**Modeling Planning Assumptions for I&M Reduction of Requirements 110(l) Noninterference Demonstration (modeling commenced February 2023)**

**2015 EIGHT-HOUR OZONE STANDARD PLANNING ASSUMPTIONS & MODELING INPUTS**

**General Methods and Assumptions**

1. Modeling Methodology: Run the MOVES version 3.1 model in inventory mode to determine the total NOx and VOC emissions in the 7-county maintenance area.
2. Analysis Years: 2018, 2020, 2025, 2030, 2033, 2035, 2040, 2045, 2050
3. Determining Impact of I&M Reduction in Requirements on Conformity Test
   1. Motor Vehicle Emission Budget (MVEB) Test[[1]](#footnote-1) before and after I&M Reduction
      1. For years prior to 2033, 2018 MVEBs are used:
         1. NOx: 99.99 tpd
         2. VOC: 54.00 tpd
      2. For years 2033 and later, 2033 MVEBs are used:
         1. NOx: 54.00 tpd
         2. VOC: 35.00 tpd
4. Comparison with 2018 maintenance plan emissions inventory both before and after I&M reduction.
5. Incremental impact of I&M reduction (difference in tons per day and % increase)
6. Modeling Start Date: February 2023. This start date is defined by Georgia EPD as the initiation of the first model run for this 110(l) noninterference demonstration.

**Travel Demand Modeling Assumptions**

1. Calibration Year: 2015
   1. Model calibrated/validated to the year 2015 using updated data and a comparison between estimated volumes and observed counts. See Appendix A for validation/calibration information.
2. Social/Economic Data: See Appendix B.
3. ARC’s Activity-Based Travel Demand Model (ABM) is the basis for these runs. See Appendix C for an overview of ABM specifications.

**Emissions Modeling Assumptions**

1. Emissions Model: MOVES3 – Database: movesdb20221007 (MOVES version 3.1)
   1. Emissions Process – use MOVES in inventory mode for a July weekday
      1. For the years 2020, 2030, 2040, and 2050 modeled travel data is used to calculate emissions. For the years 2033 and 2035, emissions were interpolated between 2030 and 2040 emissions. For the years 2025 and 2045, emissions were interpolated between 2020 and 2030 and 2040 and 2050, respectively. 2018 emissions came from the 2015 ozone NAAQS maintenance plan, no change needed as MOVES3 based. For 2020, there was also a mock run where 2020 was assumed with the reduced I&M program in order to provide an interpolated 2025 emissions value for a reduced I&M program (based on 2020 and 2030 reduced I&M scenarios).
   2. Run separately for the 6-county and 1-county portions of the nonattainment area[[2]](#footnote-2)
      1. 6-county area activity, vehicle population and other inputs are assigned to Fulton County while running MOVES
      2. 1-county area activity, vehicle population and other inputs are assigned to Bartow County while running MOVES
2. MOVES Inputs
   1. Road Type Distribution – Processed from the travel demand model, GDOT HPMS counts and MOVES defaults. Summarizes VMT fraction by road type and source type for the 6 and 1 counties separately.
   2. Source Type Population
      1. Started with 2020 R.L. Polk & Co. registration data for the Atlanta nonattainment counties
      2. Future analysis year data is grown from 2020 based on the ratio of MPO population estimates
      3. Since the population of vehicle type 62 (combination long-haul trucks) can easily be underrepresented in areas with lots of through traffic, the vehicle population for MOVES source type 62 was revised using MOVES default VMT/VPOP ratios and VMT for HPMS type 60 data
   3. Vehicle Type VMT
      1. HPMS VTypeYear - Processed from the travel demand model, GDOT HPMS Counts, and an EPA daily to annual VMT converter. Assigns total annual VMT by HPMS vehicle type.
      2. Month VMT Fraction: MOVES defaults
      3. Day VMT Fraction: MOVES defaults
      4. Hour VMT Fraction: Derived from the travel demand model by source and road type. The fractions are determined separately for the 6 and 1 county areas.
   4. I&M Programs – Applied to the 6-county area only and runs will be conducted for the current I&M program and reduced I&M program which excludes the gas cap pressure check test (See Appendix D)
   5. Age Distribution – Age data was derived from 2020 R.L. Polk & Co. registration data for the 6 and 1 counties separately for all vehicle types, except HDV8b (Source type 62) where MOVES defaults were used
   6. Average Speed Distribution – Processed from the travel demand model with HPMS VMT adjustment factors applied. Calculates VHT by hour by speed bin by source. The distribution is determined separately for the 6 and 1 county areas.
   7. Fuel – Local fuel use now matches between the 6- and 1-county areas due to the relaxation of the RVP summer fuel requirement in the 6-county area. MOVES3 was updated to correctly characterize Atlanta area fuels, so MOVES defaults were used.
   8. Meteorology – July 2018 weather for Hartsfield-Jackson Atlanta International Airport was used for this analysis consistent with the 2015 Eight Hour Ozone Maintenance SIP
   9. Starts – The regional travel demand model determines the number of trip starts in each of the 6 and 1 county areas. Applies only to the trips per day input. Trips per day for MOVES3 requires the activity be split by vehicle type for each of the 6 and 1 county areas. This split is accomplished by multiplying total trips per day from the regional travel demand model times the fraction of trips by each vehicle type. This fraction is calculated from vehicle population and MOVES default starts per day per vehicle. Defaults used for the rest of the start inputs.
   10. Idle – MOVES defaults
   11. Hotelling – MOVES defaults
3. VMT HPMS Adjustment Factors
   1. Calculated for the year 2019 (See Appendix E)
   2. 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
   3. Summer (seasonal) adjustment to convert from average annual VMT to summer-season VMT[[3]](#footnote-3)
   4. Factors applied to VMT estimates generated by ARC travel demand model for 6-county portion and 1-county portion of 21-county modeling domain, separately
   5. Factors aggregated up to MOVES road types from base HPMS functional classifications
4. Off-Model Calculations
   1. Senior I/M Exemption (emissions debit)
      1. 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
      2. This exemption assumption will be unchanged for reduced I&M scenario.
5. TCMs
   1. No additional credit is taken in the emissions modeling process for SIP TCMs
   2. A full list of implemented TCMs is attached as Appendix F (only one remaining)

**2008 EIGHT-HOUR OZONE STANDARD PLANNING ASSUMPTIONS & MODELING INPUTS**

**General Methods and Assumptions**

1. Modeling Methodology: Run the MOVES version 3.1 model in inventory mode to determine the total NOx and VOC emissions in the 15-county maintenance area.
2. Analysis Years: 2014, 2020, 2025, 2030, 2035, 2040, 2045, 2050
3. Determining Impact of I&M Reduction in Requirements on Conformity Test
   1. Motor Vehicle Emission Budget (MVEB) Test[[4]](#footnote-4) before and after I&M Reduction
      1. For years prior to 2030, 2014 MVEBs are used and modified for MOVES3:
         1. NOx: 184.17 tpd
         2. VOC: 88.95 tpd
      2. For years 2030 and later, 2030 MVEBs are used and unchanged with MOVES3:
         1. NOx: 58 tpd
         2. VOC: 52 tpd
4. Comparison with 2018 maintenance plan emissions inventory both before and after I&M reduction.
5. Incremental impact of I&M reduction (difference in tons per day and % increase)
6. Modeling Start Date: February 2023. This start date is defined by Georgia EPD as the initiation of the first model run for this 110(l) noninterference demonstration.

**Travel Demand Modeling Assumptions**

1. Calibration Year: 2015
   1. Model calibrated/validated to the year 2015 using updated data and a comparison between estimated volumes and observed counts. See Appendix A for validation/calibration information.
2. Social/Economic Data: See Appendix B.
3. ARC’s Activity-Based Travel Demand Model (ABM) is the basis for these runs. See Appendix C for an overview of ABM specifications.

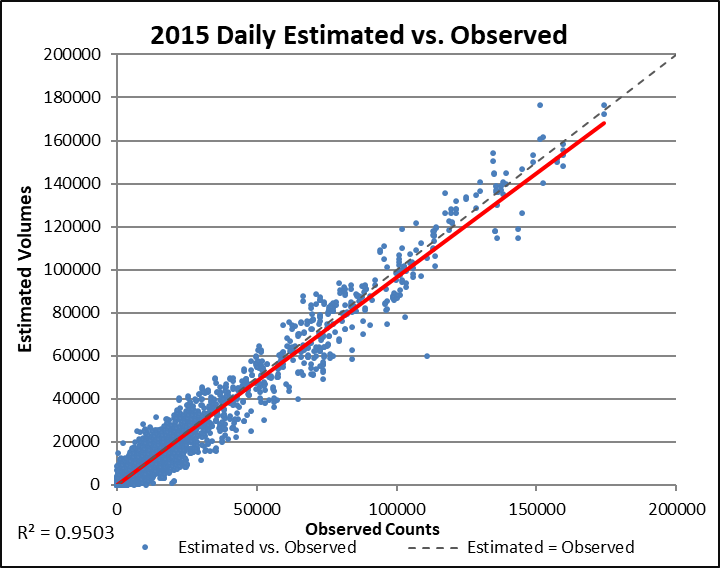
**Emissions Modeling Assumptions**

1. Emissions Model: MOVES3 – Database: movesdb20221007 (MOVES Version 3.1)
   1. Emissions Process – use MOVES in inventory mode for a July weekday
      1. For the years 2014, 2020, 2030, 2040, and 2050 modeled travel data is used to calculate emissions. Prior to the I&M 110(l) noninterference demonstration comparing emissions before and after I&M reduction, emissions had to modified for the base (current I&M) case for MOVES3 for 2014 from the maintenance plan including the MVEB. The other years were already updated through the most recent transportation conformity determination approved January 4, 2023. For 2030 while the 2008 ozone NAAQS maintenance plan needs to have safety margins and trends adjusted, the rest of the plan is unchanged including the 2030 MVEB. For the years 2025 and 2035, emissions were interpolated between 2030 and 2040 emissions. For the years 2025 and 2045, emissions were interpolated between 2020 and 2030 and 2040 and 2050, respectively. For 2020, there was also a mock run where 2020 was assumed with the reduced I&M program in order to provide an interpolated 2025 emissions value for a reduced I&M program (based on 2020 and 2030 reduced I&M scenarios).
   2. Run separately for the 13-county and 2-county portions of the nonattainment area[[5]](#footnote-5)
      1. 13-county area activity, vehicle population and other inputs are assigned to Fulton County while running MOVES
      2. 2-county area activity, vehicle population and other inputs are assigned to Bartow County while running MOVES
2. MOVES Inputs
   1. Road Type Distribution – Processed from the travel demand model, GDOT HPMS counts and MOVES defaults. Summarizes VMT fraction by road type and source type for the 13 and 2 counties separately.
   2. Source Type Population
      1. Started with 2020 R.L. Polk & Co. registration data for the Atlanta maintenance counties for the 2008 ozone NAAQS that include the nonattainment counties for the 2015 ozone NAAQSS
      2. Future analysis year data is grown from 2020 based on the ratio of MPO population estimates
      3. Since the population of vehicle type 62 (combination long-haul trucks) can easily be underrepresented in areas with lots of through traffic, the vehicle population for MOVES source type 62 was revised using MOVES default VMT/VPOP ratios and VMT for HPMS type 60 data
   3. Vehicle Type VMT
      1. HPMS VTypeYear - Processed from the travel demand model, GDOT HPMS Counts, and an EPA daily to annual VMT converter. Assigns total annual VMT by HPMS vehicle type.
      2. Month VMT Fraction: MOVES defaults
      3. Day VMT Fraction: MOVES defaults
      4. Hour VMT Fraction: Derived from the travel demand model by source and road type. The fractions are determined separately for the 13 and 2 county areas.
   4. I&M Programs – Applied to the 13-county area only and runs will be conducted for the current I&M program and reduced I&M program which excludes the gas cap pressure check test (See Appendix D)
   5. Age Distribution – Age data was derived from 2020 R.L. Polk & Co. registration data for the 13 and 2 counties separately for all vehicle types, except HDV8b (Source type 62) where MOVES defaults were used
   6. Average Speed Distribution – Processed from the travel demand model with HPMS VMT adjustment factors applied. Calculates VHT by hour by speed bin by source. The distribution is determined separately for the 13 and 2 county areas.
   7. Fuel – Local fuel use now matches between the 13- and 2-county areas due to the relaxation of the RVP summer fuel requirement in the 13-county area. MOVES3 was updated to correctly characterize Atlanta area fuels, so MOVES defaults were used.
   8. Meteorology – July 2014 weather for Hartsfield-Jackson Atlanta International Airport was used for this analysis consistent with the 2008 Eight Hour Ozone Maintenance SIP
   9. Starts – The regional travel demand model determines the number of trip starts in each of the 13 and 2 county areas. Applies only to the trips per day input. Defaults used for the rest of the start inputs. Trips per day for MOVES3 requires the activity be split by vehicle type for each of the 13 and 2 county areas. This split is accomplished by multiplying total trips per day from the regional travel demand model times the fraction of trips by each vehicle type. This fraction is calculated from vehicle population and MOVES default starts per day per vehicle. Defaults used for the rest of the start inputs.
   10. Idle – MOVES defaults
   11. Hotelling – MOVES defaults
3. VMT HPMS Adjustment Factors
4. Calculated for the year 2019 (See Appendix E)
5. 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
6. Summer (seasonal) adjustment to convert from average annual VMT to summer-season VMT[[6]](#footnote-6)
7. Factors applied to VMT estimates generated by ARC travel demand model for 13-county portion and 2-county portion of 21-county modeling domain, separately
8. Factors aggregated up to MOVES road types from base HPMS functional classifications
9. Off-Model Calculations
   1. Senior I/M Exemption (emissions debit)
      1. 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
      2. This exemption assumption will be unchanged for reduced I&M scenario.
10. TCMs
    1. No additional credit is taken in the emissions modeling process for SIP TCMs
    2. A full list of implemented TCMs is attached as Appendix F (only one remaining)

**1997 EIGHT-HOUR OZONE STANDARD PLANNING ASSUMPTIONS & MODELING INPUTS**

Pursuant to EPA Guidance released on November 29, 2018 (EPA-420-B-18-050) titled “Transportation Conformity Guidance for the *South Coast II* Court Decision” emissions modeling (i.e. regional emissions analysis) is not required to demonstrate conformity for the 1997 eight-hour ozone standard (see 40 CFR 93.109(c). Also, a second limited maintenance plan has been approved March 9, 2023 (see 88 FR 7883) to cover the last 10 years of the 20 year maintenance period and does not require a regional emissions analysis for comparisons with limits as there are no budget limits. In addition, the I&M program only covers the 13 county Atlanta area, none of which are part of the orphan counties portion of the 1997 maintenance area (“orphan” areas are counties in maintenance for a revoked standard without maintenance for other standards which are five counties in Atlanta: Carroll, Barrow, Hall, Spalding, and Walton.). As such, no planning assumptions are prepared and needed to demonstrate conformity and compare with 1997 maintenance plan inventories for the 110(l) noninterference demonstration. Instead, this 110(l) noninterference demonstration satisfies the noninterference requirements for the 1997 standard by the demonstrations of noninterference with the stricter 2008 and 2015 eight-hour ozone standards covering the 13 county I&M program area with the only changes in the demonstration the I&M program.

**APPENDIX A – Model Validation**



**APPENDIX B – Socioeconomic Data for the Travel Model**

**Forecasting and Land Use Allocation Modeling**

ARC uses a two-step modeling process to develop regional control totals and small area forecasts used as inputs into our Activity Based Travel Demand Model. These models include an econometric model (REMI) that uses a national forecast that is shared out to each county in the nation. We then use an “agent” model (PECAS) that simulates future location of activities and the development of space by developers. More information about these two models are below.

Prior to beginning the technical, modeling work, however, ARC starts with a Technical Advisory Committee (TAC) that reviews the assumptions and calibrations that are inherent in our econometric model. The TAC consisted of leading local economists who advised us on different scenarios we could test through the REMI model that offered more realistic assumptions and reasonable outcomes of the local economy. Based on this feedback, we modified the standard REMI model output to include different projections of labor force participation rates, and we also adjusted the early years of the model to reflect ARC’s population estimates rather than REMI-generated estimates based on forecasts. This resulted in several different scenarios that created a lower bound forecast range, and mid-range and, finally an upper bound forecast range. After four meetings and several runs of the model, the TAC chose the mid-range scenario as the region’s control total, which is a population of 8.6 million in the 21-county area by the year 2050.

Here are other initial findings from our ***DRAFT*** Series 16 forecasts:

We are forecasting the region to add approximately 2.9 million new residents and close to 1.2 million more jobs between 2015 and 2050. See Figure 1 below.

**Figure 1. Forecast Population and Employment Change, 2015-2050**

As with previous forecast series, our current Series 16 draft is forecasting a significant reduction in the overall share of White population between 2015 and 2050. See figure 2 below.

**Figure 2. Share of Population by Race/Ethnicity**

Again, in line with previous forecasts, our current Series 16 draft is also forecasting a tremendous increase in the share of 75+ population between 2015-2015. But please note – these are SHARE changes, not total population changes. So even though we are showing a reduction in the SHARE of those age 0-22, the actual population of that age cohort increases. See figure 3 below.

**Figure 3. Age Structure**

Finally, and again consistent with previous forecasting series, our current Series 16 draft is forecasting that the “Health Care and Social Assistance” sector will the most jobs between 2015 and 2050. See Figure 4 below.

**Figure 4. 60 Years of Employment Change: 1990-2050**

**REMI**

The REMI model (Regional Economic Models, Inc.) is a very widely used regional economic policy analysis model. The model is used by government agencies on the national, state, and local level, as well as by private consulting firms, utilities, and universities. REMI is a structural economic forecasting and policy analysis model. It integrates input output, computable general equilibrium, econometric, and economic geography methodologies. The model is dynamic, with forecasts and simulations generated on an annual basis and behavioral responses to wage, price, and other economic factors.

**PECAS for Small Area Forecasting (Land Use Allocation)**

ARC reviewed state-of-the art land use models, to allocate the forecast population and employment totals to small areas, between 2007 and 2008 and selected PECAS (Production Exchange Consumption Allocation System). PECAS’ main purpose is to simulate the future location of activities (industries, households and government), and the development of space by developers, for both forecasting and policy analysis. It has been used in the conformity process for the first time in 2015.

The ARC PECAS model includes the two standard PECAS modules: The Activity Allocation module (AA) and the Space Development module (SD). AA follows an aggregate approach and represents how and why industries, government and households choose to locate in different zones or locations in the region. SD follows a microsimulation approach and simulates development at the parcel level, considering developers’ profit-motivated behavior as well as land and market characteristics. These two modules interact with each other, and both also interact with the Atlanta transport model by providing it with land use data. The travel demand model, in turn, provides an indication of travel conditions for use in AA.

**APPENDIX C – Model Inputs**

In 2016, ARC switched from its 4-step trip-based aggregate regional travel demand model to its newly developed, and recently calibrated disaggregate activity-based model (ABM). The ABM now serves as the major travel forecasting tool in the ARC region. This model has been developed to ensure that the regional transportation planning process can rely on forecasting tools that will be adequate for new socioeconomic environments and emerging planning challenges. It is equally suitable for conventional highway projects, transit projects, and various policy studies such as highway pricing and HOV / HOT analysis. The ARC ABM is based on the CT-RAMP (Coordinated Travel Regional Activity-Based Modeling Platform) family of Activity-Based Models. This model system is an advanced, but operational, AB model that fits the needs and planning processes of ARC.

The ABM has been tailored specifically to meet ARC planning needs, considering current and future projects and policies and considering the special market segments that exist in the Atlanta region. The model system addresses requirements of the metropolitan planning process, relevant federal requirements, and provides support to ARC member agencies and other stakeholders.

1. Calibration Year: 2015
2. Project Listing: Project listings will be provided in electronic format to Interagency Consultation Group for review and include:
   1. Regionally Significant and Federally Funded
   2. Regionally Significant and Non-Federally Funded
3. Demographic Data: To be provided as separate attachment
4. Speed Data: Free-flow Speed by Area Type and Facility Type[[7]](#footnote-7)

| **FACTYPE** | **ABM Area Type** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CBD** | **Urban Commercial** | **Urban Residential** | **Suburban Commercial** | **Suburban Residential** | **Exurban** | **Rural** | **Facility Type** |
| **1** | 62 | 63 | 63 | 63 | 64 | 65 | 66 | interstate/freeway |
| **2** | 43 | 46 | 49 | 52 | 55 | 58 | 61 | Expressway |
| **3** | 43 | 46 | 49 | 52 | 55 | 58 | 61 | Parkway |
| **4** | 64 | 65 | 65 | 65 | 66 | 67 | 68 | freeway HOV (concurrent) |
| **5** | 64 | 65 | 65 | 65 | 66 | 67 | 68 | freeway HOV (barrier) |
| **6** | 62 | 63 | 63 | 63 | 64 | 65 | 66 | freeway truck only |
| **7** | 50 | 50 | 50 | 55 | 55 | 55 | 55 | system to system ramp |
| **8** | 35 | 35 | 35 | 35 | 35 | 35 | 35 | exit ramp |
| **9** | 35 | 35 | 35 | 35 | 35 | 35 | 35 | entrance ramp |
| **10** | 23 | 26 | 31 | 35 | 41 | 48 | 53 | principal arterial |
| **11** | 21 | 26 | 29 | 33 | 38 | 43 | 48 | minor arterial |
| **12** | 21 | 26 | 29 | 33 | 38 | 43 | 48 | arterial HOV |
| **13** | 21 | 26 | 29 | 33 | 38 | 43 | 48 | arterial truck only |
| **14** | 17 | 23 | 24 | 26 | 30 | 35 | 45 | collector |

1. **Transit Modeling**
   1. **Model calibrated/validated to 2015 transit ridership empirical observations provided by transit operators**
   2. **Reflects results from** the 2009-2010 **Transit On-Board Survey, re-expanded to 2015**
   3. **Routes updated to reflect current operating plans**
   4. **Transit mode split is estimated using the mode choice model** 
      1. **Estimates individual modal trips from the person trip movements**
      2. **Composed of 15 modes, including auto by occupancy and toll/non-toll choice, walk and bike non-motorized modes, and walk and drive access to different transit line-haul modes:**
         1. **Auto SOV Drive Alone (Free)**
         2. **Auto SOV Drive Alone (Pay)**
         3. **Auto 2-Person Carpool (Free)**
         4. **Auto 2-Person Carpool (Pay)**
         5. **Auto 3+ Person Carpool (Free)**
         6. **Auto 3+ Person Carpool (Pay)**
         7. **Walk**
         8. **Bike**
         9. **Walk-All-Transit**
         10. **Walk-Premium Transit-Only**
         11. **PNR-All-Transit (PNR = Park and Ride)**
         12. **PNR-Premium Transit-Only**
         13. **KNR-All-Transit (KNR = Kiss and Ride)**
         14. **KNR-Premium Transit-Only**
         15. **School Bus**
      3. **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.**
   5. **Transit Fare Modeling**
      1. Transit fares are based on information provided by the local transit operators throughout the Atlanta region
      2. The base year for the travel demand model is year 2015; therefore, any costs of traveling incurred within the model are representative of year 2015 dollars
      3. A CPI adjustment was applied to all the operator fares and is carried forward for all model years from 2015 and beyond
      4. The current ARC transit coding approach enables fares to be coded by mode and operator (cases where an operator has a different fare for different modes).
      5. The transit fare structure includes additional fares incurred from transferring from one operator to another
      6. The fare structure results in a fare matrix which includes the total fare of the trip on a zone-to-zone level
   6. 2009-2010 Transit On-Board Survey Data
      1. Update of regional transit travel targets based on the re-expansion of the on-board survey data to 2015
         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
      2. Modified transit skimming procedures
      3. Re-calibrated air passenger model
      4. Assessment of travel demand model understanding of market segments and travel patterns relative to the on-board survey records

**Appendix D – I&M Program**

* Current Program: Exhaust and Evaporative (OBD and gas cap pressure test) for 1996 and newer vehicles
* Annual inspection required
* Computerized test and repair OBD – Exhaust
* Computerized test and repair OBD & GC - Evaporative
* Applies to all LDG vehicle types
* Three-year grace period
* 3% waiver rate for all vehicles – Exhaust test
* 0% waiver rate for all vehicles – Evaporative test
* 97% compliance rate
* Reduced I&M Program: Exhaust OBD for 1996 and newer vehicles
* Annual inspection required
* Computerized test and repair OBD – Exhaust
* Computerized test and repair OBD & GC - Evaporative
* Applies to all LDG vehicle types
* Three-year grace period
* 3% waiver rate for all vehicles – Exhaust test
* 0% waiver rate for all vehicles – Evaporative test
* 97% compliance rate

**Appendix E – VMT Adjustment Factors**

**Ozone VMT Adjustment Factors**

|  |  |  |  |
| --- | --- | --- | --- |
| **Functional Class Name** | **Functional Classification** | **Factor for 13 County Area** | **Factor for 7 County Area** |
| Rural Interstate | 1 | 1.02 | 0.87 |
| Rural Principal Arterial | 2 | 0.94 | 0.93 |
| Rural Minor Arterial | 6 | 0.94 | 0.93 |
| Rural Major Collector | 7 | 1.14 | 0.80 |
| Rural Minor Collector | 8 | 1.14 | 0.80 |
| Rural Local Collector | 9 | 2.20 | 2.41 |
| Urban Interstate | 11 | 1.02 | 0.87 |
| Urban Principal Arterial | 12 | 1.02 | 0.87 |
| Urban Minor Arterial | 14 | 0.94 | 0.93 |
| Urban Major Collector | 16 | 0.94 | 0.93 |
| Urban Minor Collector | 17 | 1.14 | 0.80 |
| Urban Local Collector | 19 | 2.20 | 2.41 |

**Appendix F – TCMs Implemented in the Atlanta SIP**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | **ARC Project #** | **GDOT PI #** | **TIP** | **Status** |
| INTERSECTION UPGRADE, COORDINATION & COMPUTERIZATION | AT 089 | 04Y108 | 93-95 | Implemented |
| Sponsor(s) – GDOT in partnership with local Jurisdictions | 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 | 4418 | 93-95 | Implemented |
|  | R 098 | 770391 | 94-96 | Implemented |

1. *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. [↑](#footnote-ref-1)
2. For the 2015 eight-hour ozone NAAQS there are two sets of MOVES input files, one for the 6 counties that were once part of the former one hour nonattainment area in which a specific set of emission control measures is in place, and one for the 1 remaining county in the 2015 8-hour ozone maintenance area. [↑](#footnote-ref-2)
3. *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. [↑](#footnote-ref-3)
4. *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. [↑](#footnote-ref-4)
5. For the 2008 eight-hour ozone NAAQS there are two sets of MOVES 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 2 remaining ring counties in the 2008 8-hour ozone maintenance area. [↑](#footnote-ref-5)
6. *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. [↑](#footnote-ref-6)
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. [↑](#footnote-ref-7)