REVISIONS TO THE STATE OF TEXAS AIR QUALITY IMPLEMENTATION PLAN FEDERAL CLEAN AIR ACT SECTIONS 110(a)(1) AND (2) INFRASTRUCTURE AND TRANSPORT

INFRASTRUCTURE DEMONSTRATION AND TRANSPORT PLAN FOR NITROGEN DIOXIDE

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. BOX 13087
AUSTIN, TEXAS 78711-3087

FEDERAL CLEAN AIR ACT SECTIONS 110(A)(1) AND (2) INFRASTRUCTURE AND TRANSPORT STATE IMPLEMENTATION PLAN REVISION FOR THE 2010 NITROGEN DIOXIDE NATIONAL AMBIENT AIR QUALITY STANDARD

PROJECT NUMBER 2012-016-SIP-NR

Proposal
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EXECUTIVE SUMMARY

This proposed revision to the state implementation plan (SIP) for nitrogen dioxide (NO_2) infrastructure and transport is intended to meet the infrastructure requirements of the Federal Clean Air Act (FCAA), §110(a)(2). States are required by §110(a)(1) of the FCAA to submit SIP revisions to meet the infrastructure requirements within three years of promulgation of a new or revised National Ambient Air Quality Standard (NAAQS). On February 9, 2010, the United States Environmental Protection Agency (EPA) strengthened the NO_2 NAAQS. The new primary one-hour NO_2 standard was set at 100 parts per billion (ppb). The EPA retained the annual NO_2 standard of 53 ppb. This proposed SIP revision documents that the Texas SIP at 40 Code of Federal Regulations Part 52, Subpart SS contains all the infrastructure elements required by FCAA, §110(a)(2) for the implementation, maintenance, and enforcement of the 2010 NO_2 NAAQS. Because the infrastructure demonstration explains how the existing Texas statutes and rules will allow the state to meet its obligations under the FCAA, the infrastructure SIP has been developed as an expansion of the existing Section V: *Legal Authority* section of Texas' SIP. This expanded section is unique to infrastructure SIP revisions that are submitted to meet the requirements of FCAA, §110(a)(1), and demonstrates that the state can provide for the implementation, maintenance, and enforcement of the NAAQS.

The infrastructure demonstration outlines the requirements of FCAA, §110(a)(2)(A) through (M) and the Texas statutes and rules that allow the Texas Commission on Environmental Quality to meet those requirements. These requirements include basic program elements such as enforceable emission limitations and control measures, air quality monitoring and modeling, a permitting program, adequate funding and personnel, authority under state law to carry out the plan, emissions reporting, emergency powers, public participation, and fee collection.

This SIP revision also includes a more detailed technical demonstration to meet the interstate transport requirements of FCAA, §110(a)(2)(D)(i)(I). Since this infrastructure element requires more than statutory authority, the requirement is discussed in the Section VI: *Control Strategy* portion of this SIP revision. The technical demonstration includes an analysis of back trajectories from monitor sites in neighboring states to show where the air parcels come from. A discussion of NO_2 transport is included to show that Texas does not contribute significantly to nonattainment or interfere with maintenance of the 2010 NO_2 NAAQS in another state.

SECTION V: LEGAL AUTHORITY

A. General (Revised)
B. Infrastructure Demonstration for Lead (No change)
   1. 2008 Lead National Ambient Air Quality Standard (No change)
C. Infrastructure Demonstration for Nitrogen Dioxide (New)
   1. 2010 Nitrogen Dioxide National Ambient Air Quality Standard (New)

SECTION V-A: LEGAL AUTHORITY

A. General

The Texas Commission on Environmental Quality (TCEQ) has the legal authority to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to control the quality of the state's air, including maintaining adequate visibility.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, and 2011. In 1989, the TCAA was codified as Chapter 382 of the Texas Health and Safety Code.

Originally, the TCAA stated that the Texas Air Control Board (TACB) is the state air pollution control agency and is the principal authority in the state on matters relating to the quality of air resources. In 1991, the legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both the Texas Water Code and the TCAA. Specifically, the authority of the TNRCC is found in Chapters 5 and 7. Chapter 5, Subchapters A - F, H - J, and L, include the general provisions, organization, and general powers and duties of the TNRCC, and the responsibilities and authority of the executive director. Chapter 5 also authorizes the TNRCC to implement action when emergency conditions arise and to conduct hearings. Chapter 7 gives the TNRCC enforcement authority. In 2001, the 77th Texas Legislature continued the existence of the TNRCC until September 1, 2013, and changed the name of the TNRCC to the TCEQ. In 2009, the 81st Texas Legislature, during a special session, amended section 5.014 of the Texas Water Code, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act. In 2011, the 82nd Texas Legislature continued the existence of the TCEQ until 2023.

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A - D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; to conduct research and investigations; to enter property and examine records; to prescribe monitoring requirements; to institute enforcement proceedings; to enter into contracts and execute instruments; to formulate rules; to issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; to conduct hearings; to establish air quality control regions; to encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and to establish and operate a system of permits for construction or modification of facilities.

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also may make recommendations to the commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA and the rules or orders of the commission.

Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the Federal Clean Air Act; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; establish gasoline volatility and low emission diesel standards; and fund and authorize participating counties to implement vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

B. Applicable Law

The following statutes and rules provide necessary authority to adopt and implement the state implementation plan (SIP). The rules listed below have previously been submitted as part of the SIP.

Statutes

All sections of each subchapter are included, unless otherwise noted.

TEXAS HEALTH & SAFETY CODE, Chapter 382	September 1, 2011
TEXAS WATER CODE	September 1, 2011

Chapter 5: Texas Natural Resource Conservation Commission

- Subchapter A: General Provisions
- Subchapter B: Organization of the Texas Natural Resource Conservation Commission
- Subchapter C: Texas Natural Resource Conservation Commission
- Subchapter D: General Powers and Duties of the Commission
- Subchapter E: Administrative Provisions for Commission
- Subchapter F: Executive Director (except §§5.225, 5.226, 5.227, 5.2275,5.231, 5.232, and 5.236)
- Subchapter H: Delegation of Hearings
- Subchapter I: Judicial Review
- Subchapter J: Consolidated Permit Processing
- Subchapter L: Emergency and Temporary Orders (§§5.514, 5.5145, and 5.515 only)
- Subchapter M: Environmental Permitting Procedures (§5.558 only)

Chapter 7: Enforcement

- Subchapter A: General Provisions (§§7.001, 7.002, 7.0025, 7.004, and 7.005 only)
- Subchapter B: Corrective Action and Injunctive Relief (§7.032 only)
- Subchapter C: Administrative Penalties
- Subchapter D: Civil Penalties (except §7.109)
- Subchapter E: Criminal Offenses and Penalties: §§7.177, 7.179-7.183

Rules

All of the following rules are found in 30 Texas Administrative Code, as of the following latest effective dates:

Chapter 7: Memoranda of Understanding, §§7.110 and 7.119	December 13, 1996 and May 2, 2002
Chapter 19: Electronic Reporting	March 15, 2007
Chapter 35: Subchapters A-C, K: Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions	July 20, 2006

Chapter 39: Public Notice, §§39.402(a)(1)-(6), (8), and (10)-(12), 39.405(f)(3) and (g), (h)(1)(A)-(4), (6), (8)-(11), (i) and (j), 39.407, 39.409, 39.411(a), (e)(1)-(4)(A)(i) and (iii), (4)(B), (5)(A) and (B), and (6)-(10), (11)(A)(i) and (iii) and (iv), (11)(B)-(F), (13) and (15), and (f)(1)-(8), (g) and (h), 39.418(a), (b)(2)(A), (b)(3), and (c), 39.419(e), 39.420 (c)(1)(A)-(D)(i)(I) and (II), (D)(ii), (c)(2), (d)-(e), and (h), and 39.601-39.605	June 24, 2010
Chapter 55: Requests for Reconsideration and Contested Case Hearings; Public Comment, §§55.150, 55.152(a)(1), (2), (5), and (6) and (b), 55.154(a), (b), (c)(1)-(3), and (5), and (d)-(g), and 55.156(a), (b), (c)(1), (e), and (g)	June 24, 2010
Chapter 101: General Air Quality Rules	October 27, 2011
Chapter 106: Permits by Rule, Subchapter A	May 15, 2011
Chapter 111: Control of Air Pollution from Visible Emissions and Particulate Matter	February 16, 2012
Chapter 112: Control of Air Pollution from Sulfur Compounds	July 16, 1997
Chapter 113: Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants	May 14, 2009
Chapter 114: Control of Air Pollution from Motor Vehicles	August 11, 2011
Chapter 115: Control of Air Pollution from Volatile Organic Compounds	December 29, 2011
Chapter 116: Permits for New Construction or Modification	March 1, 2012
Chapter 117: Control of Air Pollution from Nitrogen Compounds	April 19, 2012
Chapter 118: Control of Air Pollution Episodes	March 5, 2000
Chapter 122: §122.122: Potential to Emit	December 11, 2002
Chapter 122: §122.215: Minor Permit Revisions	June 3, 2001
Chapter 122: §122.216: Applications for Minor Permit Revisions	June 3, 2001
Chapter 122: §122.217: Procedures for Minor Permit Revisions	December 11, 2002
Chapter 122: §122.218: Minor Permit Revision Procedures for Permit Revisions Involving the Use of Economic Incentives, Marketable Permits, and Emissions Trading	June 3, 2001

SECTION V-C-1: INFRASTRUCTURE DEMONSTRATION FOR THE 2010 NITROGEN DIOXIDE NATIONAL AMBIENT AIR QUALITY STANDARD

A. Background

Section 110(a)(1) of the Federal Clean Air Act (FCAA) requires states to submit a state implementation plan (SIP) revision to provide for the implementation, maintenance, and enforcement of the National Ambient Air Quality Standard (NAAQS). States are required to submit the infrastructure portion of this SIP requirement to the United States Environmental Protection Agency (EPA) to demonstrate that basic program elements have been addressed within three years of the promulgation of any new or revised NAAQS. Section 110(a)(2) lists the elements that these SIP submissions must contain.

On February 9, 2010, the EPA strengthened the nitrogen dioxide (NO_2) NAAQS. The new primary one-hour NO_2 standard was set at 100 parts per billion (ppb). The EPA retained the annual NO_2 standard of 53 ppb. This proposed SIP revision is intended to provide an update of the §110(a)(2) infrastructure requirements for the 2010 NO_2 NAAQS within three years after the promulgation of the revised NAAQS, or by January 22, 2013. This chapter outlines FCAA, §110(a)(2)(A) through (M) and includes various Texas provisions that support the conclusion that Texas meets the requirements of each section. The federally enforceable SIP for Texas is documented at 40 Code of Federal Regulations Part 52, Subpart SS.

The infrastructure demonstration is an expansion of the Legal Authority section of Texas' SIP that provides additional information about how the existing statutes and rules allow Texas to meet the §110(a)(2) infrastructure requirements of the FCAA. Therefore, this SIP revision contains an expanded infrastructure section under the SIP Legal Authority. This infrastructure section is intended to satisfy the §110(a)(1) requirement to provide for the implementation, maintenance, and enforcement of the NAAQS. This infrastructure section will be updated as part of the infrastructure SIP revisions that Texas is required to submit as new or revised NAAQS are promulgated but will not otherwise be included in other Texas SIP revisions. Section A of the Legal Authority contains the basic listing of Texas' legal framework for adopting SIP revisions and will be the default Legal Authority for Texas SIP revisions that are not specifically submitted to meet the FCAA, §110(a)(1) infrastructure demonstration requirement. The EPA has not yet proposed infrastructure or transport guidance for the 2010 NO_2 NAAQS, but in order to meet statutory deadlines for submittal of infrastructure SIPs, states do not have the option of waiting for EPA to provide additional guidance before proceeding with infrastructure and transport SIP development, review, and submittal. The Texas Commission on Environmental Quality (TCEQ) is proceeding with publication of this proposed SIP revision to ensure that there are adequate opportunities for public notice and comment as required by state and federal statutes.

The TCEQ acknowledges that proposed changes to federal regulations may have future impacts on how the TCEQ meets the requirements of FCAA, §110(a)(2); however, this proposed SIP revision reflects the methods and means by which Texas meets these requirements at the time of this SIP revision. Should future federal rule changes necessitate state rule changes, the TCEQ will act appropriately at that time.

B. Texas Statutory Authority

The TCEQ has the legal authority to implement, maintain, and enforce the NAAQS. Texas' legal authority has been submitted to the EPA as part of various SIP revisions that have been approved by the EPA.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The Legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, and 2011. In 1989, the TCAA was codified as Chapter 382 of the Texas Health and Safety Code.

Originally, the TCAA stated that the Texas Air Control Board (TACB) was the state air pollution control agency and was the principal authority in the state on matters relating to the quality of air resources. In 1991, the legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both the Texas Water Code and the TCAA. Specifically, the authority of the commission is found in Texas Water Code, Chapters 5 and 7. Chapter 5, Subchapters A through F, H through J, and L, include the general provisions, organization, and general powers and duties of the commission, and the responsibilities and authority of the executive director. Chapter 5 also authorizes the commission to implement action when emergency conditions arise and to conduct hearings. Chapter 7 gives the commission enforcement authority. In 2001, the 77th Texas Legislature continued the existence of the commission until September 1, 2013, and changed the name of the TNRCC to the TCEQ. In 2009, the 81st Texas Legislature, during a special session, amended the Texas Water Code, §5.014, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act. In 2011, the 82nd Texas Legislature continued the existence of the TCEQ until 2023.

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A through D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; conduct research and investigations; enter property and examine records; prescribe monitoring requirements; institute enforcement proceedings; enter into contracts and execute instruments; formulate rules; issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; conduct hearings; establish air quality control regions; encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and establish and operate a system of permits for construction or modification of facilities.

Local government authority concerning air quality matters is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. Local governments may also make recommendations to the commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA or the rules or orders of the commission.

Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the FCAA; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; and fund and authorize participating counties to implement vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

Statutory Authority

The following statutory authority allows for the establishment and operation of the TCEQ and the adoption and implementation of all §110(a)(2) requirements.

Texas Clean Air Act, Texas Health and Safety Code, Chapter 382, except Subchapter I.

Texas Water Code:

§5.013(a)(11) & (13)	GENERAL JURISDICTION OF COMMISSION
§5.051.	COMMISSION
§5.052.	MEMBERS OF THE COMMISSION; APPOINTMENT
§5.053.	ELIGIBILITY FOR MEMBERSHIP
§5.054.	REMOVAL OF COMMISSION MEMBERS
§5.059.	CONFLICT OF INTEREST
§5.060.	LOBBYIST PROHIBITION
§5.101.	SCOPE OF SUBCHAPTER
§5.102.	GENERAL POWERS
§5.103.	RULES
§5.104.	MEMORANDA OF UNDERSTANDING
§5.105.	GENERAL POLICY
§5.106.	BUDGET APPROVAL
§5.107.	ADVISORY COMMITTEES, WORK GROUPS, AND TASK FORCES
§5.115.	PERSONS AFFECTED IN COMMISSION HEARINGS; NOTICE OF APPLICATION
§5.117.	MANDATORY ENFORCEMENT HEARING
§5.120.	CONSERVATION AND QUALITY OF ENVIRONMENT
§5.133.	ACTIONS IN MEXICO
§5.1733.	ELECTRONIC POSTING OF INFORMATION
§5.223.	ADMINISTRATIVE ORGANIZATION OF COMMISSION
§5.230.	ENFORCEMENT
§5.233.	GIFTS AND GRANTS
§5.234.	APPLICATIONS AND OTHER DOCUMENTS
§5.237.	OPERATING FUND
§5.501.	EMERGENCY AND TEMPORARY ORDER OR PERMIT; TEMPORARY SUSPENSION OR AMENDMENT OF PERMIT CONDITION
§5.502.	APPLICATION FOR EMERGENCY OR TEMPORARY ORDER
§5.514.	ORDER ISSUED UNDER AIR EMERGENCY
§5.515.	EMERGENCY ORDER BECAUSE OF CATASTROPHE
§5.701(a)	FEES
§5.702.	PAYMENT OF FEES REQUIRED WHEN DUE
§5.703.	FEE ADJUSTMENTS
§5.704.	NOTICE OF CHANGE IN PAYMENT PROCEDURE
§5.705.	NOTICE OF VIOLATION
§7.002.	ENFORCEMENT AUTHORITY
§7.032.	INJUNCTIVE RELIEF
§7.051.	ADMINISTRATIVE PENALTY
§7.052.	MAXIMUM PENALTY
§7.053.	FACTORS TO BE CONSIDERED IN DETERMINATION OF PENALTY AMOUNT
§7.061.	PAYMENT OF PENALTY; PETITION FOR REVIEW
§7.066.	REFERRAL TO ATTORNEY GENERAL

§7.067.	SUPPLEMENTAL ENVIRONMENTAL PROJECTS
§7.072.	RECOVERY OF PENALTY
§7.073.	CORRECTIVE ACTION
§7.101.	VIOLATION
§7.102.	MAXIMUM PENALTY
§7.103.	CONTINUING VIOLATIONS
§7.105.	CIVIL SUIT
§7.106.	RESOLUTION THROUGH ADMINISTRATIVE ORDER
§7.177.	VIOLATIONS OF CLEAN AIR ACT
§7.178.	FAILURE TO PAY FEES UNDER CLEAN AIR ACT
§7.179.	FALSE REPRESENTATIONS UNDER CLEAN AIR ACT
§7.180.	FAILURE TO NOTIFY UNDER CLEAN AIR ACT
§7.181.	IMPROPER USE OF MONITORING DEVICE
§7.182.	RECKLESS EMISSION OF AIR CONTAMINANT AND ENDANGERMENT
§7.183.	INTENTIONAL OR KNOWING EMISSION OF AIR CONTAMINANT AND KNOWING ENDANGERMENT
§7.186.	SEPARATE OFFENSES
§7.187.	PENALTIES
§7.302.	GROUNDS FOR REVOCATION OR SUSPENSION OF PERMIT

C. Texas Regulatory Authority

The TCEQ has promulgated rules implementing statutory authority to meet the requirements of both the FCAA and the TCAA. These rules were submitted to the EPA in various SIP revisions and have been approved in the *Federal Register* (FR) or are pending EPA review. Rules that are relevant for each FCAA, §110(a)(2) requirement are noted below.

FCAA, §110(a)(2)(A)

Federal Requirement

(A) include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this Act;

Texas Requirement

The TCEQ has promulgated rules to implement and enforce the NAAQS and other air quality standards. These rules include programs for banking and trading of emissions, as well as permits and fees. Periodic revisions to the SIP establish timetables and schedules for improving the air quality in nonattainment areas.

The following chapters of Title 30 Texas Administrative Code (TAC) contain rules relevant for this federal requirement:

Chap. 7	Memoranda of Understanding
Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 111	Control of Air Pollution from Visible Emissions and Particulate Matter
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 113	Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants

Chap. 114	Control of Air Pollution from Motor Vehicles
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds
Chap. 118	Control of Air Pollution Episodes

FCAA, §110(a)(2)(B)

Federal Requirement

(B) provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality, and (ii) make such data available to the Administrator;

Texas Requirement

The TCEQ maintains a network of air quality monitors to measure air quality data that is reported to the EPA on a regular basis. Texas submits annual monitoring plans to the EPA that describe how the state has complied with monitoring requirements and explains any proposed changes.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 111	Control of Air Pollution from Visible Emissions and Particulate Matter
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds

FCAA, §110(a)(2)(C)

Federal Requirement

(C) include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D;

Texas Requirement

The TCEQ has established rules governing the enforcement of control measures, including attainment plans and permitting programs that regulate construction and modification of stationary sources.[1]

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[1] Texas has permitting rules for Prevention of Significant Deterioration (PSD), as required by the FCAA. The EPA has recently promulgated regulations for the permitting of greenhouse gases under the PSD program. Although Texas has not amended or proposed amendments to its permitting program to include greenhouse gases, Texas is meeting its obligations under the FCAA to provide for permitting of facilities that emit criteria pollutants. Greenhouse gases are not criteria pollutants, with a NAAQS that must be met. Therefore, a lack of permitting requirements in Texas rules for greenhouse gas emissions does not constitute a lack in the required infrastructure elements of §110(a)(2).

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 35	Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions; Subchapters A, B, C, K
Chap. 39	Public Notice
Chap. 55	Requests for Reconsideration and Contested Case Hearings; Public Notice
Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds

FCAA, §110(a)(2)(D)

Federal Requirement

(D) contain adequate provisions (i) prohibiting, consistent with the provisions of this title, any source or other type of emissions activity from emitting any air pollutant in amounts which will (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility,(ii) insuring compliance with the applicable requirements of sections 126 and 115 (relating to interstate and international pollution abatement);

Texas Requirement

This SIP revision includes an interstate transport technical analysis in Section VI: *Control Strategy* to address the requirements of §110(a)(2)(D)(i)(I).

Texas has a SIP-approved PSD and nonattainment new source review (NSR) permitting program that contains requirements for sources of air pollutants to obtain an approved permit before beginning construction of a facility and before modifying an existing facility (see requirements for §110(a)(2)(C) previously listed). Texas submitted a Regional Haze SIP revision to the EPA on March 19, 2009. Regional haze program requirements include progress reports due to the EPA in 2014 and every five years thereafter, to demonstrate progress toward the visibility goal. Another Regional Haze SIP is due in 2018 and every 10 years thereafter, through 2064.

The following chapter of 30 TAC contains rules relevant for this federal requirement:

Chap. 101	General Air Quality Rules

FCAA, §110(a)(2)(E)

Federal Requirement

(E) provide (i) necessary assurances that the State (or, except where the Administrator deems inappropriate, the general purpose local government or governments, or a regional agency designated by the State or general purpose local governments for such purpose) will have adequate personnel, funding, and authority under State (and, as appropriate, local) law to carry out such implementation plan (and is not prohibited by any provision of Federal or State law from carrying out such

implementation plan or portion thereof), (ii) requirements that the state comply with the requirements respecting State boards under section 128, and (iii) necessary assurances that, where the State has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the State has responsibility for ensuring adequate implementation of such plan provision;

Texas Requirement

The TCEQ has consistently included assurances in SIP revisions that the state has adequate personnel, funding, and authority under state law to carry out the SIP. The TCEQ has various Memoranda of Understanding and Memoranda of Agreement with other state and local agencies. Local governments have their own responsibilities and privileges regarding the protection of air quality as established by the Texas legislature.

The TCEQ relies on the complete statutory and regulatory authority as referenced throughout this document. The TCEQ also regularly submits a legal authority with SIP revisions submitted to the EPA.

FCAA, §110(a)(2)(F)

Federal Requirement

(F) require, as may be prescribed by the Administrator: (i) the installation, maintenance, and replacement of equipment, and implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources, (ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and (iii) correlation of such reports by the State agency with any emission limitations or standards established pursuant to is Act, which reports shall be available at reasonable times for public inspection;

Texas Requirement

The TCEQ requires monitoring for air pollutants as part of its NSR permit program. Certain emission sources are required to submit annual emission inventories and periodic reporting of emissions, which provides data that is used in air quality modeling to help Texas prepare SIP revisions. Emissions data are available at reasonable times for public inspection, with some information also available on the agency Web site.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 111	Control of Air Pollution from Visible Emissions and Particulate Matter
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds

FCAA, §110(a)(2)(G)

Federal Requirement

(G) provide for authority comparable to that in section 303 and adequate contingency plans to implement such authority;

Texas Requirement
The TCEQ may issue emergency orders, or issue or suspend air permits as required by an air pollution emergency. In addition, the TCEQ also maintains air quality information in a form readily available to the public on the TCEQ's Today's Texas Air Quality Forecast Web site (http://www.tceq.texas.gov/compliance/monitoring/air/monops/forecast_today.html).

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 35	Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions; Subchapters A, B, C, K
Chap. 118	Control of Air Pollution Episodes

FCAA, §110(a)(2)(H)
Federal Requirement

(H) provide for revision of such plan: (i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of attaining such standard, and (ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements or to otherwise comply with any additional requirements Established under this Act;

Texas Requirement
The TCEQ regularly revises the Texas SIP in response to revisions in the NAAQS and EPA rules. See §110(a)(2)(A) above.

FCAA, §110(a)(2)(I)
Federal Requirement

(I) in the case of a plan or plan revision for an area designated as a nonattainment area, meet the applicable requirements of part D (relating to nonattainment areas);

Texas Requirement
SIP revisions that implement the control strategies necessary to bring a nonattainment area into attainment of the NAAQS are not required by the FCAA to be submitted within three years of the promulgation of a new or revised NAAQS. Therefore, §110(a)(1) does not require this element to be demonstrated as part of an infrastructure SIP submittal (73 FR 16205, at 16206).

FCAA, §110(a)(2)(J)
Federal Requirement

(J) meet the applicable requirements of section 121 (relating to consultation), section 127 (relating to public notification), and part C (relating to prevention of significant deterioration and visibility protection);

Texas Requirement
The TCEQ has an established public participation process for all SIP revisions and permitting programs. The EPA has proposed limited approval/limited disapproval of the rules regarding

public participation for air quality NSR permits.[2] Texas has withdrawn from EPA consideration most of the rules that were the subject of the proposed limited approval/limited disapproval, and has submitted new and revised public participation rules to the EPA as a new SIP revision to address the EPA's published concerns regarding these requirements.[3] On October 28, 2010, the EPA signed a notice withdrawing its limited approval/limited disapproval of the SIP revisions relating to public participation because those revisions are no longer before the EPA for review (75 FR 68291). The TCEQ consults with other state agencies, local agencies, and non-governmental organizations, as well as with the environmental agencies of other states regarding air quality concerns. All major sources in Texas are subject to Texas' SIP-approved PSD program. Texas submitted a SIP revision to address Regional Haze, including a long-term strategy to address visibility impairment for each Class I area that may be impacted by emissions from Texas facilities.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 7	Memoranda of Understanding
Chap. 35	Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions; Subchapters H and K
Chap. 101	General Air Quality Rules
Chap. 116	Control of Air Pollution for New Construction or Modification

FCAA, §110(a)(2)(K)

Federal Requirement

(K) provide for (i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and (ii) the submission, upon request, of data related to such air quality modeling to the Administrator;

Texas Requirement

Air quality modeling is conducted during development of revisions to the Texas SIP, as appropriate for the state to demonstrate attainment with required NAAQS. Modeling is also a part of the NSR permitting program.

The following chapter of 30 TAC contains rules relevant for this federal requirement:

Chap. 116	Control of Air Pollution for New Construction or Modification

FCAA, §110(a)(2)(L)

Federal Requirement

(L) require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this Act, a fee sufficient to cover (i) the reasonable costs of reviewing and

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[2] Approval and Promulgation of Implementation Plans; Texas; Revisions to Chapters 39, 55, and 116 Which Relate to Public Participation on Permits for New and Modified Sources, 73 FR 72001 (November 26, 2008).

[3] The TCEQ adopted this rulemaking on June 2, 2010, and the adopted rules were published in the *Texas Register* (TR) on June 18, 2010 (35 TR 5198). These rules became effective on June 24, 2010, were submitted to the EPA on July 2, 2010, but the EPA has not yet taken any action on these rules.

acting upon any application for such a permit, and (ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action), until fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under title V;

Texas Requirement
The TCEQ assesses fees for reviewing permit applications and for enforcing the terms and conditions of permits.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 12	Payment of Fees
Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification

FCAA, §110(a)(2)(M)
Federal Requirement

(M) provide for consultation and participation by local political subdivisions affected by the plan.

Texas Requirement
The TCEQ has several cooperative agreements and Memoranda of Understanding with various other state and local agencies and organizations. Consultation with a variety of different organizations is a regular part of the TCEQ's process of developing SIP revisions.

D. Conclusion
The foregoing demonstrates that Texas has the necessary regulatory and statutory authority to meet the infrastructure requirements of FCAA, §110(a)(1) and (2) for the 2010 NO_2 NAAQS.

SECTION VI: CONTROL STRATEGY

A. Introduction (No change)
B. Ozone (No change)
C. Particulate Matter (No change)
D. Carbon Monoxide (No change)
E. Lead (No change)
F. Oxides of Nitrogen (No change)
G. Sulfur Dioxide (No change)
H. Conformity with the National Ambient Air Quality Standards (No change)
I. Site Specific (No change)
J. Mobile Sources Strategies (No change)
K. Clean Air Interstate Rule (No change)
L. Transport (Revised)
M. Regional Haze (No change)

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LIST OF ACRONYMS

CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
EDMS	Emissions and Dispersion Modeling System
FCAA	Federal Clean Air Act
FIP	Federal Implementation Plan
FR	Federal Register
NAAQS	National Ambient Air Quality Standard
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides
NSR	New Source Review
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
SIP	State Implementation Plan
TAC	Texas Administrative Code
TACB	Texas Air Control Board
TCAA	Texas Clean Air Act
TCEQ	Texas Commission on Environmental Quality (commission)
TNRCC	Texas Natural Resource Conservation Commission
TR	Texas Register

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CHAPTER 1: GENERAL

1.1 BACKGROUND

"The History of the Texas State Implementation Plan (SIP)," a comprehensive overview of the SIP revisions submitted to the United States Environmental Protection Agency (EPA) by the State of Texas, is available on the Introduction to the SIP Web page (http://www.tceq.texas.gov/airquality/sip/sipintro.html#History) on the Texas Commission on Environmental Quality's (TCEQ) Web site (http://www.tceq.texas.gov).

1.2 INTRODUCTION

This proposed SIP revision for the transport of nitrogen dioxide (NO_2) under the 2010 NO_2 National Ambient Air Quality Standard (NAAQS) describes how the Texas Commission on Environmental Quality (TCEQ) meets the requirements of §110(a)(2)(D)(i)(I) of the Federal Clean Air Act (FCAA). States are required to submit a SIP revision within three years of promulgation of a new or revised NAAQS that contains adequate provisions that prohibit any source or other type of emissions activity within the state from emitting any NAAQS pollutants in amounts that will:

- contribute significantly to nonattainment of the NAAQS for areas in other states; or
- interfere with maintenance of the NAAQS by any other state.

On February 9, 2010, the EPA published the final rule to strengthen the primary NAAQS for NO_2. The rule established a new one-hour NO_2 standard at 100 ppb. The EPA also retained the current annual average NO_2 standard of 53 ppb. On February 17, 2012, the EPA published in the *Federal Register* (FR) the initial designations for the 2010 NO_2 NAAQS, and identified all areas in the United States as unclassifiable/attainment. According to data from 2008 through 2010, no area in Texas monitors above the 100 ppb standard or the annual standard of 53 ppb.

In the latest NO_2 Risk and Exposure Assessment created during the NAAQS revision process, and as reiterated in the preamble of the final rulemaking (75 FR 6474) on the primary NAAQS for NO_2, the EPA recognized "that roadway-associated exposures account for a majority of ambient exposures to peak NO_2 concentrations" (EPA, 2011).

For the 2010 NO_2 NAAQS, the EPA changed the monitoring network requirements to capture both peak NO_2 concentrations that occur near roadways and community-wide NO_2 concentrations. In Texas, two near-road NO_2 monitors in Dallas-Fort Worth and Houston-Galveston-Brazoria must begin operating no later than January 1, 2013. Two near-road NO_2 monitors in San Antonio and Austin-Round Rock must begin operating no later than January 1, 2014. In 2016 or 2017, once the expanded network of NO_2 monitors is fully deployed and three years of air quality data have been collected, the EPA intends to redesignate areas if necessary based on data from the new monitoring network.

Based on the lack of NO_2 nonattainment or maintenance areas in the four states surrounding Texas and EPA studies showing lack of long distance transport of roadway NO_2 emissions, this SIP revision demonstrates that Texas has adequately addressed the transport requirements of FCAA §110(a)(2)(D)(i).

1.3 HEALTH EFFECTS

In 2010, the EPA established a one-hour NAAQS for NO_2. To support the 2010 one-hour NO_2 standard, the EPA provided information indicating the annual NAAQS was not sufficient to protect individuals from health effects after a shorter exposure duration. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma.

Short-term exposure to elevated NO_2 concentrations is of particular concern for susceptible individuals, including people with asthma, children, and the elderly.

1.4 PUBLIC HEARING AND COMMENT INFORMATION

The commission will hold a public hearing for this proposed SIP revision at the following time and location: August 1, 2012, at 10:00 a.m., Texas Commission on Environmental Quality, 12100 Park 35 Circle, Building E, Room 201S, Austin, Texas.

Written comments will be accepted via mail, fax, or through the eComments (http://www5.tceq.texas.gov/rules/ecomments/) system. All comments should reference the "Infrastructure Demonstration and Transport Plan for the 2010 NO_2 National Ambient Air Quality Standard" and Project Number 2012-016-SIP-NR. Comments may be submitted to Margaret Earnest, MC 206, State Implementation Plan Team, Chief Engineer's Office, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087 or faxed to (512) 239-6188. Electronic comments may be submitted through the eComments system. File size restrictions may apply to comments being submitted via the eComments system. Comments must be received by August 6, 2012.

An electronic version of this proposed SIP revision and appendices can be found at the TCEQ's SIP Hot Topics Web page (http://www.tceq.texas.gov/airquality/sip/Hottop.html).

1.5 SOCIAL AND ECONOMIC CONSIDERATIONS

Because rulemaking is not a part of this SIP revision, there are no changes that would have an impact on society or the economy.

1.6 FISCAL AND MANPOWER RESOURCES

The TCEQ has determined that its fiscal and manpower resources are adequate and will not be adversely affected through the implementation of this plan.

1.7 COORDINATION WITH LOCAL AGENCIES

The TCEQ has determined that there will be no assignment to local agencies. However, pre-existing assignments to local agencies regarding various enforcement activities remain in effect and could be used if enforcement activities are delegated to the TCEQ from the EPA.

1.8 ORGANIZATIONS RESPONSIBLE FOR DEVELOPMENT, IMPLEMENTATION, AND ENFORCEMENT

The TCEQ is the agency delegated authority by the Texas Legislature regarding the protection of air quality in the State of Texas. Other local government entities have limited authority regarding air quality matters in the State of Texas.

1.9 DATA AVAILABILITY

The TCEQ affirms that it will retain all data used in the preparation of this SIP revision. All supporting documents and data are publicly available via the TCEQ's SIP Web site (http://www.tceq.texas.gov/airquality/sip) or are available from the TCEQ upon request.

References

EPA, 2011. Near-Road NO_2 Monitoring Technical Assistance Document DRAFT, December 21. Accessed March 2012: http://www.epa.gov/ttnamti1/files/nearroad/20111221tad.pdf.

CHAPTER 2: REQUIRED CONTROL STRATEGY ELEMENTS

2.1 BACKGROUND

The United States Environmental Protection Agency (EPA) first set the National Ambient Air Quality Standard (NAAQS) for nitrogen dioxide (NO_2) in 1971. The EPA chose to retain the NO_2 NAAQS after review in both 1985 and 1996. In 2010 EPA decided to retain the annual NO_2 NAAQS and add a new, one-hour standard at a level of 100 parts per billion (ppb) (75 FR 6474). All areas in the United States presently meet the annual NO_2 NAAQS of 0.053 parts per million (ppm) (53 ppb), with average annual NO_2 concentrations ranging from 10 ppb to 20 ppb (EPA 2012). In 2012, the EPA designated all areas in the United States as "unclassifiable/attainment" for the one-hour NO_2 NAAQS (77 FR 9532).

NO_2 is a highly reactive gas. Because NO_2 reacts to form other species, its concentrations are greater when closer to its emission source (75 FR 6474). NO_2 is primarily formed by fossil fuel combustion, lightning, biomass burning, and nitrification of soil by microorganisms. Examples of common anthropogenic NO_2 emission sources are internal-combustion engines; residential water heaters; industrial heaters and flares; and industrial and commercial boilers. Mobile, residential, and commercial NO_2 sources are usually numerous, smaller sources distributed over a large geographic area, while industrial sources are usually large point sources, or numerous small sources, clustered in a small geographic area. The EPA's 2002 National Emission Inventory reported 58% of anthropogenic NO_2 is emitted by mobile sources, 22% is emitted by utilities, 12% is emitted by industrial-commercial-residential combustion, and 8% is emitted by other sources.

2.2 CONTROL STRATEGY OVERVIEW

Federal Clean Air Act (FCAA) §110(a)(2)(D)(i)(I) requires states to submit a state implementation plan (SIP) revision that contains adequate provisions to prohibit any source or other type of emissions activity within the state from emitting any air pollutants in amounts that will:

- contribute significantly to nonattainment of the NAAQS for areas in other states; or
- interfere with maintenance of the NAAQS in any other state.

2.2.1 Significant Contribution to Nonattainment and Interference with Maintenance Elements

2.2.1.1 Modeling

Since no area of the United States is designated nonattainment according to the EPA action of January 20, 2012, the TCEQ will not be conducting any modeling or modeling analysis for this SIP revision.

2.2.1.2 Review and Analysis of Monitoring Data

In 2010, there were 42 regulatory NO_2 monitors in Texas, 10 in New Mexico, four in Oklahoma, two in Arkansas, and 12 in Louisiana. A list of these monitors is found in Table 2-1: *EPA Region 6 NO_2 Monitor Sites in 2010*. These monitors are located primarily in urban areas and along highways as seen in Figure 2-1: *2008 through 2010 One-Hour NO_2 Design Values in EPA Region 6*.

Table 2-1: EPA Region 6 NO_2 Monitor Sites in 2010

AIRS	State	County	Site Name	One-Hour Design Value 2008-2010 (ppb)	Annual Design Value 2008-2010 (ppb)
050350005	Arkansas	Crittenden	Marion	47	10
051190007	Arkansas	Pulaski	Parr	44	10
220050004	Louisiana	Ascension	Dutchtown	42	8
220190008	Louisiana	Calcasieu	Westlake	35	7
220330003	Louisiana	East Baton Rouge	LSU	53	11
220330009	Louisiana	East Baton Rouge	Capitol	54	13
220330013	Louisiana	East Baton Rouge	Pride	17	3
220331001	Louisiana	East Baton Rouge	Baker	36	6
220470007	Louisiana	Iberville	Grosse Tete	27	4
220470009	Louisiana	Iberville	Bayou Plaquemine	28	4
220470012	Louisiana	Iberville	Carville	37	7
220511001	Louisiana	Jefferson	Kenner	48	8
220630002	Louisiana	Livingston	French Settlement	19	3
221210001	Louisiana	West Baton Rouge	Port Allen	53	11
350010023	New Mexico	Bernalillo	Del Norte High School	55	12
350130021	New Mexico	Dona Ana	Sunland Park	53	9
350130022	New Mexico	Dona Ana	Santa Teresa International Blvd	43	5
350151005	New Mexico	Eddy	Carlsbad	22	2
350250008	New Mexico	Lea	Hobbs-Jefferson	41	6
350290003	New Mexico	Luna	Luna	30	5
350450009	New Mexico	San Juan	Deming		12
350450018	New Mexico	San Juan	Navajo Lake	38	10
350451005	New Mexico	San Juan	San Juan Substation	37	9
350451233	New Mexico	San Juan	Dine College, GIS Lab		7
400019009	Oklahoma	Adair	Stilwell		3
401090033	Oklahoma	Oklahoma	OKC Central	49	9
401091037	Oklahoma	Oklahoma	OKC North	39	7
401431127	Oklahoma	Tulsa	North Tulsa		8
480290052	Texas	Bexar	Camp Bullis CAMS 58	26	4
480290059	Texas	Bexar	Calaveras Lake CAMS 59	34	4
480391004	Texas	Brazoria	Manvel Croix Park	36	5
480391016	Texas	Brazoria	Lake Jackson	22	3
481130069	Texas	Dallas	Dallas Hinton	55	13
481130075	Texas	Dallas	Dallas North #2	45	10
481130087	Texas	Dallas	Dallas Redbird Airport Executive		9
481210034	Texas	Denton	Denton Airport South	35	6
481390016	Texas	Ellis	Midlothian OFW	44	7
481391044	Texas	Ellis	Italy CAMS 1044	30	4
481410037	Texas	El Paso	El Paso UTEP	60	14
481410044	Texas	El Paso	El Paso Chamizal	60	14
481410055	Texas	El Paso	Ascarate Park	63	17
481671034	Texas	Galveston	Galveston 99th Street	33	4
481830001	Texas	Gregg	Longview	36	7
482010024	Texas	Harris	Houston Aldine	44	9
482010026	Texas	Harris	Channelview	59	10
482010029	Texas	Harris	NW Harris County	31	5

AIRS	State	County	Site Name	One-Hour Design Value 2008-2010 (ppb)	Annual Design Value 2008-2010 (ppb)
482010047	Texas	Harris	Lang Rd	56	13
482010055	Texas	Harris	Bayland Park	45	9
482010075	Texas	Harris	Texas Ave	56	15
482010416	Texas	Harris	Park Place	55	12
482011015	Texas	Harris	Lynchburg Ferry		9
482011034	Texas	Harris	Houston East	54	14
482011035	Texas	Harris	Clinton Drive	60	14
482011039	Texas	Harris	Deer Park #2	42	7
482011050	Texas	Harris	Seabrook Friendship Park	35	5
482030002	Texas	Harrison	Karnack	21	4
482311006	Texas	Hunt	Greenville	30	5
482450009	Texas	Jefferson	Beaumont Downtown	40	8
482450022	Texas	Jefferson	Hamshire	28	4
482451035	Texas	Jefferson	Nederland HS	33	5
482570005	Texas	Kaufman	Kaufman	30	4
483091037	Texas	McLennan	Waco Mazanec	29	3
483390078	Texas	Montgomery	Conroe Relocated	35	5
483491051	Texas	Navarro	Corsicana Airport		4
483611001	Texas	Orange	West Orange	33	5
484230007	Texas	Smith	Tyler Airport Relocated	21	4
484391002	Texas	Tarrant	Fort Worth Northwest	54	10
484393009	Texas	Tarrant	Grapevine Fairway	40	8
484393011	Texas	Tarrant	Arlington Municipal Airport	40	9
484530020	Texas	Travis	Austin Audubon Society CAMS 38	22	3

The current monitor network is designed to monitor air representative of neighborhood or area scale in accordance with historical 40 CFR Part 58, Appendix D requirements rather than to capture peak NO_2 concentrations emitted by mobile sources. The TCEQ expects to add near-road monitors in the Dallas-Fort Worth, Houston-Galveston-Brazoria, San Antonio, and Austin-Round Rock areas, as mandated by the new federal monitoring requirements. As mentioned in the 2010 NO_2 NAAQS, concentrations fall quickly with distance from roadways and rapidly reach the same concentration shown by current area monitors, suggesting that little to no transport of NO_2 occurs.

According to EPA studies, peak NO_2 concentrations are located on or immediately adjacent to high traffic roads. The EPA studies examined NO_2 concentrations at less than 20 meters, between 20 and 100 meters, and greater than 100 meters (EPA, 2008). Using the studies, the EPA determined the greatest risk was closer to the roadways. The new near-road monitoring network places monitors within 50 meters of the roadway.

Figure 2-1 also indicates that all monitor sites in EPA Region 6 are below the one-hour NO_2 NAAQS. The highest concentrations measured are located near urban and/or industrial areas. Monitors in less urban areas measured lower concentrations. Monitoring sites located near the northern and eastern Texas border have lower concentrations than those in city centers.

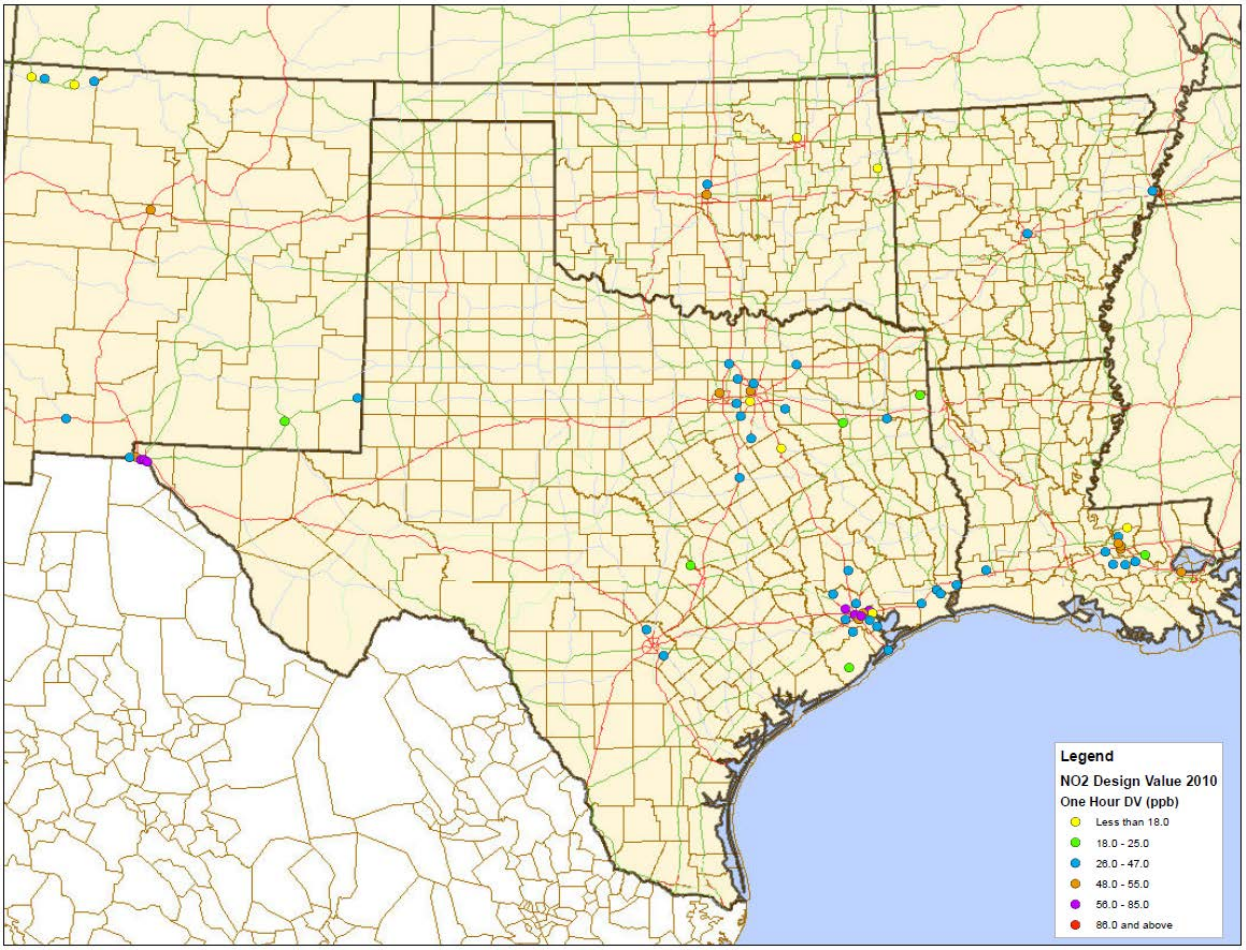

Figure 2-1: 2008 through 2010 One-Hour NO_2 Design Values in EPA Region 6

Figure 2-2: *2008 through 2010 Annual NO_2 Design Values in EPA Region 6* shows that all NO_2 monitors in Texas and neighboring states are below the 2010 annual NO_2 NAAQS, which is 53 ppb. Monitors near urban areas have higher annual design values than monitors in less urban areas and along the borders of Texas. The highest annual NO_2 design value measured in EPA Region 6 was 17 ppb at Ascarate Park CAMS 37 in El Paso.

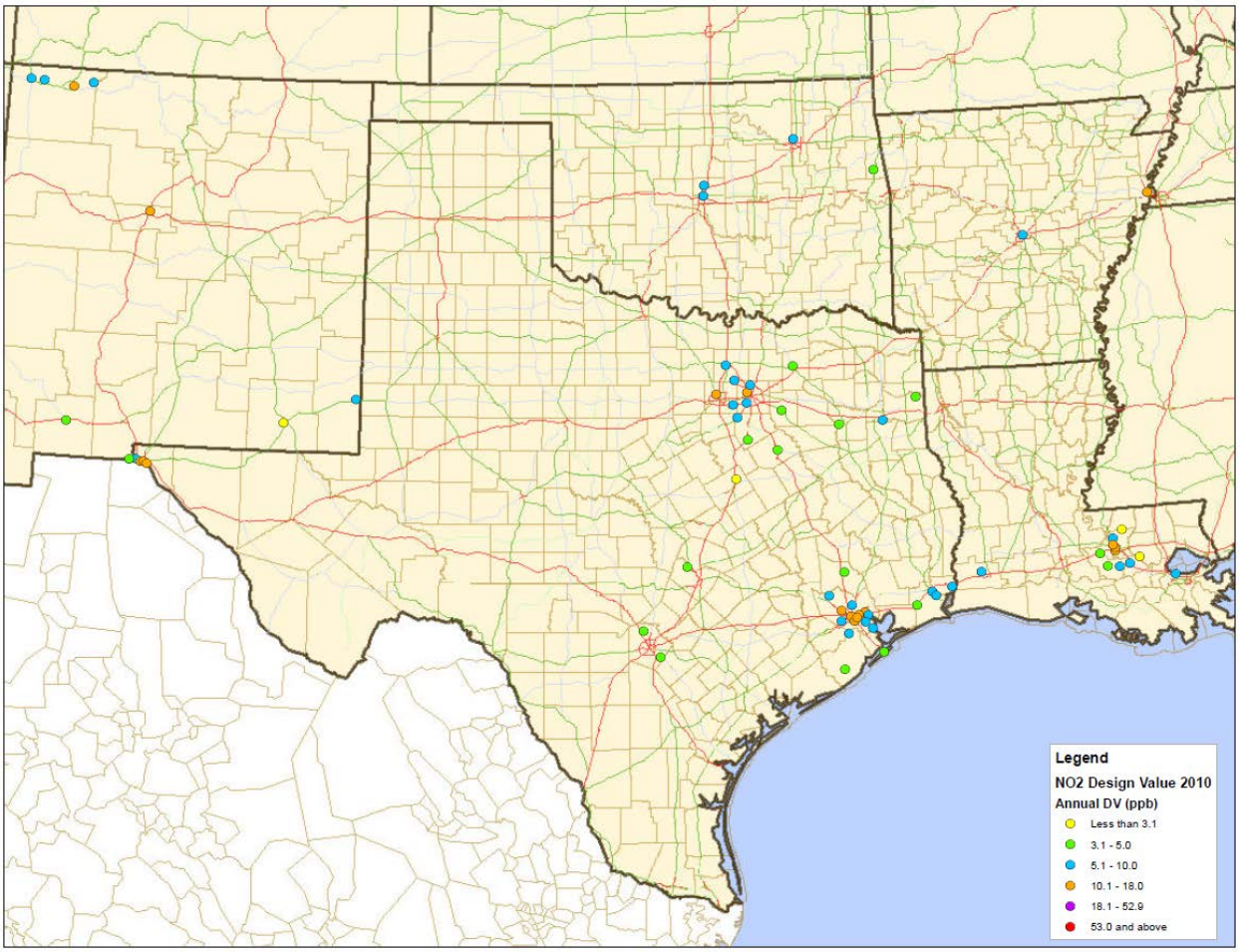

Figure 2-2: 2008 through 2010 Annual NO_2 Design Values in EPA Region 6

Figure 2-3: *One-Hour NO_2 Design Values by County in Texas or Three-Year Averages* shows trends in one-hour NO_2 design values for all counties in Texas monitoring NO_2 concentrations. All counties are below the 2010 NO_2 NAAQS. All areas also show slight downward trends or flat trends. No area exhibits an increase in monitored NO_2 concentrations. Large fluctuations in the Bexar county trend are due to data availability from the San Antonio Downtown C27 monitor. The monitor did not have valid one-hour design values in 2003 through 2005. In 2002 and 2006 through 2009, this monitor had the highest design value in Bexar County.

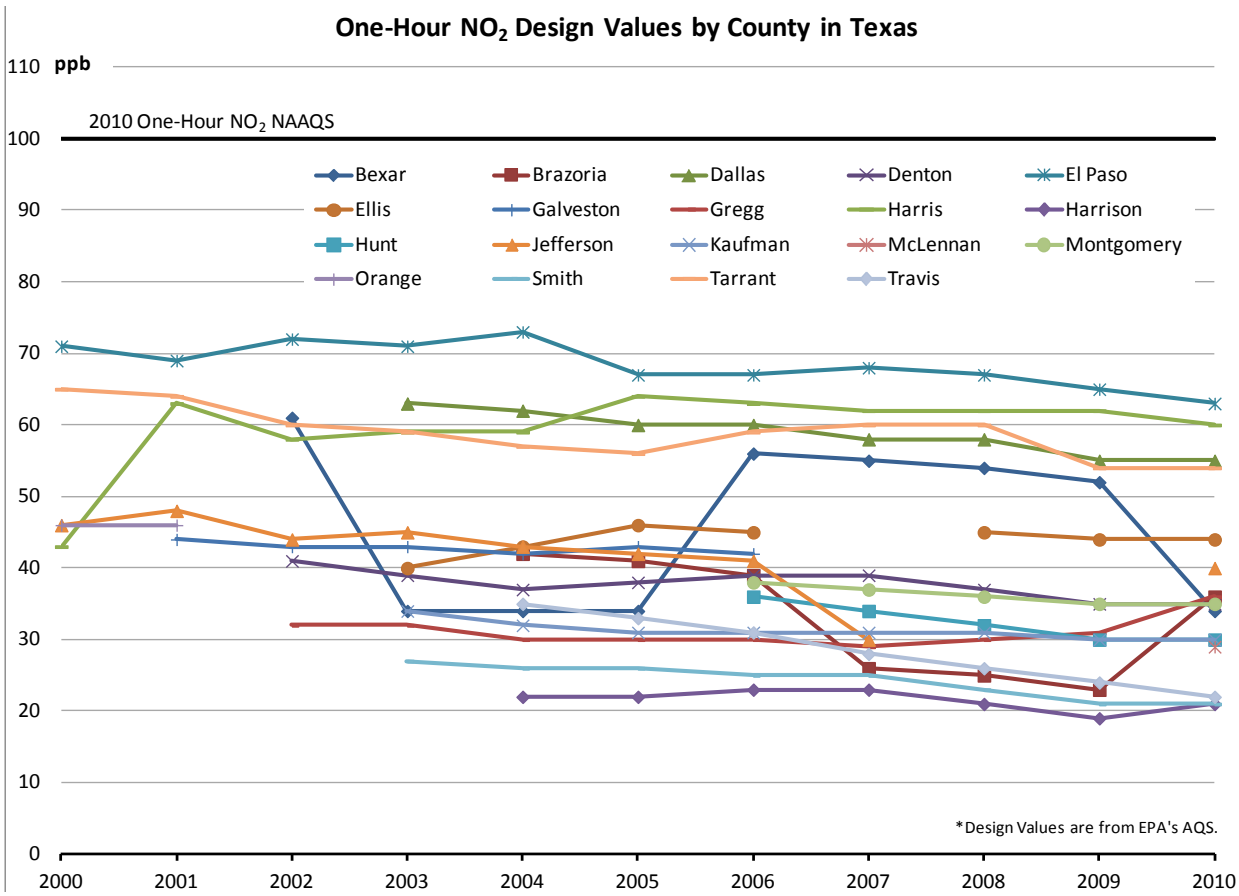

Figure 2-3: One-Hour NO_2 Design Values by County in Texas or Three-Year Averages

Figure 2-4: *Annual NO_2 Design Values by County in Texas or Three-Year Averages* shows annual design value trends for all counties in Texas monitoring NO_2. Annual design values also have slight downward or flat trends for all areas in the state. The highest design values in 2010 were in El Paso, Harris, and Dallas counties. These counties tend to be impacted primarily by NO_2 emitted by on-road mobile sources. Monitors located in more rural areas tend to show lower NO_2 concentrations. The impact low NO_2 concentrations measured throughout Texas would have on other states would be insignificant.

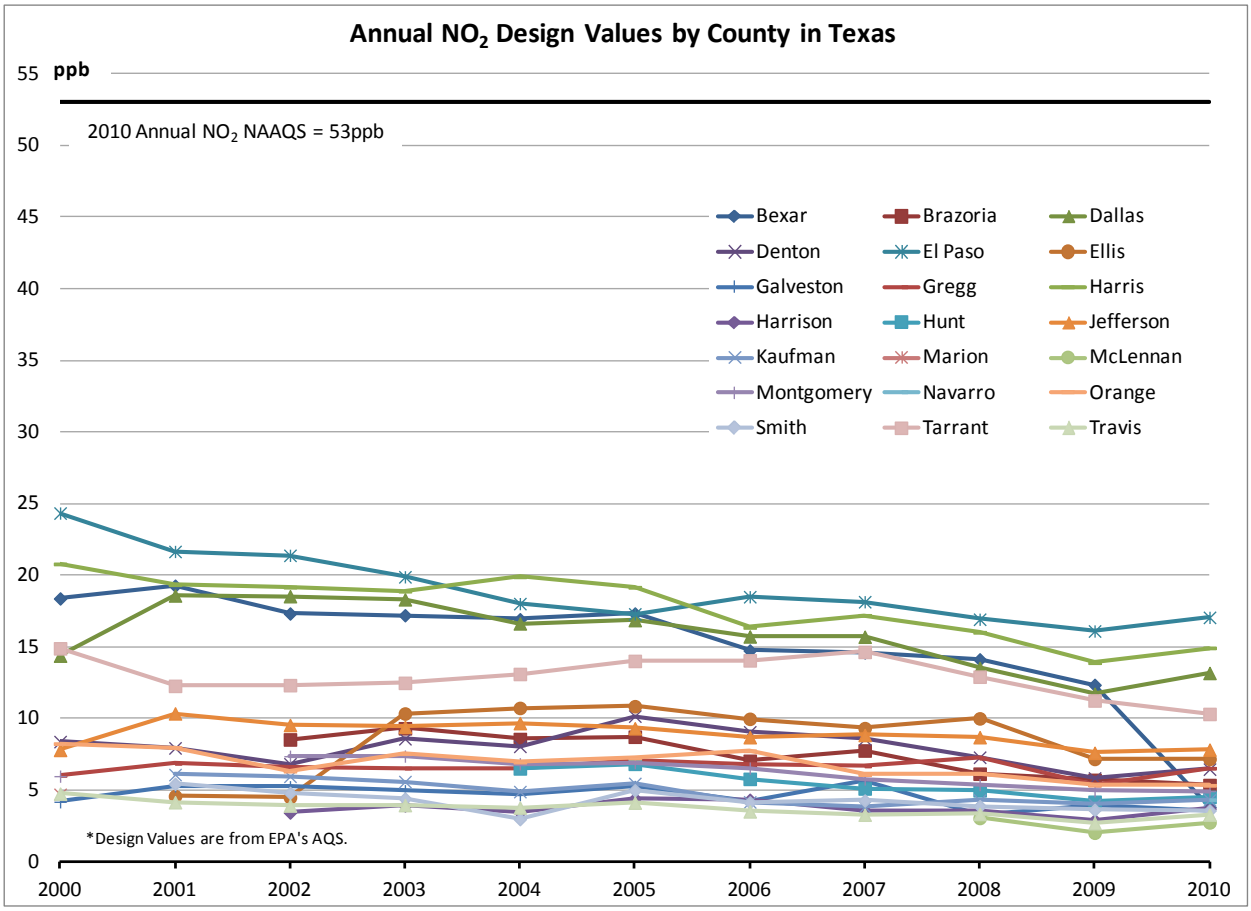

Figure 2-4: Annual NO_2 Design Values by County in Texas or Three-Year Averages

NO_2 monthly trends follow a similar pattern for most monitors in all of EPA Region 6. Trends in general show higher values in cooler months and lower values in warmer months. This is true for all calculated statistics, except the global maximum, or maximum over all monitors, which can vary greatly.

The most likely reason for this pattern is that in cooler months the mixing layer, or layer of well-mixed ambient air near the surface, is shallow, which traps the NO_2 in a smaller volume of air near the surface. In contrast, the mixing layer is deep during warmer months, diluting NO_2 concentrations in a larger volume of air. Another important reason for this pattern, at least for states or regions near the Gulf of Mexico, is that in summer months, winds are predominantly out of the Gulf of Mexico.

Examination of NO_2 patterns by month shows that typically December and January record the highest concentrations and June and July the lowest concentrations. Monitors where concentrations are low to begin with do not show a trend, while monitors with higher concentrations exhibit a well defined pattern. Representative examples of higher concentrations based on averages from 2008 through 2010 are shown in Figure 2-5: *Samples of Seasonal Cycle of NO_2 Concentrations in States Neighboring Texas*.

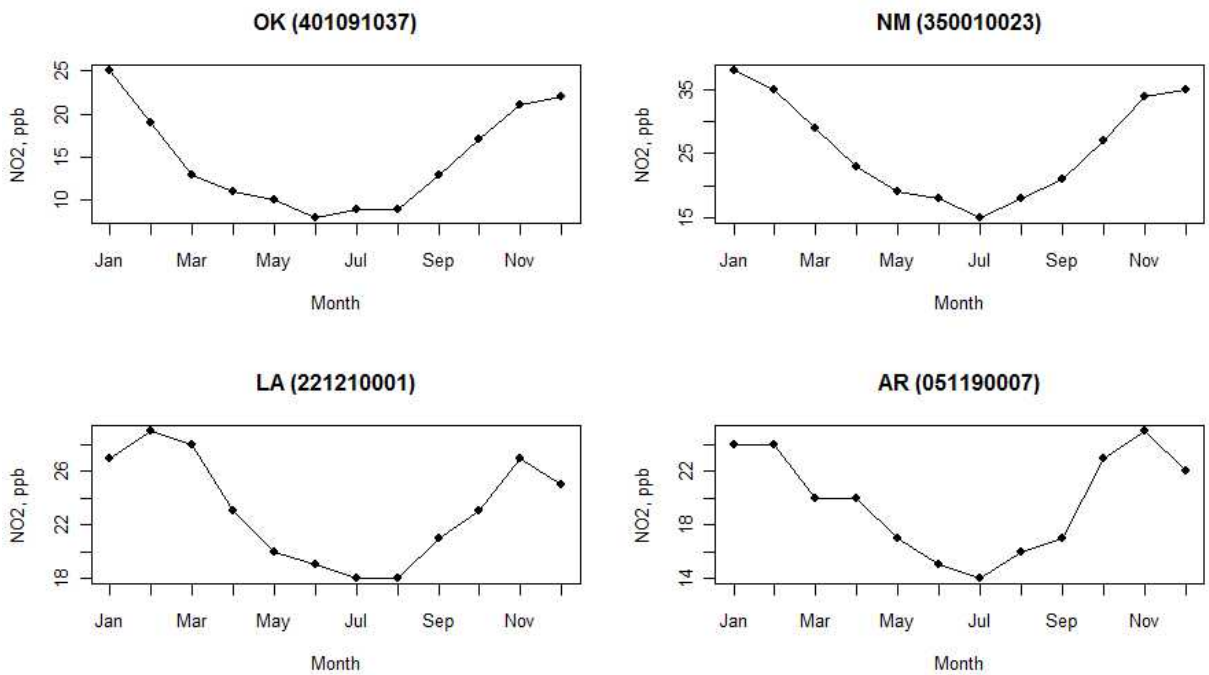

Figure 2-5: Samples of Seasonal Cycle of NO_2 Concentrations in States Neighboring Texas
(Note: concentrations shown are monthly median of one-hour NO_2 standard)

To assess possible impacts of transported NO_2 on a neighboring state, back trajectory analysis was conducted to identify the most likely paths (mean-trajectory-path), if any, of possible NO_2 transport. There are some assumptions associated with this procedure. For example, there is no link between a mean-trajectory-path and an NO_2 concentration. A mean-trajectory-path only provides an indication; much more analysis is needed to confirm an impact.

To construct back trajectories, the Hybrid Single Particle Lagrangian Integrated Trajectory (HYSPLIT) (http://ready.arl.noaa.gov/HYSPLIT.php) model version 4, developed by the National Oceanic and Atmospheric Administration, was employed. Representative monitors were chosen from states adjacent to Texas. For each of these monitors, cluster analysis was performed to find the mean-trajectory-path. This mean-trajectory-path represents the "average" of a group of trajectories from which air currents traveled from other places to a representative monitor. This method quantifies the directions and frequency of air traveling to the monitor, but cannot identify precise routes of travel of airborne particles.

Details of HYSPLIT parameters are as follows: trajectories were created at the receptor site for the approximate hour of peak NO_2 for all trajectories, which is defined as 7:00 a.m. Local Standard Time. Trajectory height was set to 800 meters to ensure transport within the mixing layer. Each trajectory was 12 hours in duration and the Emissions and Dispersion Modeling

System, or EDAS-4KM, meteorological data sets were used. Trajectories were created for days at or above the 90th percentile of NO_2 at the receptor site. Results suggest that Oklahoma would be most likely to be affected by air from Texas, however, very little if any directly emitted NO_2 would be expected to travel from the closest major urban source in Texas to the nearest Oklahoma metropolitan area due to its high reactivity. Two likely transport paths were identified by the clustering procedure, which accounted for 22% of the 224 trajectories ending in Oklahoma. Louisiana is next likely to be affected by Texas, though to a much lesser degree, accounting for 14% of 216 total trajectories ending in Louisiana. New Mexico and Arkansas do not show transport paths from Texas.

Of particular interest due to its close proximity to Texas, the New Mexico cluster shows air being drawn from Mexico (see path 2 in panel 3 of Figure 2-6: *Back Trajectory Analysis Showing Predominant Wind Patterns from 2008 through 2010*). However, since this path represents the "average path," there are some trajectories grouped into this cluster that emanate from Texas, though the majority are from Mexico. Although the clusters show possible evidence of transport, this analysis does not confirm any link between NO_2 generated beyond the monitor and the measured NO_2 at the monitor.

Based on this analysis, there are some days where air is transported from Texas to areas in neighboring states that have monitors. However, it is unlikely that significant amounts of NO_2 are being transported in the air masses that pass from Texas into neighboring states. The reactivity of NO_2 coupled with the distance from major Texas areas of NO_2 emissions make it highly unlikely that Texas NO_2 emissions significantly impact other states. In fact, the EPA has found that peak NO_2 concentrations are found on roadways. The concentrations decrease rapidly with distance from roads. Finally, states surrounding Texas are measuring attainment of the NO_2 NAAQS; therefore, Texas sources are not contributing to an exceedance of the NAAQS in neighboring states.

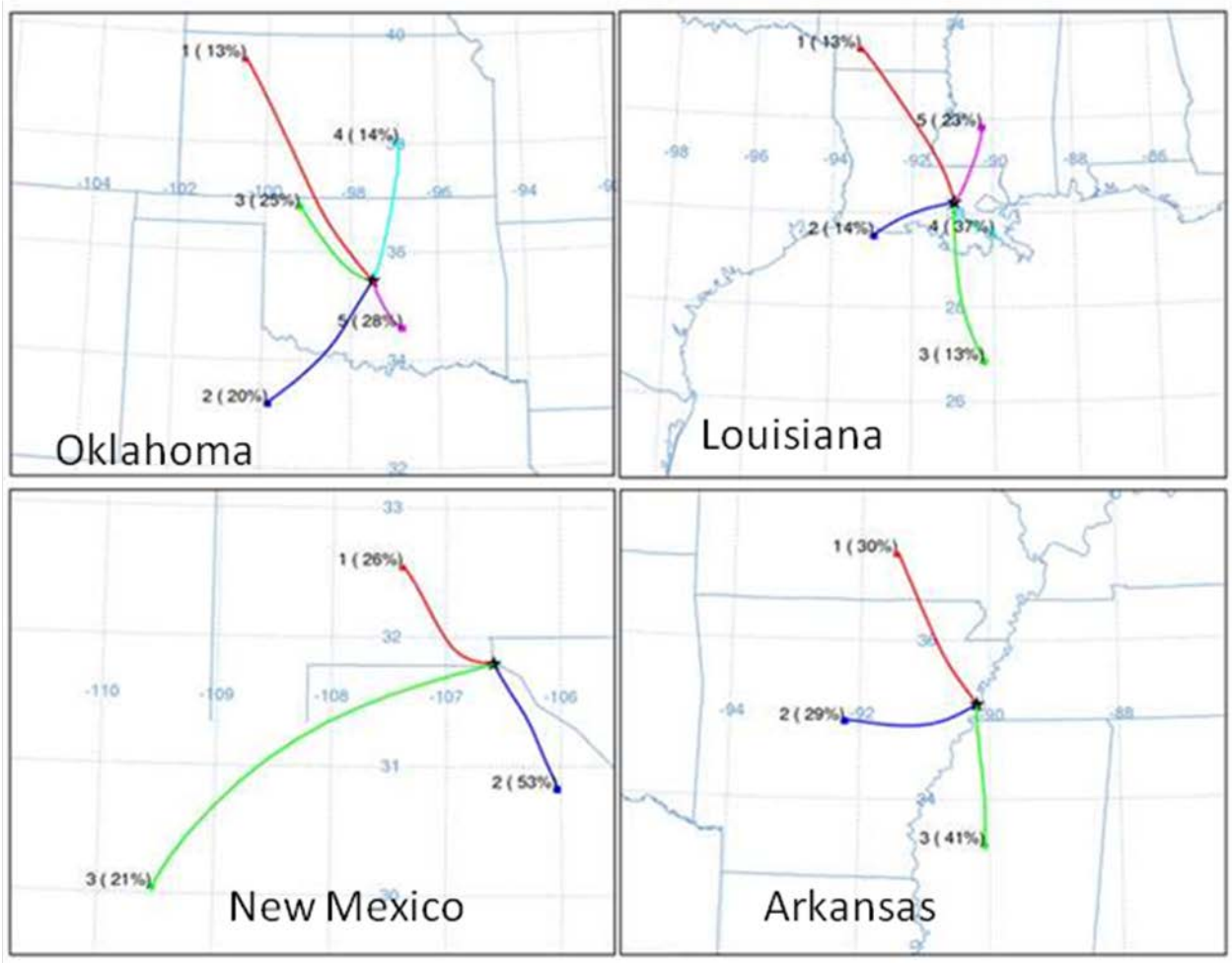

Figure 2-6: Back Trajectory Analysis Showing Predominant Wind Patterns from 2008 through 2010

2.2.2 NO_2 Controls

Since Texas is attaining the NO_2 NAAQS, no rules specific to NO_2 have been promulgated.

References

EPA, 2008. Risk and Exposure Assessment to Support the Review of the NO_2 Primary National Ambient Air Quality Standard. EPA-452/R-08-008a. November. Accessed March 2012: http://epa.gov/ttn/naaqs/standards/nox/data/20081121_NO2_REA_final.pdf.

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CHAPTER 3: FUTURE REVISIONS TO THE NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Federal Clean Air Act (FCAA), §110(a)(1) requires states to submit state implementation plans within three years after the promulgation of new or revised NAAQS to meet the requirements of FCAA, §110(a)(2), including FCAA, §110(a)(2)(D)(i), relating to interstate transport. Therefore, if the NAAQS are revised in the future, the Texas Commission on Environmental Quality will need to take the adequate steps relating to the interstate transport of air pollution.