

Appendix G
Transportation Control Measures

DALLAS-FORT WORTH OZONE NONATTAINMENT AREA

9% RATE OF PROGRESS

STATE IMPLEMENTATION PLAN

TRANSPORTATION CONTROL MEASURES

**North Central Texas Council of Governments
January 1999**

Description of Transportation Control Measures

The Dallas-Fort Worth (D-FW) region continues to implement a wide range of transportation control measures (TCMs) to reduce on-road mobile source emissions and improve air quality. The substantial number of TCMs implemented in the region since 1990 is evidence of local government commitment to achieve the goals and objectives of the Clean Air Act Amendments of 1990. The transportation control measures included as control strategies for the 9% Rate of Progress State Implementation Plan (SIP) are summarized in Attachment 1. Projects listed under the "SIP Commitment" column are committed TCMs that will assist the region in meeting the 9% emission reduction requirements for 1997-1999. Projects listed under the heading of "Additional TCMs" represent those TCMs that have funds programmed in fiscal year 1999, but may not be fully implemented by November 1999. These projects are not submitted as control strategy or contingency measures, but rather, as TCMs that are available to substitute for a committed TCM that is in jeopardy of being delayed past November 1999.

Attachment 2 lists the individual TCM commitments on a project-specific basis including the implementation year for each project. Attachment 2 also contains the individual projects that are available for substitution. However, these additional projects are listed for substitution purposes only and are not committed TCMs. Attachment 3 is a more detailed listing of TCM projects with multiple or various locations.

Emissions Reduction from Each TCM and Methodology

Attachment 2 lists the emissions reduction estimated for each individual committed TCM as well as the TCMs that are available for substitution. The total emission reductions attributable to committed TCMs for the three year 1997-1999 timeframe is 0.29 tons per weekday in 1999. Attachment 4 identifies the methodologies used to calculate the emissions impact of each individual TCM. These methodologies are consistent with previous TCM and SIP procedures. The methodologies and corresponding emission reductions are consistent with the most recent Air Quality Conformity Determination for Mobility 2020: The Metropolitan Transportation and the Transportation Improvement Program (TIP) for Dallas-Fort Worth Metropolitan Area. This Conformity Determination was approved by the D-FW Metropolitan Planning Organization (MPO) in November 1998.

Inclusion in Metropolitan Transportation Plan and TIP / Funding Commitment

Attachment 2 identifies for each committed TCM the amount of funding through the Congestion Mitigation and Air Quality Improvement Program (CMAQ). The amount of funds obligated through fiscal year 1998 as well as funds programmed for fiscal year 1999 are included. These figures are from the most recent Transportation Improvement Program for the Dallas-Fort Worth region as adopted by the MPO. Consistent with existing MPO policy, all proposed TIP amendments are reviewed to ensure the timely implementation TCMs in the SIP as required in 40 CFR 93.113. The types of TCMs committed for the 9% Rate of Progress SIP are included in Mobility 2020: The Metropolitan Transportation for the Dallas-Fort Worth region.

**DALLAS-FORT WORTH OZONE NONATTAINMENT AREA
9% RATE OF PROGRESS STATE IMPLEMENTATION PLAN
TRANSPORTATION CONTROL MEASURES**

1999 Implementation Levels

<u>Category</u>	<u>SIP Commitment* (1997-1999)</u>	<u>Additional TCMs** (Not Committed)</u>
Intersection Improvements/		
Signal Improvements	178 Locations	182 Locations
Freeway Corridor Management	-	4 Projects
Travel Demand Management	-	2 Projects
Park and Ride Lots	1 Lot	-
Alternative Fuel Vehicles	133 Vehicles	254 Vehicles
Ped/Bicycle Facilities	6.5 Miles	12.5 Miles
Light Rail	9 Miles	-

1999 VOC Emission Reductions (lbs/day)

<u>Category</u>	<u>SIP Commitment* (1997-1999)</u>	<u>Additional TCMs** (Not Committed)</u>
Intersection Improvements/		
Signal Improvements	541.2 lbs	600.7 lbs
Freeway Corridor Management	-	72.0 lbs
Travel Demand Management	-	54.6 lbs
Park and Ride Lots	6.4 lbs	-
Alternative Fuel Vehicles	0.0 lbs***	0.0 lbs***
Ped/Bicycle Facilities	8.1 lbs	26.6 lbs
Light Rail	29.2 lbs	-
	584.9 lbs	753.9 lbs
	0.29 tons	0.38 tons

* SIP Commitments to apply towards 9% emission reduction requirements.

** Additional TCMs that may be available for substitution, if necessary, but are not submitted as control strategy or contingency measures.

*** Observed data shows 7.5 to 14.2 pounds per day of emissions reduction. However, no SIP credit is requested.

DALLAS-FORT WORTH SERIOUS OZONE NONATTAINMENT AREA
 5% RATE OF PROGRESS STATE IMPLEMENTATION PLAN COMMITMENTS
 1997-1999 TRANSPORTATION CONTROL MEASURES

PROJECT CODE	AGENCY	PROJECT NAME	FROM	TO	PROJECT DESCRIPTION	CONGESTION MITIGATION/AIR QUALITY PROGRAM FUNDS (dollars in thousands)		8% STATE IMPLEMENTATION PLAN TCM COMMITMENTS			TCMs AVAILABLE FOR SUBSTITUTION FUNDED IN 1999 (NOT COMMITTED)*	
						CONSTRUCTED/ FUNDS OBLIGATED	FISCAL YEAR 1999	PROJECTS/ LOCATIONS	IMPLEMENTATION YEAR	1999 VOC EMISSIONS REDUCTION (lbs)	PROJECTS/ LOCATIONS	1999 VOC EMISSIONS REDUCTION (lbs)
2805B	VARIOUS	PUBLIC FLEET			ALTERNATIVE FUELS (INCLUDES CHAQ 2874B)	8,281	0	133 VEHICLES	98	**	254 VEHICLES	**
562	DALLAS	FIVE-MILE CREEK BIKEWAY	IH 35E	COOMBS CREEK	BIKEWAY	23	205	-	-	-	3.4 MILES	5.38
1297	FORT WORTH	CLEARFORK/BENBROOK BIKE TRAIL	SOUTHWEST BLVD	LAKE BENBROOK	BIKEWAY	808	0	2.6 MILES	97/98	2.27	-	-
1614	GRAPEVINE	GRAPEVINE/SOUTHLAKE BIKE TRAIL			BIKEWAY	399	0	3.7 MILES	97/98	5.84	-	-
4039	CEDAR HILL	BELT LINE TRAIL	ANDERSON RD	MAIN	BIKEWAY	0	52	-	-	-	3.3 MILES	3.52
4052	CLEAR TEXAS AIR	BICYCLE PARKING	FOR WESTERN SUBREGION		BIKEWAY	0	174	-	-	-	1	2.09
4071	DALLAS	CBD BIKE PARKING			BIKEWAY	31	0	-	-	-	1	1.88
4072	DALLAS	ROUTE SIGNS			BIKEWAY	21	0	-	-	-	1	1.89
4178	N RICHLAND HILLS	ROUTE MAP & SIGNS			BIKEWAY	10	89	-	-	-	1	1.89
4179	N RICHLAND HILLS	SOUTH ELECTRIC TRAIL			BIKEWAY	59	534	-	-	-	1.7 MILES	2.58
4180	N RICHLAND HILLS	LITTLE BEAR CREEK TRAIL			BIKEWAY	1,203	796	-	-	-	4.1 MILES	7.41
4133	FORT WORTH	CITYWIDE INCIDENT DETECTION PROGRAM			IDRS	0	320	-	-	-	1	58.13
4160	GRAND PRAIRIE	CITYWIDE INCIDENT DETECTION PROGRAM			IDRS	0	225	-	-	-	1	7.78
787	DALLAS	ALMAZAN DR	@ MARSH		INTERSECTION IMPROVEMENTS	28	17	-	-	-	1	2.22
799	DALLAS	BELT LINE RD	@ DALLAS NORTH TOLLWAY		INTERSECTION IMPROVEMENTS	0	40	-	-	-	1	4.65
800	DALLAS	BELT LINE RD	@ HILLCREST RD		INTERSECTION IMPROVEMENTS	13	67	-	-	-	1	4.26
805	DALLAS	BRUTON RD	@ LOOP 12 (BUCKNER BLVD)		INTERSECTION IMPROVEMENTS	0	96	-	-	-	1	5.90
813	DALLAS	CAMPBELL RD	@ HILLCREST RD		INTERSECTION IMPROVEMENTS	7	33	-	-	-	1	3.52
814	DALLAS	CAMPBELL	@ MEANDERING WAY		INTERSECTION IMPROVEMENTS	11	49	-	-	-	1	3.06
831	DALLAS	COIT RD	@ IH 635		INTERSECTION IMPROVEMENTS	0	64	-	-	-	1	3.88
836	DALLAS	COMPOSITE DR	@ WALNUT HILL		INTERSECTION IMPROVEMENTS	0	80	-	-	-	1	2.54
844	DALLAS	DALLAS NORTH TOLLWAY	@ TRINITY MILLS		INTERSECTION IMPROVEMENTS	34	46	-	-	-	1	6.64
853	DALLAS	FIELD ST	@ SPUR 366 (WOODALL RODGERS)		INTERSECTION IMPROVEMENTS	64	16	-	-	-	1	3.13
860	DALLAS	FOREST LN	@ SKILLMAN		INTERSECTION IMPROVEMENTS	58	22	-	-	-	1	3.83
881	DALLAS	GREENVILLE AVE	@ PARK LN		INTERSECTION IMPROVEMENTS	64	0	1	97/98	5.26	-	-
882	DALLAS	GREENVILLE AVE	@ ROYAL LN		INTERSECTION IMPROVEMENTS	35	45	-	-	-	1	4.24
885	DALLAS	GREENVILLE AVE	@ WALNUT HILL		INTERSECTION IMPROVEMENTS	117	3	-	-	-	1	5.32
931	DALLAS	IH 635	@ MARSH LN		INTERSECTION IMPROVEMENTS	0	160	-	-	-	1	11.33
934	DALLAS	IH 635	@ SH 289 (PRESTON RD)		INTERSECTION IMPROVEMENTS	0	290	-	-	-	1	15.97
973	DALLAS	MOTOR ST	@ LOOP 354 (HARRY HINES BLVD)		INTERSECTION IMPROVEMENTS	17	23	-	-	-	1	4.37
975	DALLAS	NOEL RD	@ SPRING VALLEY		INTERSECTION IMPROVEMENTS	83	37	-	-	-	1	4.55
2216	DALLAS COUNTY	SH 356 (RVING BLVD)	@ MOCKINGBIRD LN		INTERSECTION IMPROVEMENTS	0	640	-	-	-	1	2.71
2218	DALLAS COUNTY	KELLER SPRINGS	@ SH 289 (PRESTON RD)		INTERSECTION IMPROVEMENTS	13	184	-	-	-	1	2.71
2248	DALLAS COUNTY	JOSEY LN	@ WALNUT PLAZA		INTERSECTION IMPROVEMENTS	0	240	-	-	-	1	2.71
4001	ARLINGTON	ABRAM ST	BROWNING	STADIUM	INTERSECTION IMPROVEMENTS	2,002	0	1	97/98	2.63	-	-
4035	CEDAR HILL	JOE WILSON RD	@ FM 1382		INTERSECTION IMPROVEMENTS	0	33	-	-	-	1	0.94
4038	CEDAR HILL	BELT LINE RD	@ MAIN ST		INTERSECTION IMPROVEMENTS	13	23	-	-	-	1	1.02
4054	COLLEYVILLE	SH 28	@ GLADE		INTERSECTION IMPROVEMENTS	27	239	-	-	-	1	2.74
4091	COPPELL	BETHEL RD	@ DENTON TAP RD		INTERSECTION IMPROVEMENTS	6	18	-	-	-	1	1.47
4084	COPPELL	BELT LINE RD	@ MOCKINGBIRD LN		INTERSECTION IMPROVEMENTS	0	40	-	-	-	1	1.31
4085	COPPELL	BELT LINE RD	@ MACARTHUR		INTERSECTION IMPROVEMENTS	20	52	-	-	-	1	2.22
4068	COPPELL	DENTON TAP RD	@ WRANGLER		INTERSECTION IMPROVEMENTS	8	20	-	-	-	1	1.47
4067	COPPELL	DENTON TAP RD	@ PARKWAY		INTERSECTION IMPROVEMENTS	0	24	-	-	-	1	2.13
4069	COPPELL	SANDY LAKE RD	@ DENTON TAP RD		INTERSECTION IMPROVEMENTS	0	52	-	-	-	1	3.05
4076	DALLAS	MOCKINGBIRD LN	SH 183	IH 35E (STEMMONS)	INTERSECTION IMPROVEMENTS	48	436	-	-	-	1	3.98
4077	DALLAS	SH 289 (PRESTON)	@ IH 635 (LBJ FRWY)		INTERSECTION IMPROVEMENTS	0	200	-	-	-	1	5.68
4090	DENTON	LOOP 288	@ KINGS ROW		INTERSECTION IMPROVEMENTS	0	126	-	-	-	1	1.00
4101	DESOTO	PLEASANT RUN RD	@ CHATTRY RD		INTERSECTION IMPROVEMENTS	46	42	-	-	-	2	0.53
4103	DESOTO	FM 1382 (BELT LINE RD)	@ POLK ST		INTERSECTION IMPROVEMENTS	0	83	-	-	-	1	1.61
4151	GARLAND	IH 635 SB ENTRANCE RAMP	@ CENTERVILLE		INTERSECTION IMPROVEMENTS	0	118	-	-	-	1	3.13

DALLAS-FORT WORTH VARIOUS OZONE NONATTAINMENT AREA
 9% RATE OF PROGRESS STATE IMPLEMENTATION PLAN COMMITMENTS
 1997-1999 TRANSPORTATION CONTROL MEASURES

PROJECT CODE	AGENCY	PROJECT NAME	FROM	TO	PROJECT DESCRIPTION	CONGESTION MITIGATION/AIR QUALITY PROGRAM FUNDS (dollars in thousands)		9% STATE IMPLEMENTATION PLAN			TCMs AVAILABLE FOR SUBSTITUTION FUNDED IN 1999 (NOT COMMITTED)*	
						CONSTRUCTED/ FUNDS OBLIGATED	FISCAL YEAR 1999	PROJECTS/ LOCATIONS	IMPLEMENTATION YEAR	1999 VOC EMISSIONS REDUCTION (tbs)	PROJECTS/ LOCATIONS	1999 VOC EMISSIONS REDUCTION (tbs)
4164	GRAPEVINE	BS 114L (NORTHWEST HIGHWAY)	SH 114	SH 26	INTERSECTION IMPROVEMENTS	2,500	0	1	97/98	14.58	-	-
4172	N RICHLAND HILLS	RUFE SNOW	@ GLENVIEW		INTERSECTION IMPROVEMENTS	70	180	-	-	-	1	1.67
4173	N RICHLAND HILLS	RUFE SNOW	KAREN DR	IH 820	INTERSECTION IMPROVEMENTS	118	151	-	-	-	1	1.05
4174	N RICHLAND HILLS	RUFE SNOW	@ LEWIS DR		INTERSECTION IMPROVEMENTS	101	283	-	-	-	1	2.70
4175	N RICHLAND HILLS	RUFE SNOW	@ INDUSTRIAL PARK		INTERSECTION IMPROVEMENTS	93	236	-	-	-	1	2.70
4176	N RICHLAND HILLS	RUFE SNOW	@ STARDUST		INTERSECTION IMPROVEMENTS	360	158	-	-	-	1	2.70
4177	N RICHLAND HILLS	RUFE SNOW	@ WATAUGA RD		INTERSECTION IMPROVEMENTS	423	174	-	-	-	1	3.91
4186	PLANO	COLLIN CREEK MALL			INTERSECTION IMPROVEMENTS	0	96	-	-	-	1	13.73
4194	RICHARDSON	BELT LINE RD	@ JUPITER		INTERSECTION IMPROVEMENTS	225	815	-	-	-	1	6.50
4196	RICHARDSON	ARAPAHO	@ JUPITER		INTERSECTION IMPROVEMENTS	168	608	-	-	-	1	4.15
4197	RICHARDSON	ARAPAHO	@ PLANO PKWY		INTERSECTION IMPROVEMENTS	118	404	-	-	-	1	5.19
4305	CARROLLTON	CROSSBY RD	@ IH 35E		INTERSECTION IMPROVEMENTS	0	60	-	-	-	1	1.77
4306	CARROLLTON	TRINITY MILLS RD	@ IH 35E		INTERSECTION IMPROVEMENTS	0	159	-	-	-	1	2.47
4307	CARROLLTON	BELT LINE RD	@ IH 35E		INTERSECTION IMPROVEMENTS	0	38	-	-	-	1	4.49
4322	BEDFORD	BEDFORD RD	@ MURPHY DR		INTERSECTION IMPROVEMENTS	17	63	1	98/99	1.40	-	-
4323	BEDFORD	BEDFORD RD	@ CENTRAL DR		INTERSECTION IMPROVEMENTS	37	123	-	-	-	1	2.44
9990	BEDFORD	CENTRAL DRIVE	@ L DON DOOSON		INTERSECTION IMPROVEMENTS	0	160	-	-	-	1	4.42
3083	TXDOT/DART	FOREST LN	PLANO RD	GARLAND RD	INTERSECTION IMPROVEMENTS (10)	0	987	-	-	-	10	65.58
783	DALLAS	VARIOUS LOCATIONS	CITYWIDE		INTERSECTION IMPROVEMENTS (112)	1,315	1,000	-	-	-	16	64.59
3096	DALLAS CO/COPPELL	VARIOUS LOCATIONS	ON SANDY LAKE RD & DENTON TAP RD		INTERSECTION IMPROVEMENTS (12)	112	331	-	-	-	12	17.30
4088	DENTON	US 380	@ MALONE, BONNIE BRAE, CARROLL, & FULTON		INTERSECTION IMPROVEMENTS (4)	0	101	-	-	-	4	9.45
3089	TXDOT/DART	PLANO RD	BUCKINGHAM	FOREST LN	INTERSECTION IMPROVEMENTS (5)	0	723	-	-	-	5	60.08
1062	DENTON	VARIOUS LOCATIONS	CITYWIDE		INTERSECTION IMPROVEMENTS (8)	32	342	-	-	-	8	40.72
883	DALLAS	GREENVILLE AVE	@ SOUTHWESTERN		INTERSECTION IMPROVEMENTS (LOCAL FUNDS)	0	0	1	97/98	5.41	-	-
4155	COLLEYVILLE	SH 26	@ PLEASANT RUN		INTERSECTION IMPROVEMENTS (REALIGNMENT)	11	188	-	-	-	1	2.40
4152	GARLAND	PLANO RD	@ BUCKINGHAM RD		INTERSECTION IMPROVEMENTS (SEE CMAQ 3088)	0	225	-	-	-	1	8.20
9989	TXDOT/DART	SPRING CREEK PKWY	US 75	SH 289 (PRESTON R)	INTERSECTION IMPROVEMENTS (SEE STP-MM 1997)	1,297	0	-	-	-	1	5.38
11	ALLEN	SH 5	@ BETHANY		INTERSECTION IMPROVEMENTS (SEE STP-MM 32)	0	160	-	-	-	1	1.59
4074	DALLAS	REGAL ROW	@ IH 35E (STEMMONS FRWY)		INTERSECTION IMPROVEMENTS (SEE STP-MM 668)	0	400	-	-	-	1	2.90
4373	DALLAS	REGAL ROW	@ SH 183		INTERSECTION IMPROVEMENTS (SEE STP-MM 668)	0	406	-	-	-	1	1.93
2259	DALLAS CO/DART	BELT LINE RD	@ IH 35E		INTERSECTION IMPROVEMENTS (TRANSIT PASS)	0	384	-	-	-	1	3.71
	DART	LIGHT RAIL	COMPLETION OF LRT STATER SYSTEM		LIGHT RAIL (LOCAL FUNDS)	0	0	9 MILES	97	29.15	-	-
353	ARLINGTON	PARK & RIDE	IH 30 AREA		PARK & RIDE	40	400	1	97	6.39	-	-
1850	MESQUITE	BELT LINE RD	@ GRUBBS		SIGNAL IMPROVEMENTS	23	33	1	98/99	1.36	-	-
1891	MESQUITE	BRUTON RD	@ PIONEER RD		SIGNAL IMPROVEMENTS	25	37	1	98/99	0.97	-	-
1894	MESQUITE	GROSS RD	@ SH 362 (SCYENE)		SIGNAL IMPROVEMENTS	0	50	1	99	1.08	-	-
1895	MESQUITE	GUS THOMASSON	@ MOON		SIGNAL IMPROVEMENTS	23	35	1	98/99	1.26	-	-
1898	MESQUITE	OATES	@ SARAZEN		SIGNAL IMPROVEMENTS	23	33	1	98/99	1.05	-	-
1902	MESQUITE	TOWN EAST BLVD	@ SKYLINE DR		SIGNAL IMPROVEMENTS	23	33	1	98/99	1.14	-	-
3107	DALLAS COUNTY	BELT LINE	@ TOWN EAST		SIGNAL IMPROVEMENTS	9	9	1	98/99	1.94	-	-
4056	THE COLONY	FM 423	@ COUGAR ALLEY		SIGNAL IMPROVEMENTS	0	51	-	-	-	1	1.33
4122	DESOTO	WINTERGREEN RD	@ POLK ST		SIGNAL IMPROVEMENTS	34	30	1	98/99	2.12	-	-
4108	EULESS	PIPELINE RD W	@ HOSPITAL PKWY		SIGNAL IMPROVEMENTS	5	49	-	-	-	1	1.90
4165	IRVING	BELT LINE RD	SH 183	STRAIGHT ST	SIGNAL IMPROVEMENTS	0	110	-	-	-	1	1.98
4269	TXDOT-FORT WORTH	US 377	@ SPRINGLAKE PKWY		SIGNAL IMPROVEMENTS	52	0	1	97/98	2.30	-	-
4303	CARROLLTON	HEBRON PKWY SIGNAL PROGRESSION	W CARROLLTON C/L	E CARROLLTON C/L	SIGNAL IMPROVEMENTS	0	24	-	-	-	1	1.48
4309	CARROLLTON	MARSH LN SIGNAL PROGRESSION	TRINITY MILLS	S CARROLLTON C/L	SIGNAL IMPROVEMENTS	0	24	-	-	-	1	7.49
4326	BEDFORD	MURPHY DR	@ L DON DODSON/MARTIN DR		SIGNAL IMPROVEMENTS	73	0	1	97/98	1.55	-	-
4327	BEDFORD	HARWOOD RD	@ MCCLAIN DR		SIGNAL IMPROVEMENTS	116	0	1	97/98	1.86	-	-
9970	BEDFORD	CENTRAL DRIVE	@ SCHUMAC LN		SIGNAL IMPROVEMENTS	0	80	-	-	-	1	3.17

DALLAS-FORT WORTH SERIOUS OZONE NONATTAINMENT AREA
 9% RATE OF PROGRESS STATE IMPLEMENTATION PLAN COMMITMENTS
 1997-1999 TRANSPORTATION CONTROL MEASURES

PROJECT CODE	AGENCY	PROJECT NAME	FROM	TO	PROJECT DESCRIPTION	CONGESTION MITIGATION/AIR QUALITY PROGRAM FUNDS (dollars in thousands)		9% STATE IMPLEMENTATION PLAN TCM COMMITMENTS			TCMs AVAILABLE FOR SUBSTITUTION FUNDED IN 1999 (NOT COMMITTED)*	
						CONSTRUCTED/ FUNDS OBLIGATED	FISCAL YEAR 1999	PROJECTS/ LOCATIONS	IMPLEMENTATION YEAR	1999 VOC EMISSIONS REDUCTION (lbs)	PROJECTS/ LOCATIONS	1999 VOC EMISSIONS REDUCTION (lbs)
9974	LEWISVILLE	CITYWIDE ADVANCED TRAFFIC MANAGEMENT SYSTEM			SIGNAL IMPROVEMENTS	0	299	-	-	-	1	7.15
9993	MESQUITE	CLAY-MATHIS	Ⓞ EAST GLEN		SIGNAL IMPROVEMENTS	0	52	1	99	4.42	-	-
9994	MESQUITE	BRUTON	Ⓞ PEACHTREE		SIGNAL IMPROVEMENTS	52	0	1	97/98	4.42	-	-
9995	DESOTO	PECAN CROSSING	Ⓞ PLEASANT RUN		SIGNAL IMPROVEMENTS	0	15	1	99	4.42	-	-
3099	DALLAS COUNTY	VARIOUS LOCATIONS			SIGNAL IMPROVEMENTS (11)	42	83	11	98/99	13.97	-	-
3104	DALLAS COUNTY	VARIOUS LOCATIONS			SIGNAL IMPROVEMENTS (11)	233	0	11	97/98	21.29	-	-
3102	DALLAS COUNTY	VARIOUS LOCATIONS	ON BELT LINE RD		SIGNAL IMPROVEMENTS (22) (PASS)	0	48	22	99	107.56	-	-
3024	TXDOT-DALLAS	VARIOUS LOCATIONS	ON SEAGOVILLE		SIGNAL IMPROVEMENTS (3)	0	144	-	-	-	3	2.14
9992	BEDFORD	VARIOUS LOCATIONS	ON HARWOOD RD		SIGNAL IMPROVEMENTS (3)	0	200	-	-	-	3	9.51
3098	DALLAS COUNTY	VARIOUS LOCATIONS			SIGNAL IMPROVEMENTS (4)	19	64	4	98/99	12.20	-	-
3109	DALLAS COUNTY	VARIOUS LOCATIONS	ON SH 66		SIGNAL IMPROVEMENTS (5)	0	66	5	99	9.68	-	-
3103	DALLAS COUNTY	VARIOUS LOCATIONS	ON BELT LINE	& PLEASANT RUN	SIGNAL IMPROVEMENTS (9)	33	116	9	98/99	9.75	-	-
4193	RICHARDSON	SIGNAL SYSTEM ENHANCEMENTS			SIGNAL IMPROVEMENTS (97)	620	225	97	98/99	307.49	-	-
9991	BEDFORD	HARWOOD RD	Ⓞ SPRING VALLEY DR		SIGNAL IMPROVEMENTS (COMBINED W/ CMAQ 9992)	0	200	-	-	-	1	3.17
4132	FORT WORTH	SYSTEM EXPANSION			SIGNAL IMPROVEMENTS (SEE CMAQ 1377)	0	750	-	-	-	55	97.88
2771	TXDOT-FW WORTH	IH 30	Ⓞ UNIVERSITY DR		SURVEILLANCE	64	0	-	-	-	1	0.26
4214	TXDOT-FW WORTH	IH 820E	Ⓞ IH 30		SURVEILLANCE	801	0	-	-	-	1	5.83
9973	REGIONAL	INSPECTION SITE &	SUBSIDIZED VANPOOL		TDM (FTA)	100	0	-	-	-	1	38.36
9980	FWT/AD/DOWNTOWN FW INC	FORT WORTH TRANSPORTATION MANAGEMENT ASSOCIATION			TDM (FTA)	75	75	-	-	-	1	16.23
TOTALS										584.9 LBS/DAY	TOTALS	753.96 LBS/DAY
										0.29 TONS/DAY		0.36 TONS/DAY

* These projects have funds programmed for fiscal year 1999. If necessary, they are available for substitution if a committed TCM is in jeopardy of being delayed beyond November 15, 1999. However, these projects are not included as committed control strategy or contingency measures for SIP purposes.

** Observed data shows 7.46 to 14.22 lbs per day of VOC emissions reduction; however, no emissions credit is requested for SIP purposes.

1998 TRANSPORTATION IMPROVEMENT PROGRAM
 CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)
 EASTERN SUBREGION - VARIOUS LOCATIONS LISTING

PROJECT CODE	AGENCY	CITY	CROSS STREET A	CROSS STREET B	DESCRIPTION
783.0001	Dallas	Dallas	Abrams	Mockingbird	Intersection Improvements
783.0002	Dallas	Dallas	Alpha	Dallas Pkwy	Intersection Improvements
783.0003	Dallas	Dallas	Alpha	Montfort	Intersection Improvements
783.0004	Dallas	Dallas	Alpha	Preston	Intersection Improvements
783.0005	Dallas	Dallas	Alpha	SH 289 (Preston)	Intersection Improvements
783.0006	Dallas	Dallas	Ambassador Row	Mockingbird	Intersection Improvements
783.0007	Dallas	Dallas	Audelia	Royal Lane	Intersection Improvements
783.0008	Dallas	Dallas	Avondale	Turtle Creek	Intersection Improvements
783.0009	Dallas	Dallas	Beckley	Kiest	Intersection Improvements
783.001	Dallas	Dallas	Bennett	Ross	Intersection Improvements
783.0011	Dallas	Dallas	Bonnie View	Ledbetter (Lp. 12)	Intersection Improvements
783.0012	Dallas	Dallas	Buckner (Lp. 12)	Samuell	Intersection Improvements
783.0013	Dallas	Dallas	Canton	Good Latimer	Intersection Improvements
783.0014	Dallas	Dallas	Carlisle	Allen-Cedar Springs	Intersection Improvements
783.0015	Dallas	Dallas	Carroll	Live Oak	Intersection Improvements
783.0016	Dallas	Dallas	Carroll	Ross	Intersection Improvements
783.0017	Dallas	Dallas	Cedar Springs	Hudnall	Intersection Improvements
783.0018	Dallas	Dallas	Alpha	Noel	Intersection Improvements
783.0019	Dallas	Dallas	Cedar Springs	Oaklawn	Intersection Improvements
783.002	Dallas	Dallas	Cedar Springs	Olive	Intersection Improvements
783.0021	Dallas	Dallas	Churchill Way	Coit	Intersection Improvements
783.0022	Dallas	Dallas	Clarendon	Tyler	Intersection Improvements
783.0023	Dallas	Dallas	Collett	Live Oak	Intersection Improvements
783.0024	Dallas	Dallas	Commonwealth	SH 356 (Irving)	Intersection Improvements
783.0025	Dallas	Dallas	Dallas N. Tollway	Royal (2)	Intersection Improvements
783.0026	Dallas	Dallas	Dallas N. Tollway (2)	Frankford	Intersection Improvements
783.0027	Dallas	Dallas	Dallas N. Tollway (2)	Keller Springs	Intersection Improvements
783.0028	Dallas	Dallas	Dallas N. Tollway (Inwoo	Harvest Hill	Intersection Improvements
783.0029	Dallas	Dallas	Dallas North Tollway	Spring Valley	Intersection Improvements
783.003	Dallas	Dallas	Denton	Shorecrest	Intersection Improvements
783.0031	Dallas	Dallas	Denton	Webb Chapel Ext.	Intersection Improvements
783.0032	Dallas	Dallas	Exchange Service Dr.	Loop 12 (Walton Walker)	Intersection Improvements
783.0033	Dallas	Dallas	Fitzhugh	Live Oak	Intersection Improvements
783.0034	Dallas	Dallas	Fleming	Jefferson	Intersection Improvements
783.0035	Dallas	Dallas	Floyd	Restland	Intersection Improvements
783.0036	Dallas	Dallas	Forest Ln.	Inwood	Intersection Improvements
783.0037	Dallas	Dallas	Forest Ln.	Park Central	Intersection Improvements
783.0038	Dallas	Dallas	Forest Ln.	Plano	Intersection Improvements
783.0039	Dallas	Dallas	Forest Ln.	SH 289 (Preston)	Intersection Improvements
783.004	Dallas	Dallas	Forest Ln.	Webb Chapel	Intersection Improvements
783.0041	Dallas	Dallas	Fort Worth	Sylvan	Intersection Improvements
783.0042	Dallas	Dallas	Gaston	SH 78 (Garland)	Intersection Improvements
783.0043	Dallas	Dallas	Gilpin	SH 180 (Davis/Ft.Worth)	Intersection Improvements
783.0044	Dallas	Dallas	Good Latimer	Live Oak	Intersection Improvements
783.0045	Dallas	Dallas	Grand	Oakland	Intersection Improvements
783.0046	Dallas	Dallas	Greenville	Lovers (Pass)	Intersection Improvements
783.0047	Dallas	Dallas	Greenville	Mockingbird	Intersection Improvements
783.0048	Dallas	Dallas	Greenville	Phoenix	Intersection Improvements
783.0049	Dallas	Dallas	Hall	Live Oak	Intersection Improvements
783.005	Dallas	Dallas	Hall	Oak Lawn	Intersection Improvements
783.0051	Dallas	Dallas	Hampton	US 67	Intersection Improvements
783.0052	Dallas	Dallas	Harry Hines	IH 635	Intersection Improvements
783.0053	Dallas	Dallas	Harry Hines	Market Center	Intersection Improvements
783.0054	Dallas	Dallas	Harry Hines	Walnut Hill	Intersection Improvements
783.0055	Dallas	Dallas	Harry Hines	Wycliff	Intersection Improvements
783.0056	Dallas	Dallas	Harry Hines (SH 354)	Merrell/Southwell	Intersection Improvements
783.0057	Dallas	Dallas	Harry Hines (SH 354)	Royal	Intersection Improvements
783.0058	Dallas	Dallas	Harvest Hill	Montfort	Intersection Improvements
783.0059	Dallas	Dallas	Harvest Hill	Noel	Intersection Improvements
783.006	Dallas	Dallas	Harwood	Pacific (Olive)	Intersection Improvements
783.0061	Dallas	Dallas	Harwood	Pearl	Intersection Improvements
783.0062	Dallas	Dallas	Haskell	Live Oak	Intersection Improvements
783.0063	Dallas	Dallas	Haskell	Ross	Intersection Improvements

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783.0064	Dallas	Dallas	Haskell	Tholl	Intersection Improvements
783.0065	Dallas	Dallas	Henderson	Ross	Intersection Improvements
783.0066	Dallas	Dallas	Hillicrest	IH 635 (2)	Intersection Improvements
783.0067	Dallas	Dallas	Hillicrest	Lakehurst	Intersection Improvements
783.0068	Dallas	Dallas	IH 635 (2)	Webb Chapel	Intersection Improvements
783.0069	Dallas	Dallas	Illinois	Kolloch to Wilhurt	Intersection Improvements
783.007	Dallas	Dallas	Illinois	Linfield	Intersection Improvements
783.0071	Dallas	Dallas	Illinois	Overton (Southern Oaks)	Intersection Improvements
783.0072	Dallas	Dallas	Illinois	Westmoreland	Intersection Improvements
783.0073	Dallas	Dallas	Inwood	Lemmon	Intersection Improvements
783.0074	Dallas	Dallas	Inwood	Park Ln.	Intersection Improvements
783.0075	Dallas	Dallas	Inwood	Walnut Hill	Intersection Improvements
783.0076	Dallas	Dallas	Irving	Sylvan	Intersection Improvements
783.0077	Dallas	Dallas	Keller Springs	Knoll Trail	Intersection Improvements
783.0078	Dallas	Dallas	Keller Springs / Westgrove	SH 289 (Preston)	Intersection Improvements
783.0079	Dallas	Dallas	Kelly	Old Mill Rd.	Intersection Improvements
783.008	Dallas	Dallas	Ledbetter	Loop 12	Intersection Improvements
783.0081	Dallas	Dallas	Linfield	S. Central Expressway	Intersection Improvements
783.0082	Dallas	Dallas	Live Oak	Munger	Intersection Improvements
783.0083	Dallas	Dallas	Live Oak	Peak	Intersection Improvements
783.0084	Dallas	Dallas	Live Oak	Skillman	Intersection Improvements
783.0085	Dallas	Dallas	Live Oak	Washington	Intersection Improvements
783.0086	Dallas	Dallas	Loop 12	Murdock	Intersection Improvements
783.0087	Dallas	Dallas	Loop 12	Pemberton Hill	Intersection Improvements
783.0088	Dallas	Dallas	Maple	Motor	Intersection Improvements
783.0089	Dallas	Dallas	Matilda	Mockingbird	Intersection Improvements
783.009	Dallas	Dallas	Matilda	Ross	Intersection Improvements
783.0091	Dallas	Dallas	McCommas	Skillman	Intersection Improvements
783.0092	Dallas	Dallas	Meaders	SH 289 (Preston)	Intersection Improvements
783.0093	Dallas	Dallas	Meadow	SH 289 (Preston)	Intersection Improvements
783.0094	Dallas	Dallas	Midway	Rosemeade	Intersection Improvements
783.0095	Dallas	Dallas	Mockingbird	Skillman	Intersection Improvements
783.0096	Dallas	Dallas	Montfort	Spring Valley	Intersection Improvements
783.0097	Dallas	Dallas	Noel	Spring Valley	Intersection Improvements
783.0098	Dallas	Dallas	Northaven	SH 289 (Preston)	Intersection Improvements
783.0099	Dallas	Dallas	Oak Lawn	Rawlins	Intersection Improvements
783.01	Dallas	Dallas	Park Ln	SH 289 (Preston)	Intersection Improvements
783.0101	Dallas	Dallas	Pearl	Woodall Rodgers (2) (SH	Intersection Improvements
783.0102	Dallas	Dallas	Plymouth	SH 180 (Davis)	Intersection Improvements
783.0103	Dallas	Dallas	Reeder	Royal	Intersection Improvements
783.0104	Dallas	Dallas	Ross	US 75 (Central Expy.)	Intersection Improvements
783.0105	Dallas	Dallas	Routh	US 75 (Central Expy.)	Intersection Improvements
783.0106	Dallas	Dallas	Royal Lane	Skillman	Intersection Improvements
783.0107	Dallas	Dallas	SH 180 (Davis)	Westmoreland	Intersection Improvements
783.0108	Dallas	Dallas	SH 180 (Davis)	Westmoreland to Hampto	Intersection Improvements
783.0109	Dallas	Dallas	SH 352 (Scyene)	St. Augustine	Intersection Improvements
783.011	Dallas	Dallas	Singleton	Sylvan	Intersection Improvements
783.0111	Dallas	Dallas	Timberview	Webb Chapel	Intersection Improvements
1052.0001	Denton	Denton	Eagle	@Ave A - WB	Intersection Improvements
1052.0002	Denton	Denton	Eagle	@Ave C - EB/WB	Intersection Improvements
1052.0003	Denton	Denton	Eagle	@Welch - WB	Intersection Improvements
1052.0004	Denton	Denton	US 380	@Bell - WB	Intersection Improvements
1052.0005	Denton	Denton	US 380	@Bonnie Brae - EB/WB	Intersection Improvements
1052.0006	Denton	Denton	US 380	@US 77 - EB	Intersection Improvements
1052.0007	Denton	Denton	Carroll	@Parkway--NB Right Tur	Intersection Improvements
1052.0008	Denton	Denton	US 380	@Bell--EB Right Turn Ln	Intersection Improvements
3024.0001	TxDOT-Dallas	Balch Springs	Seagoville	Ambassador Way	Signal Improvements
3024.0002	TxDOT-Dallas	Balch Springs	Seagoville	IH 635 Frontage	Signal Improvements
3024.0003	TxDOT-Dallas	Balch Springs	Seagoville	IH 635 Frontage	Signal Improvements
3083.0001	TxDOT/DART	Garland	Forest Ln	@Barnes	Corridor Improvements
3083.0002	TxDOT/DART	Garland	SH 78 (Forest Ln)	@SH 78 (Garland Ave (N	Corridor Improvements
3083.0003	TxDOT/DART	Garland	Forest Ln	@International	Corridor Improvements

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3083.0004	TxDOT/DART	Garland	Forest Ln	@Jupiter Rd	Corridor Improvements
3083.0005	TxDOT/DART	Garland	Forest Ln	@Marion	Corridor Improvements
3083.0006	TxDOT/DART	Garland	Forest Ln	@Plano Rd	Corridor Improvements
3083.0007	TxDOT/DART	Garland	Forest Ln	@Shepherd	Corridor Improvements
3083.0008	TxDOT/DART	Garland	Forest Ln	@Shiloh Rd	Corridor Improvements
3083.0009	TxDOT/DART	Garland	Forest Ln	@State	Corridor Improvements
3083.001	TxDOT/DART	Garland	Forest Ln	@Yale	Corridor Improvements
3089.0001	TxDOT/DART	Garland	Plano Rd	@Buckingham Rd	Signal Improvements
3089.0002	TxDOT/DART	Garland	Plano Rd	@Forest Ln	Signal Improvements
3089.0003	TxDOT/DART	Garland	Plano Rd	@Lawler	Signal Improvements
3089.0004	TxDOT/DART	Garland	Plano Rd	@Pineridge	Signal Improvements
3089.0005	TxDOT/DART	Garland	Plano Rd	@Walnut St	Signal Improvements
3096.0001	Dallas County/Coppell	Coppell	Belt Line	Airline	Signal Improvements
3096.0002	Dallas County/Coppell	Coppell	Belt Line	Denton Tap	Signal Improvements
3096.0003	Dallas County/Coppell	Coppell	Belt Line	Lakeshore	Signal Improvements
3096.0004	Dallas County/Coppell	Coppell	Belt Line	Wrangler (Cowboy)	Signal Improvements
3096.0005	Dallas County/Coppell	Coppell	Bethel	Denton Tap	Signal Improvements
3096.0006	Dallas County/Coppell	Coppell	Bethel School	Denton Tap	Signal Improvements
3096.0007	Dallas County/Coppell	Coppell	Denton Tap	Parkway	Signal Improvements
3096.0008	Dallas County/Coppell	Coppell	Denton Tap	Sandy Lake	Signal Improvements
3096.0009	Dallas County/Coppell	Coppell	MacArthur	Sandy Lake	Signal Improvements
3096.001	Dallas County/Coppell	Coppell	Moore	Sandy Lake	Intersection Improvements
3096.0011	Dallas County/Coppell	Coppell	Samuel	Sandy Lake	Signal Improvements
3096.0012	Dallas County/Coppell	Coppell	Moore	Sandy Lake	Signal Improvements
3098.0001	Dallas County	DeSoto	Pleasant Run	Hampton	Signal Improvements
3098.0002	Dallas County	DeSoto	Pleasant Run	IH 35E (2)	Signal Improvements
3098.0003	Dallas County	DeSoto	Pleasant Run	Meadows, The	Signal Improvements
3098.0004	Dallas County	DeSoto	Pleasant Run	Polk	Signal Improvements
3099.0001	Dallas County	Duncanville	Camp Wisdom	Cedar Ridge	Signal Improvements
3099.0002	Dallas County	Duncanville	Camp Wisdom	Duncanville	Signal Improvements
3099.0003	Dallas County	Duncanville	Camp Wisdom	Hill City	Signal Improvements
3099.0004	Dallas County	Duncanville	Camp Wisdom	IH 20 (2)	Signal Improvements
3099.0005	Dallas County	Duncanville	Camp Wisdom	Oriole	Signal Improvements
3099.0006	Dallas County	Duncanville	Cockrell Hill	Redbird	Signal Improvements
3099.0007	Dallas County	Duncanville	Cockrell Hill	Wheatland	Signal Improvements
3099.0008	Dallas County	Duncanville	Camp Wisdom	Main Street	Signal Improvements
3099.0009	Dallas County	Duncanville	Camp Wisdom	Hustead	Signal Improvements
3099.001	Dallas County	Duncanville	Cockrell Hill	Skyline	Signal Improvements
3099.0011	Dallas County	Duncanville	Cockrell Hill	San Juan/Gannon	Signal Improvements
3102.0001	Dallas County	Irving	Belt Line	Conflans	Signal Improvements
3102.0002	Dallas County	Irving	Belt Line	Country Club	Signal Improvements
3102.0003	Dallas County	Irving	Belt Line	Finley	Signal Improvements
3102.0004	Dallas County	Irving	Belt Line	Grande Bulevar	Signal Improvements
3102.0005	Dallas County	Irving	Belt Line	IH 635 (2)	Signal Improvements
3102.0006	Dallas County	Irving	Belt Line	Irving Mall	Signal Improvements
3102.0007	Dallas County	Irving	Belt Line	Northgate	Signal Improvements
3102.0008	Dallas County	Irving	Belt Line	Oakdale	Signal Improvements
3102.0009	Dallas County	Irving	Belt Line	Pioneer	Signal Improvements
3102.001	Dallas County	Irving	Belt Line	Regent Blvd.	Signal Improvements
3102.0011	Dallas County	Irving	Belt Line	Rochelle	Signal Improvements
3102.0012	Dallas County	Irving	Belt Line	Rock Island	Signal Improvements
3102.0013	Dallas County	Irving	Belt Line	Royal	Signal Improvements
3102.0014	Dallas County	Irving	Belt Line	SH 114 (2)	Signal Improvements
3102.0015	Dallas County	Irving	Belt Line	SH 161 (2)	Signal Improvements
3102.0016	Dallas County	Irving	Belt Line	SH 183 (2) (John Carpenter)	Signal Improvements
3102.0017	Dallas County	Irving	Belt Line	Shady Grove	Signal Improvements
3102.0018	Dallas County	Irving	Belt Line	Story	Signal Improvements
3102.0019	Dallas County	Irving	Belt Line	Strait	Signal Improvements
3102.002	Dallas County	Irving	Belt Line	Valley View	Signal Improvements
3102.0021	Dallas County	Irving	Belt Line	Walnut Hill	Signal Improvements
3102.0022	Dallas County	Irving	Belt Line	Willow Creek	Signal Improvements
3103.0001	Dallas County	Lancaster	Belt Line	Bluegrove	Signal Improvements
3103.0002	Dallas County	Lancaster	Belt Line	Houston School	Signal Improvements

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3103.0003	Dallas County	Lancaster	Belt Line	Main	Signal Improvements
3103.0004	Dallas County	Lancaster	Pleasant Run	Bluegrove	Signal Improvements
3103.0005	Dallas County	Lancaster	Pleasant Run	Elm	Signal Improvements
3103.0006	Dallas County	Lancaster	Pleasant Run	Houston School	Signal Improvements
3103.0007	Dallas County	Lancaster	Pleasant Run	Rogers	Signal Improvements
3103.0008	Dallas County	Lancaster	Pleasant Run	SH 342 (Dallas Ave. N.)	Signal Improvements
3103.0009	Dallas County	Lancaster	Pleasant Run	Westridge	Signal Improvements
3104.0001	Dallas County	Mesquite	Barnes Bridge	Belt Line	Signal Improvements
3104.0002	Dallas County	Mesquite	Bruton	Hickory Tree	Signal Improvements
3104.0003	Dallas County	Mesquite	Galloway	Oates	Signal Improvements
3104.0004	Dallas County	Mesquite	Gus Thomasson	Oates	Signal Improvements
3104.0005	Dallas County	Mesquite	IH 635 (2)	Military	Signal Improvements
3104.0006	Dallas County	Mesquite	IH 635 (2)	Oates	Signal Improvements
3104.0007	Dallas County	Mesquite	IH 635 (2)	SH 352 (Scyene)	Signal Improvements
3104.0008	Dallas County	Mesquite	Military Pkwy.	SH 352 (Scyene)	Signal Improvements
3104.0009	Dallas County	Mesquite	Motley	Oates	Signal Improvements
3104.001	Dallas County	Mesquite	Northwest Dr.	Oates	Signal Improvements
3104.0011	Dallas County	Mesquite	Peachtree	SH 352 (Scyene)	Signal Improvements
3105.0001	Dallas County	Rowlett	SH 66	Boyd	Signal Improvements
3105.0002	Dallas County	Rowlett	SH 66	Dalrock	Signal Improvements
3105.0003	Dallas County	Rowlett	SH 66	Grisham	Signal Improvements
3105.0004	Dallas County	Rowlett	SH 66	Liberty Grove	Signal Improvements
3105.0005	Dallas County	Rowlett	SH 66	Rowlett	Signal Improvements
4088.0001	Denton	Denton	Bonnie Brae	@US 380	Intersection Improvements
4088.0002	Denton	Denton	Carroll	@US 380	Intersection Improvements
4088.0003	Denton	Denton	Fulton	@US 380	Intersection Improvements
4088.0004	Denton	Denton	Malone	@US 380	Intersection Improvements
4101.0001	Desoto	DeSoto	Pleasant Run	@Chattey Rd	Signal Improvements
4101.0002	Desoto	DeSoto	Pleasant Run	@Chattey Rd	Signal Improvements
4193.0001	Richardson	Richardson	Abrams	@Centennial	Signal Improvements
4193.0002	Richardson	Richardson	Abrams	@Spring Valley	Signal Improvements
4193.0003	Richardson	Richardson	Alma Dr	@Collins Blvd	Signal Improvements
4193.0004	Richardson	Richardson	Alma Dr	@Renner Rd	Signal Improvements
4193.0005	Richardson	Richardson	Apollo Rd	@Plano Rd	Signal Improvements
4193.0006	Richardson	Richardson	Apollo Rd	@Yale	Signal Improvements
4193.0007	Richardson	Richardson	Arapaho Rd	@Bowser	Signal Improvements
4193.0008	Richardson	Richardson	Arapaho Rd	@Coit Rd	Signal Improvements
4193.0009	Richardson	Richardson	Arapaho Rd	@Custer	Signal Improvements
4193.001	Richardson	Richardson	Arapaho Rd	@Floyd Rd	Signal Improvements
4193.0011	Richardson	Richardson	Arapaho Rd	@Glenville	Signal Improvements
4193.0012	Richardson	Richardson	Arapaho Rd	@Greenville	Signal Improvements
4193.0013	Richardson	Richardson	Arapaho Rd	@Grove Rd	Signal Improvements
4193.0014	Richardson	Richardson	Arapaho Rd	@Hampshire	Signal Improvements
4193.0015	Richardson	Richardson	Arapaho Rd	@International	Signal Improvements
4193.0016	Richardson	Richardson	Arapaho Rd	@Jupiter Rd	Signal Improvements
4193.0017	Richardson	Richardson	Arapaho Rd	@Mimosa	Signal Improvements
4193.0018	Richardson	Richardson	Arapaho Rd	@Plano Rd	Signal Improvements
4193.0019	Richardson	Richardson	Arapaho Rd	@US 75	Signal Improvements
4193.002	Richardson	Richardson	Arapaho Rd	@Waterview	Signal Improvements
4193.0021	Richardson	Richardson	Arapaho Rd	@Westshore	Signal Improvements
4193.0022	Richardson	Richardson	Arapaho Rd	@Yale Blvd	Signal Improvements
4193.0023	Richardson	Richardson	Audelia	@Buckingham	Signal Improvements
4193.0024	Richardson	Richardson	Belt Line Rd	@Bowser	Signal Improvements
4193.0025	Richardson	Richardson	Belt Line Rd	@Coit Rd	Signal Improvements
4193.0026	Richardson	Richardson	Belt Line Rd	@Dorothy	Signal Improvements
4193.0027	Richardson	Richardson	Belt Line Rd	@Floyd Rd	Signal Improvements
4193.0028	Richardson	Richardson	Belt Line Rd	@Glenville	Signal Improvements
4193.0029	Richardson	Richardson	Belt Line Rd	@Greenville	Signal Improvements
4193.003	Richardson	Richardson	Belt Line Rd	@Grove	Signal Improvements
4193.0031	Richardson	Richardson	Belt Line Rd	@Inge	Signal Improvements
4193.0032	Richardson	Richardson	Belt Line Rd	@Interurban	Signal Improvements
4193.0033	Richardson	Richardson	Belt Line Rd	@Jupiter Rd	Signal Improvements
4193.0034	Richardson	Richardson	Belt Line Rd	@Mimosa	Signal Improvements
4193.0035	Richardson	Richardson	Belt Line Rd	@Plano Rd	Signal Improvements

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4193.0036	Richardson	Richardson	Belt Line Rd	@St Johns	Signal Improvements
4193.0037	Richardson	Richardson	Belt Line Rd	@US 75 Frtg Rds	Signal Improvements
4193.0038	Richardson	Richardson	Belt Line Rd	@Waterview	Signal Improvements
4193.0039	Richardson	Richardson	Belt Line Rd	@Yale Blvd	Signal Improvements
4193.004	Richardson	Richardson	Bowser Rd	@Centennial	Signal Improvements
4193.0041	Richardson	Richardson	Business Pkwy	@Centennial	Signal Improvements
4193.0042	Richardson	Richardson	Campbell Rd	@Canyon Creek	Signal Improvements
4193.0043	Richardson	Richardson	Campbell Rd	@Coit Rd	Signal Improvements
4193.0044	Richardson	Richardson	Campbell Rd	@Collins Blvd	Signal Improvements
4193.0045	Richardson	Richardson	Campbell Rd	@Custer	Signal Improvements
4193.0046	Richardson	Richardson	Campbell Rd	@Floyd Rd	Signal Improvements
4193.0047	Richardson	Richardson	Campbell Rd	@Glenville	Signal Improvements
4193.0048	Richardson	Richardson	Campbell Rd	@Greenville	Signal Improvements
4193.0049	Richardson	Richardson	Campbell Rd	@Jupiter Rd	Signal Improvements
4193.005	Richardson	Richardson	Campbell Rd	@Lakeside	Signal Improvements
4193.0051	Richardson	Richardson	Campbell Rd	@Mimosa	Signal Improvements
4193.0052	Richardson	Richardson	Campbell Rd	@Nantucket	Signal Improvements
4193.0053	Richardson	Richardson	Campbell Rd	@Plano Rd	Signal Improvements
4193.0054	Richardson	Richardson	Campbell Rd	@US 75	Signal Improvements
4193.0055	Richardson	Richardson	Campbell Rd	@Waterview	Signal Improvements
4193.0056	Richardson	Richardson	Campbell Rd	@Yale Blvd	Signal Improvements
4193.0057	Richardson	Richardson	Centennial	@College Park	Signal Improvements
4193.0058	Richardson	Richardson	Centennial	@Greenville	Signal Improvements
4193.0059	Richardson	Richardson	Centennial	@Grove -- Audelia	Signal Improvements
4193.006	Richardson	Richardson	Coit Rd	@Dumont	Signal Improvements
4193.0061	Richardson	Richardson	Coit Rd	@Melrose	Signal Improvements
4193.0062	Richardson	Richardson	Coit Rd	@Roundrock	Signal Improvements
4193.0063	Richardson	Richardson	Coit Rd	@Spring Valley	Signal Improvements
4193.0064	Richardson	Richardson	Collins Blvd	@Glenville	Signal Improvements
4193.0065	Richardson	Richardson	Collins Blvd	@Jupiter Rd	Signal Improvements
4193.0066	Richardson	Richardson	Collins Blvd	@Municipal	Signal Improvements
4193.0067	Richardson	Richardson	Collins Blvd	@Plano Rd	Signal Improvements
4193.0068	Richardson	Richardson	Custer	@Renner Rd	Signal Improvements
4193.0069	Richardson	Richardson	Glenville	@Greenville	Signal Improvements
4193.007	Richardson	Richardson	Greenville	@Plano Rd	Signal Improvements
4193.0071	Richardson	Richardson	Greenville	@Polk	Signal Improvements
4193.0072	Richardson	Richardson	Greenville	@Spring Valley	Signal Improvements
4193.0073	Richardson	Richardson	Jupiter Rd	@Lookout Dr	Signal Improvements
4193.0074	Richardson	Richardson	Jupiter Rd	@North Hill	Signal Improvements
4193.0075	Richardson	Richardson	Jupiter Rd	@Renner Rd	Signal Improvements
4193.0076	Richardson	Richardson	Jupiter Rd	@SH 190 Frtg Rds	Signal Improvements
4193.0077	Richardson	Richardson	Jupiter Rd	@Spring Pkwy	Signal Improvements
4193.0078	Richardson	Richardson	Jupiter Rd	@Spring Valley	Signal Improvements
4193.0079	Richardson	Richardson	Lookout Dr	@Plano Rd	Signal Improvements
4193.008	Richardson	Richardson	Maham	@Spring Valley	Signal Improvements
4193.0081	Richardson	Richardson	Melrose	@Mimosa	Signal Improvements
4193.0082	Richardson	Richardson	Melrose	@Westshore	Signal Improvements
4193.0083	Richardson	Richardson	Mervyns	@Plano Rd	Signal Improvements
4193.0084	Richardson	Richardson	Plano Rd	@Renner Rd	Signal Improvements
4193.0085	Richardson	Richardson	Plano Rd	@SH 190 Frtg Rds	Signal Improvements
4193.0086	Richardson	Richardson	Plano Rd	@Spring Valley	Signal Improvements
4193.0087	Richardson	Richardson	Renner Pkwy	@Renner Rd	Signal Improvements
4193.0088	Richardson	Richardson	Renner Rd	@SH 190 Frtg Rds	Signal Improvements
4193.0089	Richardson	Richardson	Renner Rd	@Shiloh Rd	Signal Improvements
4193.009	Richardson	Richardson	Renner Rd	@US 75	Signal Improvements
4193.0091	Richardson	Richardson	Sherman	@Spring Valley	Signal Improvements
4193.0092	Richardson	Richardson	Spring Valley	@St Johns	Signal Improvements
4193.0093	Richardson	Richardson	Spring Valley	@St Paul	Signal Improvements
4193.0094	Richardson	Richardson	Spring Valley	@US 75	Signal Improvements
4193.0095	Richardson	Richardson	Spring Valley	@Waterfall Way	Signal Improvements
4193.0096	Richardson	Richardson	Spring Valley	@Waterview	Signal Improvements
4193.0097	Richardson	Richardson	Spring Valley	@Weathered	Signal Improvements

1998 TRANSPORTATION IMPROVEMENT PROGRAM
 CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)
 WESTERN SUBREGION - VARIOUS LOCATIONS LISTING

PROJECT CODE	AGENCY	CITY	CROSS STREET A	CROSS STREET B	DESCRIPTION
4164.0001	Grapevine	Grapevine	BS 114L (Northwest Hig	@ SH114	Intersection Improvements
4164.0002	Grapevine	Grapevine	BS 114L (Northwest Hig	@ SH26	Intersection Improvements
9992.0001	Bedford	Bedford	Harwood Rd	@Spring Valley Dr	Signal Improvements
9992.0002	Bedford	Bedford	Harwood Rd	@Shadybrook Dr	Signal Improvements
9992.0003	Bedford	Bedford	Harwood Rd	@Blue Quail Lane	Signal Improvements

EMISSIONS CALCULATIONS

BASIC EMISSION EQUATION:

Emissions = EF * VMT

Where: EF = Emission factor as a function of speed (grams per vehicle mile)

VMT = Vehicle miles of travel

BENEFIT CRITERIA

<u>Project</u>	<u>Lower Emission Factor</u>	<u>Decreased VMT</u>
Roadway Widening	X	
Transit Improvements ¹		X
Intersection Improvements	X	
Signal Timing/Progression	X	
HOV Lanes	X	X
Motorist Assistance/Incident Detection and Response	X	
Park and Ride Lots		X
Travel Demand Incentives		X
Bikeways		X

¹Includes Alternative Fuel Vehicle Purchases.

**AIR QUALITY/ENERGY CONSERVATION RATING
ROADWAY WIDENING**

I. Calculate Existing Daily Hydrocarbon (HC) Emissions

$$E_b = EF_b * \text{Volume} * \text{Distance}$$

Where: E_b = Emissions before improvement (grams)

EF_b = Emission factor (grams per mile) based on existing average speed (see Figure 1)

II. Determine Average Speed after Improvement

Increased Capacity–Improved Level of Service–Higher Speed

III. Calculate Daily HC Emissions after Improvement

$$E_a = EF_a * \text{Volume} * \text{Distance}$$

Where: E_a = Emissions after improvement (grams)

EF_a = Emission factor based on new average speed and improved level of service (see Figure 1)

IV. Find Annual HC Emission Reductions (E_r)

$$E_r = (E_b - E_a) * 300 \text{ days/year}$$

V. Determine Cost per Pound of HC Reductions

$$\text{Cost/Pound} = \frac{\text{Annual Project Cost (C}_1\text{)}}{E_r}$$

Where: C_1 = 454 grams/pound

VI. Apply Score from Table 1

AIR QUALITY/ENERGY CONSERVATION RATING TRANSIT IMPROVEMENTS¹

I. Calculate Daily VMT Reduction.

$$\text{VMT} = \frac{\text{Average Daily Ridership}}{\text{Average Auto Occupancy}} * \text{Average Trip Length}$$

II. Calculate Daily HC Emissions

$$E_D = EF * \text{VMT}$$

Where: E_D = Daily emissions

EF = Emission factor (grams per mile) based on average speed of surrounding roadways (see Figure 1)

III. Determine Annual HC Emissions (E_A)

$$E_A = E_D * 260 \text{ weekdays/year}$$

IV. Determine Cost Per Pounds of HC Reductions

$$\text{Cost/Pound} = \frac{\text{(Annual Project Cost) } (C_1)}{E_A}$$

Where: C_1 = 454 grams/pound

VI. Apply score from Table 1

¹Includes capital and operating assistance for both public transit and elderly and disabled transit. Capital assistance can include new or replacement vehicles which are assumed to be alternative fueled. Also includes travel demand incentive projects.

**AIR QUALITY/ENERGY CONSERVATION RATING
INTERSECTION IMPROVEMENTS¹**

I. Calculate Existing Daily Hydrocarbon (HC) Emissions

$$E_B = EF_B * VOL_{APP} * DIST_{APP}$$

Where: E_B = Emissions before improvement (grams)

EF_B = Emission factor (grams per mile) based on assumed speed before improvement (see Figure 1)

VOL_{APP} = Peak-period approach volume

$DIST_{APP}$ = Approach distance in miles, varies by project type

II. Determine Average Speed after Improvement

Increased Capacity–Improved Level of Service–Higher Speed

III. Calculate Daily HC Emissions after Improvement

$$E_A = EF_A * VOL_{app} * DIST_{app}$$

Where: E_A = Emissions after improvement (grams)

EF_A = Emission factor (grams per mile) based on new average speed and improved level of service (see Figure 1)

IV. Find Annual HC Emission Reductions (E_R)

$$E_R = (E_B - E_A) * 300 \text{ days/year}$$

V. Determine Cost per Pound of HC Reductions

$$\text{Cost/Pound} = \frac{\text{Annual Project Cost } (C_1)}{E_R}$$

Where: C_1 = 454 grams/pound

VI. Apply Score from Table 1

¹Includes intersection improvements, grade separations, and signal retiming and progression projects.

**AIR QUALITY/ENERGY CONSERVATION RATING
HOV LANES**

I. Calculate Existing Daily Hydrocarbon (HC) Emissions

$$E_B = EF_B * VOL_B * \text{Distance}$$

Where: E_B = Emissions before improvement (grams)

EF_B = Emission factor (grams per mile) based on existing mainlane average speed (see Figure 1)

$$VOL_B = \text{HOV Volume}^1 * \frac{\text{Auto Occupancy of HOV}}{\text{Auto Occupancy of Mixed Flow}}$$

II. Determine Average Speed after Improvement

Increased Capacity--Improved Level of Service--Higher Speed

III. Calculate Daily HC Emissions After Improvement

$$E_A = EF_A * VOL_A * \text{Distance}$$

Where: E_A = Emissions after improvement (grams)

EF_A = Emission factor (grams per mile) based on new average HOV speed (see Figure 1)

$$VOL_A = \text{HOV volume}$$

IV. Find Annual HC Emission Reductions (E_R)

$$E_R = (E_B - E_A) * 260 \text{ weekdays/year}$$

V. Determine Cost per Pound of HC Reductions

$$\text{Cost/Pound} = \frac{\text{Annual Project Cost (C}_1\text{)}}{E_R}$$

Where: C_1 = 454 grams/pound

VI. Apply Score from Table 1

¹Air quality benefits are assumed to be from HOV traffic only.

**AIR QUALITY/ENERGY CONSERVATION RATING
MOTORIST ASSISTANCE/INCIDENT DETECTION AND RESPONSE**

I. Determine Regional Freeway HC Emissions in Tons Per Day (E_r) from 1990 Base Year Emissions Inventory

II. Determine Freeway Emissions in Tons Per Day Due to Nonrecurring Congestion (E_{FNON})

$$E_{FNON} = E_r * 0.049$$

4.9 Percent of freeway emissions are caused by nonrecurring congestion

("Urban Freeway Congestion: Quantification of the Problem and Effectiveness of Potential Solutions," by Jeffrey A. Lindley, 1987.)

III. Determine Daily HC Emissions Reductions (E_{RD})

Because freeway emissions are directly related to freeway VMT, the VMT in the program target area is used to calculate reductions in emissions from nonrecurring congestion in the same target area:

$$E_{RD} = \frac{\text{Length} * \text{Freeway Volume}}{\text{Regional Freeway VMT}} * (E_{FNON}) * (\text{Project Effectiveness})'$$

IV. Find Annual HC Emissions Reductions (E_{RA}) in Tons

$$E_{RA} = E_{RD} * 260 \text{ weekdays/year}$$

V. Determine Cost Per Pound of HC Reductions

$$\text{Cost/Pound} = \frac{\text{Annual Project Cost}}{E_{RA} (C_2)}$$

Where: $C_2 = 2,000$ pounds/ton

VI. Apply Score from Table 1

Project Effectiveness: 50% for Incident Detection and Response

25% for Motorist Assistance

15% for Surveillance

**AIR QUALITY/ENERGY CONSERVATION RATING
PARK-AND-RIDE LOTS**

I. Calculate Daily VMT Reduction

$$\text{VMT} = \text{PS} * \text{UF} * \text{D}$$

Where: PS = Number of parking spaces in lot

UF = Utilization factor

D = Distance from CBD

II. Calculate Daily HC Emission Reductions (E_{RD}) in grams

$$E_{RD} = \text{EF} * \text{VMT}$$

Where: EF = Emission factor (grams per mile) based on average freeway speed (see Figure 1)

III. Find Annual Emission Reductions (E_{RA})

$$E_{RA} = E_{RD} * 260 \text{ weekdays/year}$$

IV. Determine Cost per Pound of HC Reductions

$$\text{Cost/Pound} = \frac{\text{Annual Project Cost (C}_1\text{)}}{E_{RA}}$$

Where: C_1 = 454 grams/pound

V. Apply Score from Table 1