SCAQMD Near Roadway Monitoring Network Status

Near Roadway Monitoring Workshop
January 23rd, 2013

Overview

- SCAQMD Overview
- Activity Conducted Currently
- Candidate Road Segment Ranking Process Overview
- AQMD Road Segment Ranking
- Tentative Schedule
- Future Candidate Road Segment Considerations

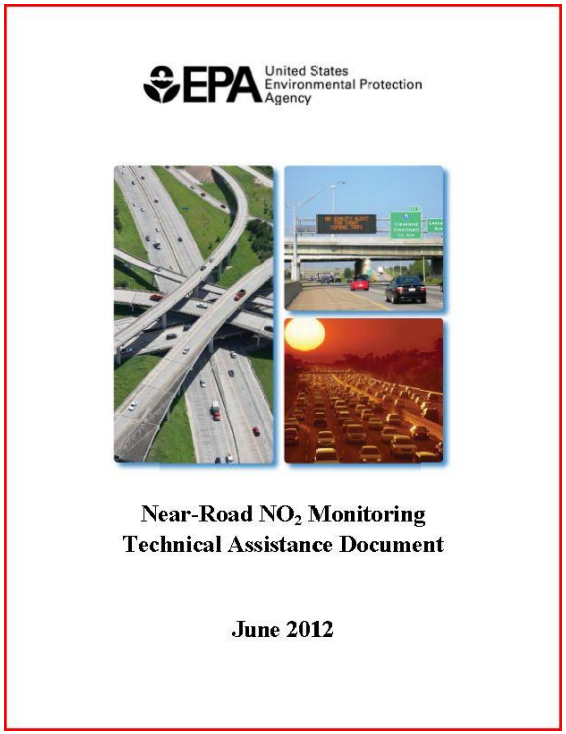
South Coast Air Quality Management District

Near Roadway Monitoring Activity

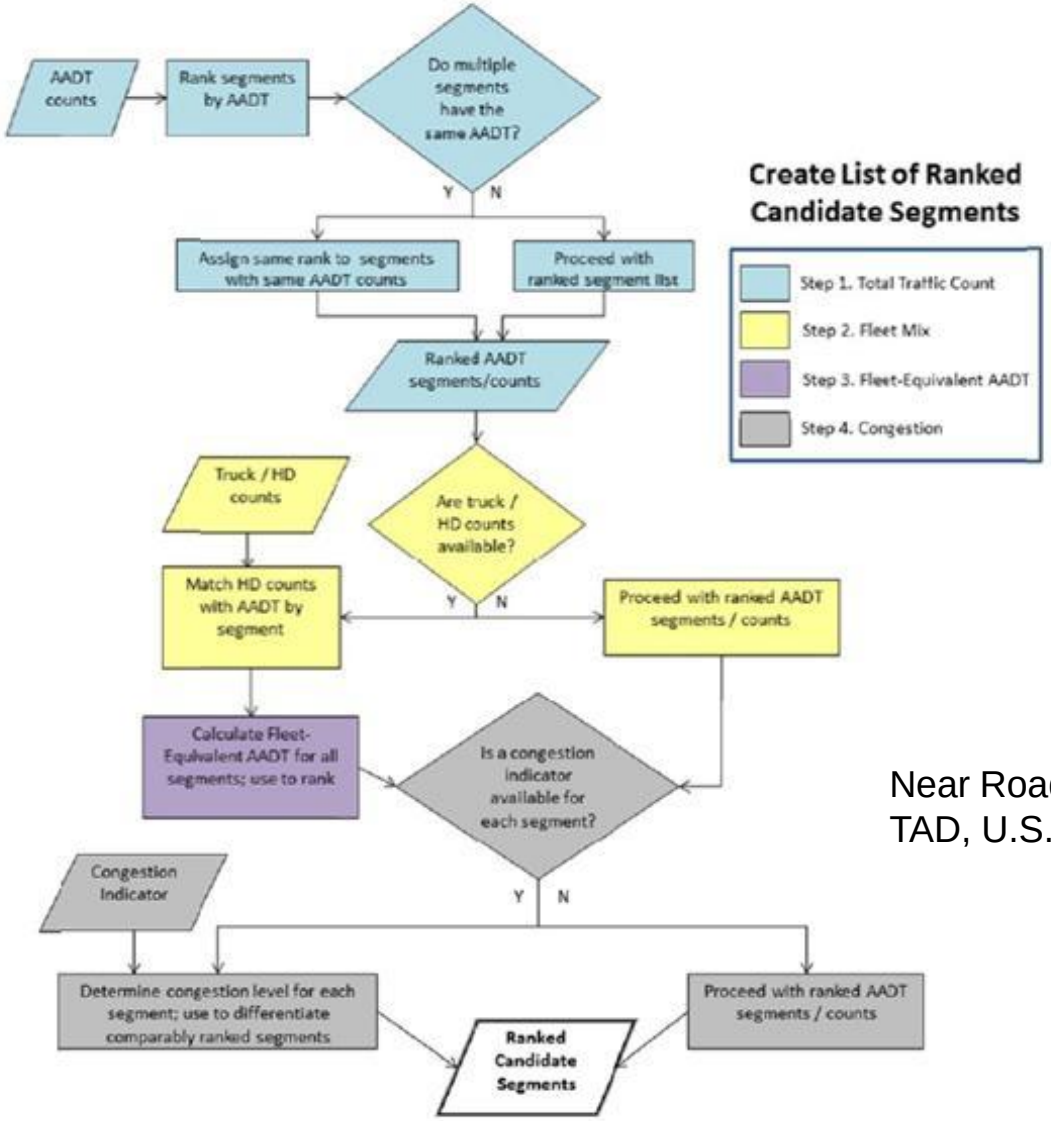
Date	Activity
February 2010	U.S. EPA revises NO_2 NAAQS
	Near Road NO_2 Monitoring Requirement
May to July 2012	Preliminary Near Roadway Segment Identification
June 2012	Near-Road NO_2 Monitoring TAD Released
July to Sept 2012	On Site Survey of High Ranking Candidate Roadway Segments
October 2012	Proposed Revision to Near Road Monitoring Requirements
December 2012	Equipment Received
January 2013	Discuss the Site Selection Process with U.S. EPA
	Near Roadway Monitoring Workshop

Candidate Road Segment Ranking Process

- Incorporates U.S. EPA TAD Considerations
  - FE AADT
  - Roadway Design
  - Spacing
  - Meteorology
  - Roadside Structures
  - Terrain
- Site Survey of Top 12 Ranked FE AADT Roadways in South Coast Basin
  - 9 Los Angeles-Long Beach-Santa Ana CBSA
  - 3 Riverside-San Bernardino-Ontario CBSA



Ranking Candidate Segments



Near Road-Way NO2 Monitoring
TAD, U.S. EPA, 2012

FE AADT Calculation

$$FE\ AADT = (AADT - HD_c) + (HD_m * HD_c)$$

Where:

FE AADT = Fleet Equivalent Annual Average Daily Traffic (Considers Fleet Mix)

AADT = Annual Average Daily Traffic (Total Traffic Counts)

HD_c = Annual Average Daily Heavy Duty Vehicle Count

HD_m = Heavy Duty Multiplier for NO_2 Emissions (AQMD AQMP, Attachments to Appendix III, 2012)

AQMD FE AADT Ranking of Candidate Segments

FE ADDT Rank	HD Rank	AADT Rank	FE AADT	AADT Total	Total Trucks (HD)	Total Truck %	County	Route	Post mile	Description
1	20	4	732,828	343,000	23,770	6.93	LA	60	23.56	DIAMOND BAR, JCT. RTE. 57 SOUTH, ORANGE
2	1	38	731,843	263,000	28,588	10.87	LA	605	9.612	SANTA FE SPRINGS, JCT. RTE. 5, SANTA ANA
3	11	32	695,776	272,000	25,840	9.5	ORA	5	38.915	LINCOLN AVENUE
4	4	51	690,111	248,000	26,958	10.87	LA	605	13.569	WHITTIER, JCT. RTE. 72, WHITTIER BOULEVARD
5	21	14	685,400	299,000	23,561	7.88	LA	605	7.653	NORWALK, JCT. RTE. 105, GLENN ANDERSON FREEWAY
6	53	3	679,014	357,000	19,635	5.5	ORA	5	34	SANTA ANA, JCT. RTES. 22 AND 57, GARDEN
7	9	59	667,843	240,000	26,088	10.87	LA	605	17.407	INDUSTRY, JCT. RTE. 60, POMONA FREEWAY I
8	2	76	667,637	222,000	27,173	12.24	SBD	60	4.58	ONTARIO, JCT. RTE. 83
9	17	41	666,770	259,000	24,864	9.6	ORA	5	36.258	KATELLA AVENUE
10	3	77	664,620	221,000	27,050	12.24	SBD	60	2.366	CENTRAL AVENUE
11	15	54	656,842	245,300	25,094	10.23	SBD	10	9.936	ONTARIO, JCT. RTE. 15
12	16	54	656,842	245,300	25,094	10.23	SBD	10	11.133	ETIWANDA AVENUE

Map of Highest Ranking FE AADT Segments

U.S. EPA, 2012

Map of Highest FE AADT Candidate Segments per CBSA

Candidate Segment Scoring Matrix

	5	3	1	0
FE AADT (Weighted 5x)	Traffic Count of the Highest Ranked FE AADT	Normalized to the Highest Ranked FE AADT	Normalized to the Highest Ranked FE AADT	n/a
Roadway Design	At same elevation	Slightly higher elevation	Below Grade/ Under Overpass/ On Bridge	Design Prevents Access or Accurate Representation of Roadway
Distance from Roadway	Less than or equal 20 m	Normalized distance from 20 m to 50 m	50 m from Roadway	>50 m
Meteorology **(Predominant Wind Direction)**	Downwind	Parallel	Upwind	n/a
Roadside Structures	No Barriers (< 2 m)	Some Obstruction (Small Sound Barriers, Sparse Low Vegetation)	Major Obstruction (Large Soundwalls, Buildings)	Completely Blocked
Terrain	Flat/ Mildly Sloping	Uneven	Mountain Ridges, Canyons	Terrain Prevents Access or Accurate Representation of Roadway

Weighting values	
FE AADT Score	5
Roadway Design	1
Distance from Roadway	1
Meteorology	1
Roadside Structures	1
Terrain	1

Los Angeles-Long Beach-Santa Ana CBSA

Location	Route 57/60 Diamond Bar			Route 5/605 Santa Fe Springs		Route 5/Lincoln Anaheim		Route 605/72 Whittier		Route 605/105 Norwalk		Route 5/22/57 Orange		Route 605/60 Industry				Route 5/Katella Anaheim			Route 710/Del Amo Long Beach
FE AADT Rank	1			2		3		4		5		6		7				9			25
FE AADT	732,828			731,843		695,776		690,111		685,400		679,014		667,843				666,770			610,072
HD Rank	24			1		14		4		25		59		12				21			10
HD	23,770			28,588		25,840		26,958		23,561		19,635		26,088				24,864			26,041
AADT Rank	4			38		32		51		14		3		59				41			112
AADT	343,000			263,000		272,000		248,000		299,000		357,000		240,000				259,000			183,000
Site	**1A**	1B	1C	2A	2B	3A	**3B**	4A	4B	5A	5B	6A	6B	7A	7B	7C	7D	9A	9B	9C	**25A**
FE AADT Score	25.0	25.0	25.0	25.0	25.0	23.7	23.7	23.5	23.5	23.4	23.4	23.2	23.2	22.8	22.8	22.8	22.8	22.7	22.7	22.7	20.8
Roadway Design	4.5	4.0	5.0	4.5	4.5	4.0	5.0	3.0	5.0	1.0	2.0	4.0	5.0	5.0	2.0	2.0	4.0	3.0	3.0	1.0	5.0
Distance from Roadway	5.0	5.0	5.0	5.0	2.5	3.7	5.0	4.0	4.0	2.2	0.0	1.2	3.6	4.0	3.6	2.6	3.3	0.0	3.2	2.5	5.0
Meteorology	5.0	5.0	1.0	1.0	1.0	5.0	5.0	3.0	3.5	3.0	4.0	1.0	3.5	1.0	2.5	5.0	3.0	4.0	4.0	4.0	5.0
Roadside Structures	5.0	4.0	1.0	3.0	5.0	5.0	5.0	3.0	4.0	1.0	1.0	4.0	4.0	4.0	1.0	1.0	1.0	2.5	2.5	2.5	5.0
Terrain	4.0	4.0	4.0	4.0	3.0	3.0	5.0	2.0	5.0	4.0	4.0	4.0	5.0	5.0	2.0	2.0	3.5	3.0	3.0	3.0	5.0
Sum (out of 50)	48.5	47.0	41.0	42.5	41.0	44.4	48.7	38.5	45.0	34.6	34.4	37.4	44.2	41.8	33.9	35.4	37.6	35.2	38.5	35.7	45.8
Ranking	**2**	**4**	**11**	**9**	**11**	**7**	**1**	**13**	**6**	**22**	**23**	**16**	**8**	**10**	**25**	**20**	**15**	**21**	**13**	**18**	**5**

Riverside-San Bernardino-Ontario CBSA

Location	Route 60/83 Ontario	Route 60/Central Chino			Route 10/15 Ontario		Route 10/Etiwanda Fontana
FE AADT Rank	8	10			11		12
FE AADT	667,637	664,620			656,842		656,842
HD Rank	2	3			19		20
HD	27,173	27,050			25,094		25,094
AADT Rank	76	77			54		54
AADT	222,000	221,000			245,300		245,300
Site	8A	10A	10B	**10C**	11A	11B	**12A**
FE AADT Score	22.8	22.7	22.7	22.7	22.4	22.4	22.4
Roadway Design	3.0	2.0	2.0	2.0	4.0	3.0	5.0
Distance from Roadway	2.0	3.3	3.3	4.0	0.0	1.7	5.0
Meteorology	3.5	2.5	2.5	3.0	3.0	4.0	5.0
Roadside Structures	2.5	3.0	4.0	3.0	5.0	1.0	5.0
Terrain	3.5	2.0	4.0	4.0	4.0	2.0	5.0
Sum (Out of 50)	37.3	35.5	38.5	38.7	38.4	34.1	47.4
Ranking	**17**	**19**	**13**	**12**	**14**	**23**	**3**

Map of Highest Ranking Candidate Roadway Segments from Scoring Matrix

Map of Highest Ranking Candidate Roadway Segments from Scoring Matrix

605 Freeway Obstacles

- 605 Freeway
  - Sound walls
  - Overgrown Vegetation
  - Terrain Slopes

Tentative Implemention Schedule

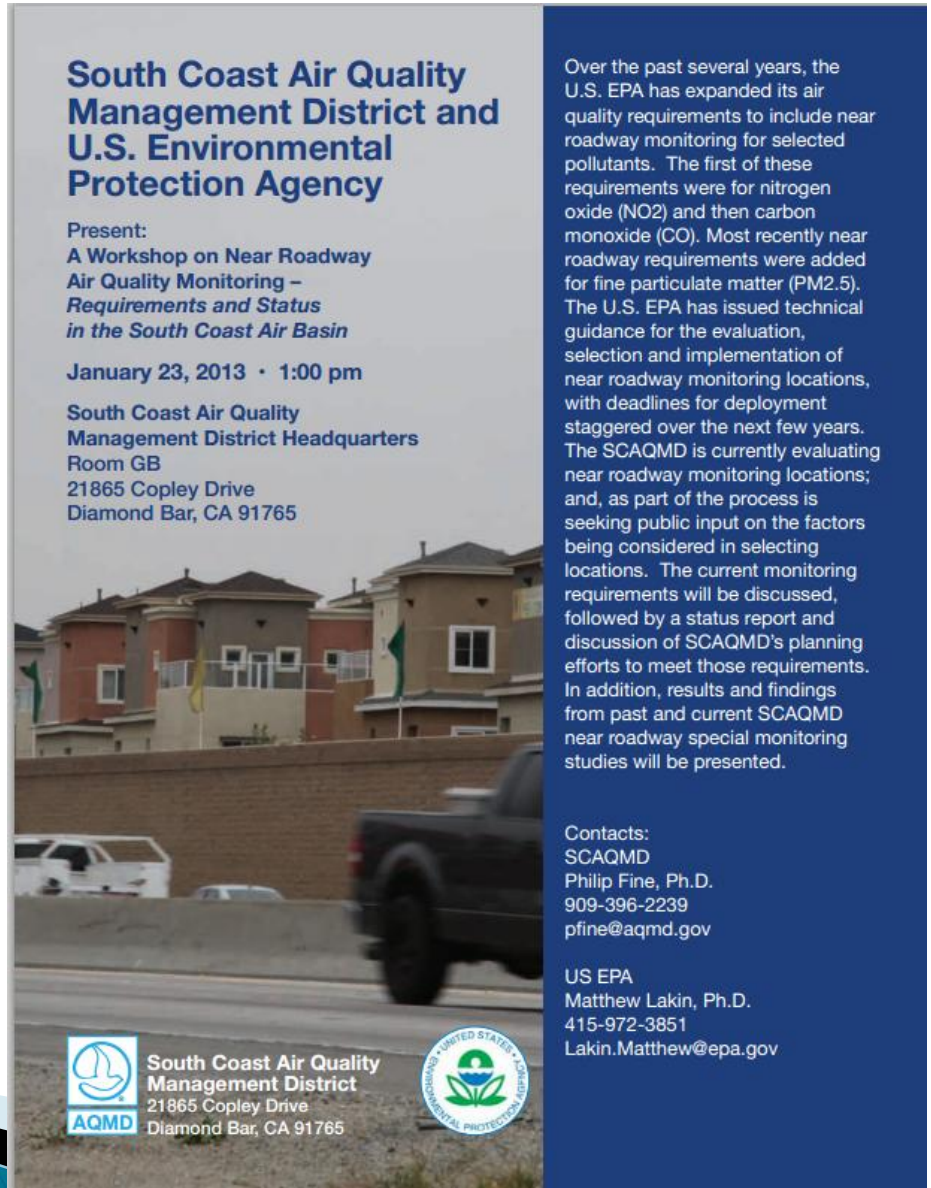
Date	Activity
Jan to June 2013	Finalize Site Selection Process/ Annual Network Plan
	Obtain Permissions and/or Permits from Highest Ranking Sites
July 2013	Site Survey with Construction Manager
July to Nov 2013	Site Preparations (Construction, Utility Installations, Etc.)
Nov to Dec 2013	Instrument Installation and Field Quality Control Checks
January 2014	Collection and Reporting of Data

Near Roadway Monitor Site Considerations for 2015

- 40 CFR Part 58 Appendix D: Second site required if:
  - CBSA has a population of 2.5 million or more
  - CBSA has a population of 500,000 or more and one or more segments of 250,000 AADT or greater

- Near Road NO_2 Monitoring TAD 2nd Site Guidance:
  - Sites should be differentiated from first site
    - Fleet mix, congestion patterns, geographic area, population exposure
  - Consider initial data from first site

Thank you!


South Coast Air Quality Management District and U.S. Environmental Protection Agency
Present:
A Workshop on Near Roadway Air Quality Monitoring –
Requirements and Status in the South Coast Air Basin
January 23, 2013 · 1:00 pm
South Coast Air Quality Management District Headquarters
Room GB
21865 Copley Drive
Diamond Bar, CA 91765
Over the past several years, the U.S. EPA has expanded its air quality requirements to include near roadway monitoring for selected pollutants. The first of these requirements were for nitrogen oxide (NO2) and then carbon monoxide (CO). Most recently near roadway requirements were added for fine particulate matter (PM2.5). The U.S. EPA has issued technical guidance for the evaluation, selection and implementation of near roadway monitoring locations, with deadlines for deployment staggered over the next few years. The SCAQMD is currently evaluating near roadway monitoring locations; and, as part of the process is seeking public input on the factors being considered in selecting locations. The current monitoring requirements will be discussed, followed by a status report and discussion of SCAQMD's planning efforts to meet those requirements. In addition, results and findings from past and current SCAQMD near roadway special monitoring studies will be presented.
Contacts:
SCAQMD
Philip Fine, Ph.D.
909-396-2239
pfine@aqmd.gov
US EPA
Matthew Lakin, Ph.D.
415-972-3851
Lakin.Matthew@epa.gov
AQMD
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765