTNAM COUNTY NONATTAINMENT AREA
2040 RTP / FY 12-17 TIP CONFORMITY ANALYSIS, PM2.5 STANDARD

HPMS Functional Classification	VMT	Speed	2040 Emission Factors											
			PM2.5 EF				Nox EF				PM2.5 (tpd)	NOx (tpd)	PM2.5 (tpy)	NOx (tpy)
			FWY	ART	RAMP	LOC	FWY	ART	RAMP	LOC				
Rural Principal Arterial (2)	97,956	35		0.0127				0.1960			0.001	0.021	0.501	7.725
Rural Principal Arterial (2)	147,981	51	0.0127		0.0127		0.2080		0.2200		0.002	0.034	0.756	12.441
Rural Minor Arterial (6)	40,298	28		0.0127				0.196			0.001	0.009	0.206	3.178
Rural Major Collector (7)	1,486	29		0.0127				0.196			0.000	0.000	0.008	0.117
Rural Minor Collector (8)	14,066	31		0.0127				0.194			0.000	0.003	0.072	1.098
Rural Local (9)	95,948	16				0.0127				0.2	0.001	0.021	0.490	7.721
Total	397,734										**0.006**	**0.088**	**2.032**	**32.280**

NOTE:
1. Allocation of HPMS VMT by functional classification to particular drive cycle emission factor based on MOBILE6 technical guidance (January 2002), Section 4.2.

2. Subset of Rural Principal Arterial VMT that operate under freeway driving conditions (facility type > 11 and ffs > 50mph) are allocated to freeway and ramp drive cycle emission factors, 92% and 8%, respectively. To calculate the subset of Rural Principal Arterial VMT that meet the "freeway" criteria, the percentage of VMT that meets these criteria is estimated using the 20-county travel model, 7-county region only, and applied to the HPMS VMT for the Putnam County NAA.

	2040
2040 travel model RPA VMT =	2,311,263
2040 travel model RPA VMT (freeway) =	1,390,694
Percent travel model RPA VMT (freeway)=	60.2%
2040 Putnam NAA RPA HPMS VMT =	245,936
Putnam NAA RPA HPMS VMT (freeway) =	147,981
Putnam NAA RPA HPMS VMT (non-freeway) =	97,956

3. Congested Speeds are extrapolated from ARC travel model, 7-county region only, for each analysis year using networks developed for 2040 RTP / FY 12-17 TIP.

PLAN 2040 Conformity Determination Report

Exhibit 5

Summary of Interagency Consultation Group Meetings*

* These documents are representative of Interagency Consultation meeting summaries. Actual meeting summaries are available upon request.

September 22, 2009

ARC staff updated Interagency on the status of the *Envision6* TIP Amendment #6 and the plan to produce a conformity inducing TIP Amendment #7. ARC also announced that the development of PLAN 2040 is underway. ARC stated that planning assumptions would come forward to Interagency in 2010.

January 27, 2010

ARC staff explained to Interagency that *Envision6* TIP Amendment #7 received a positive conformity determination in December, 2009. TIP Amendment #8 and #9 were being processed. Neither amendment is expected to trigger a conformity determination. Staff also explained that the agency does not plan on demonstrating conformity again before the release of PLAN 2040 in mid 2011, unless TIGER grants are awarded to the region.

Interagency was also updated on the timeline for the conversion to the MOVES air quality model. MOVES is expected to replace MOBILE6 for emissions analysis work in March 2012.

March 23, 2010

A federal register notice officially notes the use of the MOVES air quality model is required for conformity determinations after March 2, 2012.

June 29, 2010

Planning staff announced that an ARC Board PLAN 2040 retreat was scheduled for July 22, 2010 to start the framing process for the final plan document. Staff still anticipates planning assumptions coming to Interagency in the fall of 2010.

Envision6 TIP Amendment #10 was announced to require a conformity determination due to a combination of projects that altered capacity in the region. TIP Amendment #10 will be the final conformity determination prior to the adoption of PLAN 2040 in mid 2011. The thirty-day public comment period commences on July 3.

Gainesville-Hall MPO (GHMPO) updated Interagency on the development of their 2040 RTP. They will hold their first public meeting on July 14. They anticipate three more public meetings before the plan is adopted. GHMPO will coordinate with ARC in providing a project list for the final conformity determination for PLAN 2040.

October 26, 2010

Interagency members were provided with the first set of PLAN 2040 planning and modeling assumptions for review. Exhibit 1A and 1B from the *Envision6* RTP were updated and disseminated. Updates to the document relative to the last TIP amendment were discussed. Interagency consensus is planned for December.

Demographic assumptions were outlined in a presentation. Consensus on regional demographics will be sought later in winter.

GHMPO updated Interagency on their 2040 RTP work. Efforts were moving along as scheduled and they plan to time the release of their RTP with ARC's in August 2011. They anticipate delivering a project list to ARC in spring, 2011.

Interagency was also updated on the status of House Bill 277 (The Transportation Investment Act), which, if passed by voters, would trigger a conformity determination amendment to PLAN 2040 in 2012. HB 277 allows for a regional referendum on a sales tax list of expansion projects throughout the region.

January 25, 2011

Interagency approved the modifications to Exhibits 1A and 1B in the planning assumptions presented in the October meeting. The date of approval is modified from December to January, to reflect the date of concurrence.

ARC requested that Exhibit 1C, which contains regional land use and demographic information used as model inputs, be electronically distributed to Interagency and concurrence received via email before the next Interagency meeting.

ARC provided Interagency with an overview of the financial planning assumptions used in PLAN 2040 to demonstrate fiscal constraint. These assumptions include information on the inflation rate, project costs and anticipated future revenue streams. All projects in Plan 2040 will be constrained by these variables. Future revenue streams are produced by ARC and its planning partners (GDOT, GRTA, SRTA, MARTA, FTA, FHWA and GHMPO). ARC expects a total of $22 billion in federal funds between 2012 and 2030 to match local and state funds, an 8.6% decrease from Envision6 funding levels.

GHMPO updated Interagency on the state of the Gainesville-Hall County RTP development. Socioeconomic data has been developed and GDOT is working on a 2040 transportation model. Additionally, GHMPO submitted draft financial review material to GDOT and are addressing comments. GHMPO is putting together a final financial plan and anticipate providing ARC with a project list in March for inclusion in the final transportation model used for emissions analysis. The final deadline for project submission to be included in the last ARC model run is April 4, 2011.

March 22, 2011

ARC gave a presentation to Interagency on PLAN 2040 results and programs. The slides are available on ARC's website. ARC will be seeking approval for the plan from the commission's Board in July. PLAN 2040 follows the state's strategic transportation program by advocating for the following primary objectives: improving mobility, transforming Georgia's transportation network and enabling and supporting economic growth engines in the state.

Funding limits the region's ability to modify the transportation network in a way that keeps up with the expected growth. The Atlanta region is expected to grow to 8 million people and 4.5 million jobs by the year 2040. This addition is similar to absorbing a city the size of St. Louis into our existing area. Following the recent trend in the reduction of federal funding, local money makes up the largest piece of expected revenue for PLAN 2040. Total funding is reduced from what the region expected to receive in the last RTP, *Envision6*. Of that reduced pot of money, 71 percent will be needed to modernize and maintain the existing infrastructure, up from 55 percent in *Envision6*. The left-over funding can be used for system expansion and regional programs.

PLAN 2040 investments are expected to help maintain the roadway network at a rating of 70 percent in good condition, down from 95 percent today. Reliable trips are expected to increase with the implementation of more regional transit and the managed lanes system. In addition, due to an increase in transit and increases in density, access to employment centers is expected to increase through the life of the plan; providing employers with the access to talented workers needed to fuel economic growth in the region. The Transportation Investment Act will offer voters in the region the chance to inject up to an additional $22 billion into the region's transportation program.

EPA announced that they anticipate the conformity grace-period for using the new MOVES air quality model to be lengthened up to one year beyond the March 2012 deadline. ARC has been working on developing the tools to use MOVES and will keep Interagency up to date on work in that area.

ARC announced they plan on providing Interagency with PLAN 2040 project lists in the next scheduled meeting of the committee, in May.

May 24, 2011

ARC presented Interagency with the draft PLAN 2040 Conformity Determination Report (CDR) and project list. These materials, along with the final PLAN 2040 online public meeting, were also made available on ARC's website. ARC staff explained that public comment would continue until June 20, 2011. The emissions analysis work shows the region is below budget/baseline values for both ozone and PM2.5 for all model years.

In addition, Interagency was provided with two abbreviated lists that show new projects since the last conformity determination in September 2010 and projects that had been dropped or moved into regional aspirations. New projects in this plan came from local comprehensive transportation plans and special studies. Staff expects the ARC Board to adopt the plan in July, and the GRTA Board to do so in August. ARC is hoping for a final conformity determination on PLAN 2040 by September 1, 2011.

The GHMPO updated Interagency on their timeline to finalize their 2040 plan. A final project list was submitted to ARC on May 20, 2011. This list was then provided to Interagency on May 24, 2011. Only a few minor changes were made since the previous version of the list was provided to ARC in April, 2011. Fee explained that the public comment for their 2040 plan update would run from June 14 – July 13, 2011. The expected date of plan adoption from the policy board is August 9, 2011.