

APPENDIX D

2007-2012 TIP and LRTP 2007 Update CONFORMITY ANALYSIS

SMTC LRTP 2007 Update
2007-2012 TIP
Conformity Analysis
April 2007

Introduction

This regional emissions analysis and supporting documentation were prepared to comply with the requirements of the Federal Clean Air Act Amendments of 1990 and the associated Federal and State Transportation conformity regulations. The regulations, both the Environmental Protection Agency's (EPA) transportation conformity rule (40 CFR Parts 51 and 93) and the New York State Department of Environmental Conservation's (NYSDEC) transportation conformity regulation (6 NYCRR Part 240) require that each time the SMTC adopts or approves a TIP or LRTP or an amendment to the TIP or LRTP, it be determined that the proposed action is in conformity with the applicable State Implementation Plan (SIP) for air quality prepared by NYSDEC.

The remainder of this Appendix presents the results and documentation of the regional emissions analysis and the air quality determination conducted for the SMTC's LRTP 2007 Update and the 2007-2012 TIP.

Status of Applicable SIP

The 2003-2013 State Implementation Plan for air quality for Onondaga County contains estimated existing and future emissions of carbon monoxide (CO) as part of the Clean Air Act requirement to produce a "Maintenance Plan" when the NYSDEC demonstrated to the EPA that Syracuse and Onondaga County had attained the National Ambient Air Quality Standards (NAAQS). This Maintenance Plan establishes a comparison between existing "base year" emissions (per the Clean Air Act this year is 1990) and future estimated emissions. The Maintenance Plan must demonstrate that emissions of CO in future years will remain below the levels established in the base year when the standards are first attained, therefore assuring the continued maintenance of the standards, or NAAQS.

The Onondaga County SIP of 1992, which established the 1993-2003 Maintenance Plan, used a now outdated version of EPA's emissions model, "Mobile" version 4.1. In addition, the NYSDEC changed some of the proposed future emission control programs, most notably the vehicle inspection and maintenance program that was anticipated in the Maintenance Plan. It has now been changed to a "gas-cap integrity test" to check for emissions leaks, as part of the New York State annual vehicle safety and emissions inspection program. It includes testing of the vehicle's emissions control equipment for evidence of tampering, and will include testing of new vehicle on-board diagnostic systems related to the vehicle's emissions control system.

The conformity analysis must use the latest planning assumptions and the latest emissions model, both of which have changed significantly and are reflected in the Mobile 6 model and the 2003-2013 SIP. During the development of the 2003-2013 SIP, the SMTC worked closely with the Interagency Consultation Group (ICG) consisting of representatives of the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), EPA, NYSDEC and the New York State Department of Transportation Environmental Analysis Bureau (EAB).

The involved Federal, State and local agencies have agreed that the updated regional emissions analysis that incorporates the latest planning assumptions, latest future emissions control programs estimated by NYSDEC, and the latest EPA emissions model must be used to demonstrate conformity of the SMTC TIP and LRTP with the SIP.

Use of Latest Planning Assumptions

All conformity determinations must be based on the latest available planning assumptions in at the time of the conformity determination. Section 176(c)(1)(B)(iii) of the Clean Air Act (CAA) states that "...[t]he determination of conformity shall be based on the most recent estimates of emissions, and such estimates shall be determined from the most recent population, employment, travel, and congestion estimates as determined by the MPO or other agency authorized to make such estimates." The CAA requires that transportation investments be based on the most recent information that is available in order to protect the public health over the long-term. This conformity analysis commenced on April 9, 2007 and includes the utilization of emission factors NYSDOT provided on April 12, 2007.

The latest planning assumptions requirements apply to all assumptions used in demonstrating conformity, including assumptions that are used in transportation demand and emissions modeling. Examples of assumptions are land use, vehicle age and fleet mix, and the most recent information regarding implementation of control measures in approved SIPs (i.e., inspection and maintenance and fuels programs, transportation control measures).

Specific latest planning requirements are outlined in 40 CFR 93.110 (b)-(f):

"(b) Assumptions must be derived from the estimates of current and future population, employment, travel, and congestion most recently developed by the MPO or other agency authorized to make such estimates and approved by the MPO. The conformity determination must also be based on the latest assumptions about current and future background concentrations."

SMTC Action: *The data forecasts used in the model are derived from several datasets. Current population estimates were initially obtained via the 2000 Census and estimates were calculated for 2003 (base year), along with future population estimates for the horizon year (2027) being forecasted by a working group of local professionals with*

experience in demographic analysis. This working group included the Syracuse-Onondaga County Planning Agency (SOCPA), New York State Department of Transportation (NYSDOT), SMTC and others.

Land use data in the model (i.e., type of employers and number of employees) was similarly calculated for both the base and future scenarios utilizing the abovementioned working group with the addition of key economic development agencies and personnel, and local municipal officials.

Travel data for transit was included in the modeling, taking into account Central New York Regional Transportation Authority (CNYRTA) fixed route service, as well as bicycling and walking. CNYRTA's paratransit service (Call-a-Bus) is treated as shared ride trips.

The CO emissions estimates for Onondaga County were developed using the NYSDOT April 2007 emissions factors.¹ These emissions factors were applied to Vehicle Miles Traveled (VMT) and future forecasts of VMT produced by the SMTC's travel demand model.

“(c) The conformity determination for each transportation plan and TIP [transportation improvement program] must discuss how transit operating policies (including fares and service levels) and assumed transit ridership have changed since the previous conformity determination.”

SMTC Action: *The CNYRTA has not had a fare increase since 1995. In November 2002, service was added as part of a major restructuring of bus lines and service hours. As a result of the route restructuring, CNYRTA's ridership is up approximately 4% overall. Finally, CNYRTA will continue to pursue the service concepts proposed in the ReMAP Study completed in 1999 to the extent possible, given adequate funding. These concepts include small bus community circulators in suburban settings, express services between downtown and outlying locations and the development of key hubs. There has been limited success to date with some of those service concepts.*

“(d) The conformity determination must include reasonable assumptions about transit service and increases in transit fares and road and bridge tolls over time.”

SMTC Action: *The CNYRTA has not had a fare increase since 1995. According to the CNYRTA, there would be no fare increase in the foreseeable future as fares are raised only as a last resort. CNYRTA ridership is up approximately 4% overall over the previous year. CNYRTA will continue to pursue the improved service concepts proposed*

¹ All key modeling assumptions used to develop the emissions factors tables (vehicle registration distribution, inspection/maintenance program, diesel fractions, fuel parameters, temperature and humidity, vehicle emission standards) are described in detail in the NYSDOT's publication "MOBILE6.2 Emissions Factors for Regional, Mesoscale, and CMAQ Project Emissions Calculations Part A". This file is available for download via the SMTC website: www.smtcmpo.org

in the ReMAP Study. A goal of the LRTP is for increase utilization of transit. To achieve that goal, SMTC will examine, as yet undefined projects, to implement that strategy.

For modeling purposes, the current tolls at each exit/entry plaza in and around the SMTC region were analyzed to calculate a per mile rate in terms of dollars/time. The average rate calculated is 3.3 cents/mile. This rate was then converted into travel time impedance at the rate of \$15/hour or 25 cents/minute. \$15/hour was consistently applied at all points in the model for value of time (VoT). This Cost per Link variable is essentially a detractor to using the Thruway. In 2006, Thruway tolls were increased. According to the New York State Thruway Authority, the last toll increase was in 1988 and no increases are planned in the foreseeable future. If costs were reduced, it's anticipated that the attractiveness of using the Thruway would improve for local commuting traffic.

“(e) The conformity determination must use the latest existing information regarding the effectiveness of the transportation control measures (TCMs) and other implementation plan measures, which have already been implemented.”

SMTC Action: *Table 4 presents the status of the official Transportation Control Measures contained in the original 1993-2003 SIP for Syracuse and Onondaga County. The referenced Federal and State air quality conformity regulations require that each time the SMTC adopts or approves a new TIP or LRTP, a determination that all required TCMs are being implemented in a timely fashion be made. As the TCM table shows, all of the required TCMs have been completed and are shown for informational purposes only. As required by law, the TCMs were included in the model network run and the emissions analysis shows a continued reduction in CO emissions.*

“(f) Key assumptions shall be specified and included in the draft documents and supporting materials used for the interagency and public consultation required by 93.105.”

SMTC Action: *The SMTC utilizes the TransCAD travel demand modeling platform to generate VMT and speed data for a 24 hour period. The SMTC model operates in TransCAD software and incorporates the four-step modeling process (Trip Generation, Trip Distribution, Mode Choice and Assignment) and provides for future-year scenario modeling based on the horizon year roadway network characteristics as well as the previously mentioned land use and population projections that were developed for use in the modeling process. The 2003 population and employment data, along with the current road network conditions were used for the base year calibrations.*

The future year (horizon year) of the modeling efforts are characterized by the inclusion of the following assumptions:

- *Future household growth by TAZ as determined by working group of local demographic experts.*
- *Future employment growth by TAZ as determined by local economic development experts and municipal officials.*

- *Future road network changes as determined by the Transportation Improvement Program and the Capital Plans of appropriate SMTC member agencies as well as the SMTC's LRTP.*

Interagency Consultation Process

The conformity process requires a high degree of coordination between Federal, State and local entities and therefore has rules for the establishment of formal procedure for Interagency Consultation to ensure that all groups are involved. Consultation also ensures that air quality concerns are addressed throughout the planning process so that the resulting conformity determinations meet federal criteria before presentation to FHWA/FTA for approval. Procedures for the ICG in the State of New York are contained in 6 NYCRR Part 240.6 As previously mentioned, the ICG consists of representatives of the FHWA, FTA, EPA, NYSDEC and the EAB.

The involved Federal, State and local agencies have agreed that the updated regional emissions analysis that incorporates the latest planning assumptions, latest future emissions control programs estimated by NYSDEC, and the latest EPA emissions model must be used to demonstrate conformity of the SMTC TIP and LRTP with the SIP. The latest planning assumption requirement must be met before USDOT can make a conformity determination. This conformity analysis was reviewed by ICG on May 30, 2007 and was found to be conforming to federal criteria.

Results of the Regional Emissions Analysis

The following attached pages show the complete results of the regional emissions analysis of the SMTC's LRTP 2007 Update and the 2007-2012 TIP, using the latest emissions factors and the latest SMTC transportation demand model results. The existing and future estimated emissions are presented in Table 1 and Table 2, and the non-exempt transportation projects included in the analysis are presented in Table 3. This analysis demonstrates that with the adopted update to the LRTP and the 2007-12 TIP, CO emissions in future years will remain well below the levels established for each applicable milestone year in the SIP Motor Vehicle Emissions Budget. Therefore, continued maintenance of the CO NAAQS is assured, and the SMTC LRTP 2007 Update and the 2007-2012 TIP remain in conformity with the SIP.

Public Involvement Process

In addition to the 30-day public comment period for the LRTP 2007 Update and the 2007-2012 TIP (of which the Conformity Analysis was included) that started on April 27, 2007 and ended May 25, 2007, these documents were posted on the SMTC website, legal notice was placed in the local newspaper and a public meeting was held on May 14, 2007 to discuss the LRTP 2007 Update, the 2007-2012 TIP and the April 2007 Conformity Analysis. No public comments were received relative to these documents.

Conclusions

In conclusion, the SMTC LRTP 2007 Update and the 2007-2012 TIP have complied with the requirements of the Clean Air Act, and are in conformity with the New York State Implementation Plan for air quality. The following pages provide the documentation of the required regional emissions analysis conducted to determine air quality conformity. This analysis demonstrates that with the adopted SMTC LRTP and 2007-2012 TIP, CO emissions in future years will remain below the levels established for each applicable milestone year in the SIP Motor Vehicle Emissions Budget. Therefore, continued maintenance of the CO NAAQS is assured, and the SMTC LRTP 2007 Update and the 2007-2012 TIP remain in conformity with the SIP.

Table 1
SMTC LRTP 2027/2007-12 TIP Mobile 6 Regional Emissions
Analysis Summary
April 2007
Note: MVEB = DEC 2003 Budget
Note: Emissions with NYSDOT M6 Tables

2003 Base Year	VMT	CO Sum (g/day)			
24 hour	10,978,715.19	371,932,311.25	=	409.99 tons per day	SIP N/A

2009 Build	VMT	CO Sum (g/day)			
24 hour	11,183,231.04	179,803,081.60	=	198.20 tons per day	MVEB = 372
					PASS

2013 Build	VMT	CO Sum (g/day)			
24 hour	11,383,785.16	147,731,124.89	=	162.85 tons per day	MVEB = 357
					PASS

2020 Build	VMT	CO Sum (g/day)			
24 hour	11,840,143.60	132,588,995.67	=	146.15 tons per day	MVEB = 357
					PASS

2027 Build	VMT	CO Sum (g/day)			
24 hour	12,820,275.94	139,294,623.59	=	153.55 tons per day	MVEB = 357
					PASS

Table 2
SMTC LRTP 2027 + 2007-2012 TIP with Mobile 6
April 2007

2003 24 Hour				
FC	Avg. Speed	VMT	CO (g/mi)	CO Sum
11/12	48.47	4,125,578.58	34.73	143,281,344.26
14	32.06	1,257,594.47	33.05	41,563,497.07
16	30.56	1,806,867.95	33.04	59,698,917.17
17	33.45	729,299.17	33.44	24,387,764.16
19	26.63	371,914.51	33.76	12,555,833.82
11/12*	33.28	273,042.80	32.31	8,822,012.87
14**	16.21	43,097.78	36.77	1,584,705.45
01	49.75	717,690.89	32.82	23,554,615.04
02	43.5	296,081.00	34.08	10,090,440.45
06	47.64	178,834.01	34.89	6,239,518.70
07	42.34	372,432.59	34.09	12,696,226.87
08	41.6	278,145.23	33.95	9,443,030.49
09	42.89	506,941.76	34.19	17,332,338.61
01*	36.26	16,056.97	30.71	493,109.44
02**	15.95	5,137.49	36.78	188,956.84
TOTAL 24 HOUR				371,932,311.25
			tons/day	409.9851932

2009 24 Hour				
FC	Avg. Speed	VMT	CO (g/mi)	CO Sum
11/12	48.23	4,202,423.51	16.47	69,213,915.29
14	31.97	1,279,421.97	15.7	20,086,924.86
16	30.46	1,839,421.53	15.7	28,878,917.99
17	33.27	743,836.39	15.89	11,819,560.21
19	26.67	377,920.33	16.03	6,058,062.87
11/12*	33.17	276,271.20	15.38	4,249,051.08
14**	15.64	44,375.30	17.5	776,567.69
01	49.56	729,265.42	15.59	11,369,247.92
02	43.41	303,692.58	16.15	4,904,635.14
06	47.41	182,231.13	16.52	3,010,458.33
07	42.10	383,291.72	16.13	6,182,495.44
08	41.48	285,877.43	16.08	4,596,909.00
09	42.90	513,562.74	16.21	8,324,852.00
01*	36.23	16,377.08	14.63	239,596.73
02**	15.63	5,262.72	17.46	91,887.05
TOTAL 24 HOUR				179,803,081.60
			tons/day	198.1989704

2013 24 Hour				
FC	Avg. Speed	VMT	CO (g/mi)	CO Sum
11/12	48.03	4,260,811.83	13.27	56,540,973.03
14	31.96	1,308,474.96	12.72	16,643,801.43
16	30.33	1,875,626.13	12.71	23,839,208.12
17	33.22	761,468.24	12.92	9,838,169.72
19	26.58	380,662.73	13	4,948,615.44
11/12*	32.97	281,626.97	12.38	3,486,541.88
14**	15.48	44,729.67	13.99	625,768.04
01	49.33	745,739.95	12.38	9,232,260.63
02	43.27	310,425.56	13.05	4,051,053.52
06	47.32	184,569.97	13.36	2,465,854.86
07	41.99	390,673.19	13.06	5,102,191.87
08	41.35	292,973.43	13.02	3,814,514.09
09	42.80	523,939.72	13.12	6,874,089.09
01*	36.11	16,705.55	11.59	193,617.33
02**	15.14	5,357.25	13.9	74,465.84
TOTAL 24 HOUR				147,731,124.89
			tons/day	162.8456898

2020 24 Hour				
FC	Avg. Speed	VMT	CO (g/mi)	CO Sum
11/12	47.48	4,426,345.25	11.43	50,593,126.15
14	31.82	1,344,667.82	11	14,791,346.06
16	30.11	1,942,690.43	10.99	21,350,167.87
17	32.99	795,164.87	11.17	8,881,991.61
19	26.69	393,862.97	11.23	4,423,081.11
11/12*	32.73	288,980.44	10.7	3,092,090.71
14**	14.97	45,887.91	12.08	554,325.95
01	48.59	790,047.32	10.65	8,414,003.93
02	42.99	325,930.43	11.27	3,673,235.96
06	46.98	191,728.96	11.52	2,208,717.63
07	41.53	414,403.07	11.25	4,662,034.52
08	41.30	306,097.73	11.31	3,461,965.36
09	42.55	551,329.70	11.32	6,241,052.23
01*	35.78	17,467.67	9.99	174,502.05
02**	14.13	5,539.02	12.16	67,354.54
TOTAL 24 HOUR				132,588,995.67
			tons/day	146.1543495

2027 24 Hour				
FC	Avg. Speed	VMT	CO (g/mi)	CO Sum
11/12	46.26	4,762,237.40	11.06	52,670,345.64
14	31.37	1,435,232.69	10.72	15,385,694.41
16	29.60	2,085,979.47	10.72	22,361,699.96
17	32.49	869,968.44	10.88	9,465,256.61
19	27.20	424,441.95	10.93	4,639,150.51
11/12*	32.02	305,760.73	10.42	3,186,026.81
14**	14.56	47,104.25	11.84	557,714.30
01	46.84	885,156.09	10.26	9,081,701.51
02	42.35	357,483.89	10.93	3,907,298.93
06	46.17	209,956.43	11.15	2,341,014.18
07	40.53	463,955.17	10.89	5,052,471.76
08	40.93	344,918.82	10.92	3,766,513.51
09	42.04	602,999.89	10.98	6,620,938.82
01*	34.99	19,136.81	9.7	185,627.09
02**	12.06	5,943.91	12.31	73,169.54
TOTAL 24 HOUR				139,294,623.59
			tons/day	153.546039

*Urban or Rural High Capacity Ramp
 **Urban or Rural Low Capacity Ramp

Table 3

Non-Exempt Projects Included in the Analysis			
PIN	Project	General Scope	TCM?
375285	Geddes/Genesee Sts Signal Interconnection	Upgrading of signals and inclusion in existing interconnect system.	No
375272	Lodi St/North Salina St. Signal Improvements	Upgrading of signals and inclusion in existing interconnect system.	No
375479	N,S,E,W Interconnect Expansion	Upgrading of signals and inclusion in existing interconnect system.	No

Source: SMTC, 2007-2012 TIP. "PIN" stands for project identification number; "TCM" indicates whether or not the project is a Transportation Control Measure.

Table 4

Transportation Control Measures (TCMs) Update				
PIN	Project	1994-1999	1999-2004	Comments
303519	RT 57, phase IV, Gaskin to RT 31	Construction 11/96		Implemented
310412	RT 635, RT 5 to RT 298	Construction 11/94	Construction 6/98	Implemented
310413	RT 298, Syracuse to Carrier Circle	Construction 11/98	Construction 4/02	Implemented
375206	Harrison Street Traffic Signal	Construction 9/95		Implemented
375207	Buckley Road Improvements at Bear Road	Construction 11/95		Implemented
380272	Oncenter Signs	Construction 1/94		Implemented
380275	Downtown Syracuse Signal Interconnect System	Engineering 11/96	Construction 7/96	Implemented
380307	Connections Ride Sharing Program			Implemented
380312	AVL System	Construction 10/96		Implemented
382074	Fare Collection System	Construction 10/96		Implemented
382089	Shelter Schedule Panels	Construction 10/94		Implemented
Source: Syracuse Metropolitan Transportation Council, 1999-2004 Transportation Improvement Program.				

Table 5

**SMTC LRTP 2007 Update
TransCAD Vehicle Miles Traveled (VMT) and Speed Outputs for Base
and Future Years**

FC Code	Road Type		2003	2009	2013	2020	2027
			24 hour	24 hour	24 hour	24 hour	24 hour
11/12	Interstate/Freeway	VMT	4,125,578.58	4,202,423.51	4,260,811.83	4,426,345.25	4,762,237.40
		Avg. Speed	48.47	48.23	48.03	47.48	46.26
14	Principal Arterial	VMT	1,257,594.47	1,279,421.97	1,308,474.96	1,344,667.82	1,435,232.69
		Avg. Speed	32.06	31.97	31.96	31.82	31.37
16	Minor Arterial	VMT	1,806,867.95	1,839,421.53	1,875,626.13	1,942,690.43	2,085,979.47
		Avg. Speed	30.56	30.46	30.33	30.11	29.6
17	Urban Collector	VMT	729,299.17	743,836.39	761,468.24	795,164.87	869,968.44
		Avg. Speed	33.45	33.27	33.22	32.99	32.49
19	Local	VMT	371,914.51	377,920.33	380,662.73	393,862.97	424,441.95
		Avg. Speed	26.63	26.67	26.58	26.69	27.2
	Low Capacity Ramp	VMT	43,097.78	44,375.30	44,729.67	45,887.91	47,104.25
		Avg. Speed	16.21	15.64	15.48	14.97	14.56
	High Capacity Ramp	VMT	273,042.80	276,271.20	281,626.97	288,980.44	305,760.73
		Avg. Speed	33.28	33.17	32.97	32.73	32.02
01	Interstate	VMT	717,690.89	729,265.42	745,739.95	790,047.32	885,156.09
		Avg. Speed	49.75	49.56	49.33	48.59	46.84
02	Principal Arterial	VMT	296,081.00	303,692.58	310,425.56	325,930.43	357,483.89
		Avg. Speed	43.50	43.41	43.27	42.99	42.35
06	Minor Arterial	VMT	178,834.01	182,231.13	184,569.97	191,728.96	209,956.43
		Avg. Speed	47.64	47.41	47.32	46.98	46.17
07	Major Collector	VMT	372,432.59	383,291.72	390,673.19	414,403.07	463,955.17
		Avg. Speed	42.34	42.1	41.99	41.53	40.53
08	Minor Collector	VMT	278,145.23	285,877.43	292,973.43	306,097.73	344,918.82
		Avg. Speed	41.60	41.48	41.35	41.3	40.93
09	Local	VMT	506,941.76	513,562.74	523,939.72	551,329.70	602,999.89
		Avg. Speed	42.89	42.9	42.8	42.55	42.04
	Low Capacity Ramp	VMT	5,137.49	5,262.72	5,357.25	5,539.02	5,943.91
		Avg. Speed	15.95	15.63	15.14	14.13	12.06
	High Capacity Ramp	VMT	16,056.97	16,377.08	16,705.55	17,467.67	19,136.81
		Avg. Speed	36.26	36.23	36.11	35.78	34.99