

NOTICE TO THE PUBLIC
WILLIAMSON COUNTY COMMISSIONER'S COURT
MARCH 10TH, 2009
9:30 A.M.

The Commissioner's Court of Williamson County, Texas will meet in regular session in the Commissioner's Courtroom, 710 Main Street, in Georgetown, Texas to consider the following items:

1. Read and approve the minutes of the last meeting.
2. Consider noting in minutes any off right-of-way work on any County road done by Road & Bridge Unified System.
3. Hear County Auditor concerning invoices, bills, Quick Check Report, and Wire Transfers submitted for payment and take appropriate action including, but not limited to approval for payment provided said items are found by the County Auditor to be legal obligations of the county.
4. Citizen comments. Except when public hearings are scheduled for later in the meeting, this will be the only opportunity for citizen input. The Court invites comments on any matter affecting the county, whether on the Agenda or not. Speakers should limit their comments to three minutes. Note that the members of the Court may not comment at the meeting about matters that are not on the agenda.

CONSENT AGENDA

The Consent Agenda includes non-controversial and routine items that the Court may act on with one single vote. The Judge or a Commissioner may pull any item from the consent agenda in order that the court discuss and act upon it individually as part of the Regular Agenda.

(Items 5 – 12)

5. Discuss and consider approving a line item transfer for Fleet

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
From	0882-0882-003523	Fleet/Parts	\$1,900	
To	0882-0882-004510	Fleet/Facility Maint	\$1,900	

6. Discuss and consider approving a line item transfer for the Human Resources Department:

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
From	0100.0402.004500	Maintenance	750.00	
To	0100.0402.004212	Postage	750.00	

7. Consider approving and entering into the official minutes Commissioner Covey's Certificate of Completion of the Continuing Education Provisions of Article 81.0025 of the Texas Local Government Code.
8. Consider recognizing and noting in the minutes that Commissioner Ron Morrison successfully completed the 2008 Commissioner Statutory Continuing Education requirement.
9. Consider and take appropriate action on authorizing the transfer of vehicles and equipment from various department to auction, donation, destruction.
(Complete list filed with official minutes)
10. Consider and take appropriate action on authorizing the transfer of items through inter-office transfer to another department and the transfer of various items to auction, donation or destruction.
(Complete list filed with official minutes)
11. Discuss and consider approval of License Agreement between Star Ranch Community, Inc. and Williamson County portions of the right-of-way of Gattis School Road, Hutto, Texas, Pct. 4.
12. Discuss and consider approving Amending Plat of: Overall Preliminary Plat for Sonterra West, Pct. 3.

REGULAR AGENDA

13. Introduction of Mullin & Lonergan Associates, consultants working on the Community Development Block Grant program five year Consolidated Plan.
14. Hear the presentation, discuss and take appropriate action on the Automation of the Road Closure Process.

15. Discuss and take appropriate action on road bond program.
16. Consider approving Change Order No. 3 for CR 111/Westinghouse Rd (WilCO Project No. 08WC608) in Precinct 1.
17. Consider authorizing project budget transfer request of 2006 Road Bond monies per recommendation of Mike Weaver, Road Bond Manager: to move \$270,000.00 from P156 Non-Departmental to P176 Limmer Loop Phase 1C.
18. Consider authorizing project budget transfer of 2006 Road Bond monies per recommendation of Mike Weaver, Road Bond Manager: \$2,500,000.00 from P156 Non-Departmental to P195 FM 1460 (Old Settler's Boulevard to University).
19. Discuss and take appropriate action on allowing the residents of Country View Estates to amend the subdivision's plat to allow the conversion of Will Smith Drive and Will Smith Circle, which were dedicated in the original plat but never accepted as public roads, into private easements that will be owned and maintained in perpetuity by the Homeowner's Association, and disclaiming any right, title, or interest that the County might have in ever adding these private roads to the county road system.
20. Discuss and take appropriate action on recommendations for Public Assistance funding.
21. Discuss and approve the funding contract between Williamson County and Capital Area Rural Transportation System (CARTS).
22. Discuss and take appropriate action regarding final draft report "Result of Findings Regarding Proposed Inclusion of Williamson County with Travis County in Austin-Round Rock Non-Attainment Area."
23. Discuss how Williamson County should proceed with the use of funds from the Neighborhood Stabilization Program allocated through the Texas Department of Housing and Community Affairs.
24. Discuss and take appropriate action regarding community room and conference room rentals.
25. Consider setting date for a public hearing for adoption of assessment order for the Clearwater Ranch Public Improvement District.

26. In accordance with Section 152.014 of the Local Government Code, select public members (9) and alternates (27) for the salary grievance committee.
27. Consider approving the Waiver of Penalty and Interest to customers as described in attachments from the Tax Assessor/Collector.
28. Consider authorizing advertising and setting date of April 8, 2009 at 2pm in the Purchasing Department to receive qualifications for Architectural Team Services for the design of Renovations to the Williamson County Tax Assessor/Collector offices located at 904 S. Main, Georgetown, TX.
29. Consider awarding bids received for Traffic Signal Maintenance for Williamson County (Bid #09WC709) to the lowest and best bidder Patriot Signals, Inc.
30. Discuss the purchase of VoteSafe License from Votec Corporation for the pollbook software.
31. Consider awarding bids received for Backup Generator Maintenance for Williamson County to best and lowest bid meeting specifications - Allegiance Power Systems
32. Consider an order declaring an emergency and a grave necessity due to unforeseeable circumstances and approve a budget amendment for Victim's Assistance Donations:

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
	0100.0000.367400	Donations	\$387.53	01

33. Consider an order declaring an emergency and a grave necessity due to unforeseeable circumstances and approve a budget amendment for Victim's Assistance Donations:

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
	0100.0560.003671	V. A. Donations	\$387.53	01

EXECUTIVE SESSION

34. Discuss real estate (EXECUTIVE SESSION as per VTCA Govt. Code sec. 551.0721 Deliberation Regarding Real Property.)

35. Discuss pending or contemplated litigation (EXECUTIVE SESSION as per VTCA Govt. Code sec. 551.071 consultation with attorney.)
36. Deliberation regarding Economic Development Negotiations (EXECUTIVE SESSION as per VTCA Govt. Code sec. 551.087 Deliberation regarding Economic Development Negotiations.)
37. Discuss and take appropriate action on real estate.
38. Discuss and take appropriate action on pending or contemplated litigation.
39. Discuss and take appropriate action concerning deliberation regarding Economic Development Negotiations.
40. Comments from Commissioners.

Dan A. Gattis, County Judge

This notice of meeting was posted in the locked box located on the south side of the Williamson County Courthouse, a place readily accessible to the general public at all times, on the _____ day of _____, 2009 at _____ and remained posted for at least 72 continuous hours preceding the scheduled time of said meeting.

Line Item Transfer

Commissioners Court - Regular Session

Date: 03/10/2009

Submitted By: Ashlie Koenig, County Judge

Department: County Judge

Agenda Category: Consent

Information

Agenda Item

Discuss and consider approving a line item transfer for Fleet

Background

We were allotted \$70K for a new fuel system software database. The shop area will house the oil dispensing portion of the automated system. In order to make this happen, an electrical upgrade (one that was not budgeted for) is needed. This line item transfer will allow funding to cover the automated system portion of this upgrade.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
From	0882-0882-003523	Fleet/Parts	\$1,900	
To	0882-0882-004510	Fleet/Facility Maint	\$1,900	

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Ashlie Koenig Started On: 02/26/2009 01:04 PM

Final Approval Date: 02/26/2009

Consider approving a line item transfer for the Human Resources Department.
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Lisa Zirkle, Human Resources
Submitted For: Lisa Zirkle
Department: Human Resources
Agenda Category: Consent

Information

Agenda Item

Discuss and consider approving a line item transfer for the Human Resources Department:

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
From	0100.0402.004500	Maintenance	750.00	
To	0100.0402.004212	Postage	750.00	

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Lisa Zirkle Started On: 03/05/2009 11:31 AM

Final Approval Date: 03/05/2009

Continuing Education Hours
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Terri Countess, Commissioner Pct. #3
Submitted For: Valerie Covey
Department: Commissioner Pct. #3
Agenda Category: Consent

Information

Agenda Item

Consider approving and entering into the official minutes Commissioner Covey's Certificate of Completion of the Continuing Education Provisions of Article 81.0025 of the Texas Local Government Code.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Certification of Completion](#)

Form Routing/Status

Form Started By: Terri Countess Started On: 03/05/2009 08:21 AM
Final Approval Date: 03/05/2009

**COUNTY JUDGES & COMMISSIONERS
ASSOCIATION OF TEXAS**

**COMMISSIONERS EDUCATION
CERTIFICATE OF COMPLETION**

This is to certify that

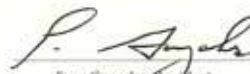
Valerie Cobey
Williamson County Commissioner

*has successfully completed the continuing education
provisions of Article 81.0025 of the
Texas Local Government Code*

2008



Richard Cortese, Chairman
Commissioners Education Committee



Evan Gonzales, President
County Judges & Commissioners
Association of Texas

2008 Continuing Education Certificate
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Nancy Heath, Commissioner Pct. #4
Submitted For: Ron Morrison
Department: Commissioner Pct. #4
Agenda Category: Consent

Information

Agenda Item

Consider recognizing and noting in the minutes that Commissioner Ron Morrison successfully completed the 2008 Commissioner Statutory Continuing Education requirement.

Background

See Statute: Section 81.0025 Continuing Education, Texas Local Government Code.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [CE 2008 Certificate](#)

Link: [CE 2008 Transcript](#)

Form Routing/Status

Form Started By: Nancy Heath Started On: 03/03/2009 01:18 PM
Final Approval Date: 03/04/2009

COUNTY JUDGES & COMMISSIONERS ASSOCIATION OF TEXAS

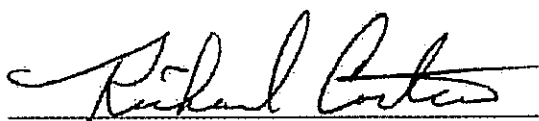
COMMISSIONERS EDUCATION CERTIFICATE OF COMPLETION

This is to certify that

Ron Morrison
Williamson County Commissioner

*has successfully completed the continuing education
provisions of Article 81.0025 of the
Texas Local Government Code*

2008



Richard Cortese, Chairman
Commissioners Education Committee



Evan Gonzales, President
County Judges & Commissioners
Association of Texas

**COUNTY JUDGES AND COMMISSIONERS
ASSOCIATION OF TEXAS**
County Commissioner Continuing Education Transcript
Reporting Period: 1/1/ 2008- 12/31/2008

Honorable Ron Morrison
Williamson County Commissioner, Pct.4
350 Exchange Boulevard, Suite 100
Hutto, TX 78634

Term:
1/1/2007 - 12/31/2010

Phone: (512) 238-2111
Fax:

Last 4 digits of SSN

01/01/2008	Excess hours carried from prior period	8.00
04/25/2008	CUC Bella Harbor Conference	11.00
08/29/2008	TAC Annual Conference and Trade Show	11.50

Total Hours Earned: 30.50

You have met your 2008 Commissioner Statutory Continuing Education requirement.

You will carry forward 8.00 hours to the next reporting period.

See Statute: Section 81.0025 Continuing Education, Local Government Code

Because continuing education sponsors are not required by law to report attendance to the Association, this transcript may not be a complete list of continuing education hours earned by the commissioner for this calendar year.

Consent Agenda

Commissioners Court - Regular Session

Date: 03/10/2009

Submitted By: Ursula Stone, Purchasing

Department: Purchasing

Agenda Category: Consent

Information

Agenda Item

Consider and take appropriate action on authorizing the transfer of vehicles and equipment from various department to auction, donation, destruction. (Complete list filed with official minutes)

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Auction transfer](#)

Form Routing/Status

Route Seq	Inbox	Approved By	Date	Status
1	Purchasing	Jonathan Harris	03/05/2009 09:16 AM	APRV
2	County Judge Exec Asst.	Wendy Coco	03/05/2009 09:36 AM	APRV

Form Started By: Ursula Stone

Started On: 03/05/2009 08:35 AM

Final Approval Date: 03/05/2009

Williamson County

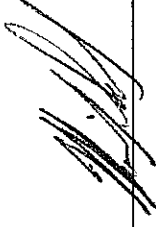
Asset Disposal Form

Department: # 562 DPS/ABC

Elected Official/Department Head/Authorized Staff:

Print Name Sgt. Michael Smith

Signature



Date 02 / 25 / 09

Contact Person:

Print Name Sgt. Smith or Vickie Leggitt

Phone Number 512 930-3984

Asset List:

Description (year, make, model & etc)	Identification Number (Serial#, VIN#, Tag#)	Method of disposal (to whom & where)
PC, Dell V350, (3/1999)	OBN6E, County IT# C00692	Surplus / County Storage
PC, Dell Dimension 4400, (3/2002)	6X7XD11, County IT# C00690	Surplus / County Storage
Printer, HP Desklet 5650	C6X490A	Surplus / County Storage
Printer HP Desklet 690C	C8932A	Surplus / County Storage

Reason for Disposal:

very old equipment, not being utilized due to lack of memory required to adequately run most current software.

printers are no longer necessary, since they were attached to the PC's.

For County Auditor's Office Use Only:

Williamson County

Asset Status Change Form

Print Form

The following asset(s) is(are) considered for: (select one)

- ☐ TRANSFER bet ween county departments
 ☐ TRADE-IN for new assets for the county
☒ SALE at the earliest auction
 ☐ DONATION to a non-county entity

Asset List:

Quantity	Description (year, make, model, etc.)	Manufacturer ID# (serial, service tag, or VIN)	County Tag#	Condition of Assets (Working, Non-Working, Unknown)
20	DRESS PANTS	no id #	no tag #	Non-Working
8	BLUE BDU PANTS	no id #	no tag #	Non-Working
8	TAN 511 TACT PANTS	no id #	no tag #	Non-Working
12	BLACK BDU PANTS	no id #	no tag #	Non-Working
2	BLACK 511 TACT PANTS	no id #	no tag #	Non-Working
				Unknown
	ALL INSIGNAS REMOVED-WORN, TORN, STAINED, FADED	NOT ACCEPTABLE FOR RE-ISSUE		

Parties involved:

FROM (Transferor Department): 560 Law Enforcement Inventory

Transferor - Elected Official/Department Head/

Authorized Staff:

L.C. Marshall

Print Name



Signature

Date February 20, 2009

Contact Person:

Patricia Amison

Print Name

+1 (512) 943-1349

Phone Number

TO (Transferee Department/Auction/Trade-in/Donee): AUCTION

Transferee - Elected Official/Department Head/

Authorized Staff OR Donee - Representative: (If being approved for Sale or Trade-in, no signature is necessary.)

Contact Person:

Print Name

Print Name

Signature

Phone Number

Date

For assets donated to a non-county entity:

The Donee accepts the above assets and has determined the Fair Market Value of assets to be \$

Forward to County Auditor's Office

This Change Status was approved as agenda item # _____ in Commissioner's Court on _____

If for Sale, the asset(s) was(were) delivered to warehouse on _____ by _____

TRANSFER of FIXED ASSET

Date: February 10, 2009

The following fixed asset(s) should be (check one):

- ☐ Transferred to another department
- ☒ Sold At Auction

[illegible]

The transferor requests that this fixed asset be removed from the inventory for their office and either placed in the Transferee's office as of the date shown above, *OR* sold at auction as indicated by the choice above.

From: Glenn Namik
Transferor department head or elected official

District Clerk _____
Department Name _____

To: _____
Transferee department head or elected official
(not needed if being sold at auction)

Auction _____
Department Name _____

Williamson County

Asset Status Change Form

Print Form

The following asset(s) is(are) considered for: (select one)

☐ TRANSFER bet ween county departments☐ TRADE-IN for new assets for the county☒ SALE at the earliest auction☐ DONATION to a non-county entity**Asset List:**

Quantity	Description (year, make, model, etc.)	Manufacturer ID# (serial, service tag, or VIN)	County Tag#	Condition of Assets (Working, Non-Working, Unknown)
1	PING PONG TABLE T8176 M.N.#2L-6872-02	no serial #	no tag #	Non-Working
1	PING PONG TABLE T8176 M.N.#2L-6872-02	SERIAL # 0804813	no tag #	Non-Working

Parties involved:

FROM (Transferor Department): 570 - Correction Inventory (COMMISSARY FUND)

Transferor - Elected Official/Department Head/

Authorized Staff:

Contact Person:

L.C. Marshall

Patricia Amison

Print Name

Print Name

Signature

+1 (512) 943-1349

Phone Number

Date February 27, 2009

TO (Transferee Department/Auction/Trade-in/Donee):

Transferee - Elected Official/Department Head/

Authorized Staff OR Donee - Representative: (If being approved for Sale or Trade-in, no signature is necessary.)

Contact Person:

Print Name

Print Name

Signature

Phone Number

Date

For assets donated to a non-county entity:

The Donee accepts the above assets and has determined the Fair Market Value of assets to be \$

Forward to County Auditor's Office

This Change Status was approved as agenda item # _____ in Commissioner's Court on _____

If for Sale, the asset(s) was(were) delivered to warehouse on _____ by _____

**WILLIAMSON COUNTY
VEHICLE RETIREMENT FORM**

Identify Vehicle:

<u>1GCEC19V42Z282532</u>				<u>4211</u>
VEHICLE IDENTIFICATION NUMBER				DOOR NUMBER
<u>7FKS80</u>	<u>2002</u>	<u>CHEVY</u>	<u>1500 PU</u>	<u>WHITE</u>
LICENSE PLATE NUMBER	YEAR	MAKE	MODEL	COLOR
<u>BACKUP</u>				<u>SO</u>
DRIVER ASSIGNED TO VEHICLE				DEPARTMENT

Reason for Retirement:

☐ Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

☒ High Mileage: List actual mileage 101135

☐ Not mechanically sound

☐ Other: Explain

Method of Retirement: This vehicle is to be considered for: (Select one)

☒ SALE at the earliest auction

☐ TRADE-IN for new assets for the county

☐ DONATION to a non-county entity

☐ SALVAGE for parts

Elected Official/Department Head/authorized staff

Date 2-10-09

Print

Tony Marshall

Signature

T Marshall

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

☐ Authorized Litigation & Insurance Release Form obtained

☐ Vehicle Marked for Auction and moved to Auction Yard

☒ Forward forms and reports to County Auditor's Office

Print

Mike Fox

Signature

Date 3-3-09

[Signature]

**WILLIAMSON COUNTY
VEHICLE RETIREMENT FORM**

Identify Vehicle:

<u>2FAFP71W73X111660</u>				<u>4324</u>
VEHICLE IDENTIFICATION NUMBER				DOOR NUMBER
<u>837254</u>	<u>2003</u>	<u>F</u>	<u>CV</u>	<u>B/W</u>
LICENSE PLATE NUMBER	YEAR	MAKE	MODEL	COLOR
<u>Gonzalo Vivas</u>				<u>50</u>
DRIVER ASSIGNED TO VEHICLE				DEPARTMENT

Reason for Retirement:

☐ Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

☒ High Mileage: List actual mileage 107,573

☒ Not mechanically sound Transmission seal bad, rear axle seal bad, rear axle damaged

☐ Other: Explain _____

Method of Retirement: This vehicle is to be considered for: (Select one)

☒ SALE at the earliest auction

☐ TRADE-IN for new assets for the county

☐ DONATION to a non-county entity

☐ SALVAGE for parts

Elected Official/Department Head/authorized staff

Date 2-10-09

Print

Tony Marshall

Signature

T Marshall

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

☐ Authorized Litigation & Insurance Release Form obtained

☐ Vehicle Marked for Auction and moved to Auction Yard

☒ Forward forms and reports to County Auditor's Office

Print

Mike Fox

Signature

Date 3-3-09
[Signature]

**WILLIAMSON COUNTY
VEHICLE RETIREMENT FORM**

Identify Vehicle:

1GCEC19VX3Z271164 4341
VEHICLE IDENTIFICATION NUMBER DOOR NUMBER

870421 2003 CHEVY 1500 PU WHITE
LICENSE PLATE NUMBER YEAR MAKE MODEL COLOR

BACKUP SO
DRIVER ASSIGNED TO VEHICLE DEPARTMENT

Reason for Retirement:

 Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

X High Mileage: List actual mileage 164984

 Not mechanically sound

 Other: Explain

Method of Retirement: This vehicle is to be considered for: (Select one)

X SALE at the earliest auction

 TRADE-IN for new assets for the county

 DONATION to a non-county entity

 SALVAGE for parts

Elected Official/Department Head/authorized staff

Date 2-10-09

Print Tony Marshall

Signature T Marshall

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

 Authorized Litigation & Insurance Release Form obtained

 Vehicle Marked for Auction and moved to Auction Yard

X Forward forms and reports to County Auditor's Office

Print Mike Fox III

Signature [Signature]

Date 3-3-09

WILLIAMSON COUNTY

VEHICLE RETIREMENT FORM

Identify Vehicle:

<u>2FAHP71W93X182044</u>				<u>4357</u>
VEHICLE IDENTIFICATION NUMBER				DOOR NUMBER
<u>853705</u>	<u>2003</u>	<u>F</u>	<u>CV</u>	<u>BLKWHT</u>
LICENSE PLATE NUMBER	YEAR	MAKE	MODEL	COLOR
<u>BACKUP</u>				<u>SO</u>
DRIVER ASSIGNED TO VEHICLE				DEPARTMENT

Reason for Retirement:

☐ Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

☒ High Mileage: List actual mileage 121453

☒ Not mechanically sound Transmission inop, spotlight inop

☐ Other: Explain _____

Method of Retirement: This vehicle is to be considered for: (Select one)

☒ SALE at the earliest auction

☐ TRADE-IN for new assets for the county

☐ DONATION to a non-county entity

☐ SALVAGE for parts

Elected Official/Department Head/authorized staff

Print Tony Marshall

Signature T Marshall

Date 2-18-09

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

☐ Authorized Litigation & Insurance Release Form obtained

☐ Vehicle Marked for Auction and moved to Auction Yard

☒ Forward forms and reports to County Auditor's Office

Print Mike Fox SA

Signature [Signature]

Date 3-3-09

**WILLIAMSON COUNTY
VEHICLE RETIREMENT FORM**

Identify Vehicle:

<u>2FACP71W13X158361</u>				<u>4374</u>
VEHICLE IDENTIFICATION NUMBER				DOOR NUMBER
<u>817KGL</u>	<u>2003</u>	<u>F</u>	<u>CV</u>	<u>WHT</u>
LICENSE PLATE NUMBER	YEAR	MAKE	MODEL	COLOR
<u>BACKUP</u>				<u>SO</u>
DRIVER ASSIGNED TO VEHICLE				DEPARTMENT

Reason for Retirement:

☐ Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

☒ High Mileage: List actual mileage 140064

☐ Not mechanically sound _____

☐ Other: Explain _____

Method of Retirement: This vehicle is to be considered for: (Select one)

☒ SALE at the earliest auction

☐ TRADE-IN for new assets for the county

☐ DONATION to a non-county entity

☐ SALVAGE for parts

Elected Official/Department Head/authorized staff

Date 2-18-09

Print Tony Marshall

Signature Tony Marshall

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

☐ Authorized Litigation & Insurance Release Form obtained

☐ Vehicle Marked for Auction and moved to Auction Yard

☒ Forward forms and reports to County Auditor's Office

Print Mike Fox III

Date 3-3-09

Signature Mike Fox III

**WILLIAMSON COUNTY
VEHICLE RETIREMENT FORM**

Identify Vehicle:

2FACP71W6YX115688 4007
VEHICLE IDENTIFICATION NUMBER DOOR NUMBER

829347 2000 FORD CR VIC WHITE
LICENSE PLATE NUMBER YEAR MAKE MODEL COLOR

BACKUP SO
DRIVER ASSIGNED TO VEHICLE DEPARTMENT

Reason for Retirement:

 Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

X High Mileage: List actual mileage 108633

 Not mechanically sound

 Other: Explain

Method of Retirement: This vehicle is to be considered for: (Select one)

X SALE at the earliest auction

 TRADE-IN for new assets for the county

 DONATION to a non-county entity

 SALVAGE for parts

Elected Official/Department Head/authorized staff

Date 2-10-09

Print Tony Marshall

Signature T Marshall

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

 Authorized Litigation & Insurance Release Form obtained

 Vehicle Marked for Auction and moved to Auction Yard

X Forward forms and reports to County Auditor's Office

Print Mike Fox

Signature [Signature]

Date 3-3-09

**WILLIAMSON COUNTY
VEHICLE RETIREMENT FORM**

Identify Vehicle:

2FAHP71W33X182038 4369
VEHICLE IDENTIFICATION NUMBER DOOR NUMBER

856083 2003 F CV BLKWHT
LICENSE PLATE NUMBER YEAR MAKE MODEL COLOR

BACKUP SO
DRIVER ASSIGNED TO VEHICLE DEPARTMENT

Reason for Retirement:

 Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

X High Mileage: List actual mileage 136260

 Not mechanically sound

 Other: Explain

Method of Retirement: This vehicle is to be considered for: (Select one)

X SALE at the earliest auction

 TRADE-IN for new assets for the county

 DONATION to a non-county entity

 SALVAGE for parts

Elected Official/Department Head/authorized staff

Date 2-10-09

Print

Tony Marshall

Signature

T Marshall

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

 Authorized Litigation & Insurance Release Form obtained

 Vehicle Marked for Auction and moved to Auction Yard

X Forward forms and reports to County Auditor's Office

Print

Mike Fox

Signature

Date 3-3-09
[Signature]

**WILLIAMSON COUNTY
VEHICLE RETIREMENT FORM**

Identify Vehicle:

<u>2FAHP71W13X182037</u>				<u>4361</u>
VEHICLE IDENTIFICATION NUMBER				DOOR NUMBER
<u>856078</u>	<u>2003</u>	<u>F</u>	<u>CV</u>	<u>BLKWHT</u>
LICENSE PLATE NUMBER	YEAR	MAKE	MODEL	COLOR
<u>BACKUP</u>				<u>SO</u>
DRIVER ASSIGNED TO VEHICLE				DEPARTMENT

Reason for Retirement:

☐ Accident: Attach a Damage to County Property Incident Report or the Official Accident Report

☒ High Mileage: List actual mileage 125633

☐ Not mechanically sound _____

☐ Other: Explain _____

Method of Retirement: This vehicle is to be considered for: (Select one)

☒ SALE at the earliest auction

☐ TRADE-IN for new assets for the county

☐ DONATION to a non-county entity

☐ SALVAGE for parts

Elected Official/Department Head/authorized staff

Print Tony Marshall Signature T Marshall Date 2-10-09

FORWARD TO FLEET MANAGER - MIKE FOX

FOR FLEET SERVICES USE ONLY

☐ Authorized Litigation & Insurance Release Form obtained

☐ Vehicle Marked for Auction and moved to Auction Yard

☒ Forward forms and reports to County Auditor's Office

Print Mike Fox Signature [Signature] Date 3-3-09

Consent Agenda

Commissioners Court - Regular Session

Date: 03/10/2009

Submitted By: Ursula Stone, Purchasing

Department: Purchasing

Agenda Category: Consent

Information

Agenda Item

Consider and take appropriate action on authorizing the transfer of items through inter-office transfer to another department and the transfer of various items to auction, donation or destruction.

(Complete list filed with official minutes)

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Asset transfer](#)

Form Routing/Status

Route Seq	Inbox	Approved By	Date	Status
1	Purchasing	Jonathan Harris	02/19/2009 10:26 AM	APRV
2	County Judge Exec Asst.	Wendy Coco	02/19/2009 11:02 AM	APRV

Form Started By: Ursula Stone

Started On: 02/19/2009 09:13 AM

Final Approval Date: 02/19/2009

Williamson County

Asset Status Change Form

The following asset(s) is(are) considered for: (select one)

- ☐ **TRANSFER** bet ween county departments
 ☐ **TRADE-IN** for new assets for the county
☒ **SALE** at the earliest auction
 ☐ **DONATION** to a non-county entity

Asset List:

Quantity	Description (year, make, model, etc.)	Manufacturer ID# (serial, service tag, or VIN)	County Tag#	Condition of Assets (Working, Non-Working, Unknown)
1	DELL 4300 PC	9F8CW01	C616	Unknown
1	DELL 4500 PC	8RPVT11	C850	Unknown
1	DELL i8000 LAPTOP	63LCG01	C1079	Unknown
1	DELL 4300 PC	6F8CW01	C614	Unknown
1	DELL 4300 PC	JKDW411	C357	Unknown
1	DELL 4600 PC	C27YH41		Unknown
1	DELL POWEREDGE 2300 SERVER	0TYJH		Unknown
1	DESKJET 6540 PRINTER			Unknown

Parties involved:

FROM (Transferor Department): INFORMATION TECHNOLOGY SERVICES

**Transferor - Elected Official/Department Head/
Authorized Staff:**

JAY SCHADE

Print Name

Signature

Date February 17, 2009

Contact Person:

TAMMY MCCULLEY

Print Name

943-1455

Phone Number

TO (Transferee Department/Auction/Trade-in/Donor): AUCTION

**Transferee - Elected Official/Department Head/
Authorized Staff OR Donor - Representative:** (If being
approved for Sale or Trade-in, no signature is necessary.)

Contact Person:

Print Name

Print Name

Signature

Phone Number

Date

For assets donated to a non-county entity:

The Donee accepts the above assets and has determined the Fair Market Value of assets to be \$

Forward to County Auditor's Office

This Change Status was approved as agenda item # _____ in Commissioner's Court on _____

If for Sale, the asset(s) was(were) delivered to warehouse on _____ by _____

Williamson County

Asset Status Change Form

The following asset(s) is(are) considered for: (select one)

- ☐ **TRANSFER** between county departments ☐ **TRADE-IN** for new assets for the county
☒ **SALE** at the earliest auction ☐ **DONATION** to a non-county entity

Asset List:

Quantity	Description (year, make, model, etc.)	Manufacturer ID# (serial, service tag, or VIN)	County Tag#	Condition of Assets (Working, Non-Working, Unknown)
1	DESKJET 895Cxi PRINTER			Unknown
1	DESKJET 612C PRINTER			Unknown
1	DESKJET 960C PRINTER			Unknown
1	OKIDATA MICROLINE 320 PRINTER			Unknown
1	OKIDATA MICROLINE 591 PRINTER			Unknown
1	BROTHER INTELLIFAX 1550MC FACSIMILE MACHINE			Unknown
1	APPLE E-MAC A1002 PC			Unknown
1	HP DESIGNJET PRINTER	MY78AF80JC		Unknown

Parties involved:

FROM (Transferor Department): INFORMATION TECHNOLOGY SERVICES

**Transferor - Elected Official/Department Head/
Authorized Staff:**

Contact Person:

JAY SCHADE

TAMMY MCCULLEY

Print Name

Print Name

Signature 

943-1455

Phone Number

Date February 17, 2009

TO (Transferee Department/Auction/Trade-in/Donor): AUCTION

**Transferee - Elected Official/Department Head/
Authorized Staff OR Donor - Representative:** (If being
approved for Sale or Trade-in, no signature is necessary.)

Contact Person:

Print Name

Print Name

Signature

Phone Number

Date

For assets donated to a non-county entity:

The Donee accepts the above assets and has determined the Fair Market Value of assets to be \$

Forward to County Auditor's Office

This Change Status was approved as agenda item # _____ in Commissioner's Court on _____

If for Sale, the asset(s) was(were) delivered to warehouse on _____ by _____

Williamson County

Asset Status Change Form

The following asset(s) is(are) considered for: (select one)

- ☐ **TRANSFER** bet ween county departments ☐ **TRADE-IN** for new assets for the county
☒ **SALE** at the earliest auction ☐ **DONATION** to a non-county entity

Asset List:

Quantity	Description (year, make, model, etc.)	Manufacturer ID# (serial, service tag, or VIN)	County Tag#	Condition of Assets (Working, Non-Working, Unknown)
5	MONITORS			Unknown
3	UPS BATTERY BACKUPS			Unknown
4	DATA TERMINAL CONCENTRATORS	3529F01684; 3323F00815; 3402F03221; 3529F00815		Unknown
2	HP TAPEDRIVE UNITS	G800108362; HUK0198690		Unknown
1	HP P2015DN PRINTER	CNBJM14516	I396	Unknown
1	DELL 2350 PC	9278921	C649	Unknown
1	VICTOR 1250A CALCULATOR	12558433		Working
1	ASSORTED KEYBOARDS, MICE, SPEAKERS			Unknown

Parties involved:

FROM (Transferor Department): INFORMATION TECHNOLOGY SERVICES

**Transferor - Elected Official/Department Head/
Authorized Staff:**

JAY SCHADE

Print Name

Signature

Date February 17, 2009

Contact Person:

TAMMY MCCULLEY

Print Name

+1 (512) 943-1455

Phone Number

TO (Transferee Department/Auction/Trade-in/Donor): AUCTION

**Transferee - Elected Official/Department Head/
Authorized Staff OR Donor - Representative:** (If being
approved for Sale or Trade-in, no signature is necessary.)

Contact Person:

Print Name

Print Name

Signature

Phone Number

Date

For assets donated to a non-county entity:

The Donee accepts the above assets and has determined the Fair Market Value of assets to be \$

Forward to County Auditor's Office

This Change Status was approved as agenda item # _____ in Commissioner's Court on _____

If for Sale, the asset(s) was(were) delivered to warehouse on _____ by _____

Williamson County Asset Status Change Form

The following asset(s) is(are) to be considered for: (Select one)

- ☐ **TRANSFER** between county departments ☐ **TRADE-IN** for new assets for the county
☒ **SALE** at the earliest auction ☐ **DONATION** to a non-county entity

Asset list:

Quantity	Description (year, make model & etc.)	Manufacturer ID# (serial, service tag, or VIN)	County Tag#
1	Dell Dimension 4550	H6FNV21	C00025
1	Dell Dimension 4550	3B8PV21	C00050
1	Dell Dimension 4550	7B8PV21	C00021
1	Dell Dimension 4550	9B8PV21	C00019
1	HP Laser Printer 4050	USBD047773	I00009
1	HP Laser Printer 4200N	USDNL17652	I00022
1	HP Laser Printer 4200N	USBNP13866 (this printer is at IT)	I00011
1	HP Laser Printer 2200dn	CNGRG43098	I00205

Parties involved:

FROM (Transferor Department): JP 2

Transferor - Elected Official/Department Head/Authorized Staff: _____ Date 2/12/09

Judge Edna Staudt

Print

Signature

TO (Transferee Department/Auction/Trade-in/Donee): Auction

Transferee - Elected Official/Department Head/Authorized Staff OR Donee - Representative: (If being approved for Sale or Trade-in, no signature is necessary.) _____ Date ____ / ____ / ____

Print

Signature

For assets donated to a non-county entity:

The Donee accepts the above assets and has determined the Fair Market Value of assets to be \$ _____

Forward to County Auditor's Office

This Change Status was approved as agenda item # _____ in Commissioner's Court on ____ / ____ / ____

If for Sale, the asset(s) was(were) delivered to warehouse on ____ / ____ / ____

by _____

Williamson County

Asset Status Change Form

The following asset(s) is(are) considered for: (select one)

- ☒ **TRANSFER** bet ween county departments ☐ **TRADE-IN** for new assets for the county
☐ **SALE** at the earliest auction ☐ **DONATION** to a non-county entity

Asset List:

Quantity	Description (year, make, model, etc.)	Manufacturer ID# (serial, service tag, or VIN)	County Tag#	Condition of Assets (Working, Non-Working, Unknown)
11	Adesso USB keyboards			Working
1	Kensington USB keyboard			Working

Parties involved:

FROM (Transferor Department): County Clerk

**Transferor - Elected Official/Department Head/
Authorized Staff:**

Contact Person:

Nancy E. Rister

Marilyn Cavender

Print Name

Print Name

Signature *Nancy E. Rister*

+1 (512) 943-1549

Phone Number

Date January 30, 2009

TO (Transferee Department/Auction/Trade-in/Donee): ITS

**Transferee - Elected Official/Department Head/
Authorized Staff OR Donee - Representative:** (If being
approved for Sale or Trade-in, no signature is necessary.)

Contact Person:

Print Name *Jay Schade*

Print Name

Signature *Jay Schade*

943-1460

Phone Number

Date 2-17-09

For assets donated to a non-county entity:

The Donee accepts the above assets and has determined the Fair Market Value of assets to be \$

Forward to County Auditor's Office

This Change Status was approved as agenda item # _____ in Commissioner's Court on _____

If for Sale, the asset(s) was(were) delivered to warehouse on _____ by _____

License Agreement

Commissioners Court - Regular Session

Date: 03/10/2009

Submitted By: Nickey Lawrence, Unified Road System

Submitted For: Joe England

Department: Unified Road System

Agenda Category: Consent

Information

Agenda Item

Discuss and consider approval of License Agreement between Star Ranch Community, Inc. and Williamson County portions of the right-of-way of Gattis School Road, Hutto, Texas, Pct. 4.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Subdivision Folders/Star Ranch](#)

Form Routing/Status

Form Started By: Nickey Lawrence Started On: 02/24/2009 02:56 PM

Final Approval Date: 03/05/2009

WILLIAMSON COUNTY
LICENSE AGREEMENT

WILLIAMSON COUNTY, a political subdivision of the State of Texas ("County"), and STAR RANCH COMMUNITY, INC., a Texas non-profit corporation ("Licensee"), enter into this License Agreement ("Agreement") upon the terms and conditions set forth below.

I. **PURPOSE OF LICENSE AGREEMENT**

The County grants to Licensee permission to use the Licensed Property, which is defined hereinbelow, for the following purposes only:

To allow the installation and/or maintenance of landscaping, lighting, fencing, and irrigation (collectively referred to herein as the "Licensee's Improvements") into portions of the right-of-way of Gattis School Road, Hutto, Texas.

The above-described property, hereinafter referred to as the "Licensed Property," is further described in Exhibit "A" attached to this Agreement and incorporated by reference for all purposes.

The County makes this grant solely to the extent of its right, title and interest in the Licensed Property, without any express or implied warranties.

Licensee agrees that all construction and maintenance permitted by this Agreement shall be done in compliance with all applicable County, State and/or Federal police, traffic, building, health and safety ordinances, laws and regulations existing at the time said construction and maintenance is performed.

II. **ANNUAL FEE**

The County, its governing body, and its respective successors and assigns agree that no annual fee shall be assessed for the license and permission herein granted to Licensee.

III. **COUNTY'S RIGHTS TO LICENSED PROPERTY**

This Agreement is expressly subject and subordinate to the present and future rights of the County, its successors, assigns, lessees, grantees and licensees, to construct, install, establish, maintain, use, operate and renew any public utilities facilities, franchised public utilities,

roadways or streets on, beneath or above the surface of the Licensed Property described in Article I above.

Nothing in this Agreement shall be construed to limit, in any way, the power of the County to widen, alter or improve the Licensed Property subject to this Agreement pursuant to official action by the governing body of the County or its successors. The County does, however, agree to give Licensee at least thirty (30) days' written notice of such action and shall cooperate with Licensee to effect the relocation and/or removal of Licensee's Improvements, at Licensee's sole cost, in the event of such widening, altering or improvement of the Licensed Property, further, to cooperate with Licensee wherever possible, to effect such widening, altering or improving of the Licensed Property so that Licensee's Improvements and operations on the Licensed Property will not be materially affected thereby.

Notwithstanding any provision in this Agreement to the contrary, the County retains the right to enter upon the Licensed Property, at any time without notice to Licensee, assuming no obligation to Licensee, and remove, without liability to County, any of the Licensee's Improvements thereof whenever such removal is deemed necessary for: (a) exercising the County's rights or duties with respect to the Licensed Property; (b) protecting persons or property; or (c) protecting the public health or safety with respect to the Licensed Property.

IV. INSURANCE

Licensee shall, at its sole expense, provide a commercial general liability insurance policy, written by a company acceptable to the County and licensed to do business in Texas, with a combined single limit of not less than Five Hundred Thousand and No/100 Dollars (\$500,000.00), which coverage may be provided in the form of a rider and/or endorsement to a previously existing insurance policy. Such insurance coverage shall specifically name the County as an additional insured. This insurance coverage shall cover all perils arising from the activities of Licensee, its officers, directors, employees, agents or contractors, relative to this Agreement.

Licensee shall be responsible for any deductibles stated in the policy. A true copy of each instrument effecting such coverage shall be delivered to the County on or before the date that Licensee begins construction of Licensee's Improvements contemplated in this Agreement.

So long as Licensee is using the Licensed Property, Licensee shall not cause such insurance to be canceled nor permit such insurance to lapse. All insurance certificates shall include a clause to the effect that the policy shall not be canceled, reduced, restricted or otherwise limited until thirty (30) days after the County has received written notice as evidenced by a return receipt of registered or certified mail.

V. INDEMNIFICATION

TO THE EXTENT AUTHORIZED BY LAW, LICENSEE SHALL INDEMNIFY AND HOLD HARMLESS THE COUNTY AND ITS OFFICERS, AGENTS AND EMPLOYEES AGAINST ALL CLAIMS, SUITS, DEMANDS, JUDGMENTS AND EXPENSES, INCLUDING ATTORNEY'S FEES, OR OTHER LIABILITY FOR PERSONAL INJURY, DEATH OR DAMAGE TO ANY PERSON OR PROPERTY WHICH IS PROXIMATELY CAUSED BY LICENSEE'S CONSTRUCTION AND LOCATION OF THE LICENSEE'S IMPROVEMENTS ON THE LICENSED PROPERTY, OR LICENSEE'S ACTIONS OR INACTIONS IN MAINTAINING THE LICENSEE'S IMPROVEMENTS LOCATED ON THE LICENSED PROPERTY BY LICENSEE. THIS INDEMNIFICATION PROVISION, HOWEVER, SHALL NOT APPLY TO ANY CLAIMS, SUITS, DAMAGES, COSTS, LOSSES OR EXPENSES (I) FOR WHICH THE COUNTY SHALL HAVE BEEN, OR IS ENTITLED TO BE COMPENSATED BY INSURANCE PROVIDED UNDER ARTICLE IV ABOVE, OR (II) WHICH ARE PROXIMATELY CAUSED BY THE NEGLIGENT OR WILLFUL ACTS OF THE COUNTY, ITS AGENTS, EMPLOYEES OR CONTRACTORS; PROVIDED, HOWEVER, THAT FOR THE PURPOSES OF THE FOREGOING, THE COUNTY'S ACT OF ENTERING INTO THIS AGREEMENT SHALL NOT BE DEEMED TO BE A "NEGLIGENT OR WILLFUL ACT."

VI. CONDITIONS

A. Licensee's Responsibilities. Licensee will be responsible for any damage to and/or for the relocation of existing facilities on the Licensed Property. Further, Licensee shall

reimburse the County for all costs of replacing or repairing any property of the County or of others which are damaged or destroyed as a result of activities authorized under this Agreement by, or on behalf of, Licensee.

B. Maintenance. Licensee shall maintain the Licensed Property and the Licensee's Improvements by keeping the area free of debris and litter. Removal of dead or dying plants shall also be handled by Licensee at its expense, as required by the County. Such removal of dead or dying plants shall be completed within thirty (30) days following receipt of a written request by the County to do so. If Licensee abandons or fails to maintain the Licensed Property, and the County receives no substantive response within thirty (30) days following written notification to Licensee, then the County may remove and/or replace all of Licensee's Improvements.

C. Removal or Modification. Licensee agrees that removal or modification of any improvements now existing or to be later replaced on the Licensed Property shall be at Licensee's sole expense. Said removal or modification shall be at Licensee's sole discretion, except where otherwise provided by this Agreement.

D. Default. In the event that Licensee fails to maintain the Licensed Property or otherwise comply with the terms or conditions as set forth herein, then the County shall give Licensee written notice thereof, by registered or certified mail, return receipt requested, to the address set forth below. Licensee shall have thirty (30) days from the date of receipt of such notice to take action to remedy the failure complained of and, if Licensee does not remedy the same to County's complete satisfaction within the 30-day period, the County may, in addition to other remedies available herein or by law to County, (1) perform the work, (2) contract for the completion of the work, or (3) terminate this Agreement. Licensee agrees to pay, within thirty (30) days of written demand by the County, all costs and expenses incurred by the County in completing the work or contracting for the work to be completed.

VII. COMMENCEMENT: TERMINATION BY ABANDONMENT

This Agreement shall begin on the date set forth above the signature of the parties herein below, and continue thereafter for so long as the Licensed Property shall be used for the purposes set forth herein. If Licensee abandons the use of all or any part of the Licensed Property for such purposes set forth in this Agreement, then this Agreement, as to such portion or portions abandoned, shall expire and terminate following thirty (30) days' written notice to the Licensee. If such abandonment has not been remedied by Licensee within such period, the County shall thereafter have the same complete title to the Licensed Property so abandoned as though this Agreement had never been made and shall have the right to enter on the Licensed Property and terminate the rights of Licensee, its successors and assigns hereunder. All installations of Licensee's Improvements that are not removed prior to County's termination of the license subject of this Agreement shall be deemed property of the County as of the time of County's termination.

VIII. TERMINATION

A. Termination By Licensee. This Agreement, or portion of the Licensed Property, may be terminated by Licensee by delivering written notice of termination to the County not later than thirty (30) days before the effective date of termination. If Licensee so terminates, then Licensee shall, within the 30-day notice period, remove from the Licensed Property, or such other portion thereof that is being terminated, installations of Licensee's Improvements. Any of Licensee's Improvements that are not removed within said period shall become the property of the County. Licensee hereby agrees and acknowledges that Licensee shall be liable to County for any damages caused to the Licensed Property by the removal of Licensee's Improvements.

B. Termination By County. This Agreement may be revoked and terminated at any time by resolution of the Williamson County Commissioners Court if such revocation and termination is reasonably required by the public interest (as hereinafter set forth), after providing thirty (30) days' written notice to the Licensee.

Subject to prior written notification to Licensee or its successors—in—interest, this Agreement is revocable by the County and deemed to be required by the public interest if:

1. the Licensee's Improvements, or a portion of them, interfere with the County's right-of-way;
2. use of the Licensed Property becomes necessary for a public purpose;
3. the Licensee's Improvements, or a portion of them, constitute a danger to the public which the County deems, in its sole discretion, not to be remediable by alteration or maintenance of such improvements;
4. despite thirty (30) days' written notice to Licensee, maintenance or alteration necessary to alleviate a danger to the public has not been made; or
5. Licensee fails to comply with the terms and conditions of this Agreement including, but not limited to, any insurance requirements specified herein.

IX. MISCELLANEOUS PROVISIONS

A. Venue And Governing Law. Each party to this Agreement hereby agrees and acknowledges that venue and jurisdiction of any suit, right, or cause of action arising out of or in connection with this Agreement shall lie exclusively in Williamson County, Texas. Furthermore, this Agreement shall be governed by and construed in accordance with the laws of the State of Texas, excluding, however, its choice of law rules.

B. Severability. If any provision of this Agreement shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provision hereof, but rather this entire Agreement will be construed as if not containing the particular invalid or unenforceable provision or provisions, and the rights and obligation of the parties shall be construed and enforced in accordance therewith. The parties acknowledge that if any provision of this Agreement is determined to be invalid or unenforceable, it is the desire and intention of each that such provision be reformed and construed in such a manner that it will, to the maximum extent practicable, give effect to the

intent of this Agreement and be deemed to be validated and enforceable.

C. Covenant Running With Land: Waiver Of Default. This License Agreement and all of the covenants herein shall run with the land; therefore, the conditions set forth herein shall inure to and bind each party's successors and assigns. Either party may waive any default of the other at any time, without affecting or impairing any right arising from any subsequent or other default.

D. Assignment. Licensee shall not assign, sublet or transfer its interest in this Agreement without the written consent of the County, which consent shall not be unreasonably withheld. In the event County agrees to Licensee's assignment of its interest in this Agreement and subject to the assignee's compliance with the insurance requirements set forth herein, if any, Licensee shall furnish to the County a copy of any such assignment or transfer of any of Licensee's rights in this Agreement, including the name, date, address and contact person.

E. Notices. All notices, demands and requests for delivery of documents or information hereunder shall be in writing and shall be deemed to have been properly delivered and received as of the time of delivery if personally delivered, as of the time deposited in the mail system if sent by United States certified mail, return receipt requested, and postage prepaid, or as of the time of delivery to Federal Express (or comparable express delivery system) if sent by such method with all costs prepaid. All notices, demands and requests hereunder shall be addressed:

To Licensee At:

Star Ranch Community, Inc.
2490 FM 685
Hutto, TX 78634

To County At:

Williamson County Judge
Dan A. Gattis (or successor)
301 S.E. Inner Loop, Ste. 109
Georgetown, Texas 78626

with copy to: Williamson County Attorney
Jana Duty (or successor)
405 M.L.K. St., Box #7
Georgetown, Texas 78626

or to such other addresses which either party may so designate by sending notice as aforesaid.

F. No Third Party Beneficiaries. This Agreement is for the sole and exclusive benefit of the parties hereto, and nothing in this Agreement, express or implied, is intended to confer or shall be construed as conferring upon any other person any rights, remedies or any other type or types of benefits.

G. Compliance With Laws. Each party to this Agreement shall comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or administrative bodies or tribunals in any matter affecting the performance of this Agreement

H. Gender, Number And Headings. Words of any gender used in this Agreement shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires. The headings and section numbers are for convenience only and shall not be considered in interpreting or construing this Agreement.

I. Construction. Each party to this Agreement acknowledges that it and its counsel have reviewed this Agreement and that the normal rules of construction are not applicable and there will be no presumption that any ambiguities will be resolved against the drafting party in the interpretation of this Agreement.

J. No Waiver Of Immunities. Nothing in this Agreement shall be deemed to waive, modify or amend any legal defense available at law or in equity to County, its past or present officers, employees, or agents or employees, nor to create any legal rights or claim on behalf of any third party. County does not waive, modify, or alter to any extent whatsoever the availability of the defense of governmental immunity under the laws of the State of Texas and of the United States.

K. Entire Agreement. This Agreement represents the entire and integrated Agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either oral or written. This Agreement may be amended only by written instrument signed by each party to this Agreement. NO OFFICIAL, EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE COUNTY HAS ANY AUTHORITY, EITHER EXPRESS OR IMPLIED, TO AMEND THIS AGREEMENT, EXCEPT PURSUANT TO SUCH EXPRESS AUTHORITY AS MAY BE GRANTED BY THE COUNTY COMMISSIONERS COURT.

THE REMAINDER OF THIS PAGE IS BLANK

TERMS AND CONDITIONS ACCEPTED, this the ____ day of _____,
2009.

WILLIAMSON COUNTY,
a political subdivision of the State of Texas

By: _____
Dan A. Gattis,
Williamson County Judge

APPROVED AS TO FORM:

By: _____
Hal C. Hawes,
Assistant Williamson
County Attorney

By: _____
Jim Gilger,
Williamson County Contracts
Auditor

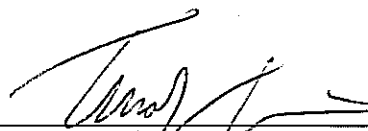
THE STATE OF TEXAS §
 §
COUNTY OF WILLIAMSON §

This instrument was acknowledged before me on this the ____ day of _____, 2009 by Dan A. Gattis, as County Judge of **WILLIAMSON COUNTY**, a political subdivision of the state of Texas on behalf of said political subdivision.

NOTARY PUBLIC, State of Texas

LICENSEE:

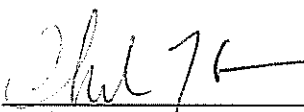
Star Ranch Community, Inc.
a Texas non-profit corporation

By: 

Printed Name: TIMOTHY TIMMERMAN

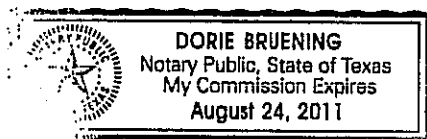
Title: President

ATTEST:

By: 
Secretary

THE STATE OF TEXAS §
 §
COUNTY OF WILLIAMSON §

This instrument was acknowledged before me on this the 11th day of February, 2009, by Timothy Timmerman, President of Star Ranch Community, Inc., a Texas non-profit corporation.



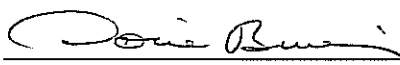

NOTARY PUBLIC, State of Texas

EXHIBIT "A"

Beginning at the intersection of FM 685 and Gattis School Road in Hutto, Texas, and continuing west to a point approximately 250 feet past the intersection of Gattis School Road and Winterfield Drive. Licensee shall install and maintain an irrigation system, grass, and other landscaping on both sides of Gattis School Road.

ACORD™ CERTIFICATE OF LIABILITY INSURANCEDATE (MM/DD/YYYY)
02/17/09

PRODUCER Hilb Rogal & Hobbs (Assoc) 1155 Dalry Ashford, Suite 350 Houston, TX 77079-3012 281 531-4455		THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
INSURED Star Ranch Community, Inc. c/o Severn Trent Services 1779 Wells Branch Pkwy #110 B, Box 314 Austin, TX 78728		INSURERS AFFORDING COVERAGE	NAIC #
		INSURER A: ACE American Insurance Company	22667
		INSURER B:	
		INSURER C:	
		INSURER D:	
		INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTH INSR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	☒ GENERAL LIABILITY ☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC	LTPD35340105	02/01/09	02/01/10	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$100,000 MED EXP (Any one person) \$ PFRSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	GARAGE LIABILITY ☐ ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC AGG \$ AUTO ONLY: AGG \$
	EXCESS/UMBRELLA LIABILITY ☐ OCCUR ☐ CLAIMS MADE DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
	OTHER				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS
 Certificate Holder has been added as additional insured.

CERTIFICATE HOLDER**CANCELLATION**

Unified Road System/Williamson
 County
 301 S. E. Interloop, Ste. 109
 Georgetown, TX 78624

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE



IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

Amended Preliminary Plat
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Nickey Lawrence, Unified Road System
Submitted For: Joe England
Department: Unified Road System
Agenda Category: Consent

Information

Agenda Item

Discuss and consider approving Amending Plat of: Overall Preliminary Plat for Sonterra West, Pct. 3.

Background

Changes made to the original approved Overall Preliminary Plat include Sonterra West Phase II-C1, Phase II-C2, Phase II-C3 and Corn Hill Commercial, Phases 1 and 2.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Nickey Lawrence Started On: 03/05/2009 09:29 AM

Final Approval Date: 03/05/2009

Introduction of Mullin & Lonergan Associates, consultants working on the Community Development Block Grant program five year Consolidated Plan.

Commissioners Court - Regular Session

Date: 03/10/2009
 Submitted By: Sally Bardwell, HUD Grants
 Submitted For: Sally Bardwell
 Department: HUD Grants
 Agenda Category: Regular Agenda Items

Information

Agenda Item

Introduction of Mullin & Lonergan Associates, consultants working on the Community Development Block Grant program five year Consolidated Plan.

Background

Commissioners' Court approved the selection of Mullin & Lonergan Associates on February 17, 2009. Eric Fulmer, Chairman, and Marjorie Williams, Housing and Community Development Consultant, are here this week collecting data and input from residents and other stakeholders in the County to be used in the development of the Consolidated Plan.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Sally Bardwell Started On: 03/05/2009 11:02 AM
 Final Approval Date: 03/05/2009

Automation of the Road Closure Process
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Terri Countess, Commissioner Pct. #3
Submitted For: Terri Countess
Department: Commissioner Pct. #3
Agenda Category: Regular Agenda Items

Information

Agenda Item

Hear the presentation, discuss and take appropriate action on the Automation of the Road Closure Process.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Summary](#)

Link: [Presentation](#)

Form Routing/Status

Form Started By: Terri Countess Started On: 03/05/2009 11:15 AM

Final Approval Date: 03/05/2009

Summary

Our objective to automating the Road Closure Process is to:

- Increase efficiency
- Ensure the integrity of the data being transferred between departments
- Eliminate the possibility of oversight and
- Communicate the same message to everyone on the how, when and why of the process

Since Williamson County is continually growing it is becoming more important to have all of our processes and procedures documented. This will help ensure continuity. We have tried to include all the guidelines that will provide a smooth and efficient flow of the data. However, there will be times when the event initiated can have a quicker turn around than suggested. This exception would be specific to events that are not a complicated, resource intense event.

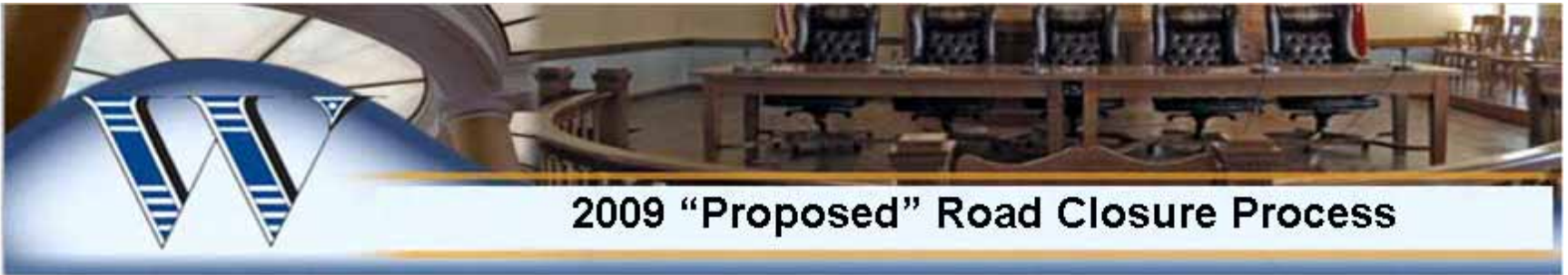
One of the limiting factors in the timelines has to do with the requirement associated with submitting an item to the agenda. Since the deadline is Thursday noon before the Tuesday court date, we have tried to adjust the suggested timeline to accommodate that requirement. As stated before there may be events that are not requiring a long review time. An example would be a block party that is on a small cul-de-sac where all of the residents have agreed to the closure. By closing off the street it would not cause a major problem if emergency vehicles had to breach the barricade. We need to have at least a 48 hour review time to approve the event before the Thursday noon agenda deadline. By the time you calculate this it would need to be turned in by Tuesday at noon before the Tuesday Court date which is approximately 8 calendar days.

Another significant factor regarding the timelines relates to the more complicated events. This would require more time to request and/or schedule the various resources (both internal and external) to cover the event. The external resources would be the effected Fire Departments or other city entities. Then once you add the Agenda requirement to the timeline it can become a lengthy process. Fortunately the more complicated events are usually being planned by the initiator many months in advance so this is usually not an issue.

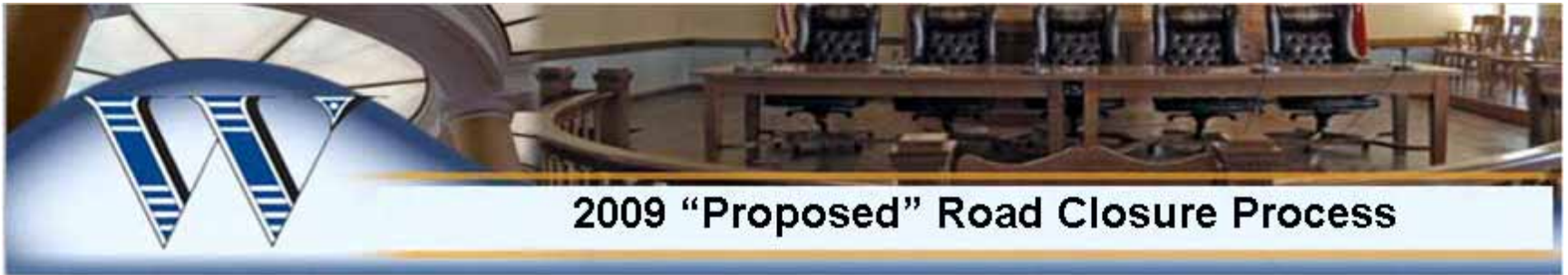
As far as the requirement of deposits for cones and barricades the Auditor's office has suggested that we not do this. Some of the reasons are listed below:

- The money would have to be deposited into the General Fund and then a request would have to be generated to get it back out.
- No one is comfortable with just holding the money.
- We already have the responsible parties sign a document stating the condition that the articles were received, and acknowledging the fact that they are responsible for the return of them in the same condition as received or they are responsible for replacement costs.

If there are additional questions, the Auditor's Office can address this in more detail if necessary.



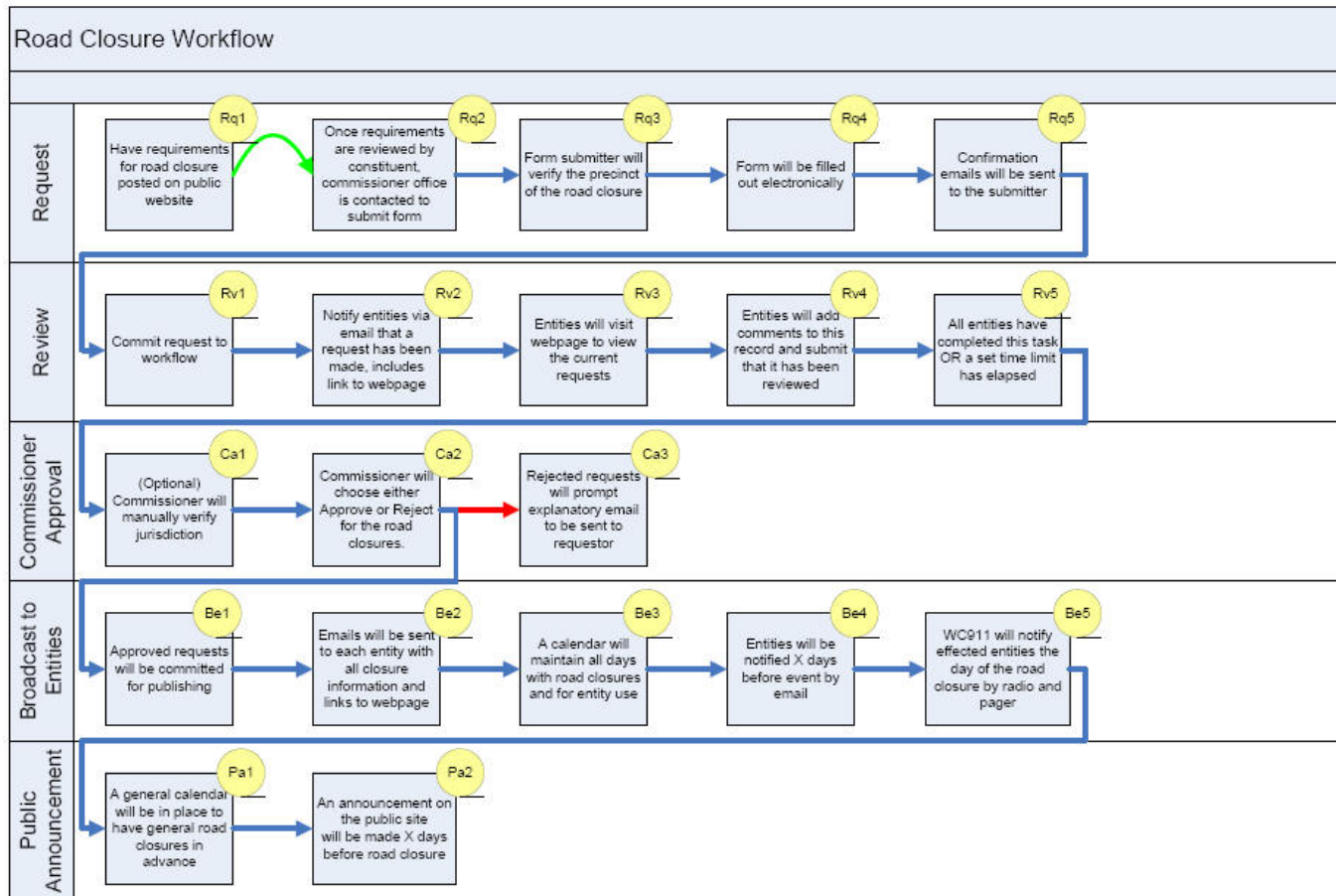
- Objective
 - By automating the process we achieve the following:
 - Increase efficiency
 - Ensure the integrity of the data being transferred between departments
 - Eliminate the possibility of oversight
 - Williamson County is continually growing
 - Growth dictates documentation of procedures
 - Communicate the same message to all



- Web Site Content
 - Event Requirements will be listed in detail
 - Precinct Contact Determination
 - Block Parties
 - Bike Races
 - Other Special Events
 - Details of what to expect during the process
 - Data gathering
 - Notification & review by various departments
 - Placing item on the Commissioners Court Agenda
 - Finalize Notifications
 - The website will also show when and where Commissioners Court is in session.



2009 "Proposed" Road Closure Process



Entities

Commissioners
 Sheriff's Office
 EMS
 URS
 Fire Department
 Emergency Communications



2009 “Proposed” Road Closure Process

Event Requirements

The request must be made to the appropriate Commissioners Office prior to the date of closure according to the following criteria:

Block Parties:

- If no alternate route for Emergency Vehicles is required a minimum of 9 calendar days advanced notice is suggested
- If there is a requirement to determine an alternate route for Emergency Vehicles then a minimum of 19 calendar days advanced notice is suggested.

Bike Race:

- For large races (approximately 100+ participants) that completely shut down multiple roads a minimum of 18 calendar days will be required to facilitate scheduling of the various manpower required
- For smaller races that do not completely shut down roads a minimum of 9 calendar days will be required to facilitate scheduling of the various manpower required
- (See the following Williamson County Sheriff's Office documents relating to Bicycle Races:
 - [Requirements Document](#)
 - [Extra Job Guidelines](#)
 - [Checklist of Race Requirements](#)
 - [Transportation Codes](#)
 - [Release and Indemnity Agreement Form which includes Acknowledgement of Transportation Code Sections](#)



All cases are subject to final approval by the Sheriff's Office in accordance to Legislative Code (Acts 1995 74th Legislative Code 165, effective September 1, 1995)

Other Special Events:

- Minimum of 9 calendar days is suggested (These can be addressed on a case by case basis)

What to expect when you need to submit a Road Closure Request:

- The Commissioners Office will fill out the request form electronically and forward it to the appropriate departments for review to see if there are any issues that need to be addressed prior to placing the request on next Commissioners Court Agenda. *(The deadline for placing items on an agenda is by noon on the Thursday before the Tuesday court date)
 - For non-complicated requests this review process should not take more than 5 to 9 calendar days then it is placed on the Commissioners Court Agenda.
 - For complicated requests which require determining alternate routes for necessary traffic or Emergency Vehicles this review process could take as long as 5 to 9 calendar days then it is placed on the Commissioners Court Agenda.
- A confirmation email will be sent to the "Initiator" acknowledging that the request has been received and is going through the review process.
- Once the request has gone through the initial review process and there are no issues to be addressed, the request will be placed on the next Commissioners Court Agenda.



Precinct Contacts

Prior to any Road Closure involving Williamson County Roads the following must take place.

To initiate a "Request for Road Closure" the "Initiator" must contact the appropriate Precinct Commissioners Office. If your unsure which precinct your in [click here](#) to find out.

Precinct 1 - Commissioner Lisa Birkman

400 W. Main #216, Round Rock, TX 78664

Comm1@wilco.org

Office: (512) 733-5380

Fax: (512) 733-5384

Executive Assistant – Mary Clark

mclark@wilco.org

(512) 733-5380

Administrative Assistant – Tammy Smith

(512) 733-5380

Precinct 2 - Commissioner Cynthia Long

350 Discovery Blvd., Suite 201, Cedar Park, TX 78613

Office: (512) 260-4280

Fax: (512) 260-4284

Executive Assistant – Kathy Grimes

kgrimes@wilco.org

Office: (512) 260-4280

Fax: (512) 260-4284

Precinct 3 - Commissioner Valerie Covey

3010 Williams Dr. Ste. 153, Georgetown, TX 78628

Executive Assistant – Terri Countess

Administrative Assistant – Rachel Rull

Comm3@wilco.org

Office: (512) 943-3370

Fax: (512) 943-3376

Precinct 4 - Commissioner Ron Morrison

350 Exchange Boulevard, Suite 100, Hutto, Texas 78634

Office: (512) 846-1190

Fax: (512) 846-1140

Executive Assistant – Pete Correa

pcorrea@wilco.org

(512) 846-1190

Administrative Assistant – Nancy Heath

nheath@wilco.org

(512) 846-1190

Williamson County Precinct Lookup

Please choose the first letter of the street name:



Williamson County Precinct Lookup

Please enter the address number:

[Start Over](#)



2009 "Proposed" Road Closure Process

Precinct Contacts

Prior to any Road Closure involving Williamson County Roads the following must take place.

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nheath@wilco.org

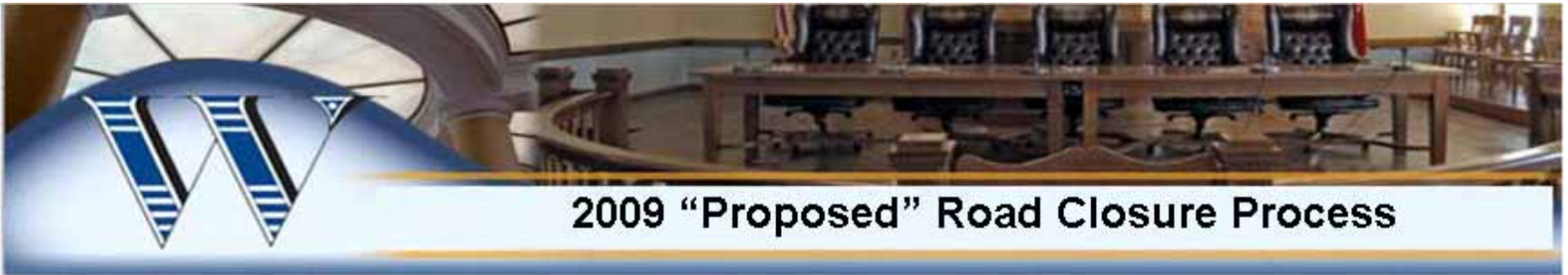
(512) 846-1190

Williamson County Precinct Lookup

Address	City	Precinct	Map
1103 WILLIAMS DR 202	GEORGETOWN	3	Pct 3 Map
1103 WILLIAMS DR 203	GEORGETOWN	3	Pct 3 Map
1103 WILLIAMS DR BLDG 4/ D	GEORGETOWN	3	Pct 3 Map
1103 WILLIAMS DR 4	GEORGETOWN	3	Pct 3 Map
1103 WILLIAMS DR 1	GEORGETOWN	3	Pct 3 Map
1103 WILLIAMS DR	GEORGETOWN	3	Pct 3 Map
1103 WILLIAMS WAY	CEDAR PARK	2	Pct 2 Map

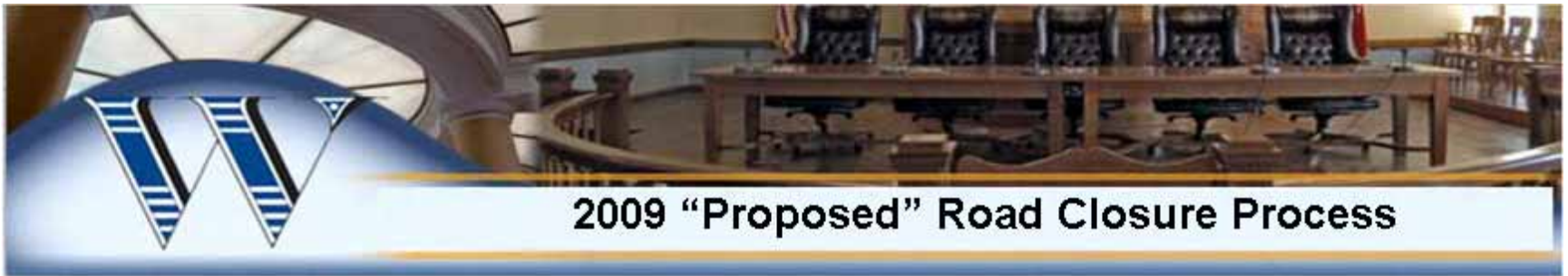
[Start Over](#)

The lookup returns a list from which the users selects their correct address which also notes their precinct They can then contact the appropriate office to submit their request.



Commissioner's office enters the data provided by the event coordinator into this form.

Attach File		OK	Cancel
* indicates a required field			
Event Title *			
Type of Closure	(None) ▼		
Description	 		
Location of Road Closure *	 		
Location Short Description			
Event Start Time *	2/19/2009		10 AM ▼ 00 ▼
Event End Time *	2/19/2009		10 AM ▼ 00 ▼
Alternate Dates	 Alternate dates for event due to unforeseen conflicts.		
HeadCount	0 Estimated number of people in attendance		
Requestor First Name			
Requestor Last Name			
Requestor Address			
Requestor Email			
Requestor Primary Telephone			
Requestor Mobile Phone			
Event Review Due Date			12 AM ▼ 00 ▼ Date you would like this event reviewed by all entities.



2009 “Proposed” Road Closure Process

After clicking “OK”, personnel for each of the internal entities will receive a notification to review the event.

Tasks - Closure Request Review has been assigned to you

RoadClosure [webmaster@wilco.org]

Sent: Thu 2/19/2009 10:15 AM

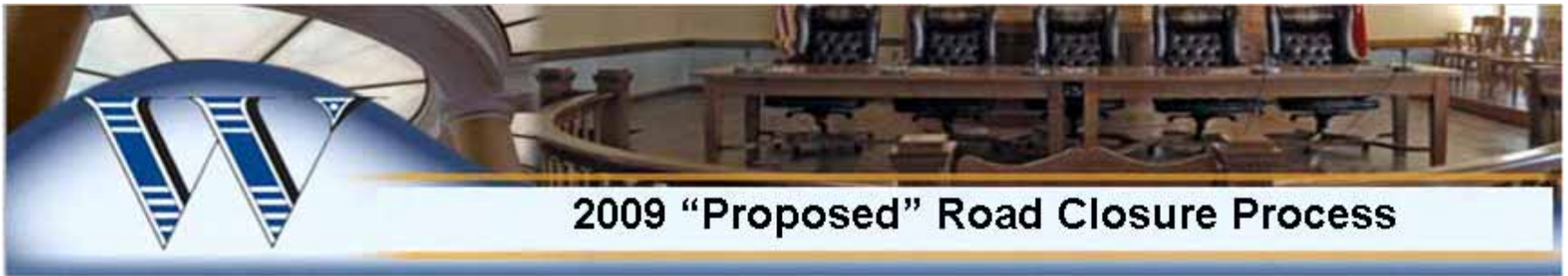
To: Jason Hill

Task assigned by David Luna on 2/19/2009.

To complete this task:

1. Review [Williamson County Triathlon](#).
2. Perform the specific activities required for this task.
3. Use the **Edit this task** button to mark the task as completed. (If you cannot update this task, you might not have access to it. Click [here](#) to request access.)

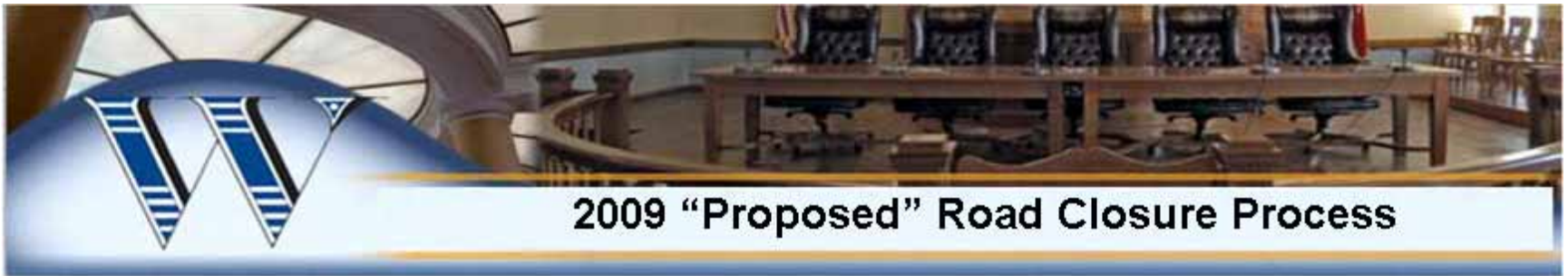
This email will show the title of the event (See #1on the list.) which is also the link to the information about this event.



The internal entity is provided an opportunity to list any concerns and approve / reject the item.

Title:	Closure Request Review
Description:	Please review the following road closure request, please select to approve or reject, enter your response on this form, and click complete Complete Task button.
Approve / Reject *:	☒ Approve ☐ Reject Do you approve or reject this request.
Comments:	Thoughts or concerns for this request
Related list item:	Williamson County Triathlon
Save Draft Complete Task Cancel	

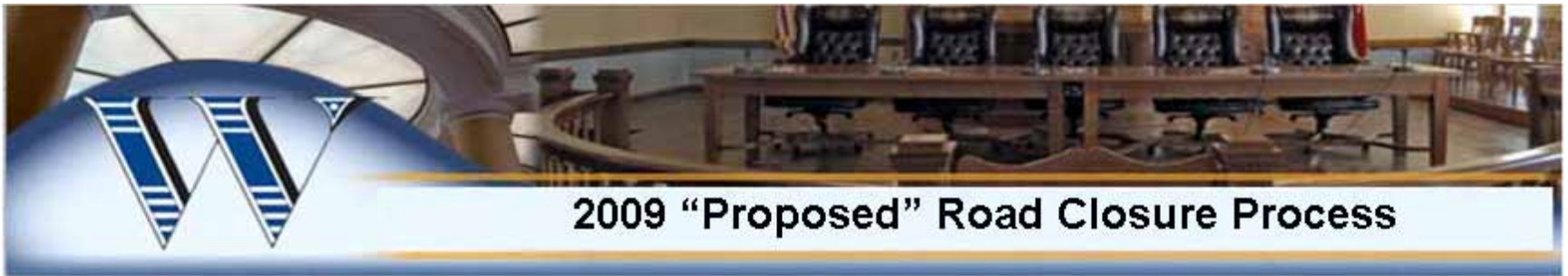
If the internal entity approves and has no comments, they just check the approved button.



If the internal entity rejects the event, they must enter their comments in the space provided.

RoadClosure > Tasks > Closure Request Review

Title:	Closure Request Review
Description:	Please review the following road closure request, please select to approve or reject, enter your response on this form, and click complete Complete Task button.
Approve / Reject *:	☐ Approve ☒ Reject Do you approve or reject this request.
Comments:	We need and additional 2 weeks to provide resources. Thoughts or concerns for this request
Related list item:	Test Bike Race



The Commissioners office sets a date that the item needs to be reviewed by. If an internal entity has not performed any action they will receive a reminder 1 day before the item review due date.

From: webmaster@wilco.org [mailto:webmaster@wilco.org]
Sent: Wednesday, February 18, 2009 4:41 PM
To: Jason Hill
Subject: REMINDER: Review of retest

REMINDER: You have a workflow task to review "**Williamson County Triathlon**".

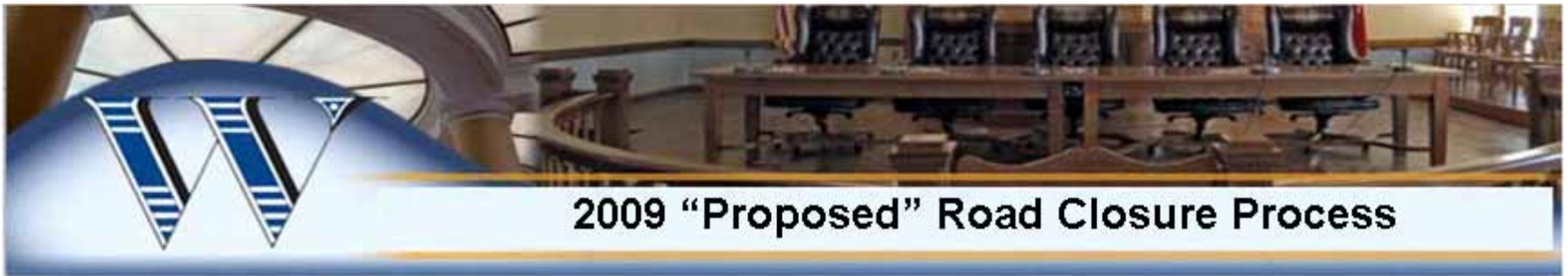
Dates

You must complete your review by **2/18/2009 4:45:00 PM**.

If the task is not completed by the due date, it will be reassigned to the backup reviewer.

Links

- [Edit this task](#)
- [View the event details](#)



The task will reassign itself to the internal entities backup reviewer and notification will be sent to the Commissioner's office.

From: webmaster@wilco.org [mailto:webmaster@wilco.org]
Sent: Tuesday, February 03, 2009 3:31 PM
To: Jason Hill
Cc: Benjamin Wassink
Subject: Review Task for Short Order has been reassigned

TASK REASSIGNED: A reviewer has changed for **Williamson County Triathlon**.

Dates

An initial review task was not completed by **2/18/2009 4:45:00 PM**.

Reviewers

This task was originally assigned to:

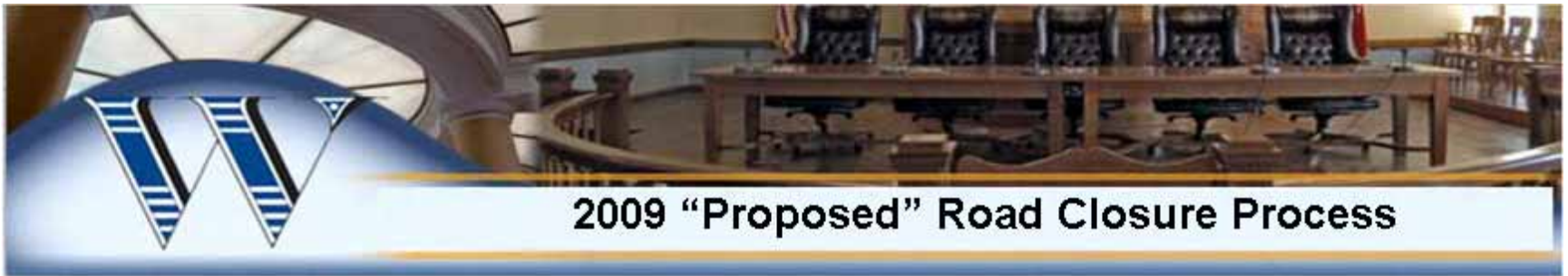
- **WILCO.ORG\DLUNA**

The task is now assigned to:

- **WILCO.ORG\BWASSINK**

Links

- [View the event properties](#)

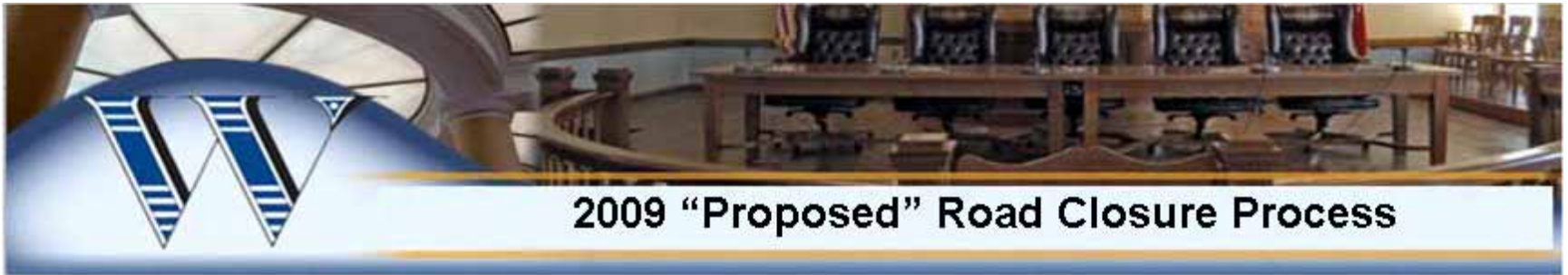


Commissioner's personnel can review progress of items by checking the Task screen at any time during the approval process.

Commissioner's personnel may override if entities fail to complete the approval task and notate any correspondence that occurs outside of the workflow process.

Use the Tasks list to keep track of work that you or your team needs to complete.

View: All Tasks												
ID	Title	Assigned To	Status	Priority	Due Date	% Complete	Link	Outcome	Date Completed	Task Completion Tracker	Workflow Name	Rejection
24	David's PDF won't work unless they have acrobat	David Luna	In Progress	(2) Normal						Completed		
37	2ndar	Jason Hill	In Progress	(2) Normal	2/3/2009					In Progress	Road Closure Event Workflow	
44	Closure Request Review	Jason Hill	Completed	(2) Normal	2/3/2009	100%	Short Order	Completed	2/3/2009	Completed	Road Closure Event Workflow	
45	Closure Request Review	Benjamin Wassink	Completed	(2) Normal	2/3/2009	100%	Short Order	Completed	2/3/2009	Completed	Road Closure Event Workflow	
46	Closure Request Review	Jason Hill	Completed	(2) Normal	2/4/2009	100%	Pre Walkthrough	Completed	2/4/2009	Completed	Road Closure Event Workflow	
47	Closure Request Review	sodal	Completed	(2) Normal	2/4/2009	100%	Pre Walkthrough	Completed	2/4/2009	Completed	Road Closure Event Workflow	
48	Closure Request Review	Jason Hill	In Progress	(2) Normal	2/4/2009		Pre Walkthrough			In Progress	Road Closure Event Workflow	
49	Closure Request Review	sodal	In Progress	(2) Normal	2/4/2009		Pre Walkthrough			In Progress	Road Closure Event Workflow	
50	Closure Request Review	Jason Hill	Completed	(2) Normal	2/10/2009	100%	Test Bike Race	Completed	2/18/2009	Completed	Road Closure Event Workflow	
51	Closure Request Review	Rachel Rull	In Progress	(2) Normal	2/10/2009		Test Bike Race			In Progress	Road Closure Event Workflow	
52	Initial Closure Request	Jason Hill	Not Started	(2) Normal			Test Bike Race			In Progress	Initiate Request	



2009 “Proposed” Road Closure Process

Once each entity has reviewed the event the Commissioner’s personnel will receive a notice that the item is ready to be added to the Commissioners Court agenda.

Retest

webmaster@wilco.org

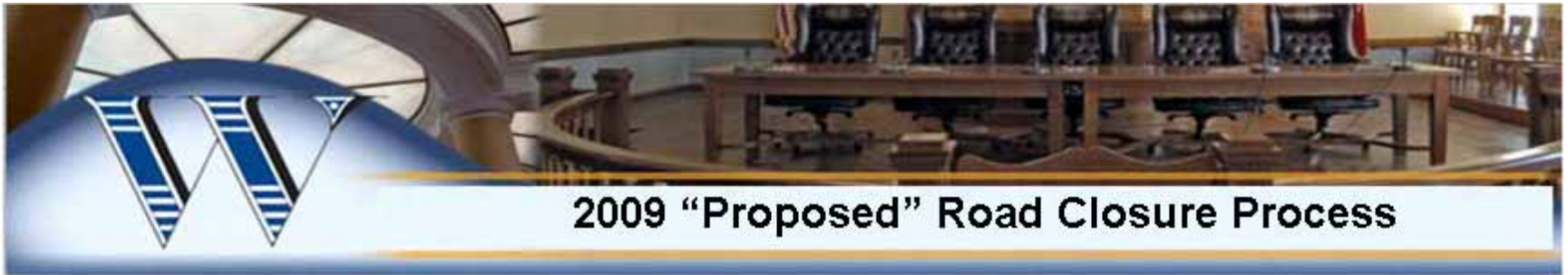
Sent: Thu 2/19/2009 8:36 AM

To: Jason Hill

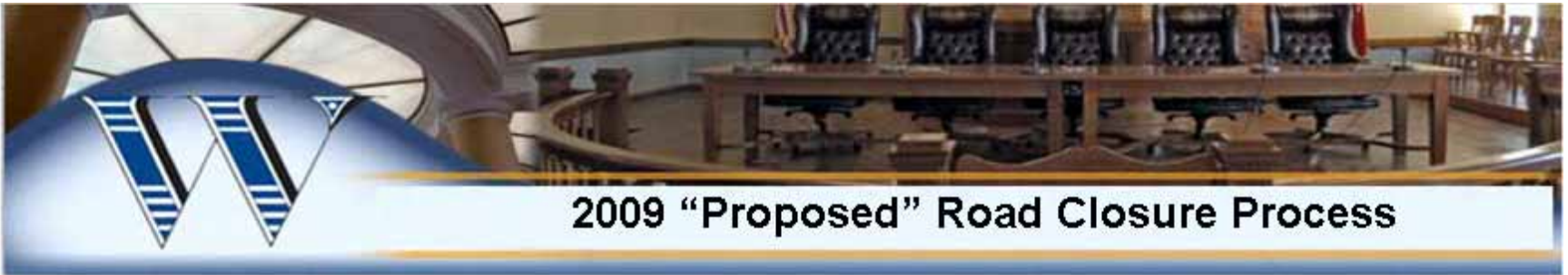
Dear WILCO.ORG\jhill,

All reviewers have approved the item and it ready to be added to Commissioners Court Agenda.

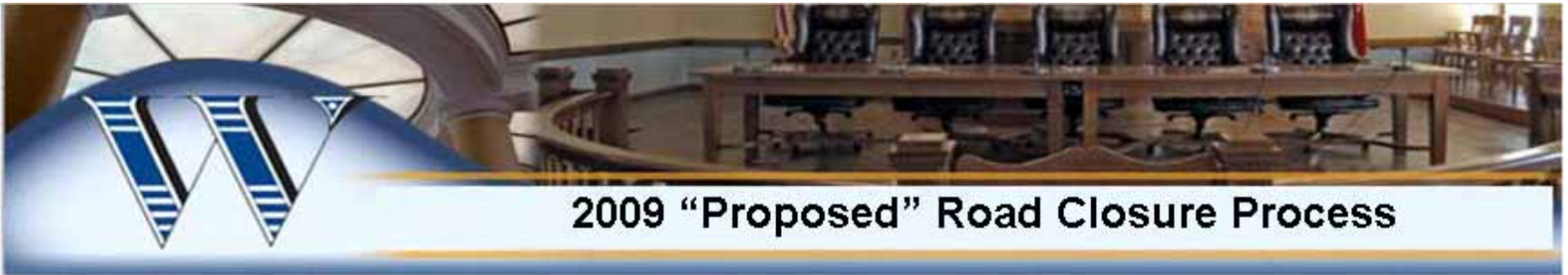
Please approve the following item: <http://sharepoint/RoadClosure/layouts/approve.aspx?List={33933D77-A7C1-4B83-8AA1-ECC88670C0AA}&ID=9>



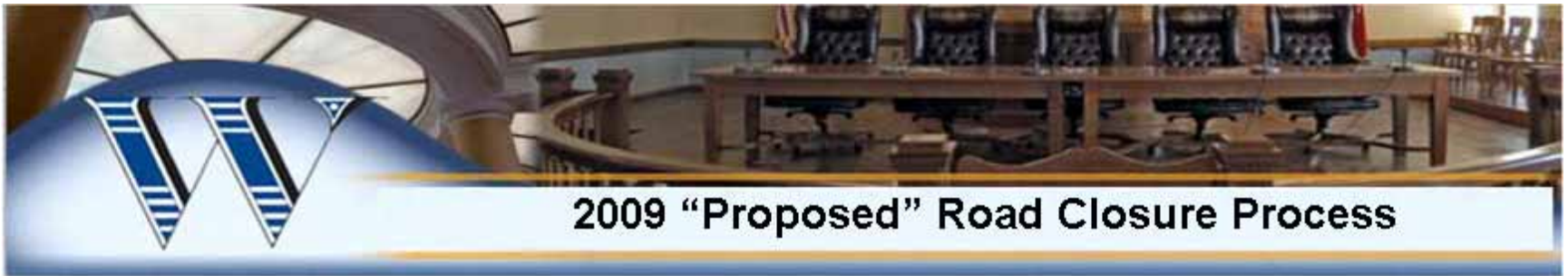
- Once the Court votes on the request the following will take place:
 - If approved:
 - A confirmation email will be sent to the initiator and to all entities involved in the review process stating that it was approved.
 - If not approved:
 - A confirmation email will be sent to the initiator and to all entities involved in the review process stating that it was not approved and why.



- Activities prior to the event:
 - Cones and/or barricades will be delivered:
 - The Receiving person listed on the request form
 - Their signature will be required which will acknowledge the following:
 - What they received
 - Condition that it was received
 - Any instructions regarding the date & time the items will be picked up
 - Acknowledging that they will be responsible for any replacement costs incurred due to missing or damaged items at time of pick-up.



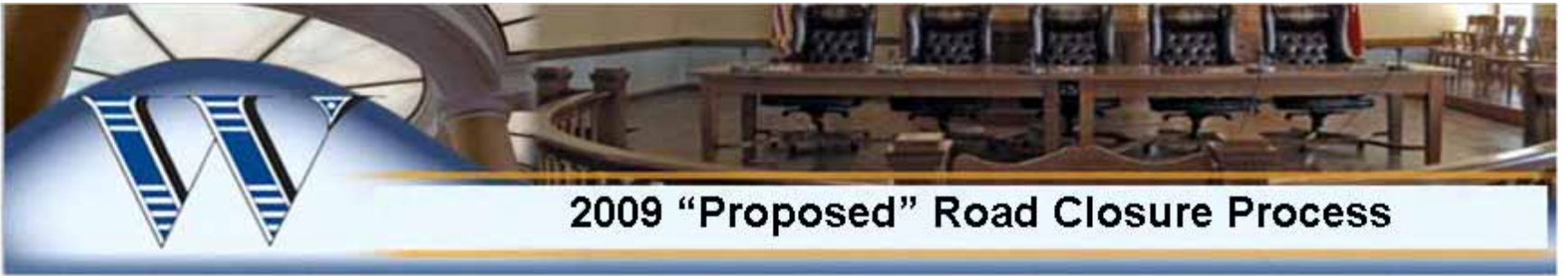
- Activities prior to the event: (continued)
 - Each department is responsible for scheduling and notifying their own people of the events as well as notification to external entities they normally coordinate with.



External Website

Once the Commissioners have approved the event details will be added to our public website and a link will be provided on the Williamson County home page.

Event Start	Event End	Title
2/21/2009 10:30 AM	2/21/2009 2:30:00 PM	Off Site Adoption - KB Homes
2/21/2009 11:00 AM	2/21/2009 2:00:00 PM	Vaccination Clinic
2/25/2009 9:00 AM	2/25/2009 1:00:00 PM	Feral Cat Spay Day
3/5/2009 6:00 PM	3/5/2009 7:00:00 PM	volunteer orientation meeting
3/7/2009 7:30 PM	3/7/2009 8:00:00 PM	adoption counseling class for volunteers
3/9/2009 7:30 PM	3/9/2009 8:00:00 PM	cat and dog handling classes for volunteers
3/10/2009 7:30 PM	3/10/2009 8:00:00 PM	adoption counseling class for volunteers



2009 "Proposed" Road Closure Process

Q & A

CR 111/Westinghouse Road (WilCO Project No. 08WC608) Change Order No. 3
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Krista Zaleski, Road Bond
Department: Road Bond
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider approving Change Order No. 3 for CR 111/Westinghouse Rd (WilCO Project No. 08WC608) in Precinct 1.

Background

This Change Order provides payment for extra work associated with the addition of a turn lane/median opening and a street stub-out at the Terra Vista track. This Change Order also adds erosion control items to the contract.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [08WC608-CO#3](#)

Form Routing/Status

Form Started By: Krista Zaleski Started On: 03/04/2009 10:30 AM
Final Approval Date: 03/04/2009

Received

FEB 25 2009

WILLIAMSON COUNTY, TEXAS

CHANGE ORDER NUMBER: 3HNTB Corporate
Round Rock

1. CONTRACTOR: J.C. Evans Construction
2. Change Order Work Limits: Sta. 91+50 to Sta. 119+00
3. Type of Change (on federal-aid non-exempt projects): Minor (Major/Minor)
4. Reasons: 3F, 1B (3 Max. - In order of importance - Primary first)

Project: 08WC608
CR 111
 Roadway: (Westinghouse)

Purchase Order
 Number: _____

5. Describe the work being revised:

3F: County Convenience. Additional work desired by the County. An additional turn lane/median opening and a street stub-out is being added at the TeraVista Track. **1B: Design Error or Omission. Other.** Erosion control items are being added that were left out of the original plan sheets. These items include topsoil, seeding, and rip rap for the median noses in all of the proposed median islands.

6. Work to be performed in accordance with Items: See Attached
7. New or revised plan sheet(s) are attached and numbered: 6,7,8,10-12,80,81,84,111,112,145,146,190-193
8. New Special Provisions to the contract are attached: ☐ Yes ☒ No
9. New Special Provisions to Item N/A No. N/A, Special Specification Item N/A are attached.

Each signatory hereby warrants that each has the authority to execute this Change Order (CO).

<i>The contractor must sign the Change Order and, by doing so, agrees to waive any and all claims for additional compensation due to any and all other expenses; additional changes for time, overhead and profit; or loss of compensation as a result of this change.</i> THE CONTRACTOR Date <u>2/24/09</u> By <u>Stephen B. Owen</u> Typed/Printed Name <u>STEPHEN B. OWEN</u> Typed/Printed Title <u>PROJECT MANAGER</u>	The following information must be provided Time Ext. #: <u>N/A</u> Days added on this CO: <u>0</u> Amount added by this change order: <u>\$42,796.26</u>

RECOMMENDED FOR EXECUTION:

Paul H. Ridge 3/3/09
 Project Manager Date
 Construction Observer

Design Engineer Date

[Signature] 3/3/09
 Program Manager Date

Design Engineer's Seal:

See revised plan sheets

County Commissioner Precinct 1 Date
☐ APPROVED ☐ REQUEST APPROVAL

County Commissioner Precinct 2 Date
☐ APPROVED ☐ REQUEST APPROVAL

County Commissioner Precinct 3 Date
☐ APPROVED ☐ REQUEST APPROVAL

County Commissioner Precinct 4 Date
☐ APPROVED ☐ REQUEST APPROVAL

☐ County Judge Date
 APPROVED

WILLIAMSON COUNTY, TEXAS

CHANGE ORDER NUMBER: 3

Project # 08WC608

TABLE A: Force Account Work and Materials Placed into Stock

LABOR	HOURLY RATE			HOURLY RATE

TABLE B: Contract Items

ITEM	DESCRIPTION	UNIT	UNIT PRICE	ORIGINAL + PREVIOUSLY REVISED		ADD or (DEDUCT)	NEW		OVERRUN/ UNDERRUN
				QUANTITY	ITEM COST	QUANTITY	QUANTITY	ITEM COST	
160-2003	FURNISHING AND PLACING TOPSOIL (4IN)	SY	\$0.50	35,904.00	\$17,952.00	2,779.00	38,683.00	\$19,341.50	\$1,389.50
164-2029	CELL FBR MLCH SEED (TEMP) (WARM)	SY	\$0.20	17,952.00	\$3,590.40	1,392.00	19,344.00	\$3,868.80	\$278.40
164-2031	CELL FBR MLCH SEED (TEMP) (COOL)	SY	\$0.20	17,952.00	\$3,590.40	1,392.00	19,344.00	\$3,868.80	\$278.40
164-2039	DRILL SEEDING (PERM)(URBAN)(CLAY)	SY	\$0.15	35,904.00	\$5,385.60	2,779.00	38,683.00	\$5,802.45	\$416.85
247-2338	FL BS (CMP IN PLC) (TYA GR 4)(19")	SY	\$11.30	85,286.00	\$963,731.80	1,136.00	86,422.00	\$976,568.60	\$12,836.80
260-2002	LIME(HYDRATED LIME (SLURRY))	TON	\$103.00	1,318.00	\$135,754.00	(62.00)	1,256.00	\$129,368.00	(\$6,386.00)
260-2027	LIME TRT (EXST MATL)(8")	SY	\$0.37	87,823.00	\$32,494.51	(3,973.00)	83,850.00	\$31,024.50	(\$1,470.01)
310-2005	PRIME COAT (MC-30 OR AE-P)	GAL	\$1.90	14,566.00	\$27,675.40	384.00	14,950.00	\$28,405.00	\$729.60
340-XXX1	D-GR HMA (METH) TY-B PG64-22	SY	\$14.15	72,829.00	\$1,030,530.35	1,924.00	74,753.00	\$1,057,754.95	\$27,224.60
340-XXX2	D-GR HMA (METH) TY-C SAC-B PG70-22	SY	\$7.80	73,649.00	\$574,462.20	1,044.00	74,693.00	\$582,605.40	\$8,143.20
432-2002	RIPRAP (CONC)(5IN)	CY	\$318.31	388.00	\$123,504.28	13.00	401.00	\$127,642.31	\$4,138.03
464-2003	RC PIPE (CLIII) (18IN)	LF	\$40.44	9,707.00	\$392,551.08	6.00	9,713.00	\$392,793.72	\$242.64
464-2005	RC PIPE (CLIII) (24IN)	LF	\$52.00	908.00	\$47,216.00	(6.00)	902.00	\$46,904.00	(\$312.00)
506-2034	TEMP SEDIMENT CONTROL FENCE	LF	\$2.25	10,267.00	\$23,100.75	(347.00)	9,920.00	\$22,320.00	(\$780.75)
506-2040	TEMP SEDIMENT CONTROL FENCE (REMOVE)	LF	\$0.10	10,267.00	\$1,026.70	(347.00)	9,920.00	\$992.00	(\$34.70)
529-2004	CONC CURB&GUTTER (TYII)	LF	\$6.25	29,496.00	\$184,350.00	(966.00)	28,530.00	\$178,312.50	(\$6,037.50)
530-2010	DRIVEWAYS (CONC)	SY	\$58.93	3,235.00	\$190,638.55	(46.00)	3,189.00	\$187,927.77	(\$2,710.78)
644-2001	INS SM RD SN SUP&AM TY 10BWG(1)SA(P)	EA	\$340.00	39.00	\$13,260.00	3.00	42.00	\$14,280.00	\$1,020.00
666-2035	REFL PAV MRK TY I (W) 8IN(SLD)(090MIL)	LF	\$0.36	20,095.00	\$7,234.20	476.00	20,571.00	\$7,405.56	\$171.36
666-2053	REFL PAV MRK TY I (W) (SYM)(090MIL)	EA	\$96.00	4.00	\$384.00	4.00	8.00	\$768.00	\$384.00
666-2095	REFL PAV MRK TY I (W) (WORD)(090MIL)	EA	\$104.00	4.00	\$416.00	4.00	8.00	\$832.00	\$416.00
666-2110	REFL PAV MRK TYI (Y) 4IN (SLD)(090MIL)	LF	\$0.20	11,534.00	\$2,306.80	1,406.00	12,940.00	\$2,588.00	\$281.20
666-2125	REFL PAV MRK TYI (Y) 12N (SLD)	LF	\$3.00	813.00	\$2,439.00	309.00	1,122.00	\$3,366.00	\$927.00
666-2153	REFL PAV MRK TYII (W) 8IN (SLD)	LF	\$0.20	20,095.00	\$4,019.00	476.00	20,571.00	\$4,114.20	\$95.20
666-2160	REFL PAV MRK TYII (W) ARROW	EA	\$35.00	4.00	\$140.00	4.00	8.00	\$280.00	\$140.00
666-2173	REFL MRK TYII (W) (WORD)	EA	\$50.00	4.00	\$200.00	4.00	8.00	\$400.00	\$200.00
666-2178	REFL MRK TYII (Y) 4IN (SLD)	LF	\$0.12	11,534.00	\$1,384.08	1,406.00	12,940.00	\$1,552.80	\$168.72
666-2183	REFL MRK TYII (Y) 12IN (SLD)	LF	\$1.75	813.00	\$1,422.75	309.00	1,122.00	\$1,963.50	\$540.75
672-2015	REFL MRKR TYII-A-A	EA	\$4.25	212.00	\$901.00	72.00	284.00	\$1,207.00	\$306.00
672-2017	REFL MRKR TYII-C-R	EA	\$4.25	205.00	\$871.25	47.00	252.00	\$1,071.00	\$199.75
TOTALS					\$3,792,532.10			\$3,835,328.36	\$42,796.26

CHANGE ORDER REASON(S) CODE CHART

1. Design Error or Omission	1A. Incorrect PS&E 1B. Other
2. Differing Site Conditions (unforeseeable)	2A. Dispute resolution (expense caused by conditions and/or resulting delay) 2B. Unavailable material 2C. New development (conditions changing after PS&E completed) 2D. Environmental remediation 2E. Miscellaneous difference in site conditions (unforeseeable)(Item 9) 2F. Site conditions altered by an act of nature 2G. Unadjusted utility (unforeseeable) 2H. Unacquired Right-of-Way (unforeseeable) 2I. Additional safety needs (unforeseeable) 2J. Other
3. County Convenience	3A. Dispute resolution (not resulting from error in plans or differing site conditions) 3B. Public relations improvement 3C. Implementation of a Value Engineering finding 3D. Achievement of an early project completion 3E. Reduction of future maintenance 3F. Additional work desired by the County 3G. Compliance requirements of new laws and/or policies 3H. Cost savings opportunity discovered during construction 3I. Implementation of improved technology or better process 3J. Price adjustment on finished work (price reduced in exchange for acceptance) 3K. Addition of stock account or material supplied by state provision 3L. Revising safety work/measures desired by the County 3M. Other
4. Third Party Accommodation	4A. Failure of a third party to meet commitment 4B. Third party requested work 4C. Compliance requirements of new laws and/or policies (impacting third party) 4D. Other
5. Contractor Convenience	5A. Contractor exercises option to change the traffic control plan 5B. Contractor requested change in the sequence and/or method of work 5C. Payment for Partnering workshop 5D. Additional safety work/measures desired by the contractor 5E. Other
6. Untimely ROW/Utilities	6A. Right-of-Way not clear (third party responsibility for ROW) 6B. Right-of-Way not clear (County responsibility for ROW) 6C. Utilities not clear 6D. Other

Williamson County Road Bond Program

**CR 111 (Westinghouse Rd)
Williamson County Project No. 08WC608**

Change Order No. 3

Reason for Change

This change order provides payment for additional work by the Contractor to install a turn lane and median opening from Sta 93+00 to Sta 97+00 and an additional 60' side street stub-out at centerline Sta 96+50 on the north side of the project. TeraVista has agreed to trade Williamson County this additional work for a piece of right-of-way (at a construction cost of \$37,110.53).

This change order also provides payment to the Contractor for additional erosion control quantities that were not incorporated in the original plan set. These items are topsoil and seeding in the median islands along with the concrete rip rap on the noses of the islands.

All work associated with this change order will be complete using existing Contract items and pricing.

This Change Order results in a net increase of \$42,796.26 to the Contract amount, for an adjusted Contract total of \$6,013,654.87. The original Contract amount was \$5,864,053.94. As a result of this and all Change Orders to date, \$149,600.93 has been added to the Contract, resulting in a 2.6% net increase in the Contract cost. No additional days will be added to or deducted from the Contract as a result of this Change Order.

HNTB Corporation

James Klotz, P.E.

Project Budget Transfer Request of 2006 Road Bond on P176 Limmer Loop Phase 1C
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Pam Navarrette, County Auditor
Submitted For: Pam Navarrette
Department: County Auditor
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider authorizing project budget transfer request of 2006 Road Bond monies per recommendation of Mike Weaver, Road Bond Manager: to move \$270,000.00 from P156 Non-Departmental to P176 Limmer Loop Phase 1C.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Pam Navarrette Started On: 03/04/2009 04:11 PM

Final Approval Date: 03/04/2009

Project Budget Transfer Request of 2006 Road Bond P194 FM 1460
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Pam Navarrette, County Auditor
Submitted For: Pam Navarrette
Department: County Auditor
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider authorizing project budget transfer of 2006 Road Bond monies per recommendation of Mike Weaver, Road Bond Manager: \$2,500,000.00 from P156 Non-Departmental to P195 FM 1460 (Old Settler's Boulevard to University).

Background

As indicated on March 3, 2009 Commissioner's Court meeting, \$2.5 million would be moved into a project for FM 1460 in the 2006 Road Bond expected to be in construction by July 2009.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Pam Navarrette Started On: 03/04/2009 04:17 PM
Final Approval Date: 03/04/2009

Country View Estates Plat Amendment
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Nancy Heath, Commissioner Pct. #4
Submitted For: Ron Morrison
Department: Commissioner Pct. #4
Agenda Category: Regular Agenda Items

Information

Agenda Item

Discuss and take appropriate action on allowing the residents of Country View Estates to amend the subdivision's plat to allow the conversion of Will Smith Drive and Will Smith Circle, which were dedicated in the original plat but never accepted as public roads, into private easements that will be owned and maintained in perpetuity by the Homeowner's Association, and disclaiming any right, title, or interest that the County might have in ever adding these private roads to the county road system.

Background

Fiscal Impact

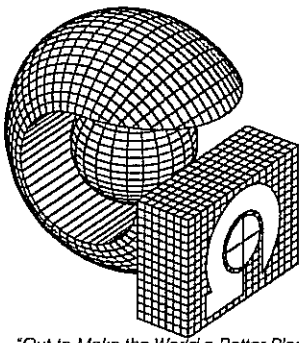
From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Owners Resolution](#)

Form Routing/Status

Form Started By: Nancy Heath Started On: 03/05/2009 08:08 AM
Final Approval Date: 03/05/2009



Gil Engineering Associates, Inc.

Established in 1980

CONSULTING ENGINEERS

SURVEYORS

PLANNERS

BUILDING DESIGNERS

506 EAST BRAKER LANE AUSTIN, TEXAS 78753-2751 phone (512) 835-4203

fax (512) 835-4407

"Out to Make the World a Better Place"

March 2, 2009

Williamson County Commissioners Court
Attn: Ron Morrison, Commissioner Precinct 4
350 Exchange Boulevard, Suite 100
Hutto, Texas, 78634

RE: Request to be placed in Commissioners Court Agenda
Revision of County View Estates

Dear Commissioner Morrison:

Aaron Thomison has asked me to deliver to you a copy of the plat and Resolution of Homeowner's of County View Estates so that the revision of the subdivision can be placed on the next Commissioners Court Agenda for discussion and/or approval.

The revision consists of vacating the right-of-way for Will Smith Drive and Will Smith Circle of the referenced subdivision and to create said vacated right-of-way into Lot 1, Block "D". This created lot will pass to the Homeowner's Association and will also be dedicated as drainage and utility easements.

Your attention to this request is greatly appreciated.

Sincerely,

Jose M. Gil, PE and RPLS
Gil Engineering Associates, Inc.

RECEIVED

MAR 03 2009

Per _____

RESOLUTION BY OWNERS OF LOTS OF COUNTRY VIEW ESTATES

This Resolution is entered into by and between the Owners of all lots located within the Country View Estates, a subdivision located in Williamson County, Texas.

Recitals

1. WHEREAS, the undersigned constitute the owners (hereinafter referred to as "Owners") of all lots located within the Country View Estates, a subdivision located in Williamson County, Texas (hereinafter referred to as "Subdivision").
2. WHEREAS, the two roads, Will Smith Drive and Will Smith Circle, located within the Subdivision were dedicated to the public at the creation of the Subdivision.
3. WHEREAS, Williamson County has accepted the roads located within the Subdivision, Will Smith Drive and Will Smith Circle, as meeting all county road standards and has never expended any funds for the maintenance or repairs of the two roads.
4. WHEREAS, since the creation of the Subdivision, the entrance road to the Subdivision, Will Smith Drive, has been a dead-end road, so that there has never been "through traffic" in the Subdivision, and traffic through the Subdivision has primarily been limited to the Owners and their invitees.
5. WHEREAS, for the Safety and Welfare of the Owners and Children of the Owners and Invitees, and for the protection of the Owners' property, the Owners desire to privatize the two roads, Will Smith Drive and Will Smith Circle, of the Subdivision, thereby limiting traffic in the Subdivision to the Owners and their Invitees.

Resolution

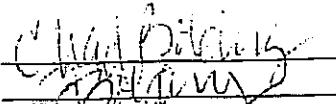
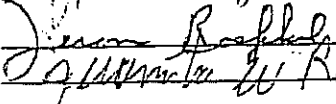
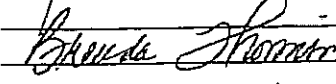
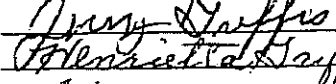
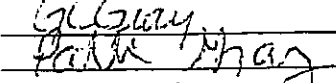
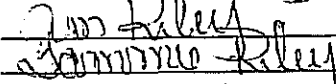
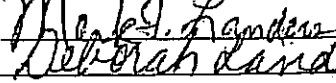
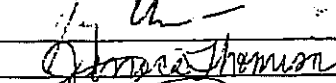
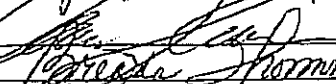
THEREFORE, IT IS RESOLVED, as follows:

1. The Owners hereby petition the Commissioners Court of Williamson County, Texas, to allow the Owners to proceed with the steps necessary to formally and legally convert the two roads, Will Smith Drive and Will Smith Circle, located within the Subdivision, from public to private roads.
2. The Owners understand that the steps needed to convert the roads from public to private, include, but may not be limited to, the following:
 - a. the creation and recording of a homeowners association to own and maintain the proposed private roads including mandatory membership and dues;

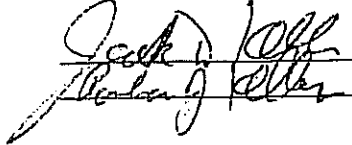
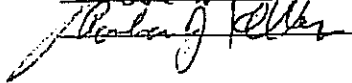
- b. the approval, if any, of the City where ETJ jurisdiction may exist;
- c. the amendment of the subdivision plat to contain:
 - i. a statement that Williamson County will no longer maintain the roads;
 - ii. a statement that the roads will be maintained in perpetuity by the Owners in the subdivision, and must contain a mechanism for assessing the owners to produce adequate revenue for perpetual maintenance;
 - iii. a requirement that every future deed contain notice to the grantee that all streets are private, that the owners will be perpetually liable for maintenance, that the county will never accept the streets for maintenance, and that the quality of the roads may affect access by public services such as police, fire, and EMS;
 - iv. the dedication of existing right-of-way for Will Smith Drive and Will Smith Circle as drainage and public utility easements.
- d. the placement of a sign at the entrance of the subdivision clearly stating that the roads in the subdivision are private roads;
- e. the creation of a maintenance schedule for the roads to be provided to the County Engineer;
- f. the creation of a "crash gate" or a lock box and a letter of approval from all of the affected emergency response agencies stating their approval of full time access to the subdivision, in the event a gate is to be installed at the entrance to the Subdivision.

This Resolution is EXECUTED by each Owner on the dates next to the Owners' signatures attached hereto.

BY SIGNING BELOW, THE FOLLOWING OWNERS OF THE LOTS LOCATED WITHIN THE COUNTRY VIEW ESTATES, A SUBDIVISION IN WILLIAMSON COUNTY, TEXAS, AGREE AND SUPPORT THE ABOVE RESOLUTION TO BE SUBMITTED TO THE WILLIAMSON COUNTY COMMISSIONERS COURT.

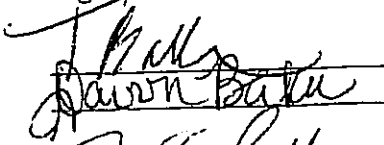
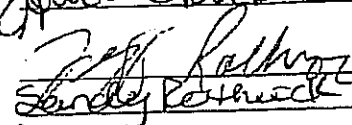
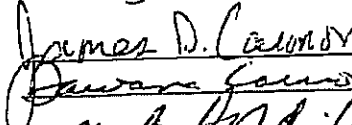
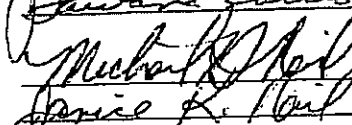
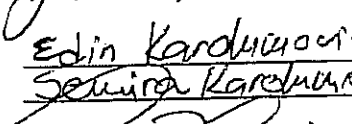
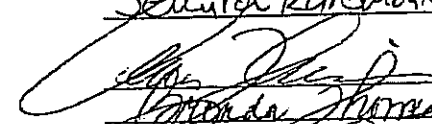
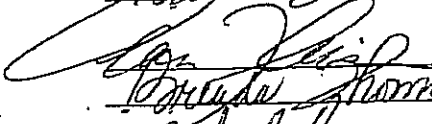
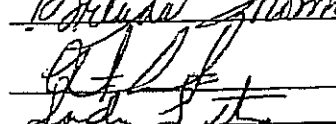
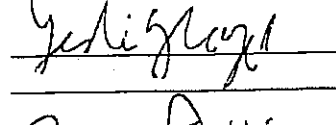
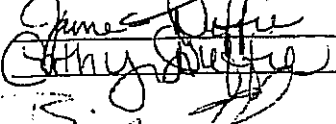
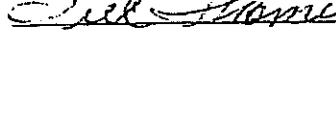
Address:	Owner:	Signature:	Date:
Lot 1, Block A 234 Will Smith Drive	Chad Bolding Jennifer Bolding		12-28-07 12-27-07
Lot 2, Block A 238 Will Smith Drive	Jerome Rosplock Juanita Rosplock		1-5-08 1-5-08
Lot 3, Block A 242 Will Smith Drive	Aaron Thomison Brenda Thomison		
Lot 4, Block A 557 Will Smith Circle	Jerry Griffis Henrietta Griffis		7-11-07 7-11-07
Lot 5, Block A 553 Will Smith Circle	Gary Gray Patti Gray		6/26 6/26
Lot 6, Block A 545 Will Smith Circle	Jim Riley Tammie Riley		7-1-07 7-1-07
Lot 7, Block A 541 Will Smith Circle	Mark Landers Deborah Landers		12-20-07 12-20-07
Lot 8, Block A 537 Will Smith Circle	Jeremy Thomison Jessica Thomison		
Lot 9, Block A 533 Will Smith Circle	Aaron Thomison Brenda Thomison		
Lot 10, Block A 525/529 Will Smith Circle	Aaron Thomison Brenda Thomison		
Lot 11, Block A 517/521 Will Smith Circle	Aaron Thomison Brenda Thomison		
Lot 12, Block A 505/509/513 Will Smith Cir.	Jack Kelly Barbara Kelly		
Lot 13, Block A 501 Will Smith Circle	Aaron Thomison Brenda Thomison		

BY SIGNING BELOW, THE FOLLOWING OWNERS OF THE LOTS LOCATED WITHIN THE COUNTRY VIEW STATES, A SUBDIVISION IN WILLIAMSON COUNTY, TEXAS, AGREE AND SUPPORT THE ABOVE RESOLUTION TO BE SUBMITTED TO THE WILLIAMSON COUNTY COMMISSIONERS COURT.

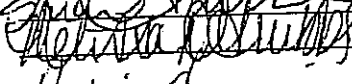
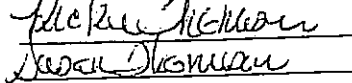
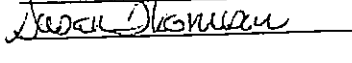
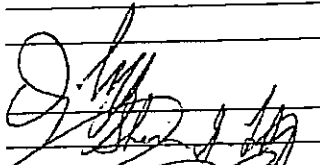
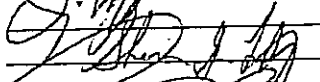
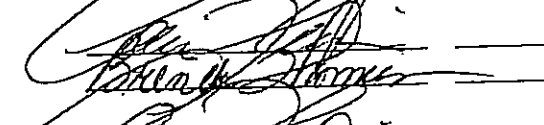
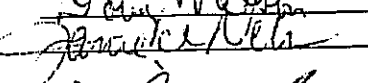
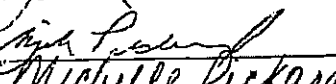
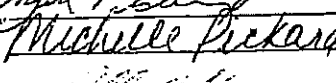
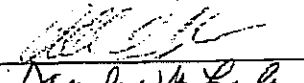
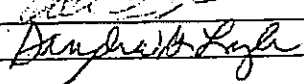
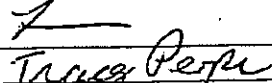
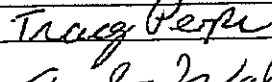
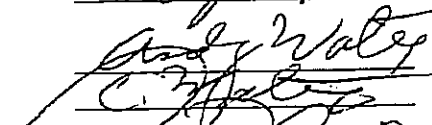
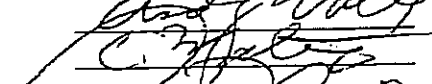
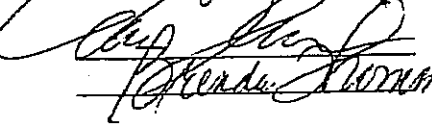
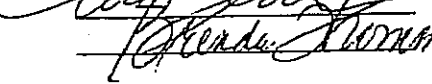
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Lot 1, Block A 234 Will Smith Drive	Chad Bolding Jennifer Bolding	_____ _____	_____ _____
Lot 2, Block A 238 Will Smith Drive	Jerome Rosplock Juanita Rosplock	_____ _____	_____ _____
Lot 3, Block A 242 Will Smith Drive	Aaron Thomison Brenda Thomison	_____ _____	_____ _____
Lot 4, Block A 557 Will Smith Circle	Jerry Griffis Henrietta Griffis	_____ _____	_____ _____
Lot 5, Block A 553 Will Smith Circle	Gary Gray Patti Gray	_____ _____	_____ _____
Lot 6, Block A 545 Will Smith Circle	Jim Riley Tammie Riley	_____ _____	_____ _____
Lot 7, Block A 541 Will Smith Circle	Mark Landers Deborah Landers	_____ _____	_____ _____
Lot 8, Block A 537 Will Smith Circle	Jeremy Thomison Jessica Thomison	_____ _____	_____ _____
Lot 9, Block A 533 Will Smith Circle	Aaron Thomison Brenda Thomison	_____ _____	_____ _____
Lot 10, Block A 525/529 Will Smith Circle	Aaron Thomison Brenda Thomison	_____ _____	_____ _____
Lot 11, Block A 517/521 Will Smith Circle	Aaron Thomison Brenda Thomison	_____ _____	_____ _____
Lot 12, Block A 505/509/513 Will Smith Cir.	Jack Kelly Barbara Kelly	 	8/1/08 8/21/08
Lot 13, Block A 501 Will Smith Circle	Aaron Thomison Brenda Thomison	_____ _____	_____ _____

M

BY SIGNING BELOW, THE FOLLOWING OWNERS OF THE LOTS LOCATED WITHIN THE COUNTRY VIEW ESTATES, A SUBDIVISION IN WILLIAMSON COUNTY, TEXAS, AGREE AND SUPPORT THE ABOVE RESOLUTION TO BE SUBMITTED TO THE WILLIAMSON COUNTY COMMISSIONERS COURT.

Address:	Owner:	Signature:	Date:
Lot 14, Block A 200 Will Smith Drive	Taylor Baker Dawn Baker		7/4/07 6/26/07
Lot 15, Block A 204 Will Smith Drive	Jeff Rothrock Sandy Rothrock		7/8/07 7/8/07
Lot 16, Block A 208 Will Smith Drive	James Carmona Dawana Carmona		7/12/07 7/12/07
Lot 17, Block A 212 Will Smith Drive	Michael Nail Janice Nail		12-27-07 12-27-07
Lot 18, Block A 222 Will Smith Drive	Edin Kardumovic Semira Kardumovic		7-09/07 7-09/07
Lot 19, Block A 226/230 Will Smith Drive	Aaron Thomison Brenda Thomison		
Lot 1, Block B 201 Will Smith Drive	Aaron Thomison Brenda Thomison		
Lot 2, Block B 205 Will Smith Drive	Curtis Luxton Sandra Luxton		7-8-07 7-8-07
Lot 3, Block B 209 Will Smith Drive	Owen Muellner Stacy Muellner		7-8-07 7-8-07
Lot 4, Block B 213 Will Smith Drive	Leslie Lloyd Julie Lloyd		7-1-6-08
Lot 5, Block B 217 Will Smith Drive	James Duffie Cathy Duffie		7-8-07 7-8-07
Lot 6, Block B 225 Will Smith Drive	Bill Thomison		

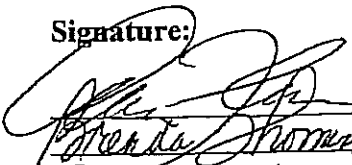
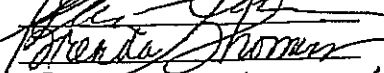
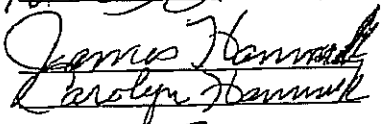
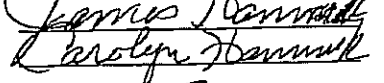
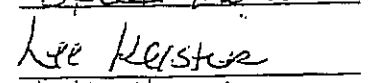
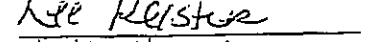
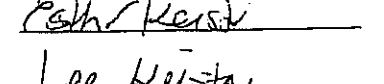
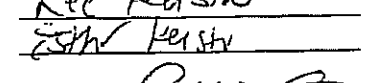
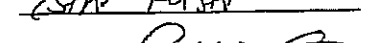
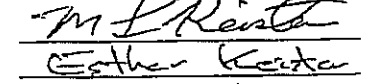
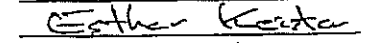
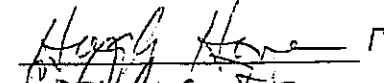
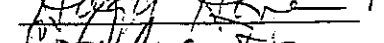
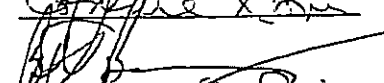
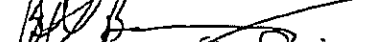
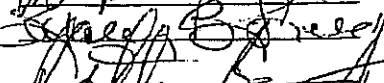
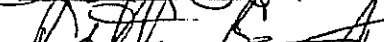
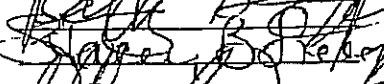
BY SIGNING BELOW, THE FOLLOWING OWNERS OF THE LOTS LOCATED WITHIN THE COUNTRY VIEW ESTATES, A SUBDIVISION IN WILLIAMSON COUNTY, TEXAS, AGREE AND SUPPORT THE ABOVE RESOLUTION TO BE SUBMITTED TO THE WILLIAMSON COUNTY COMMISSIONERS COURT.

Address:	Owner:	Signature:	Date:
Lot 7, Block B 229 Will Smith Drive	Brian Grubbs Melissa Grubbs	 	7-17-07 7-17-07
Lot 8, Block B 233 Will Smith Drive	Rickie Thomison Susan Thomison	 	1/5/08 1/5/08
Lot 9, Block B 237 Will Smith Drive	Scott Dove Lisa Dove	_____ _____	_____ _____
Lot 10, Block B 241 Will Smith Drive	James Duncan Robin Duncan	_____ _____	_____ _____
Lot 11, Block B 245 Will Smith Drive	Doy Freitag Sharon Freitag	 	8/4/08 8/4/08
Lot 12, Block B 301 Will Smith Drive	Aaron Thomison Brenda Thomison	 	_____ _____
Lot 13, Block B 305 Will Smith Drive	Aaron Thomison Brenda Thomison	 	_____ _____
Lot 1, Block C 572 Will Smith Circle	Doug Nelson Janiece Nelson	 	12/25/07 12/25/07
Lot 2, Block C 568 Will Smith Circle	Mike Pickard Michelle Pickard	 	6/26/07 6/25/07
Lot 3, Block C 564 Will Smith Circle	Allan Lyle Sandy Lyle	 	6/26/07 6-26-07
Lot 4, Block C 560 Will Smith Circle	Larry Peoples Tracy Peoples	 	7/17/07 7/17/07
Lot 5, Block C 556 Will Smith Circle	Andy Waters Colleen Waters	 	6/26/07 6/26/07
Lot 6, Block C 552 Will Smith Circle	Aaron Thomison Brenda Thomison	 	_____ _____

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Address:	Owner:	Signature:	Date:
Lot 7, Block B 229 Will Smith Drive	Brian Grubbs Melissa Grubbs	_____ _____	_____ _____
Lot 8, Block B 233 Will Smith Drive	Rickie Thomison Susan Thomison	_____ _____	_____ _____
Lot 9, Block B 237 Will Smith Drive	Scott Dove Lisa Dove	<i>Scott Dove</i> <i>Lisa Dove</i>	7/1/07 7/1/07
Lot 10, Block B 241 Will Smith Drive	James Duncan Robin Duncan	<i>James Duncan</i> <i>Robin Duncan</i>	7/1/05 7/1/05
Lot 11, Block B 245 Will Smith Drive	Doy Freitag Sharon Freitag	_____ _____	_____ _____
Lot 12, Block B 301 Will Smith Drive	Aaron Thomison Brenda Thomison	_____ _____	_____ _____
Lot 13, Block B 305 Will Smith Drive	Aaron Thomison Brenda Thomison	_____ _____	_____ _____
Lot 1, Block C 572 Will Smith Circle	Doug Nelson Janiece Nelson	_____ _____	_____ _____
Lot 2, Block C 568 Will Smith Circle	Mike Pickard Michelle Pickard	_____ _____	_____ _____
Lot 3, Block C 564 Will Smith Circle	Allan Lyle Sandy Lyle	_____ _____	_____ _____
Lot 4, Block C 560 Will Smith Circle	Larry Peoples Tracy Peoples	_____ _____	_____ _____
Lot 5, Block C 556 Will Smith Circle	Andy Waters Colleen Waters	_____ _____	_____ _____
Lot 6, Block C 552 Will Smith Circle	Aaron Thomison Brenda Thomison	_____ _____	_____ _____

BY SIGNING BELOW, THE FOLLOWING OWNERS OF THE LOTS LOCATED WITHIN THE COUNTRY VIEW ESTATES, A SUBDIVISION IN WILLIAMSON COUNTY, TEXAS, AGREE AND SUPPORT THE ABOVE RESOLUTION TO BE SUBMITTED TO THE WILLIAMSON COUNTY COMMISSIONERS COURT.

Address:	Owner:	Signature:	Date:
Lot 7, Block C 544/548 Will Smith Circle	Aaron Thomison Brenda Thomison	 	
Lot 8, Block C 540 Will Smith Circle	James Hammock Carolyn Hammock	 	6/1/07 6/1/07
Lot 9, Block C 536 Will Smith Circle	Aaron Thomison, Jr. Staci Thomison	 	
Lot 10, Block C 532 Will Smith Circle	Lee Keister Esther Keister	 	7/1/07 6/1/07
Lot 11, Block C 528 Will Smith Circle	Lee Keister Esther Keister	 	7/1/07 7/1/07
Lot 12, Block C 524 Will Smith Circle	Lee Keister Esther Keister	 	6/23/07 6/25/07
Lot 13, Block C 520 Will Smith Circle	Hugh Hoven Connie Hoven	 	7/1/07 7/1/07
Lot 14, Block C 516 Will Smith Circle	Billy Benningfield Stacy Benningfield	 	7/1/07
Lot 15, Block C 512 Will Smith Circle	Billy Benningfield Stacy Benningfield	 	7/1/07
Lot 16, Block C 508 Will Smith Circle	Billy Benningfield Stacy Benningfield	 	7/1/07
Lot 17, Block C 504 Will Smith Circle	Aaron Thomison Brenda Thomison	 	
Lot 18, Block C 500 Will Smith Circle	Todd Knoll Melissa Knoll	 	7/5/07 7/5/07

Public Assistance Recommendation
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Grimes Kathy, Commissioner Pct. #2
Submitted For: Public Assistance Committee
Department: Commissioner Pct. #2
Agenda Category: Regular Agenda Items

Information

Agenda Item

Discuss and take appropriate action on recommendations for Public Assistance funding.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Funding Policy](#)

Link: [Public Assistance Recommendations](#)

Link: [CRCG MOU](#)

Link: [Lifesteps Services](#)

Form Routing/Status

Form Started By: Grimes Kathy Started On: 03/05/2009 10:41 AM

Final Approval Date: 03/05/2009

PUBLIC ASSISTANCE FUNDING POLICY
For
Williamson County

Commissioners Court will consider providing funding to legally qualified non-profit organizations through a contract for services when such services are:

- a. Services which accomplish a public purpose and provide a measurable Return or benefit to the County; and
- b. Services that the County would provide absent the agreement, within the vision of the County, and pursuant to its health, safety and welfare obligations.

Approved by Williamson County Commissioners Court on January 24, 2006.

AGENCY	LINE ITEM	07-08 PAYMENT	RECOMMENDED		JUSTIFICATION
			08-09 PAYMENT		
Leander Senior Center	01-0100-0640-004719	\$1,000.00	\$0		
United Seniors of Taylor	01-0100-0640-004719	\$1,000.00	\$0		
Hope Pregnancy of Hutto	01-0100-0640-004719	\$1,000.00	\$0		
Assistance League of Georgetown	01-0100-0640-004719	\$1,000.00	\$0		
Pregnancy Help Center of Williamson County	01-0100-0640-004719	\$1,000.00	\$0		
Georgetown Project	01-0100-0640-004719	\$3,000.00	\$0		
Capital Idea	01-0100-0640-004719	\$5,000.00	\$0		
Faith in Action Caregivers	01-0100-0640-004719	\$5,000.00	\$0		
					<i>The Justice System and Adult Probation rely upon Lifesteps to perform assessments for the DWI Court, as well as for offenders on probation. They also provide State mandated education classes for DWI and drug and minor in possession charges</i>
LifeSteps	01-0100-0640-004719	\$8,000.00	\$8,000		
Bluebonnet Trails	01-0100-0640-004719	\$22,000.00	\$22,000		APPROVED/PAID IN COURT LAST WEEK
Habitat for Humanity	01-0100-0640-004719	\$24,000.00	-		
Agape Pregnancy	01-0100-0640-004719	\$1,000.00	\$0		
Children's Support Coalition	01-0100-0640-004719	\$18,000.00			
Stonehaven Senior Center	01-0100-0640-004719	\$1,000.00	\$0		
Round Rock Area Serving Center	01-0100-0640-004719	\$5,000.00	\$0		
CARTS	01-0100-0640-004719	\$20,000.00	\$0		
Literacy Council	01-0100-0640-004719	\$25,000.00	\$0		
Combined Community Action	01-0100-0640-004719	\$2,500.00	\$0		
Round Rock Volunteer Center	01-0100-0640-004719	\$3,000.00	\$0		
	TOTAL	\$147,500.00	\$30,000		
			\$150,000	Budgeted	
			\$117,500	Funds Remaining	

Those not funded do not meet the Public Assistance Funding Policy approved by Commissioners' Court on January 24, 2006.



*Community Resource Coordination Groups (CRCG) of
Texas*

Memorandum of Understanding



Below is the latest version of the Memorandum of Understanding. The MOU was signed by all mandated agencies by November 2006. You may download the signed MOU in pdf format [here](#).

**Memorandum of Understanding for Coordinated Services to Persons
Needing Services from More Than One Agency Revised March 2006**

A. Overview

Pursuant to the Texas Government Code, Subchapter B, Chapter 531, Section 531.055, this memorandum of understanding (“the Memorandum”) has been developed by the following member agencies, hereinafter referred to as “the agencies,” in consultation with the Texas Health and Human Services Commission (HHSC), and advocacy and consumer groups. The agencies include:

Texas Health and Human Services Commission (HHSC) and other health and human agencies:

**Texas Department of Aging and Disability Services (DADS),
Texas Department of Assistive and Rehabilitative Services (DARS),
Texas Department of Family and Protective Services (DFPS),
Texas Department of State Health Services (DSHS),** and partnering agencies:

Texas Correctional Office on Offenders with Medical or Mental Impairments (TCOOMMI),

**Texas Department of Criminal Justice (TDCJ),
Texas Department of Housing and Community Affairs (TDHCA),
Texas Education Agency (TEA),
Texas Juvenile Probation Commission (TJPC),
Texas Workforce Commission (TWC) and
Texas Youth Commission (TYC).**

B. Purpose

The Memorandum, as adopted by each agency, provides for the implementation of a statewide system of county-based, multiagency community resource coordination groups, hereinafter referred to as “CRCGs,” to coordinate services for persons of all ages, including children, youth, and adults needing multiagency services and whose needs can be met only through interagency coordination and cooperation (defined as persons with complex needs). Revisions to this Memorandum will be developed as needed to reflect major agency reorganizations or statutory changes that affect the agencies.

This Memorandum sets forth the intention of the agencies, the local CRCGs, and HHSC to work together to ensure that the strategic plan for delivering health and human services in Texas includes appropriate plans for delivering coordinated services to persons with complex needs.

C. Mission

The CRCGs provide a mechanism that enables local public and private agencies, organizations, and families to work together in collaboration to meet the needs of individuals which no one agency can meet.

D. Guiding Model(s)

Local CRCGs established pursuant to this Memorandum must conform to the current CRCG model(s) approved by HHSC. A local CRCG may be children and youth-specific, adult-specific or family-specific depending on the needs of the community. These models are available from the Office of Program Coordination for Children and Youth, P.O. Box 13247, Austin, TX 78711 or www.hhsc.state.tx.us/crcg/crcg.htm.

E. Consumer choice and the role of families, consumers, and caregivers

1. The agencies recognize that consumer choice drives the collaborative service planning process. The agencies are committed to supporting the provision of services pursuant to this Memorandum in the least restrictive environments possible.
2. Recognizing the importance of the family in the life of each child, the coordinated individual service plan for a child is developed in partnership with the child’s family, the child’s legally authorized representative (if other than the child’s parents), and, as appropriate, other caregivers or persons important in the life of the child.
3. The coordinated individual service plan for an adult is developed in partnership with the consumer, the consumer’s legally authorized representative (if other than the consumer), and, as appropriate, the consumer’s family and/or caregiver.

F. Agency responsibilities

1. Each participating local entity's statutory responsibilities for children, youth and adults are set forth in, or referenced through, the State CRCG Website at www.hhsc.state.tx.us/crcg/crcg.htm. Additional information for health and human services agencies' statutory responsibilities for children, youth and adults is referenced in "Health and Human Services in Texas: A Reference Guide", available from the Health and Human Services Commission at <http://www.hhs.state.tx.us/tirn/refguide.shtml>.
2. Each agency will support agency representation and participation in local CRCG activities by local or regional agency offices, local authorities, providers, or local contractees, hereinafter called "local entities," to the extent authorized by law or contract. See §H (3) regarding circumstances when an agency representative may be excused from attending a local CRCG meeting.
3. The local representative(s) of each agency will have the authority to contribute to decisions and recommendations made by the local CRCG and to contribute resources toward resolving problems of individuals needing agency services identified by the local CRCG.
4. To the extent that operating under this Memorandum helps the local entities to identify problems, gaps, and inefficiencies in the state's systems for delivering health and human services to persons with complex needs, the local entities agree to give HHSC information about the problems, gaps, and inefficiencies so identified. HHSC will appropriately incorporate information provided by the local entities and the local CRCGs into HHSC's strategic plan.
5. Each agency will provide the local CRCGs with relevant additional information about its financial and statutory responsibilities when such information is necessary for the groups to meet their responsibilities. The additional information may include, but is not limited to, descriptions of subcategories of funding for different types of service such as prevention, family preservation and strengthening, serving persons in the least restrictive environment, in-home support, permanency planning, emergency shelter, diagnosis and evaluation, residential care, after-care, information and referral, medical care, and investigation services.
6. Interagency cost sharing.
 - a) To the extent possible, the agencies agree to assist the efforts of the local CRCGs in developing local funding mechanisms and in seeking additional resources within the agencies to address service gaps as funding is available.
 - b) To support this Memorandum of Understanding, the agencies agree to identify and provide state- level funding, as available and permissible by law, for state

level coordination as determined by HHSC with consultation from member agencies.

c) The agencies will cooperate interagency funding of individual service plans to the extent permissible by law, and subject to the availability of funds, when services needed cannot be provided by any single entity.

d) Cost sharing includes, but is not limited to:

- i. one or more agencies, and
- ii. one or more third parties under purchase-of-service contracts with one or more agencies.

7. Data

a) HHSC, in consultation with member agencies, will provide a biennial report to the chief executive officer of each agency, the Legislature, and the Governor that includes:

- i. the number of persons served through the local CRCGs and the outcomes of the services provided;
- ii. a description of any barriers identified to the state's ability to provide effective services to persons with complex needs; and
- iii. any other information relevant to improving the delivery of services to persons with complex needs.

a) The agencies will assist in ensuring the collection of data needed for the biennial report by encouraging the documentation and submission of aggregate data or de-identified individual service plan data to HHSC by their local agency staff or affiliate who are participating in the local CRCGs.

8. Each member agency will implement the activities of this MOU in a manner that defines, supports, and maintains local autonomy and facilitates provision of recommendations to the member agencies, legislature, Governor, and HHSC related to the development, implementation, and evaluation of local CRCGs in coordinating services for persons with complex needs in Texas.

G. Functions Of Local CRCGs

1. The primary function of local CRCGs is to develop coordinated individual service plans for persons with complex needs agreed upon by members of the group and the consumers, caregivers, and family (ies) served. An agency will exhaust its regular avenues for accessing services before referring an individual to a local CRCG.
2. Collateral functions of local CRCGs may include identification of gaps in the

service delivery systems or barriers to accessing services, collecting and sharing available data regarding consumers, and establishing relationships among local service providers for collaboration outside of the local CRCG setting.

3. When a local CRCG considers an out-of-home placement for a child, the group will also engage in a permanency planning process that focuses on family support by facilitating a permanent living arrangement, with the primary feature being an enduring and nurturing family relationship. Similarly, when an out-of-home placement is considered for an adult, the group will also engage in a planning process that facilitates an ongoing living arrangement that meets the consumer's needs, desires, and independence.
4. Data submission to HHSC
 - a) Local CRCGs will submit de-identified data in a timely manner to HHSC when an individual is served through the local CRCG process.
 - b) Local CRCGs will submit de-identified data in the format developed and approved through HHSC and member agencies.

H. Membership And Organization Of Local CRCGs

1. The composition of the local CRCGs will include, but not be limited to:
 - a) Representative(s) from each participating state agency or local affiliate/contractor/provider.
 - b) Representatives from private sector provider organizations.
 - c) Participation by families, consumers and caregivers as standing representatives.
2. Members of the local CRCG, including family, consumer and caregiver representatives, share equal status and may call a local CRCG meeting or refer persons with complex needs to the local CRCG.
3. Each member of the local CRCG is encouraged to participate in all meetings to contribute to the collective ability of the group to solve a person's need for coordinated services; however, a member may be excused from attending a local CRCG meeting subject to:
 - a) the group's protocols or procedures on meeting attendance, and/or
 - b) if the age or needs of the persons referred are clearly not within the scope of the member's service responsibilities.
4. Each local CRCG will develop bylaws, including, but not limited to:
 - a) Group Leadership/Officers (i.e. chair, co-chair/vice-chair, recorder, secretary, etc.)
 - b) Meeting Schedule
 - c) Committee Structure
 - d) Attendance/Participation Expectations
 - e) Targeted Age Group
 - f) Identification and Referral Criteria

g) Confidentiality and Release of Information - Records that are used or developed by a local CRCG or its members that relate to a particular person are confidential and may not be released to any other person or agency except as provided by law. The release of confidential information within local CRCGs must comply with applicable state and federal confidentiality laws, as well as individual agency policies. Each member agency is responsible for determining its legal or policy limits to the sharing of information to local CRCGs.

I. Eliminating Duplication Of Services

Within the limits of existing legal authority, each local CRCG will make reasonable efforts to eliminate duplication of services relating to the assessment, treatment, and case management for persons with complex needs. Each local entity agrees to notify HHSC about federal or state laws and regulations that result in duplication of services. Each state level member agency also agrees to notify its governing entity about rules that result in duplication of services, and to pursue amendments to state laws, rules, and policies when necessary to eliminate such duplication.

J. Responsibilities Of The Health And Human Services Commission And Member Agencies

1) HHSC and member agencies will collaborate with local CRCGs to provide training and technical assistance to local CRCGs and others with regard to promising practices, interagency collaboration, data collection, evaluation, resource development, and other priority areas as resources allow.

2) Data and other information on the effectiveness of local CRCGs and service system gaps will be compiled and shared with local CRCGs, member state agencies, state leaders, and other interested parties.

K. Interagency Dispute Resolution

1. Each member agency will designate a negotiator who is not a member of any local CRCG to resolve disputes. The negotiator must have:
 - a) decision-making authority over the agency's representative on the local CRCG, and
 - b) the ability to interpret policy and commit funds.
2. When two or more members of a local CRCG disagree about their respective agencies' service responsibilities, the local CRCG will send the designated negotiators for those agencies written notification that a dispute exists. Within 45 days after receiving the written notification, the negotiators will confer together to resolve the dispute.

3. When an interagency dispute cannot be resolved in the manner described in paragraph (2) of this subsection, the aggrieved party may refer the dispute to the HHSC Executive Commissioner.

L. Terms Of Agreement

The Memorandum will be:

- 1) Effective upon adoption by each signatory agency.
- 2) Reviewed at least every two years by HHSC and member agencies.
- 3) Expanded, modified, or amended, as needed, at any time by the unanimous consent of the agencies.

Charles E. Bell, M.D.

Deputy Executive Commissioner for
Health Services
Texas Health and Human Services
Commission

Adelaide Horn

Commissioner
Texas Department of Aging and
Disability Services

Terrell I. Murphy

Commissioner
Texas Department of Assistive and
Rehabilitative Services

Carey Cockerell

Commissioner
Texas Department of Family and Protective
Services

Dr. Eduardo J. Sanchez

Commissioner
Texas Department of State Health
Services

Dee Wilson

Executive Director
Texas Correctional Office on Offenders with
Medical or Mental Impairments

Brad Livingston

Executive Director
Texas Department of Criminal Justice

Michael Gerber

Executive Director
Texas Department of Housing and Community
Affairs

Dr. Shirley J. Neeley

Commissioner of Education
Texas Education Agency

Vicki Spriggs

Executive Director
Texas Juvenile Probation Commission

Larry E. Temple

Executive Director
Texas Workforce Commission

Dwight Harris

Executive Director
Texas Youth Commission

I was asked to provide some information regarding the Williamson County CSCD's involvement with and the reliance upon Lifesteps. Lifesteps has been a working partner with this Department since I came to work here in 1979. At that time it was called the Williamson County Council on Alcohol and Drug Abuse. At the present time, they perform a very valuable service for the Williamson County DWI/Drug Court by performing assessments on incoming participants. Additionally, they attend weekly staff meetings (with the DWI/Drug Court team) and they meet weekly with offenders in the DWI/Drug Court program. They are an important part of the DWI/Drug Court. If they were not involved in the program, this Department would be forced to hire additional staff to perform their functions. Lastly, Lifesteps also performs substance abuse assessments on offenders on probation. Once they are placed on probation, an offender has to undergo an assessment to determine what sort of treatment needs they may have. I do not have the staff to conduct these assessments. These assessments would have to be conducted by a private entity who may also operate a treatment program. Because they could conclude that the offender needs treatment (and could be referred to their program), I believe a conflict of interest would exist. To me, it is extremely important that Lifesteps continue to be able to perform these important functions to assist this Department.

Marty Griffith
Director
Williamson County CSCD

Funding contract between Williamson County & CARTS
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Tammy Smith, Commissioner Pct. #1
Submitted For: Tammy Smith
Department: Commissioner Pct. #1
Contract Oversight:
Agenda Category: Regular Agenda Items

Information

Agenda Item

Discuss and approve the funding contract between Williamson County and Capital Area Rural Transportation System (CARTS).

Background

Williamson County has been a part of the Capital Area Rural Transportation System for a number of years. CARTS services the counties of Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays and the non-urbanized areas of Williamson and Travis.

All of you should have received a large packet of information on CARTS through inner office mail. Additionally, we have attached the latest Williamson County Transit Study, completed by CARTS in 2003. The current ride schedule has been attached also.

Currently, the county has allocated \$20,000 in the budget for a contribution to CARTS. The contract, which is attached, would provide for continuation of current services for this fiscal year.

Fiscal Impact

From/To	Acct No.	Description	Amount

Attachments

Link: [CARTS contract](#)

Link: [CARTS ride schedule](#)

Link: [Williamson County Transit Study](#)

Form Routing/Status

Route Seq Inbox

Approved By Date

Status

Tammy Smith 03/04/2009 11:04 AM CREATED

1 County Attorney
2 Jim Gilger
3 Budget
4 County Judge Exec Asst.

NEW

Form Started By: Tammy Smith

Started On: 03/04/2009 11:04
AM

COUNTY OF WILLIAMSON	§	FUNDING AGREEMENT
	§	BETWEEN THE
	§	COUNTY OF WILLIAMSON AND
	§	CAPITAL AREA RURAL
STATE OF TEXAS	§	TRANSPORTATION SYSTEM

This is an Agreement between the County of Williamson (hereinafter "County"), and Capital Area Rural Transportation System (hereinafter "CARTS"), for the County to provide funding for services received by the citizens of Williamson County, Texas, from CARTS for the fiscal year from October 1, 2008 through September 30, 2009. (Hereinafter referred to as the "Agreement.")

I. GENERAL AGREEMENT

The County finds that through its services, CARTS accomplishes a public purpose and benefits the citizens of Williamson County, Texas. CARTS has provided these services for the County in the past and desires to continue to provide these services.

It is expressly provided that CARTS will indemnify and hold Williamson County harmless for any of its acts, either by negligence or intentional torts, and that Williamson County does not accept any responsibility for the negligence of CARTS personnel or any of its actions.

CARTS is an independent contractor and none of its actions or non-actions is governed by the Commissioners Court. Nothing in this Contract shall require Williamson County or the Commissioners Court to renew this Contract.

II. FUNDING

In consideration for the services to be provided by CARTS, as described in Section III below, the County agrees to pay an amount not to exceed \$20,000.00 to be paid in one lump sum annually. The compensation is payable as determined by the Commissioners Court and provided for in the FY 2009 budget. Any change in the budget or monies requested will require a written revision and approval by the Commissioners Court.

III. DUTIES

As consideration for the funds to be provided by the County, CARTS agrees to provide the following as a condition of the Agreement:

- A. General public transportation services for the citizens of Williamson County with emphasis on the elderly and handicapped. Destinations will include but

will not be limited to, medical facilities, grocery stores and other merchants, post office, doctors, etc.

- B. Coordinate as appropriate with the County and other community service providers in the provision of services to County residents.
- C. Provide the County with bi-annual reports which include progress meeting service objectives, the total number of persons and agencies directly served, and the number of County citizens served.
- D. Provide to the County a copy of the organization's annual independent auditor's report based upon the organization's fiscal year.

IV. AMENDMENT AND ASSIGNMENT

This Agreement shall not be altered, waived, amended or extended, without the prior written consent of both parties.

CARTS may not assign the Agreement to another party without the prior written consent of the County. All notices regarding assignment shall be given as provided in Paragraph V. It is further agreed that this Agreement shall be binding upon the administrators, executors and assigns of the parties.

V. TERMINATION

Either party may terminate this Agreement for any reason, upon thirty (30) days written notice to the other party. In the event of termination, it is understood and agreed that only the amounts due to CARTS for the services provided up to and including the date of termination will be due and payable. If this agreement is terminated prior to September 30, 2009 and CARTS receives a lump sum annual payment in advance, CARTS hereby agrees to reimburse County the pro-rata amounts for the time period following such termination.

Upon notice of termination, all obligations under this Agreement shall cease.

VI. NOTICE

Such notices shall be hand-delivered or sent by certified mail, return receipt requested, to the following addresses:

COUNTY:

Dan A. Gattis, Judge
Williamson County
710 Main St. Suite 101
Georgetown, TX 78626

CARTS:

David Marsh, Executive Director
CARTS
P.O. Box 6050
Austin, TX 78762

VII. MISCELLANEOUS

- A. Force Majeure.** If the party obligated to perform is prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of said party, the other party shall grant such party relief from the performance of this Agreement. The burden of proof for the need of such relief shall rest upon the party obligated to perform. To obtain release based on force majeure, the party obligated to perform shall file a written request with the other party.
- B. Severability.** If any provision of this Agreement shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provision hereof, but rather this entire Agreement will be construed as if not containing the particular invalid or unenforceable provision or provisions, and the rights and obligation of the parties shall be construed and enforced in accordance therewith. The parties acknowledge that if any provision of this Agreement is determined to be invalid or unenforceable, it is the desire and intention of each that such provision be reformed and construed in such a manner that it will, to the maximum extent practicable, give effect to the intent of this Agreement and be deemed to be validated and enforceable.
- C. Venue and Governing Law.** Each party to this Agreement hereby agrees and acknowledges that venue and jurisdiction of any suit, right, or cause of action arising out of or in connection with this Agreement shall lie exclusively in either Williamson County, Texas or in the Austin Division of the Western Federal District of Texas, and the parties hereto expressly consent and submit to such jurisdiction. Furthermore, except to the extent that this Agreement is governed by the laws of the United States, this Agreement shall be governed by and construed in accordance with the laws of the State of Texas, excluding, however, its choice of law rules.
- D. Successors and Assigns.** This Agreement shall be binding upon and inure to the benefit of parties hereto and their respective successors, executors, administrators, and assigns.
- E. Assignment.** No party to this Agreement may assign or transfer its interest in or obligations under this Agreement without the prior written consent of all parties to this Agreement.
- F. No Third Party Beneficiaries.** This Agreement is for the sole and exclusive benefit of the parties hereto, and nothing in this Agreement, express or implied, is

intended to confer or shall be construed as conferring upon any other person or entity any rights, remedies or any other type or types of benefits.

- G. Relationship of the Parties.** Each party to this Agreement, in the performance of this Agreement, shall act in an individual capacity and not as agents, employees, partners, joint ventures or associates of one another. The employees or agents of one party shall not be deemed or construed to be the employees or agents of the other party for any purposes whatsoever.
- H. No Waiver of Immunities.** Nothing in this Agreement shall be deemed to waive, modify or amend any legal defense available at law or in equity to County, its past or present officers, employees, or agents, nor to create any legal rights or claim on behalf of any third party. County does not waive, modify, or alter to any extent whatsoever the availability of the defense of governmental immunity under the laws of the State of Texas and of the United States.
- I. County's Right to Audit.** CARTS agrees that County or its duly authorized representatives shall, until the expiration of three (3) years after final payment under this Agreement, have access to and the right to examine and photocopy any and all books, documents, papers and records of CARTS which are directly pertinent to the services to be performed under this Agreement for the purposes of making audits, examinations, excerpts, and transcriptions. CARTS agrees that County shall have access during normal working hours to all necessary CARTS' facilities and shall be provided adequate and appropriate work space in order to conduct audits in compliance with the provisions of this section. County shall give CARTS reasonable advance notice of intended audits.
- J. Appropriation of Funds by County.** County believes it has sufficient funds currently available and authorized for expenditure to finance the costs of this Agreement. CARTS understands and agrees that the County's payment of amounts under this Agreement is contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to continue to make payments under this Agreement.
- K. Entire Agreement.** This Agreement represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either oral or written. This Agreement may be amended only by written instrument signed by each party to this Agreement. NO OFFICIAL, EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE COUNTY HAS ANY AUTHORITY, EITHER EXPRESS OR IMPLIED, TO AMEND THIS AGREEMENT, EXCEPT PURSUANT TO SUCH EXPRESS AUTHORITY AS MAY BE GRANTED BY THE WILLIAMSON COUNTY COMMISSIONERS COURT.

EXECUTED this ____ day of _____, 2009.

THE COUNTY OF WILLIAMSON

CAPITAL AREA RURAL
TRANSPORTATION SYSTEM (CARTS)

Dan A. Gattis, County Judge

David Marsh, Executive Director

ATTEST:

Nancy E. Rister, County Clerk

STATE OF TEXAS

§
§
§
§
§
§

CORPORATE ACKNOWLEDGMENT

COUNTY OF WILLIAMSON

This instrument was acknowledged before me on this the ____ day of _____, 2009, by David Marsh, a person know to me, in his capacity as Executive Director of Capital Area Rural Transportation System, on behalf of said organization.

Notary Public, in and for the State of Texas



Effective date January 1, 2008

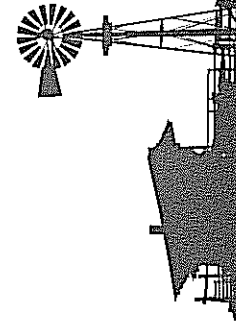
CAPITAL AREA RURAL TRANSPORTATION SYSTEM

CARTS RIDE LINE 1-800-456-RIDE (7433) TOLL FREE

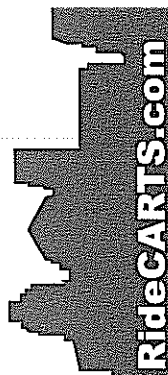
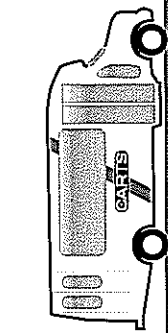
WILLIAMSON COUNTY

RIDES ARE SCHEDULED MONDAY-FRIDAY FROM 8:00 AM TO 4:00 PM / 24 HOURS ADVANCE NOTICE RECOMMENDED
LOCAL VEHICLES SERVE NEIGHBORING TOWNS SO LOCAL RIDE TIMES MAY VARY

Community Served	Destination	Route Day	Departure	Return	One-Way Fare	Reduced Fare*
ANDERSON MILL	To: Georgetown	Tuesday	7:30a	12:00p	\$4.00	\$2.00
	To: Round Rock	Tuesday & Thursday	7:30a	2:00p	\$4.00	\$2.00
	To: Austin	Tuesday	7:45a	2:30p	\$6.00	\$3.00
	To: Temple	1st & 3rd Wednesday	7:30a	2:00p	\$6.00	\$3.00
BARTLETT	To: Austin	Wednesday	7:00a	2:00p	\$6.00	\$3.00
	To: Georgetown	Tuesday & Thursday	7:30a	3:30p	\$4.00	\$2.00
	To: Taylor	Tuesday	7:00a	11:30a	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	7:30a	2:00p	\$6.00	\$3.00
CEDAR PARK	To: Austin	Tuesday	8:00a	2:30p	\$6.00	\$3.00
	To: Round Rock	Tuesday & Thursday	7:00a	2:00p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	7:30a	2:00p	\$6.00	\$3.00
GEORGETOWN	Local Service	Monday thru Friday	8:00a to 4:30p		\$2.00	\$1.00
	To: Austin	Monday, Wednesday & Friday	8:00a	2:00p	\$6.00	\$3.00
	To: Round Rock	Tuesday & Thursday	8:00a	12:00p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	8:30a	2:00p	\$6.00	\$3.00
FLORENCE	To: Austin	Monday, Wednesday & Friday	7:00a	2:00p	\$6.00	\$3.00
	To: Georgetown	Monday, Wednesday & Friday	7:00a	3:30p	\$4.00	\$2.00
	To: Round Rock	Monday, Wednesday & Friday	7:00a	3:30p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	8:00a	2:00p	\$6.00	\$3.00
GRANGER	To: Austin	Wednesday	7:30a	2:00p	\$6.00	\$3.00
	To: Georgetown	Tuesday & Thursday	7:30a	3:30p	\$4.00	\$2.00
	To: Taylor	Tuesday	7:30a	11:30p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	9:00a	2:00p	\$6.00	\$3.00
JARRELL	To: Austin	Wednesday	7:30a	2:00p	\$6.00	\$3.00
	To: Georgetown	Tuesday & Thursday	7:30a	3:30p	\$4.00	\$2.00
	To: Round Rock	Tuesday & Thursday	7:30a	3:30p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	8:15a	2:00p	\$6.00	\$3.00
LEANDER	To: Austin	Tuesday	8:15a	2:30p	\$6.00	\$3.00
	To: Round Rock	Tuesday & Thursday	7:00a	2:00p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	7:30a	2:00p	\$6.00	\$3.00
LIBERTY HILL	To: Austin	Tuesday	7:30a	2:30a	\$6.00	\$3.00
	To: Georgetown	1st & 3rd Monday	8:30a	12:00p	\$4.00	\$2.00
	To: Round Rock	1st & 3rd Monday	8:30a	12:00p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	7:45a	2:00p	\$6.00	\$3.00
SUN CITY	To: Austin	Monday, Wednesday & Friday	8:00a	2:00p	\$6.00	\$3.00
	To: Georgetown	Tuesday & Thursday	8:30a	12:00p	\$2.00	\$1.00
	To: Round Rock	Tuesday & Thursday	8:00a	12:00p	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	8:15a	2:00p	\$6.00	\$3.00
TAYLOR	Local Service	Monday thru Friday	8:00a to 4:30p		\$2.00	\$1.00
	To: Austin	Monday, Wednesday & Friday	7:30a	2:00p	\$6.00	\$3.00
	To: Georgetown	Tuesday & Thursday	7:00a	12:00p	\$4.00	\$2.00
	To: Round Rock	Tuesday & Thursday	7:00a	12:00p	\$4.00	\$2.00
THRALL	To: Temple	1st & 3rd Wednesday	8:30a	2:00p	\$6.00	\$3.00
	To: Austin	Wednesday	7:30a	2:00p	\$6.00	\$3.00
	To: Taylor	Wednesday	7:30a	11:30a	\$4.00	\$2.00
	To: Temple	1st & 3rd Wednesday	7:30a	2:00p	\$6.00	\$3.00



*Reduced Fare: Seniors, Persons with Disabilities, and Children Under 12



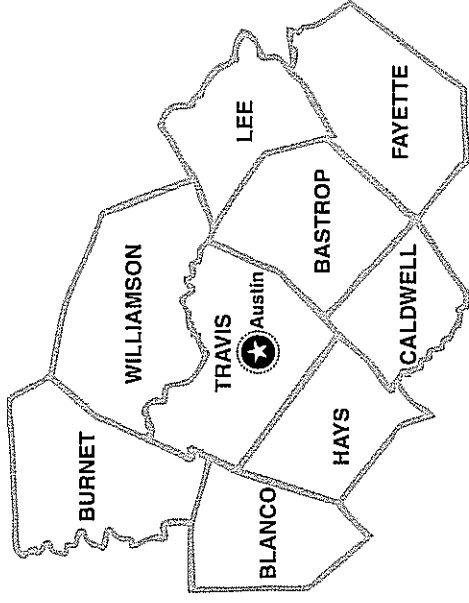


CAPITAL AREA RURAL TRANSPORTATION SYSTEM

Serving the Texas counties of Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays, Lee, and non-urbanized areas of Travis and Williamson.

CARTS delivers transportation tailored specifically for each of the one hundred and sixty-nine communities it serves. The service frequency in or to the various communities range from many times a day to once a month.

Be sure to visit the **CARTS** web site at RideCARTS.com for updates and further route information for each community.



CURB-TO-CURB SERVICES RESERVED BY PHONE

Enjoy the convenience of having a CARTS bus pick you up at your home, take you to your destination, and then back home again. We will set up a time for pickup within our time slots of general availability. On your first call we will request information to enter into your customer profile, and after that we will know you when you call.



TO SCHEDULE YOUR RIDE CALL

1-800-456-RIDE (7433) or
Austin Metro Line 512-478-RIDE (7433)

- Rides are scheduled Monday thru Friday, 7am to 4pm.
- 24-hours advance notice is recommended.

It's that simple. **CARTS** can help you or someone you know who needs a ride to go shopping, city businesses, medical appointments, work, senior centers or for any other purpose.

FARES

Fares are set by zones. The **CARTS** customer service agent will tell you what your ride costs when you book the trip. All fares are based on a one-way trip.

Zone 1 – City Trips wholly within a town or city	full fare \$2.00	half fare* \$1.00
Zone 2 – Intra-county Trips originating and ending within the same county	\$4.00	\$2.00
Zone 3 – Inter-county Trips with destinations outside the county of origin	\$6.00	\$3.00

*Half fares for senior citizens and persons with disabilities.



RideCARTS FARE CARDS

The **RideCARTS** fare card is a convenient and easier way for you to ride **CARTS**. The card works like a gift or credit card, which enables you to use just one card to access a ride instead of paying cash or keeping track of ride tickets. There is no fee to obtain your first **RideCARTS** card, however we do require a minimum amount of \$10 to be placed on the card.

Visit the **CARTS** web site at RideCARTS.com and click on the link to the **RideCARTS** card, and follow the instructions. Or call 512-478-7433 or 1-800-456-7433 and a customer service representative will guide you through the necessary steps.



CITY BUS SERVICE IN BASTROP AND SAN MARCOS

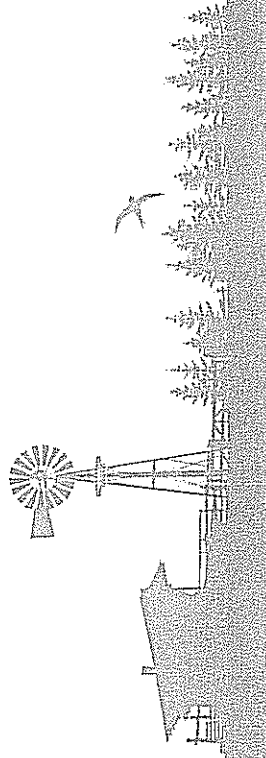
CARTS Around Town (CAT) is a municipal fixed route bus service offering regular route service in Bastrop and San Marcos connecting neighborhoods and downtown business. Visit the **CARTS** web site at RideCARTS.com for route information.

NATIONAL CONNECTIONS

Bus and Train Services: At our Round Rock, Bastrop and San Marcos stations we operate intercity bus terminals for Greyhound, Coach America and Arrow Trailways which can take care of your shipping or travel needs nationwide. At our San Marcos Station **AMTRAK** rail service is also available. Visit the **CARTS** web site at RideCARTS.com for station address and further information.



CAPITAL AREA RURAL TRANSPORTATION SYSTEM
P.O. Box 6050 Austin, TX 78762 / 2010 East 6th Street 78702
RideCARTS.com





Effective date January 1, 2008

CAPITAL AREA RURAL TRANSPORTATION SYSTEM

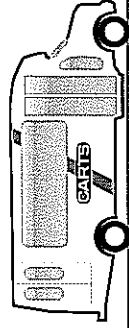
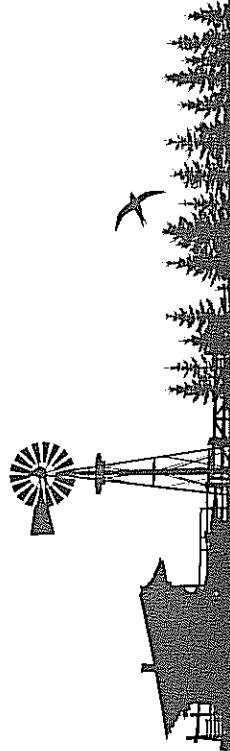
CARTS RIDE LINE 1-800-456-RIDE (7433) TOLL FREE

CITY OF ROUND ROCK

RIDES ARE SCHEDULED MONDAY-FRIDAY FROM 8:00 AM TO 4:00 PM / 24 HOURS ADVANCE NOTICE RECOMMENDED
LOCAL VEHICLES SERVE NEIGHBORING TOWNS SO LOCAL RIDE TIMES MAY VARY

Community Served	Destination	Route Day	Departure	Return	One-Way Fare	Reduced Fare*
ROUND ROCK	Local Service	Monday through Friday	7:00a to 6:00p		\$2.00	\$1.00
	To: Austin	Monday, Wednesday & Friday	9:00a	2:00p	\$6.00	\$3.00
	To: Georgetown	Tuesday & Thursday	10:00a	12:00p	\$4.00	\$2.00
	To: Temple	1st and 3rd Wednesday	9:00a	2:00p	\$6.00	\$3.00
	To: Cedar Park	Tuesday & Thursday	7:00a	2:00p	\$4.00	\$2.00

*Reduced Fare: Seniors, Persons with Disabilities, and Children Under 12



RideCARTS.com

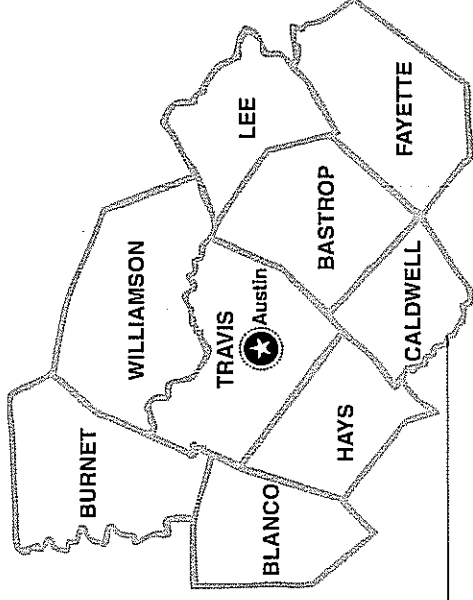


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Enjoy the convenience of having a CARTS bus pick you up at your home, take you to your destination, and then back home again. We will set up a time for pickup within our time slots of general availability. On your first call we will request information to enter into your customer profile, and after that we will know you when you call.



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Austin Metro Line 512-478-RIDE (7433)

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CITY BUS SERVICE IN

BASTROP AND SAN MARCOS

CARTS Around Town (CAT) is a municipal fixed route bus service offering regular route service in Bastrop and San Marcos connecting neighborhoods and downtown business. Visit the CARTS web site at RideCARTS.com for route information.

NATIONAL CONNECTIONS

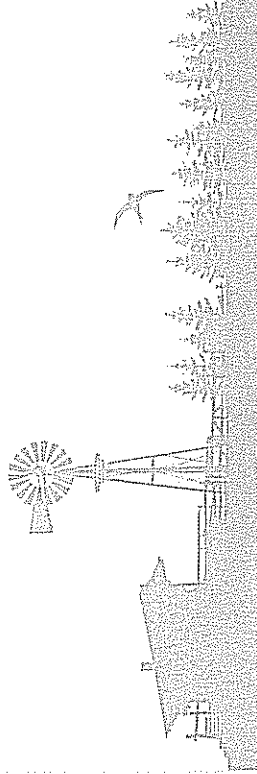
Bus and Train Services: At our Round Rock, Bastrop and San Marcos stations we operate intercity bus terminals for Greyhound, Coach America and Arrow Trailways which can take care of your shipping or travel needs nationwide. At our San Marcos Station AMTRAK rail service is also available. Visit the CARTS web site at RideCARTS.com for station address and further information.



CAPITAL AREA RURAL TRANSPORTATION SYSTEM

P.O. Box 6050 Austin, TX 78762

RideCARTS.com





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Welcome to the electronic version of the CARTS Williamson County Transit Planning Study. The study document is a result of many hours of volunteer labor by the Steering Committee for the project, a group that was formed by one appointment from each jurisdiction in the study area, and hundreds of hours of work by a nationally recognized consulting firm, the KFH Group of Bethesda, MD.

Since the first organizational meeting in the fall of 2001 to the publication of this electronic report almost two years later, CARTS has endeavored to promote reasonable and feasible solutions to mobility issues in this fast growing county, one of nine that forms the CARTS Rural Transit District.

This report is not an end product but a beginning, as policymakers, community leaders and involved citizens will need to weigh in on the conclusions and recommendations contained herein, and specific local study efforts will need to be pursued by CARTS and the local jurisdictions for services tailored specific to each locale so we can build from there with a regional perspective in mind. But it is a good start, that proverbial first step of the journey.

What all parties agree on is that the integration of transit service development into the infrastructure required to support the continued urbanization of the study area is important, and that the development of a seamless system that the average patron can use with ease to move freely through the many jurisdictions that comprise our region is a goal that all wish to move towards.

Again, many thanks to the steering committee members listed below for their tireless attention to detail without losing sight of the broader issues, and for maintaining a positivity throughout the study process that improved the final product immeasurably.

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Williamson County Public Transportation Planning Study

A cooperative effort of:



Capital Area Rural Transportation System



Consulting services provided by:



TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
1. PROJECT COORDINATION AND GOALS.....	4
2. REVIEW OF DEMOGRAPHICS, NEEDS, AND TRAVEL PATTERNS	7
3. REVIEW OF EXISTING TRANSIT SERVICES AND RESOURCES	14
4. DEVELOPMENT AND SELECTION OF ALTERNATIVES	22
5. THE WILLIAMSON COUNTY FIVE YEAR PUBLIC TRANSPORTATION PLAN	24
IMPLEMENTATION PLAN	57
SUMMARY	63

These Appendices are bound under separate cover.

- APPENDIX A: Williamson County Public Transportation Coordination Issues – Briefing Paper
- APPENDIX B: Technical Memorandum No. 1: Review of Demographics Needs and Travel Patterns
- APPENDIX C: Technical Memorandum No. 2: Review of Existing Transit Services and Resources
- APPENDIX D: Service and Funding Alternatives

LIST OF TABLES AND FIGURES

	<u>Page</u>
Table 1: Projected Origins and Destinations of 2007 Home-Based Work Trips by Area of Williamson County	13
Table 2: Williamson County Operating Costs and Performance Measures Data	16
Table 3: Williamson County Transit Funding Sources FY 2002	18
Table 4: Capital Metro Express Routes to Williamson County-Ridership Figures	20
Table 5: Intercity Transportation Service Through Williamson County	22
Table 6: Local Fixed-Route Service – Potential Ridership and Costs	33
Table 7: Williamson County Regional Service – Potential Ridership and Costs	52
Figure 1: Williamson County Transportation Study Area	2
Figure 2: Population Density in Persons per Square Mile – 1990 and 2000	8
Figure 3: Major Destinations for Residents of Williamson County	10
Figure 4: Projected 2007 Home-Based Work Trip Destinations with Origins in the Williamson County Study Area	11
Figure 5: Sample Origins and Destinations of CARTS Service in Williamson County ..	15
Figure 6: Capital Metro Service in the Williamson County Study Area	19
Figure 7: Cedar Park Fixed-Route Service	32
Figure 8: Georgetown Fixed-Route Service	35
Figure 9: Pflugerville Fixed-Route Service	37
Figure 10: Taylor Fixed-Route Service	39
Figure 11: Regional Route A – Taylor to Round Rock and I-35 Park and Ride	42
Figure 12: Regional Route B – Georgetown to Park and Ride	44
Figure 13: Regional Route C – Liberty Hill-Cedar Park-Round Rock	45
Figure 14: Daily Regional Service	47
Figure 15: Other Regional/Rural Service	48
Figure 16: Williamson County Public Transportation Service	53

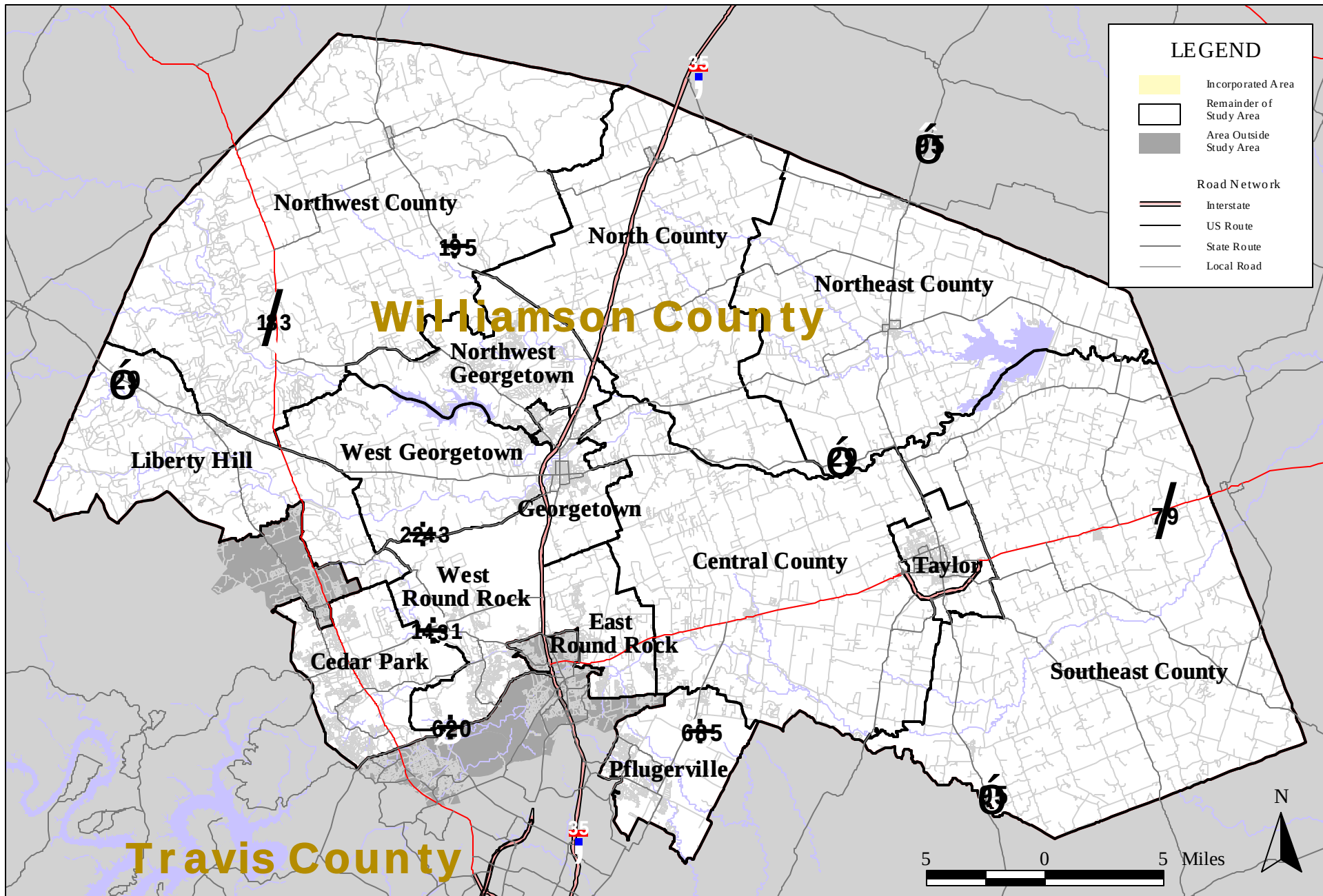
WILLIAMSON COUNTY PUBLIC TRANSPORTATION STUDY FINAL REPORT

INTRODUCTION

The Capital Area Rural Transportation System (CARTS), Williamson County, and participating municipal jurisdictions in Williamson and Travis Counties initiated a study of the feasibility of improving transit services. This study focuses on all of Williamson County except Round Rock and Leander, but includes the City of Pflugerville in Travis County (Figure 1). The City of Leander receives transit services, since it is a member of the Capital Metropolitan Transportation Authority (Capital Metro). The City of Round Rock is independently studying transit alternatives for implementation.

The primary goal of this document is to develop a Five Year Plan that includes a comprehensive/regional approach to the planning and development of public transit service and appropriate infrastructure in Williamson County and Pflugerville. One of the most important issues addressed in this study is the urbanization of Williamson County. As Williamson County continues its rapid growth, the level and type of transportation service historically provided by CARTS will no longer meet the needs of their rapidly growing urbanized population.

Williamson County is one of the most unique and diverse counties in the nation. With population growth over the past 12 years averaging almost ten percent a year,



Williamson County is among the nation's top five rapidly growing suburban counties. Complicating this rapid growth is the diverse development patterns of the county (suburban development, rural farmland, and small towns), especially in relation to their implications for the provision of public transit services.

The five-year public transportation plan must account for this diversity by addressing each of the differing travel needs of these communities, which often call for different solutions. The plan must thus consider the regional needs of long-distance commuters to regional cores, local work and non-work demands in the more densely developed south central parts of the county, small city fixed-route service, connections between major population centers, and the basic mobility needs of the county's rural residents.

Study Advisory Committee

The Study Advisory Committee was composed of representatives from; Cedar Park, Georgetown, Pflugerville, Taylor, Round Rock, Williamson County, Texas Department of Transportation (TxDOT), the Capital Area Metropolitan Planning Council (CAMPO), Capital Metro as well as key CARTS staff. This committee developed the study process, provided guidance to the consultant team, and selected the best options to meet the needs of Williamson County. The committee was closely involved in all aspects of the study.

Public Participation Process

The public participation process for this plan was extensive. Initial contacts included key participants throughout the region. More than 20 meetings were held in the initial stages of the study to coordinate the variety of activities. A website was developed to allow anyone to review the progress of the study. During the alternatives phase, public meetings and/or briefings for city councils and the County Commissioner Court were held in Cedar Park, Georgetown, Pflugerville, Round Rock,

and Taylor. In addition there were a number of meetings with human service agencies and senior centers. In each of these meetings there was strong support for transit among the participating residents.

The Study Process

The study consisted of five basic phases:

1. Coordination Issues (Appendix A)
2. Review of Demographics, Needs and Travel Patterns (Appendix B)
3. Review of Existing Transit Services and Resources (Appendix C)
4. Development and Selection of Alternatives (Appendix D)
5. Five Year Transit Plan

These phases are discussed in more detail in the sections that follow.

1. PROJECT COORDINATION AND GOALS

The first deliverable in the Williamson County public transportation planning process was the development of the study goals and objectives. The consultants working with the Advisory Committee developed a set of goals and objectives to guide the study process. The goals and objectives of the study were as follows:

The priority goal of the study was to:

Develop a comprehensive/regional approach to the planning and development of public transit service and design an appropriate infrastructure in Williamson County and Pflugerville.

The objectives include:

1. Implement a public participation process that allows for maximum input from the community and all other interested parties in the study area.
2. Determine the demand for and feasibility of additional public transit services for both intra- and inter-county trips for all portions of the study area.
3. Examine how Williamson County fits into the regional public transportation landscape and coordinates efforts with regional initiatives, including highway and high occupancy vehicle (HOV) lane projects, local and regional rail proposals, and existing transit services in neighboring jurisdictions.
4. Examine existing and future potential funding options for CARTS to expand service in the study area.
5. Review current services, including CARTS, Capital Metro's Special Transit Service (STS) currently operated in Cedar Park and Pflugerville, as well as additional human service transportation.
6. Review Georgetown fixed-route plan and revise/modify as necessary.
7. Coordinate planning activities with other transportation entities in the region, including Capital Metro, Round Rock, and Georgetown, as well as CARTS facilities planning efforts.
8. Coordinate with human service agencies to ensure that their clients can utilize the public transit system to the maximum extent.
9. Plan for a regional network in which CARTS' Williamson County service will be a component.

Review of County Planning Activities

There are a number of planning efforts taking place at the county level that merit the attention of this study. These efforts are detailed in Appendix A – Transportation Coordination and include:

- Georgetown Transportation Study

- Previous Planning for Transit in Georgetown
- Williamson County Transportation Plan
- Williamson County and Cities Health District (as part of the County Planning Process)
- Economic Development Efforts
- Transit Multi-Modal Centers
- Other local comprehensive and thoroughfare plans

Review of Regional Planning Activities

There are a number of very important studies and planning activities involving regional participants. These efforts are detailed in Appendix A. These activities will have a major impact on public transportation in the county. These planning efforts are as follows:

1. Capital Metro – Capital Metro is very actively expanding their capacity in the two major Williamson County corridors. New, expanded park and ride lots and expanded service are being planned that will give many Williamson County commuters several mobility options to the single occupant vehicle.
2. City of Round Rock - Round Rock is conducting its own parallel study to that being conducted for Williamson County. The Williamson County study team has made attempts to coordinate activities. It will be important for CARTS to obtain and review the Round Rock study.
3. CAMPO – This organization conducts planning activities and develops demographic and travel data for its service area which as of February 2003 includes all of Williamson County. They are also actively involved in planning activities related to the HOV lanes.
4. TxDOT – TxDOT is leading the HOV planning activities. It will be important to coordinate activities to ensure that proper park and ride facilities are planned for in the study area. While HOV lanes may be several years off, park and ride planning and acquisition needs to start in the near future.

2. REVIEW OF DEMOGRAPHICS, NEEDS, AND TRAVEL PATTERNS

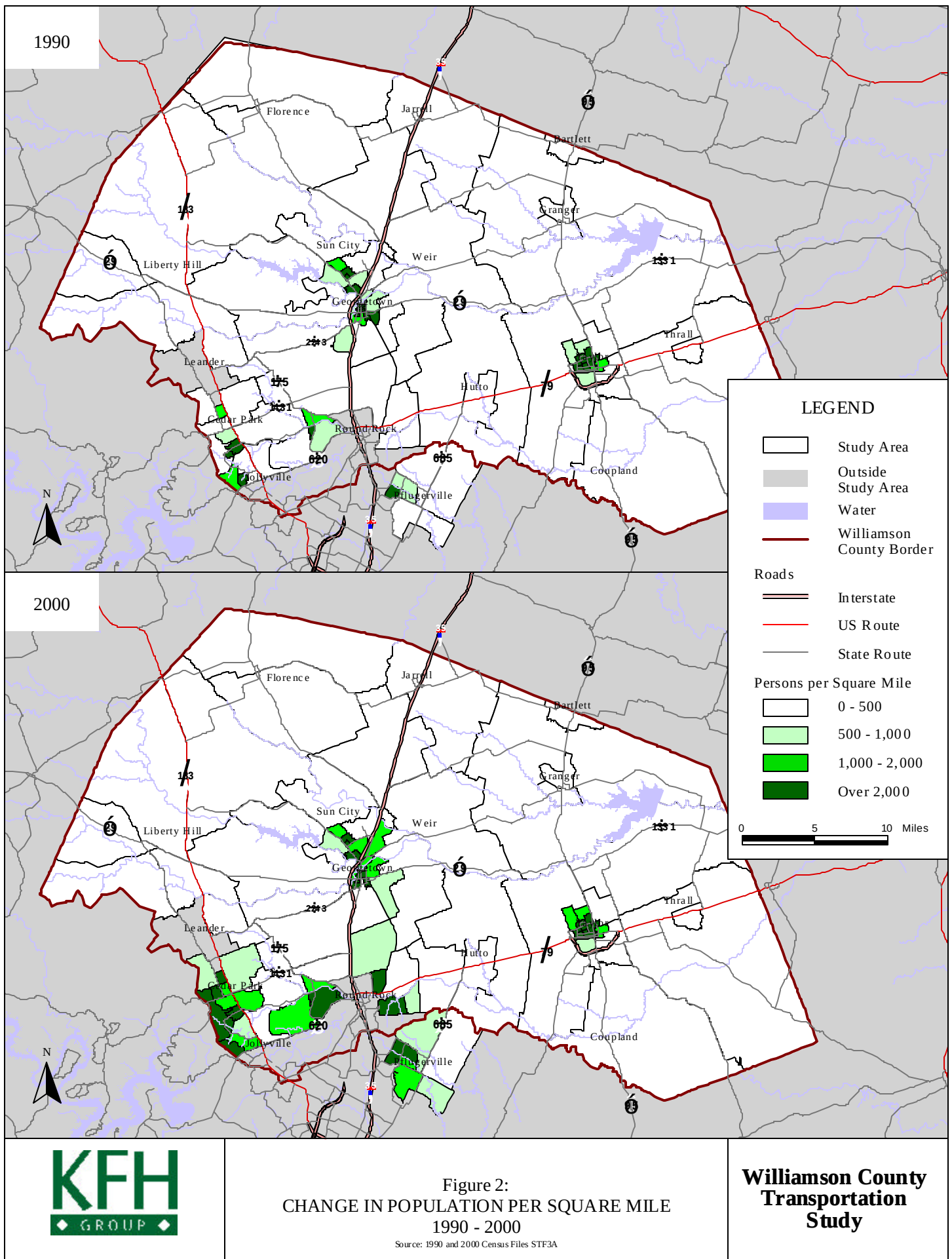
Over the past 20 years, Williamson County has grown dramatically, generating significant traffic congestion both within the county and along the corridors between Williamson County and Austin. In fact, Williamson County grew by 79 percent (8% per year) between 1990 and 2000, growing from a population of 139,000 to 224,000. Between 2000 and 2002, growth has accelerated to over 11 percent per year according to the U.S. Census estimates. Communities such as Pflugerville, Round Rock, Georgetown, Leander, and Cedar Park have seen explosive growth as primarily suburban communities adjacent to Austin. Williamson County now has traffic rivaling many major cities. The extra time taken in commuting has a negative impact on the quality of life in the county, especially in the areas of pollution, lost productivity, and traffic safety.

The study placed an emphasis on identifying areas with populations capable of supporting varying levels of transit service. Specifically *Technical Memorandum No. 1: Review of Demographics Needs and Travel Patterns* (Appendix B) details the following, which are summarized here:

- Where people who are likely to use transit live,
- Where they need to go, and
- Regional travel or commute patterns.

Where People Live

Figure 2 illustrates the changes in population density between 1990 and 2000. The significant change in population can be attributed in large part, to intense development along US Highway 183 (US 183) and Inter-Regional Highway 35 (IH 35) corridors (population in these areas grew by over 100%). No large parts of the study area experienced population decline and the rural area north and west of Georgetown



(toward Florence and Jarrell) increased in population by 89 percent. The Taylor area experienced the smallest growth in population at 17 percent.

In the Williamson County Study Area, the Cities of Georgetown, Cedar Park, Pflugerville, and Taylor have the highest needs for transit service. Based on population density alone, these communities rank high in relative need for transit and should be further studied for possible fixed-route service. When considering the percentage of potentially transit dependent persons, autoless households, and supply of affordable housing, Georgetown and Taylor, in particular, represent higher need for such service. Smaller cities such as Granger, Bartlett, and Thrall also have relatively high percentages of potentially transit dependent persons and may be good candidates for demand-responsive service.

Where People Need to Go - Travel Patterns

As illustrated in Figure 3, most of the primary trip generators are in the south-central portion of the county. These include work and non-work trips and are detailed in Appendix B. Figure 4 shows that a great number of work trip destinations are in the City of Austin – North of Town Lake. The largest concentrations of work trip destinations are in far North Central Austin by the University of Texas Research Center and IBM, and in Round Rock with Dell Computer and La Frontera, a multi-use development. Additional work destinations include the Cities of Georgetown and Taylor. Though this analysis can help us estimate general trip patterns, every location has unique commuting characteristics based on a variety of factors, making it necessary to examine where trips end at a particular destination.

Major non-work trip destinations include shopping, human service, and medical trips to the Round Rock area, which is the largest trip attractor in the county, followed by medical destinations in Austin. Georgetown attracts persons on county business, and there are some residents throughout the county who have specialized medical needs in the Temple area. In addition, there are many medical, shopping,

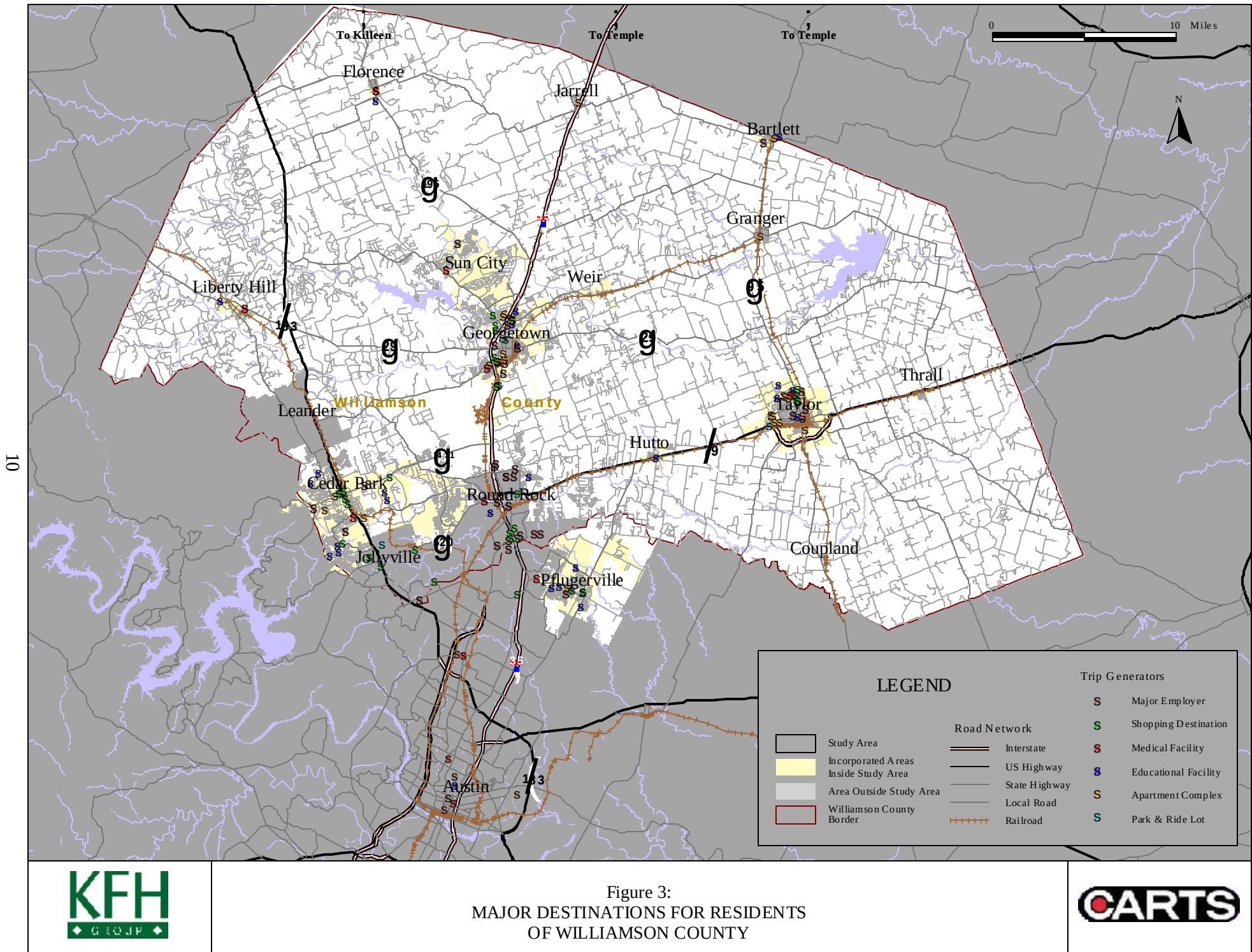
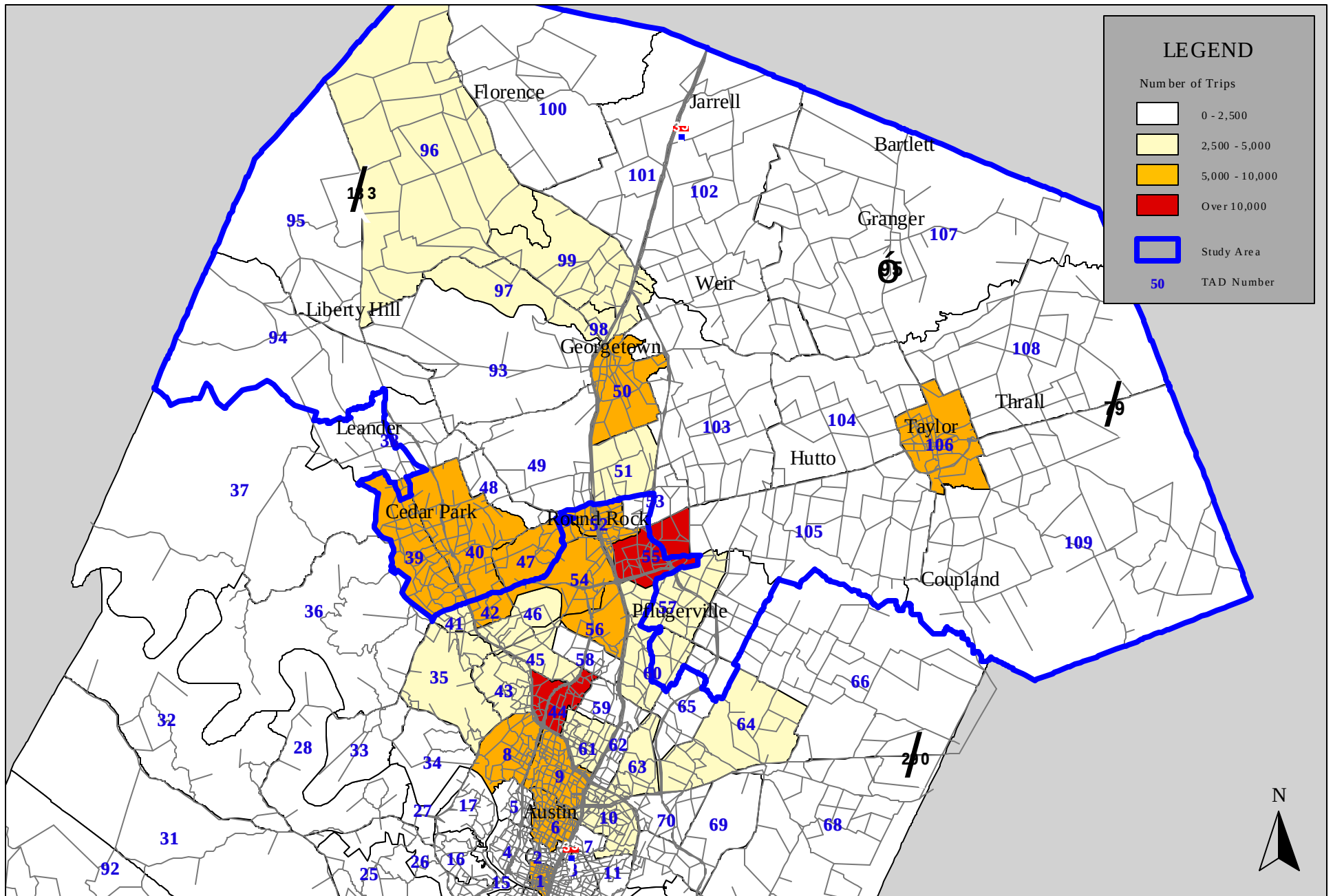


Figure 3:
MAJOR DESTINATIONS FOR RESIDENTS
OF WILLIAMSON COUNTY



human service, recreation and other trips that are accomplished within each community.

As part of their ongoing 2025 Transportation Plan, CAMPO in Austin, computed forecast commute travel patterns for the region, including Williamson County, using 1990 base year Transportation Analysis Zone (TAZ) data and 1997 data to estimate patterns for the Years 2007, 2015, and 2025. Aggregated Traffic Analysis Districts (TAD) was used for Figure 4. For the purposes of this study, being a Short-Range Transit Plan, we examined the 2007 forecast data for regional commute patterns in five years.

Internal Commute Patterns

Using the same data provided by CAMPO for the regional 2025 Transportation Plan as the analysis above, further analysis of commute patterns based on origins and destinations of home-based work trips within the study area was performed. Table 1 details the origins and destinations by area of the county. Please note that the areas represented in Table 1 are Census boundaries and will not have the same population as the actual political subdivision.

These same suburban communities have become more than just bedroom communities. In terms of employment growth, several areas have formed a new high tech employment corridor roughly along the Williamson-Travis County line. The travel patterns revealed above indicate significant travel between the towns and cities of Round Rock, Pflugerville, Cedar Park, Georgetown, and the other communities of the south central portion of the county. The levels of travel may be appropriate for fixed-route transit within and between these towns.

Round Rock

While not part of the study, the City of Round Rock is the area of Williamson County with the highest concentrations of employment. The Round Rock area is

Table 1
PROJECTED ORIGINS AND DESTINATIONS OF
2007 HOME-BASED WORK TRIPS BY AREA OF WILLIAMSON COUNTY

Destination	Origin														
	Central County	Cedar Park	East Round Rock	Georgetown	Liberty Hill	North County	Northeast County	Northwest County	Pflugerville	Northwest Georgetown	Southeast County	Taylor	West Georgetown	West Round Rock	Total
Central County	299	106	110	295	21	93	81	51	175	260	72	245	69	113	1,990
Cedar Park	225	6,639	221	611	484	120	42	388	432	616	45	117	378	1,438	11,756
East Round Rock	383	487	470	711	76	119	64	111	398	539	54	196	243	659	4,510
Georgetown	457	610	287	3,956	199	500	220	418	266	2,899	77	221	994	883	11,987
Liberty Hill	25	327	21	134	283	28	16	225	28	181	3	10	131	125	1,537
North County	109	94	44	439	38	668	211	207	59	710	25	67	119	116	2,906
Northeast County	53	12	7	84	6	79	454	33	17	93	56	144	23	16	1,077
Northwest County	72	367	36	314	227	133	34	1,366	44	764	22	32	239	140	3,790
Pflugerville	373	463	222	377	53	93	59	79	1,615	329	69	220	120	361	4,433
Northwest Georgetown	173	254	98	1,410	114	330	125	471	112	3,411	29	96	324	281	7,228
Southeast County	158	49	34	83	8	38	142	22	78	68	746	557	24	41	2,048
Taylor	841	176	139	438	34	193	573	68	309	418	1,004	4,831	105	209	9,338
West Georgetown	29	91	16	172	38	30	10	57	19	145	4	10	120	66	807
West Round Rock	154	911	180	555	114	87	37	109	223	458	27	89	221	1,219	4,384
Subtotal	3,351	10,586	1,885	9,579	1,695	2,511	2,068	3,605	3,775	10,891	2,233	6,835	3,110	5,667	67,791
North Austin	3,017	12,090	2,265	5,158	1,556	976	571	1,487	9,307	4,414	722	1,817	2,137	7,082	52,599
Round Rock	1,389	2,557	1,575	2,752	394	489	225	449	2,631	2,280	239	767	1,004	3,747	20,498
Other*	2,149	9,478	1,568	3,223	1,404	767	572	1,408	6,313	3,086	760	1,460	1,501	5,125	38,814
Total	9,906	34,711	7,293	20,712	5,049	4,743	3,436	6,949	22,026	20,671	3,954	10,879	7,752	21,621	179,702

Source: CAMPO 2025 Transportation Plan.

*Other is defined as Austin (other than North Austin to Town Lake) and Travis County.

expected to attract more home-based work trips than other parts of the study area, as it does today. The majority of these trips will travel down the IH 35 corridor from Georgetown, Sun City, and northern Round Rock. Additional concentrations of trips are expected from Cedar Park to the west, Pflugerville to the south, and as far as Taylor to the east.

3. REVIEW OF EXISTING TRANSIT SERVICES AND RESOURCES

CARTS, Capital Metro, intercity bus operators and Amtrak operate a variety of services in Williamson County. CARTS and Capital Metro operate the bulk of the service and are described in detail in *Technical Memorandum No. 2: Review of Existing Transit Services and Resources* (Appendix C).

CARTS Service

The emphasis of these services is on rural public transportation with services open to all, as well as medical (dialysis being a major portion of the service), human service, and education needs. The majority of origins in the county come from the area between the triangle formed by Pflugerville, Georgetown, and Taylor. Destinations are typically in the IH 35 corridor from Georgetown to downtown Austin (Figure 5).

CARTS operates six full-time routes (Monday through Friday), two - three day per week routes (Monday, Wednesday, and Friday) and one route twice per month. Table 2 details the performance measures for each route and the service as a whole. For the 12 months under review (March 2001 – February 2002), CARTS provided 48,636 one-way trips, or 195 trips per day. Vehicle hours totaled 17,669, and vehicle miles were 274,121, for an average speed of 15 miles per hour. Trip length averaged 7.8 miles per trip. Productivity was at 2.5 one-way trips per hour.

Cost to operate service (operating and administration) in Williamson County was estimated using CARTS average cost per hour of \$37.08 and multiplying that cost

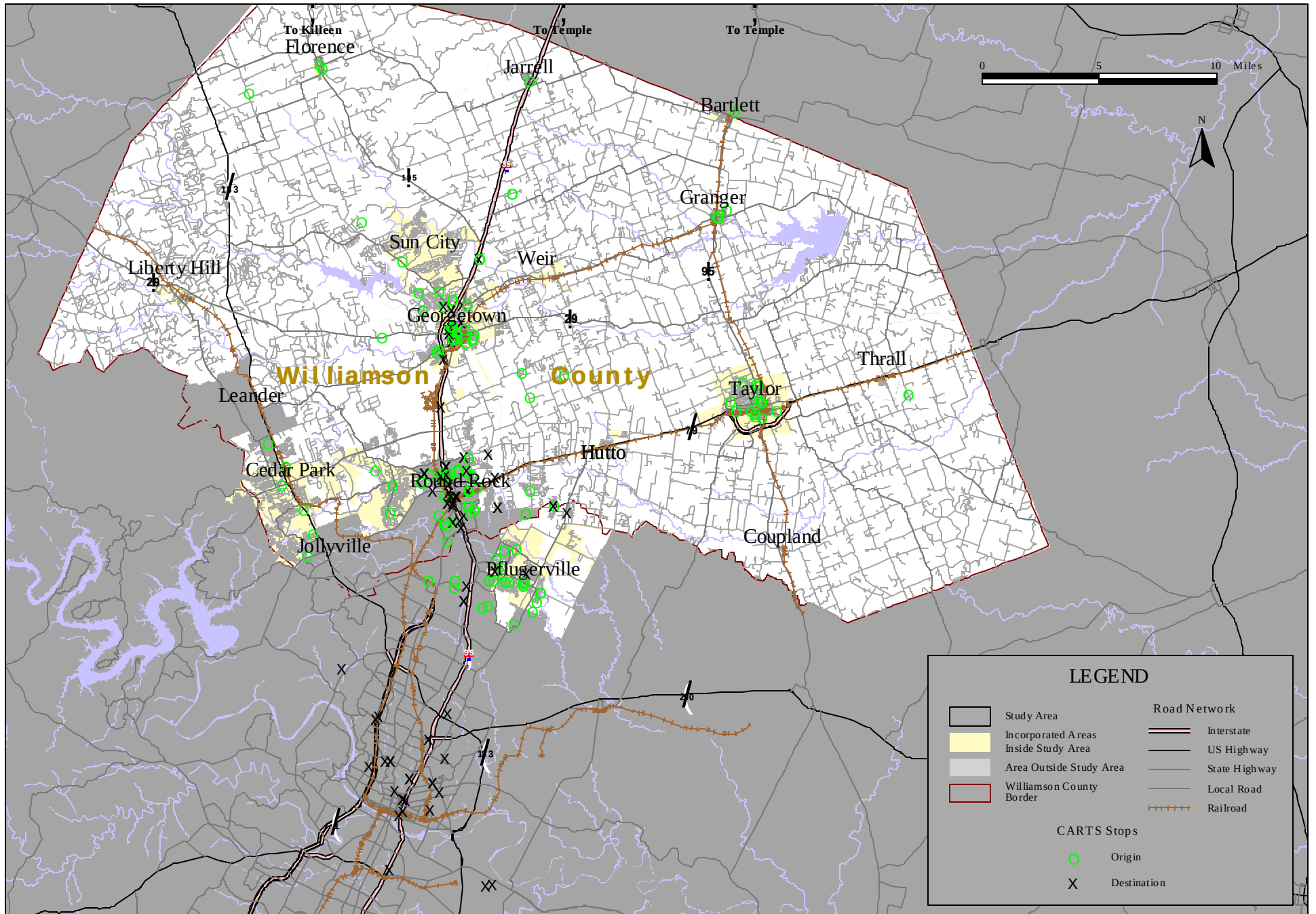


Figure 2-1
 SAMPLE ORIGINS AND DESTINATIONS OF CARTS SERVICE
 IN WILLIAMSON COUNTY
 Source: Sample of CARTS driver manifests

Table 2 - WILLIAMSON COUNTY OPERATING COSTS AND PERFORMANCE MEASURES DATA

Route	Route Type*	Annual Vehicle Hours	Annual Vehicle Miles	Annual One-Way Trips	Vehicle Miles per Hour	One-Way Trips per Vehicle Hour	One-Way Trips per Vehicle Mile	Miles per One-Way Trip	Annual Operating Cost
821	L/R	1,700	18,207	4,157	10.71	2.45	0.23	4.38	\$63,036.00
822	I/R	2,036	35,383	3,265	17.38	1.60	0.09	10.84	\$75,494.88
901	R	2,830	67,883	5,583	23.99	1.97	0.08	12.16	\$104,936.40
902	I	1,312	30,519	5,423	23.26	4.13	0.18	5.63	\$48,648.96
903	I	2,391	38,447	7,226	16.08	3.02	0.19	5.32	\$88,658.28
904	L	2,556	38,560	10,499	15.09	4.11	0.27	3.67	\$94,776.48
905	L	2,083	19,043	7,314	9.14	3.51	0.38	2.60	\$77,237.64
906	L	2,230	19,043	4,694	8.54	2.10	0.25	4.06	\$82,688.40
907	R	277	4,143	232	14.96	0.84	0.06	17.86	\$10,271.16
908	L	254	2,893	243	11.39	0.96	0.08	11.91	\$9,418.32
Total		17,669	274,121	48,636	15.05	2.47	0.18	7.84	\$655,166.52

Route	Operating Cost per Hour	Cost per Mile	Cost per One-Way Trip	Vehicle Operating Days	Vehicle Hours per Day	Vehicle Miles per Day	One-Way Trips per Day	Cost per Day	
821	\$37.08	\$3.46	\$15.16	150	11.33	121.38	27.71	\$420.24	
822	\$37.08	\$2.13	\$23.12	250	8.14	141.53	13.06	\$301.98	
901	\$37.08	\$1.55	\$18.80	250	11.32	271.53	22.33	\$419.75	
902	\$37.08	\$1.59	\$8.97	150	8.75	203.46	36.15	\$324.33	
903	\$37.08	\$2.31	\$12.27	250	9.56	153.79	28.90	\$354.63	
904	\$37.08	\$2.46	\$9.03	250	10.22	154.24	42.00	\$379.11	
905	\$37.08	\$4.06	\$10.56	250	8.33	76.17	29.26	\$308.95	
906	\$37.08	\$4.34	\$17.62	250	8.92	76.17	18.78	\$330.75	
907	\$37.08	\$2.48	\$44.27	22	12.59	188.32	10.55	\$466.87	
908	\$37.08	\$3.26	\$38.76	62	4.10	46.66	3.92	\$151.91	
Total		\$37.08	\$2.76	\$19.86	1,884	93.27	1,433.26	232.66	\$3,458.51

Source: Calculated from March 2001- February 2002 using monthly statistical data supplied by CARTS.

*L Local Service
I Intra-County
R Regional Service

by the number of hours operated in the county. The resulting cost was \$655,166, or \$19.86 per trip. Capital cost during this period is estimated at \$146,647, for a total cost of \$801,813.

Funding of CARTS Service

CARTS receives a variety of funding in order to fulfill its mission. Federal and state funding are the largest portion of CARTS revenues system-wide and in Williamson County. Federal Transit Administration (FTA) Section 5311 is the rural transit funding source that is currently available and used for the non-urbanized parts of Williamson County. It is important to note that in FY 2003, CARTS received a significant cut (12.5%) of its state revenue from the State Public Transportation Fund. This funding has been reduced by the legislature, requiring CARTS to either find other sources of funding or cut existing services as necessary.

CARTS receives approximately 33 percent of its operating funds for Williamson County from non-federal or state sources. Table 3 details these funding sources (for FY 2002) by governments (\$36,750) and human service agencies.

Human Service Agencies

CARTS coordinates transportation with many human service agencies. Of those with funding for transportation, some utilize CARTS, some utilize their own vehicles and some use a combination of services. CARTS provides services for Mental Health and Mental Retardation (MHMR), Aging (Title III), and Medicaid. These services are both local and long distance in nature.

Table 3

**WILLIAMSON COUNTY
TRANSIT FUNDING SOURCES FY 2002**

Source	Funding Level	Percentage
City/County Funding FY2002	\$ 36,750	5.6
Welfare to Work Funding	\$ 16,590	2.5
Round Rock Summer Express	\$ 42,000	6.4
Medicaid (13.52/trip)	\$ 46,725	7.1
Title III Senior Funding (4.00/trip)	\$ 25,764	3.9
MHMR/Contract	\$ 50,400	7.7
Total Local Funding	\$218,229	33.3
Total State/Federal	\$436,937	66.7
Total Funding	\$655,166	

Capital Metro - Express Service

Capital Metro provides a variety of express services throughout its service area. Of particular interest to this study are the express services that operate adjacent to or through the study area, specifically US 183 north and IH 35 north. The services along these routes serve park and ride locations on the outskirts of the Austin Metropolitan area. Figure 6 presents a map of the Capital Metro express routes serving these areas. Table 4 provides ridership data for a typical month of service.

All together on the US 183 corridor, Capital Metro operates 28 schedules southbound every weekday and 33 northbound every weekday, with all stops serviced throughout the day on one route. Capital Metro is preparing to expand service in this corridor upon completion of a new park and ride lot near the northeast corner of the intersection of US 183 and RR 620 which is very convenient for Cedar Park residents. This should be completed within the next year.

Capital Metro operates express service along the IH 35 corridor from an area adjacent to Pflugerville to the downtown area of Austin. There are five runs in the a.m. peak and six runs in the p.m. that serve the area, with a park and ride facility in

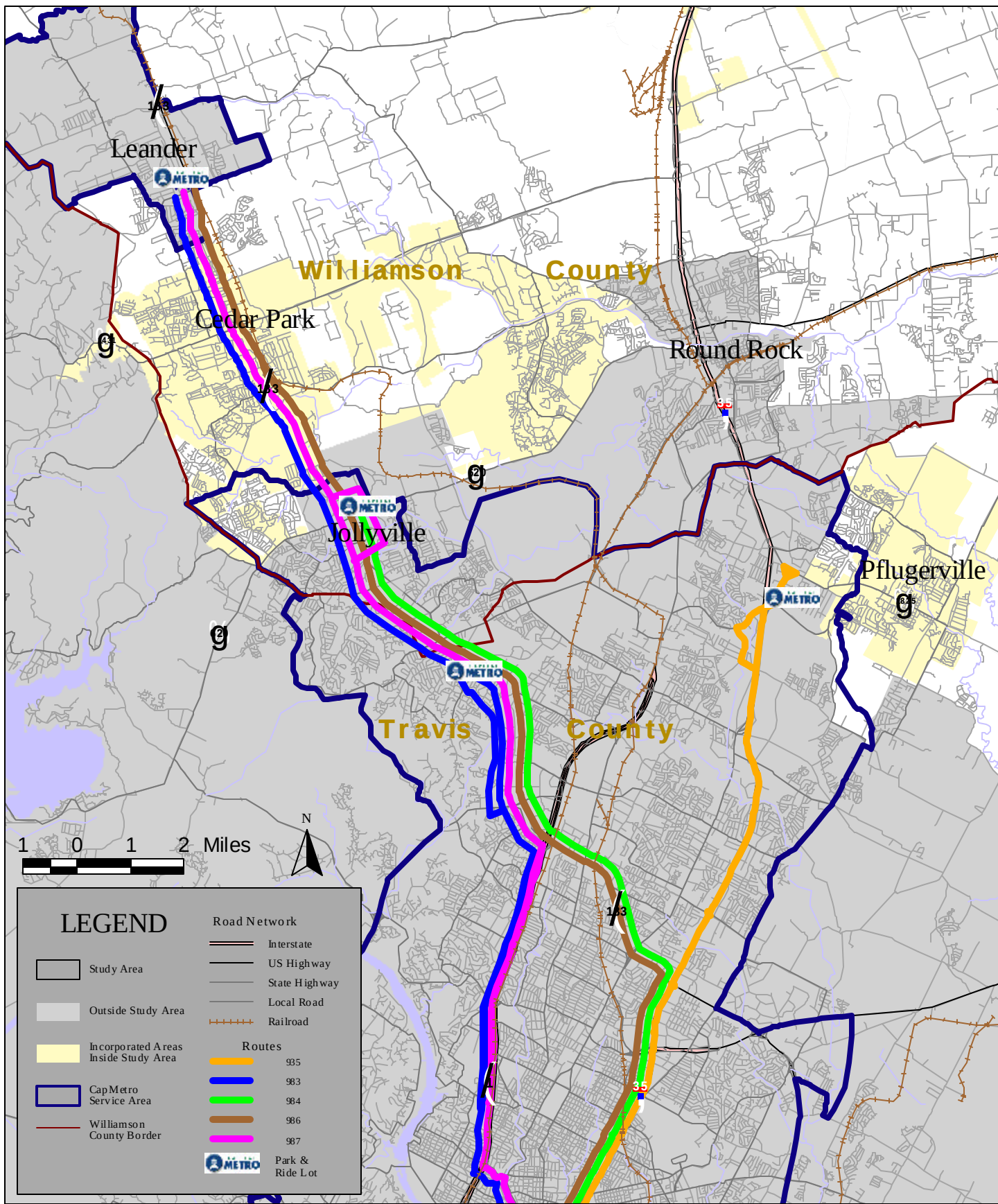


Figure 2-26
CAPITAL METRO SERVICE
IN THE WILLIAMSON COUNTY STUDY AREA

**Table 4: CAPITAL METRO EXPRESS ROUTES TO
WILLIAMSON COUNTY - RIDERSHIP FIGURES**

Route	Route Name	Daily Ridership	Number of Runs	One-Way Trips per Run
935	North IH-35 Express	288	11	26.2
983	North US 183 Express	541	33	16.4
984	Northwest Direct	118	7	16.9
986	Leander Direct	91	6	15.2
987	Leander/Northwest Express	152	15	10.1
Total		1,190	72	16.9

the HEB parking lot on FM 1825. Capital Metro is preparing to build a new, larger park and ride lot next to the current lot, adjacent to the HEB on FM 1825 near IH 35. This should be completed within the next year. Capital Metro is also planning to expand to all day service in this corridor after completion of the park and ride facility.

Special Transit Service (STS)

Pflugerville and Cedar Park voted out of Capital Metro. State law requires Capital Metro to continue operating its STS for persons with disabilities if requested by Cedar Park and Pflugerville. The legislation requires these cities to reimburse Capital Metro for one half of the operating cost of the service. Service in Pflugerville and Cedar Park is dominated by a small group of regular riders for medical and employment purposes. In both Pflugerville and Cedar Park there were 10 and 13 persons, respectively in each community taking over 90 percent of the trips, virtually all to Austin.

A further breakdown is as follows:

Cedar Park

- 13 regular riders
- 8 riders go to the same destination in Central Austin at 7:00 a.m. and return at 2:00 p.m.
- 4 riders go to Central Austin with pick-ups ranging from 5:00 a.m. to 11:00 a.m. and returns from 1:00 p.m. to 5:00 p.m.
- One rider stays in Cedar Park with an 8:00 a.m. pick-up and an 11:00 a.m. return.

Pflugerville

- 10 regular riders
- 7 occasional riders
- 4 riders go to similar destinations at 7:00 a.m. and a return between 2:00-3:00 p.m. to North Austin
- 6 riders travel between 6:00 a.m. and 11:00 a.m. Most go to North Austin, with one staying in Pflugerville
- 7 occasional riders typically going to North and Central Austin at a wide variety of hours.

Hill Country Transit (HCT)

HCT operates service in two counties adjacent to Williamson -- Bell and Milam. HCT operates fixed-route service in Killeen and Temple, two destinations that residents of the northern parts of the county go to for many needs, and Temple is also a common destination for many medical needs for residents throughout the county. There are opportunities for coordination between CARTS and HCT. HCT operates two dialysis runs; one from Bartlett and the other from Rockdale, both are routed through Taylor, for dialysis in Round Rock. These vehicles then layover in Round Rock for three hours. CARTS' regular runs to Temple also have the vehicle layover in Temple.

Intercity Service

Williamson County is served by two intercity bus lines and Amtrak train service (Table 5). These schedules are operated throughout the day. Amtrak serves Taylor with a daily train in each direction. This Amtrak train goes to Austin and San Antonio to the south, and Temple, Dallas, and ultimately Chicago to the north.

Greyhound provides intercity service with four schedules North and South on IH 35 in each direction. Arrow Trailways provides service to Round Rock on two routes; Houston to Killen (two schedules) and Waco and Austin (with four schedules in each direction).

4. DEVELOPMENT AND SELECTION OF ALTERNATIVES

In this task, the consultant team identified potential service concepts for local and regional services in Williamson County, the purpose of which was to receive direction from CARTS and the study committee regarding the development of the final plan. The consultants introduced a range of public transit service alternatives (options) for the county. Specifically, three levels of service, representing alternative investment strategies, have been developed to provide the stakeholders and decision-

makes a variety of options as well as an understanding of the relationship between service and costs. These alternatives are presented in detail in Appendix D.

Table 5: INTERCITY TRANSPORTATION SERVICE THROUGH WILLIAMSON COUNTY

Provider	City	Route	Daily Trips		Destinations	
			Northbound	Southbound	Northbound	Southbound
Amtrak	Taylor	Texas Eagle	10:52 a.m.	7:26 p.m.	Dallas	Austin
Greyhound	Round Rock	484	7:20 a.m. 11:35 a.m. 3:50 p.m. 6:45 p.m.	9:15 p.m. 1:00 p.m. 6:15 p.m. 11:00 p.m.	Dallas	Austin
Arrow Trailways	Round Rock	7800	9:25 a.m. 4:00 p.m.	6:30 p.m.	Killeen	Houston
Arrow Trailways	Round Rock	7805	7:20 a.m. 11:35 a.m. 3:50 p.m. 6:45 p.m.	9:05 a.m. 1:15 p.m. 6:15 p.m. 11:00 p.m.	Waco	Austin

As part of the alternatives, there was a discussion of hours of service, days of the week, and vehicle headways. These elements in large part determine the overall service costs and productivity. For example, serving late evening hours will produce few additional riders, Sunday service will draw about one-third the ridership of weekdays, and reducing vehicle headway from one hour to one-half hour will virtually double system costs.

After a presentation and review of the alternatives, the advisory committee directed the consultants to develop a plan based on the service levels and

organization chosen. These selections are used in the development of the draft and final plans.

The consultants presented the alternatives at public and city council meetings in: Cedar Rock, Georgetown, Pflugerville, and Taylor. A presentation was also made to the Williamson County Commissioners. Additional meetings were held with human service agencies. Strong support for transit was demonstrated in the public meetings.

5. THE WILLIAMSON COUNTY FIVE YEAR PUBLIC TRANSPORTATION PLAN

Williamson County includes a diverse set of communities that call for a variety of services tailored for specific needs. The plan addresses service needs over the next five years. The major service recommendations can be summarized as follows:

- 1. Local City Service** – This includes separate fixed-route services in Cedar Park, Pflugerville, Georgetown, and Taylor. Three of the cities will have a two bus system, with Georgetown having a three bus system.
- 2. Regional Service** – Three regional routes will connect the more populated areas of Williamson County with each other and with Austin. The emphasis will be on commuter service. The commuter services will connect to Capital Metro for seamless service into Austin. Rural regional service will include door-to-door service in the areas stated. Service will also be available on a limited basis to Temple and Killeen, with connections to Hill Country Transit.
- 3. Americans with Disabilities Act (ADA), and Human Service Paratransit** – Addressing the service needs for ADA complementary paratransit and human service needs of clients and agencies.
- 4. Other Demand Services** – Vanpools, carpools, market development services, and other flexible low cost services should be employed throughout the county.
- 5. Pflugerville and Cedar Park STS Service** – A broker will be established to determine the least expensive mode appropriate for each trip, reducing service costs while maintaining service quality. The new fixed-route and ADA paratransit in these communities will allow even greater mobility for residents in need of paratransit.

Where applicable, local and regional services will meet in a timed manner, and rural service will feed into the network. By having one interconnected service, each of the individual services will be enhanced and made more attractive for users. For example, a person using transit would be able to take a bus in Sun City and go to Georgetown, or transfer and go to Round Rock or even to Austin, vastly increasing the possible destinations and attractiveness of the service.

Service Assumptions

The design of transit services for Williamson County has been based on the following general assumptions:

- Williamson County will continue to experience rapid population and employment growth over the next five years (see Appendix B). This will require a flexible approach to transit – being able to change and address new markets rapidly.
- The major population centers will continue to be in the south central part of the county. Major destinations will be Round Rock and North Austin. Our analysis indicates that the travel patterns associated with this area will remain similar in spatial orientation, but will continue to increase over the five-year horizon of the plan.
- There is significant demand for travel between the cities of Cedar Park, Round Rock, Georgetown, Pflugerville, and Taylor.
- Future Williamson County transit services will need to be closely coordinated with those operated by Capital Metro, HCT, as well as intercity bus and Amtrak. This will help to achieve one of the major objectives of ongoing regional transit planning efforts of ensuring seamless connections between compatible services.
- CARTS will take an entrepreneurial approach to transit in Williamson County. The county will seek out opportunities to find local customers, partners, and sponsors from both the public and private sectors. A significant portion of the system's local funding will be from private businesses either contracting or sponsoring transit.

- CARTS will conduct pro-active planning and fine tune the system on a semi-annual to annual basis. This fine-tuning is necessary especially during the first year of a route.
- Safe pedestrian crossings within and between major developments to minimize auto – pedestrian conflicts and eliminate barriers for short trips that could be made on foot.
- The transit system will encourage the use of the bicycles. Each transit component should be bicycle friendly, allowing for seamless connectivity between bicycle and bus service. Transfer centers should include bicycle storage, and there will be an ability to move bicycles by bus. Other amenities as appropriate to encourage the bicycle – transit connection and add another option to the single occupant vehicle.

Need for Transit Oriented Planning and Development

Some of the fundamental problems in serving Williamson and other similar suburban counties with transit are low density development/suburban sprawl, lack of transit-oriented design, and lack of convenient pedestrian access. These three problem areas will inhibit ridership of the transit system because:

- Low development densities will not allow transit to pick-up large numbers of passengers at one time – grouping of trips.
- There are only a handful of roads that the buses can travel on. Buses cannot get into most neighborhoods due to lack of through streets.
- Sidewalks along all arterial and major collector facilities and crosswalks at all major intersections are needed for pedestrian access.

While it may be difficult to retrofit many existing neighborhoods for transit, it is recommended that the county and each city look towards the future with changes to the comprehensive land use plan that can make transit more effective and allowing residents a true choice of modes.

Seamless Connections: A Regional Network

This plan calls for a regional network of services where residents of Travis and Williamson Counties can take advantage of each other's transit network and access transit that crosses service area lines. Service will also be offered north to Temple and Killeen and will make connections with the fixed-route systems of each of these cities. There will be excellent connectivity between each of the local routes, connecting the cities and into the Austin and Bell County areas, with the concept of seamless transportation throughout the region.

In order to ensure this seamless connectivity, CARTS should lead a formal or informal alliance of transportation providers including: CARTS, HCT, Capital Metro, as well as intercity bus and Amtrak. This North Corridor alliance can extend CARTS connectivity from Austin to Temple.

Jurisdictional Issues

The following route structure is contingent on each of the key communities contributing their fair share towards the system. The plan is predicated on the economies of scale that can be gained by having Cedar Park, Georgetown, Pflugerville, and Taylor as well as Williamson County all participating. Further, the route structure is interdependent. The regional services are somewhat dependent on the local routes and in the Cedar Park, Round Rock, and Pflugerville area, connections between the communities is essential.

1. Fixed-Route Service

Each of the larger cities – Cedar Park, Georgetown, Pflugerville, and Taylor, in the service area have the densities to support modest stand alone fixed-route services. These services will provide local circulation for employment, school, medical needs, recreation, shopping and other needs. In addition, the local fixed-

route systems will provide feeder service to the regional network and in the future, commuter rail service.

Fixed-Route City Bus Service - Key Concepts

Essential concepts and rules that should be followed in the creation of a fixed-route local bus service in Williamson County include:

- **Minimum Density** – Fixed-route service should be available in communities of at least 1,500 persons per square mile, as well as areas with major destinations.
- **Service Days and Hours** – It is recommended that service operate at a minimum from 6:00 a.m. to 7:00 p.m., Monday through Friday and 9:00 a.m. to 7:00 p.m. on Saturday – approximately 3,750 revenue hours annually. Please note that there may be employment needs up until 9:00 p.m. when retail stores close. Expanded service hours may be available if a sponsor or other funding is available.
- **Suburban Area Road Network** – The sprawl nature of the southern part of the county limits the effectiveness of public transit service.
- **ADA Complementary Paratransit** – Accessible fixed-route service with complementary paratransit is recommended rather than route deviation service (where the vehicle will deviate off of the route as requested) in most cases. While the fixed-route approach is slightly more expensive, it provides far superior service for both fixed-route riders and persons who cannot ride fixed-route, due to a disability as defined by the ADA. In addition, CARTS will still continue to operate paratransit in much of the county.
- **Maximize Use of Fixed-Route** – Accessible fixed-route local bus service has proven capable of transporting most persons with disabilities. Indeed, mainstreaming is the intent of the ADA legislation. Incentives and training should be provided for persons with disabilities to ride fixed-route.
- **Serve Public School Students** – Student transportation for children who live less than two miles from a school is an important part of each fixed-route system where this two mile rule applies. Each route is designed to generate maximum ridership for students. Routes can change during peak school hours to accommodate student needs.

- **Timed Transfer and Interlining** – Fixed routes will meet at designated transfer points and then become a second route (interlining). This reduces the need for transfers. These services will also be timed to meet inter-county and intra-county service, where possible.
- **Out and Back** – This is the traditional form of fixed-route transit, where as a general rule, a bus goes in two directions down each street it traverses. Large loop style routes where the vehicle goes one way down each street are generally ineffective due to long travel times, circuitous routings, and difficulties in comprehending schedules.
- **Modest Goals** – Initially modest goals should be set, allowing the service time to build a customer base, like any other business.
- **Marketing Funds** – As with any new start-up business, transit needs to be professionally marketed and promoted, with a reasonable budget.

Vehicle Requirements

The plan calls for the initial use of small buses, referred to as a Type III or body-on-chassis vehicle. These are light duty vehicles designed to last five years. These vehicles will have a standard transit entry door. All vehicles will be accessible to persons with disabilities. These vehicles cost approximately \$70,000 and will use alternative fuel. It is anticipated that after the first five years, these buses will be replaced by medium duty transit coaches designed to carry more riders and designed to last twice as long.

Spare vehicles will be required at 20 percent of the operating fleet. The plan calls for nine regular vehicles used by the four cities, requiring two spare vehicles. The advantage of working in a coordinated manner allows each of the four cities to share spare vehicles.

CARTS will need adequate space for vehicle storage at multiple sites. The Round Rock facility is centrally located and can store the Pflugerville vehicles and 2 – 4 commuter vehicles. The facilities planned for Taylor and Georgetown should have space for their local service and eight commuter vehicles each (allowing for expansion after HOV improvements). These facilities should also allow for light running repairs as needed.

CARTS has a maintenance facility in Smithville that conducts all major maintenance. CARTS will also seek out local private contractors to conduct routine maintenance, until such time that CARTS can establish a maintenance center in Williamson County. CARTS will also need to identify alternative fuel providers in the eastern part of the county and in the Round Rock area. Consideration should be given to developing a facility centrally located in the Round Rock area where most vehicles pass through each day.

Service Characteristics - Fixed-Route

The general characteristics of these proposed local service bus routes are as follows:

Service Hours:	6:00 a.m. to 7:00 p.m. (Monday-Friday) 9:00 a.m. to 7:00 p.m. (Saturday)
Headway:	½hour to 1 hour
Peak Vehicles Required:*	Cedar Park – 2 Georgetown – 3 Pflugerville – 2 Taylor – 2
Vehicle Type:	Body-on-chassis Bus – Five Year Life (15-25 passenger)
Bus stops:	Near side every ¼mile – Flag stops may be permitted
Average system speed:	12 - 20 MPH

*Two spare vehicles will be needed for all of the cities combined- these costs will be split among cities.

Fare Policy

Fares should be low to attract more riders. Under any scenario the fare revenue generated from local fixed-route will always be very low – about 4 – 10 percent of the operating expenses. Fare should be \$.50 with half fares for students, elderly, and disabled persons. This fare is comparable to other CARTS fixed-route

service. Transfers to other fixed routes should be free, with transfers to the regional bus discounted by the fare of the first mode. For example, if the fare for fixed-route is \$.50 and the fare for the regional service is \$2, then the fare for the regional service should be \$1.50 with a transfer. Ten and 20 ride tickets and discounted monthly passes should be made available.

A. Cedar Park Fixed-Route

Cedar Park is a suburban community with low density of both residences and destinations. There is no traditional downtown and most of the growth is suburban style development. The city is linear in nature with most of the growth occurring alongside the north-south corridor around US 183, and increasingly Lakeline Blvd. to the west.

Cedar Park has the potential to support a two bus fixed-route system (Figure 7) that provides two basic types of service; internal circulation for shopping, school, recreation and other needs, and a feeder into Capital Metro's new park and ride facility, which will give commuters seamless connections to Austin via Capital Metro. This feeder service will also facilitate travel for major/specialized medical needs that are not available in Cedar Park.

Light ridership levels are expected initially with significant growth over the first five years of the service. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at a modest four one-way trips per revenue hour. That is, with two vehicles operating from 6:00 a.m. to 7:00 p.m. - 26 hours per weekday and 20 hours on Saturdays (7,500 hours annually) - ridership would be approximately 104 one-way trips on weekdays and 30,000 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 108,750 miles for both vehicles. The operating cost for this service would be approximately \$300,000 for operation of two vehicles. Vehicle capital expenses will include \$140,000 for two five year vehicles

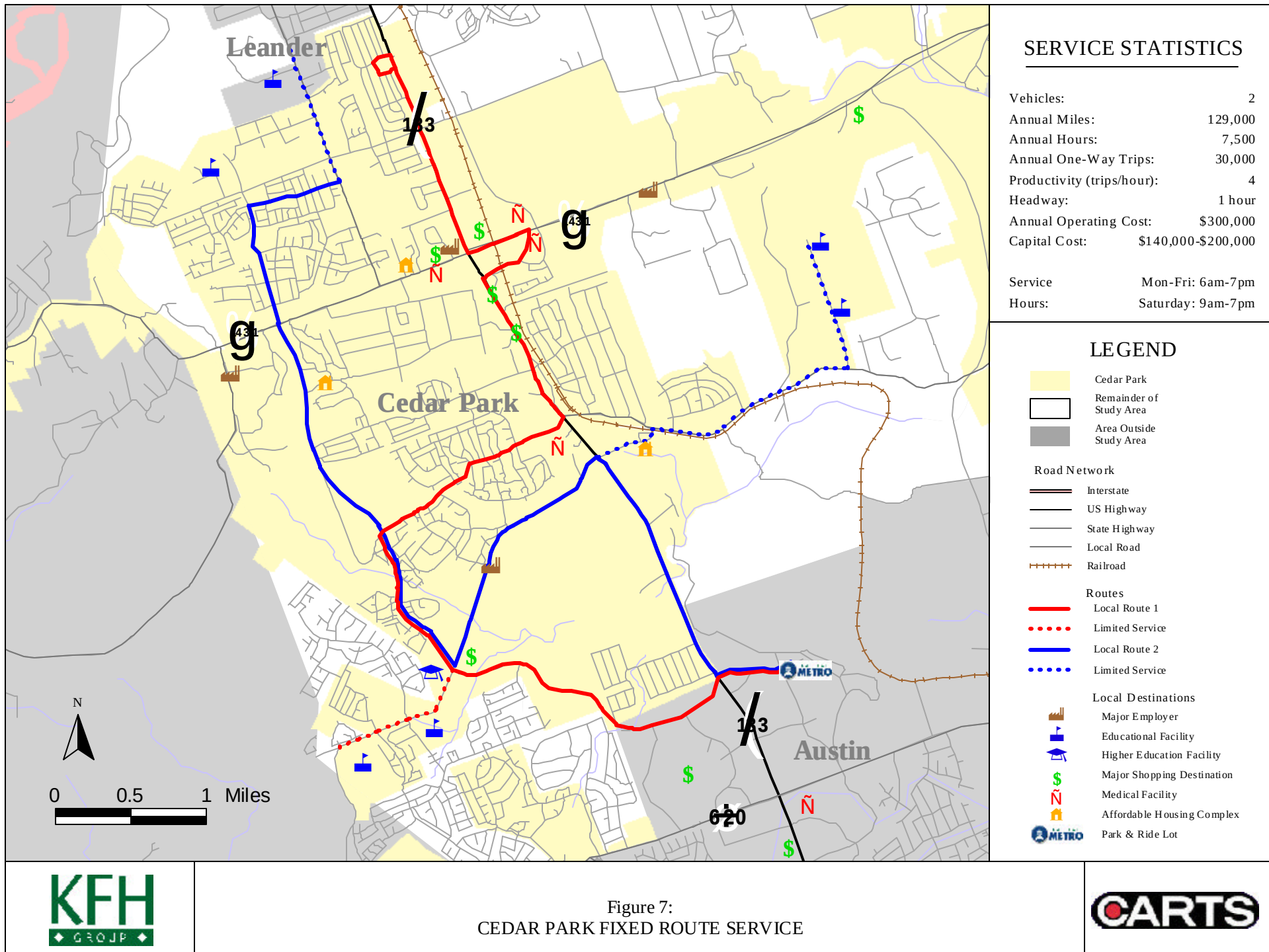


Table 6 - LOCAL FIXED-ROUTE SERVICE - POTENTIAL RIDERSHIP AND COSTS

City	Vehicles Required	Headway	Route Length One-Way	Estimated Productivity	Service Hours	Service Miles	Estimated Ridership (Annual - Yr. 1)	Annual Fare Revenue	Annual Operating Cost*	Capital Costs**
Cedar Park	2	1hr.	7	4	3,750	52,500	15,000	\$5,625	\$150,000	
			7.5	4	3,750	56,250	15,000	\$5,625	\$150,000	
Cedar Park - Sub Total					7,500	108,750	30,000	\$11,250	\$300,000	\$170,800
Net Cost - Cedar Park									\$288,750	
Georgetown	3	1/2 to 1 hr.	10.5	5	3,750	80,535	18,750	\$7,031	\$150,000	
			4.7	5	3,750	72,098	18,750	\$7,031	\$150,000	
			5	5	3,750	76,700	18,750	\$7,031	\$150,000	
Georgetown - Sub Total					11,250	229,333	56,250	\$21,094	\$450,000	\$256,200
Net Cost - Georgetown									\$428,906	
Pflugerville	2	1 hr.	6.4	4	3,750	48,000	15,000	\$5,625	\$150,000	
			4.7	4	3,750	35,250	15,000	\$5,625	\$150,000	
Pflugerville - Subtotal					7,500	83,250	30,000	\$11,250	\$300,000	\$170,800
Net Cost Pflugerville									\$288,750	
Taylor	2	1/2hr	4.1	6	3,750	61,500	22,500	\$8,438	\$150,000	
			4.6	4	3,750	69,000	15,000	\$5,625	\$150,000	
Taylor - Sub Total					7,500	130,500	37,500	\$14,063	\$300,000	\$170,800
Net Cost Taylor									\$285,938	
Total System (spares)	9(2)				33,750	551,833	153,750	\$57,656	\$1,350,000	\$768,600
System Net Cost									\$1,292,344	

* Assumes \$40 per hour cost.

**Includes spare vehicles

and \$30,000 for Cedar Park's share of the two backup vehicles – shared by the four cities.

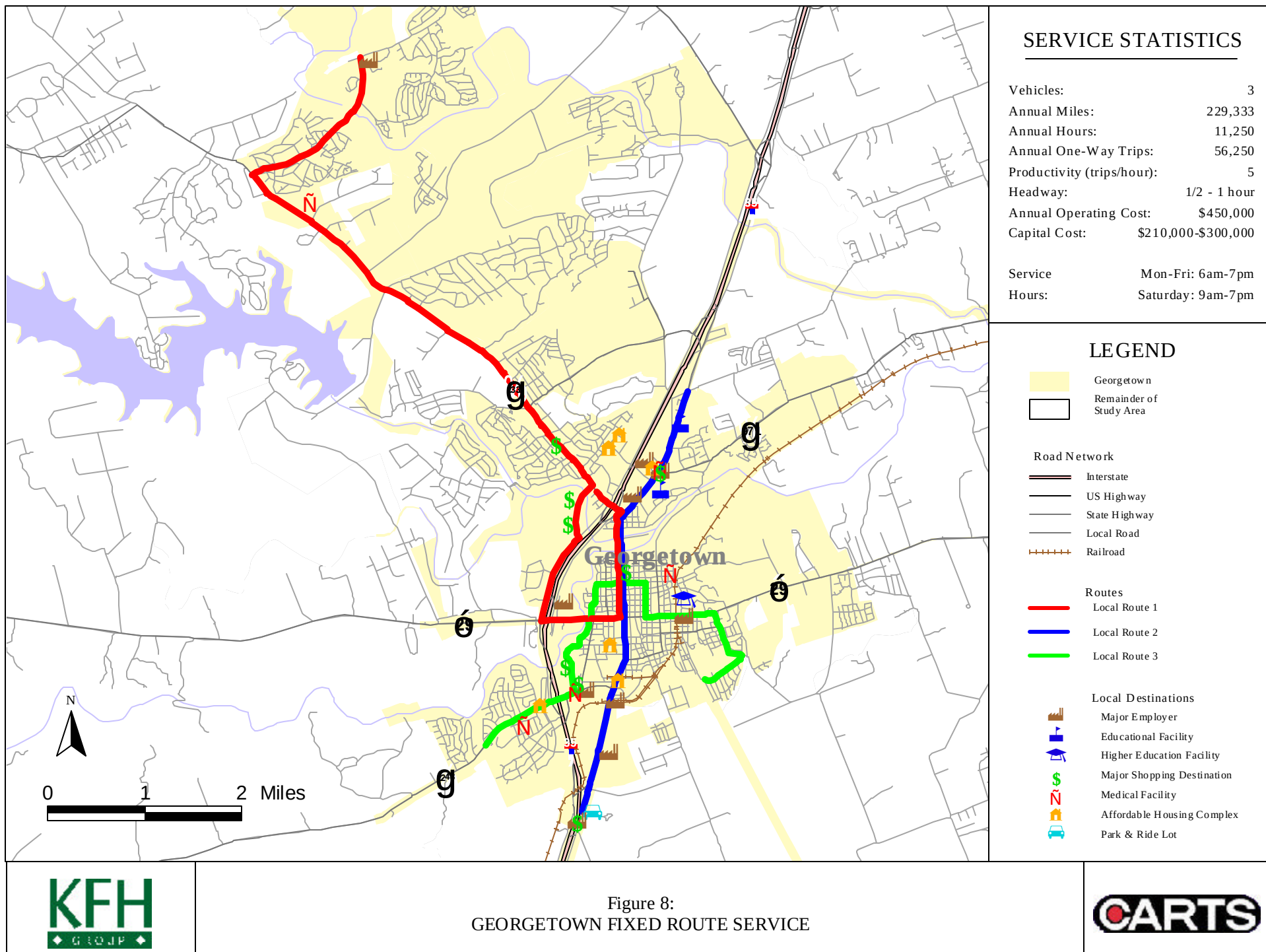
B. Georgetown Fixed-Route

Georgetown is the largest city in the study area, and is a traditional city (for transit purposes) with a downtown that includes retail stores, city, and county government. Georgetown also has a college and most importantly, much of the city (east of the interstate) is transit friendly (through streets, sidewalks, and the downtown core), allowing for the potential of higher ridership.

Georgetown can support a three bus transit system (Figure 8) that includes one route that operates on an hourly headway (Sun City) and two routes that operate on half hour headways. Each of these routes will meet at the downtown transit hub every $\frac{1}{2}$ – 1 hour. The routes are designed to meet the needs of a wide variety of customer needs – students (public schools and the university), commuters both local and feeding into the regional service to Round Rock and Austin – shoppers, medical, and those conducting personal business downtown.

This service would generate modest ridership at first, with significant growth over the first five years of the service. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at five one-way trips per revenue hour, a little higher than the other cities in the system. With three vehicles operating from 6:00 a.m. to 7:00 p.m. - 39 hours per weekday and 30 hours on Saturdays (11,250 hours annually) - ridership would be approximately 195 one-way trips on weekdays and 56,250 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 229,000 miles for all three vehicles. The operating cost for this service would be approximately \$450,000 for operation of three vehicles with an additional capital cost of \$210,000 for three vehicles and an additional \$46,000 for Georgetown's share of the two backup vehicles – shared by each of the four cities. In addition, Georgetown will continue to support the existing



CARTS paratransit service, which will also serve as the ADA complementary paratransit program.

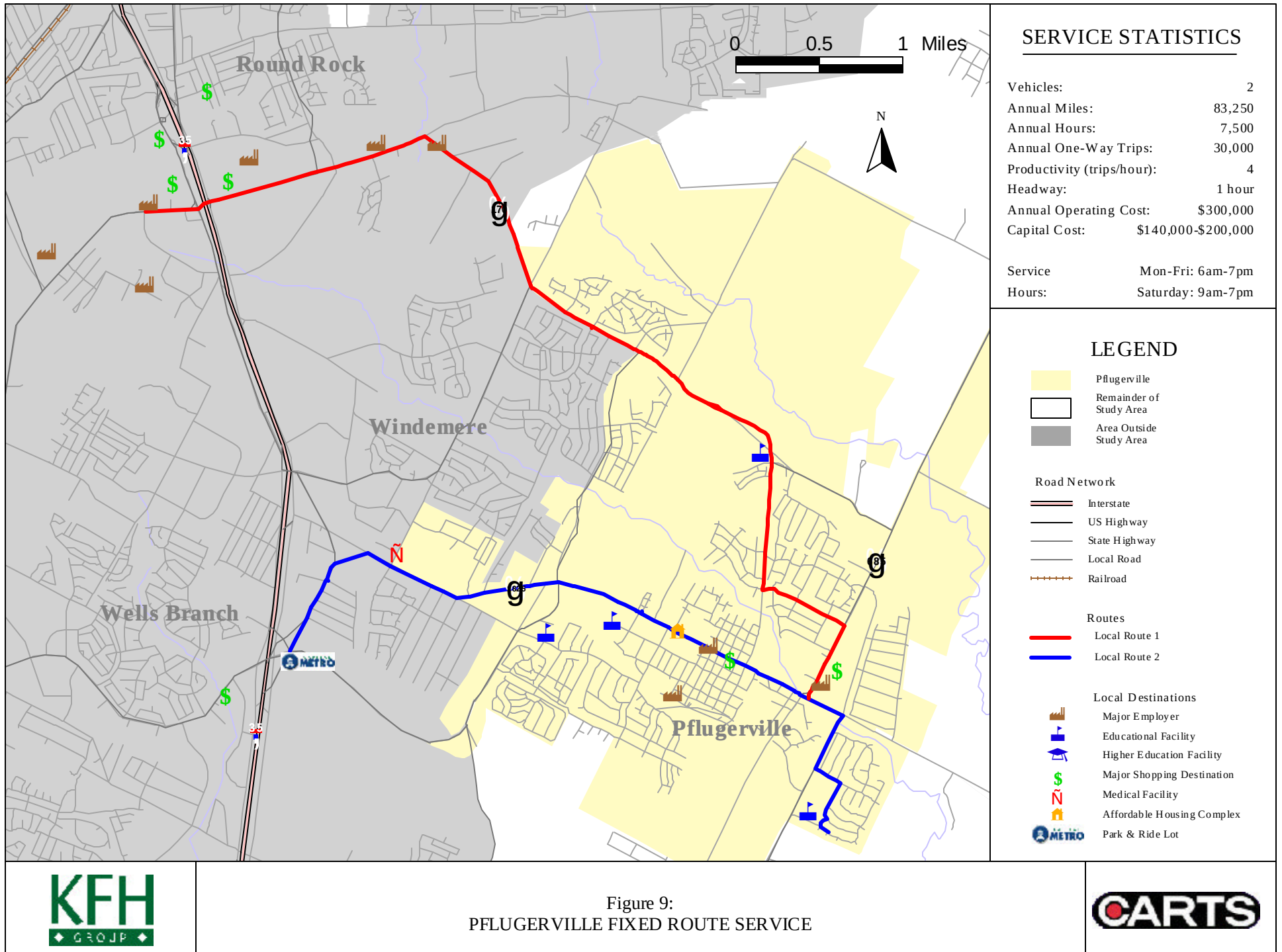
C. Pflugerville Fixed-Route

Pflugerville is also a small suburban community that is difficult for transit to serve due to its sprawl nature and lack of a downtown core. Pflugerville residents will use the service to commute to Round Rock and to feed into Capital Metro buses at the new transfer facility to the southeast of the H 35/FM 1825 intersection. The service will also attract students going to school as well as some shoppers, especially elderly residents who may find the direct service to shopping to be beneficial and easy.

Pflugerville can support two routes that travel throughout the city (Figure 9) – one going to the park and ride lot for connections with Capital Metro, and the other route will go to Round Rock, serving the businesses and retail along Louis Henna Drive and connecting to a Round Rock service.

This service would generate modest ridership at first, with significant growth over the first five years of the service. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at a modest four one-way trips per revenue hour. Operating 7,500 hours annually, ridership would be approximately 104 one-way trips on weekdays and 30,000 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 83,250 miles for both vehicles. The operating cost for this service would be approximately \$300,000 for operation of two vehicles. Vehicle capital expenses will include \$140,000 for two vehicles and \$30,000 for Pflugerville's share of the two backup vehicles – shared by the four cities.



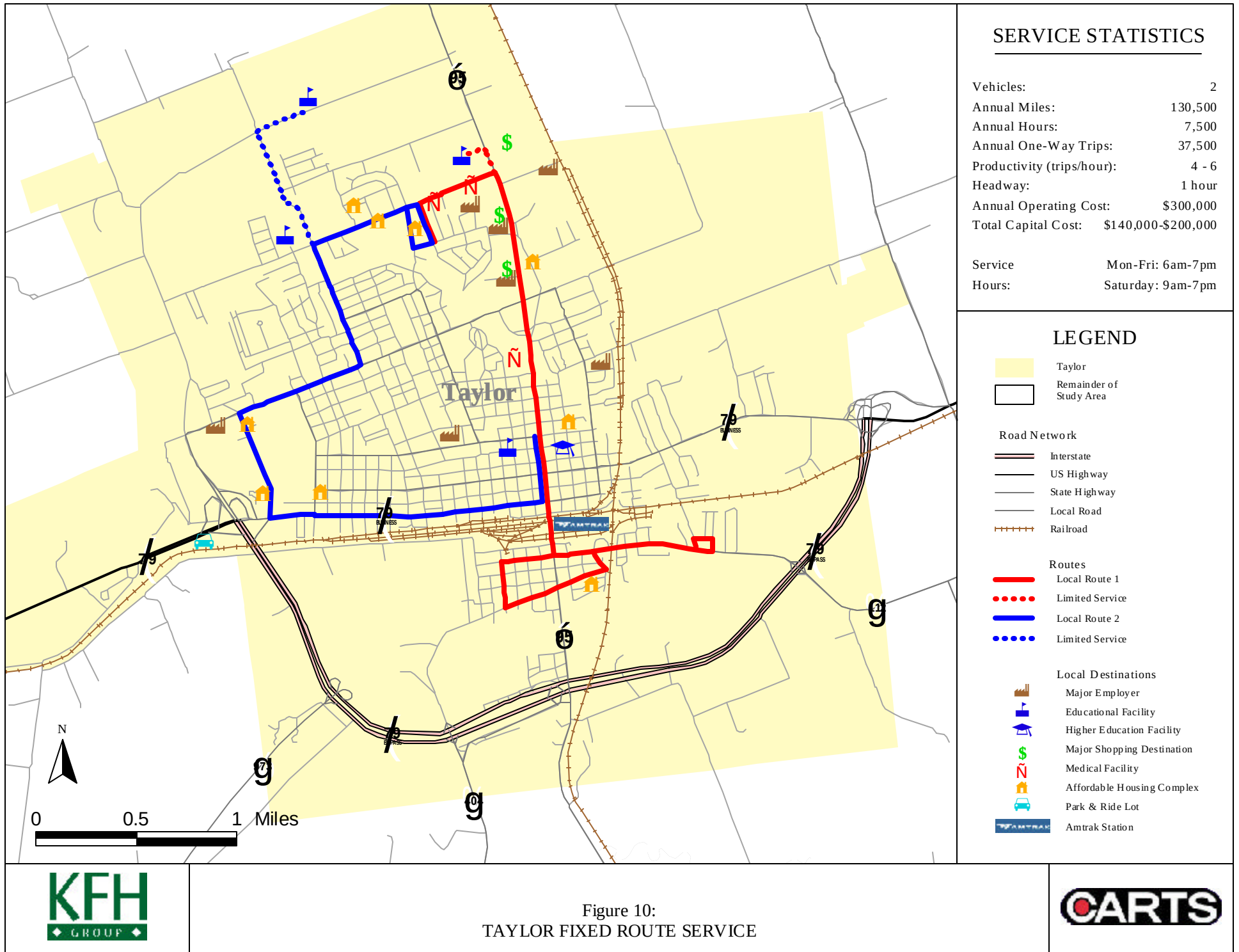
D. Taylor Fixed-Route

Taylor, like Georgetown is a more traditional city in a geographic/transit sense. Streets are parallel and there is a downtown core area. Taylor can support two full-time fixed-route buses operating on two routes (Figure 10). The first route operates north and south on Main Street. At the north are the high school and the HEB. In the center of this route there is the junior high school, city hall, and downtown. At the southern end of this route are lower income residences that can support fixed-route. This route will generate significant ridership, offsetting the lower ridership expected in the second route. These routes can be adjusted to meet at a new intermodal center when built.

This service would be most beneficial for school age children – going by schools, recreation centers and parks, as well as transit dependent persons for work, school, shopping, and medical needs. This service would also connect with the regional routes.

As with any new service, ridership will be light initially, with significant growth over the first five years of the service. Route 1 will generate more riders than most other routes in the system. Due to the short length of these routes, coupled with the lighter traffic (compared to the south central part of the county), these routes can operate on half hour headways. Table 6 reviews potential ridership, hours, miles, and costs for each of the fixed routes. Based on experience in similar areas, ridership would start at a modest four one-way trips per revenue hour. Operating 7,500 hours annually, ridership would be approximately 130 one-way trips on weekdays and 30,000 annual trips in the first year. It is expected that ridership would double in 3-5 years.

Total annual mileage would be about 130,500 miles per vehicle. The operating cost for this service would be approximately \$300,000 for operation of two vehicles. Vehicle capital expenses will include \$140,000 for two vehicles and \$30,000 for Taylor's share of the two backup vehicles – shared by the four cities.



2. Regional Service

The regional services proposed include scheduled bus routes between communities within the county, and connecting to Capital Metro's Park and Ride Service. As described in the previous section, local fixed-route services will meet the basic mobility needs for residents within several of the communities, including Taylor, Pflugerville, Cedar Park, and Georgetown. These local services would act as a collector-distributor for regional services at transit hubs, allowing the regional services to provide express trips between communities.

Regional Service Concepts

Regional routes would generally operate under the criteria proposed below:

- Daily regional services will include a minimum of five daily weekday round trips between the major communities – two a.m. peak runs, one mid day run, and two p.m. peak runs;
- Rural regional services will include a minimum of two weekday round trips connecting to smaller communities such as Jarrell, Florence, Granger, Bartlett, and Thrall, with limited service to Temple;
- Service during weekends, holidays, or special events will be provided where and when there is sufficient demand;
- Routes will stop only at designated stops (major destinations that also serve as transfer points for local and regional bus routes) and park and ride lots in the major communities. In Round Rock, it is assumed that the transit hub will be in the south part of the city along Louis Henna Drive;
- Transfers between local and regional routes will be timed to minimize passenger waiting times; and
- Regional routes will stop within walking distance to most residents in smaller communities where local bus services are not provided.

Fare Policy and Revenue

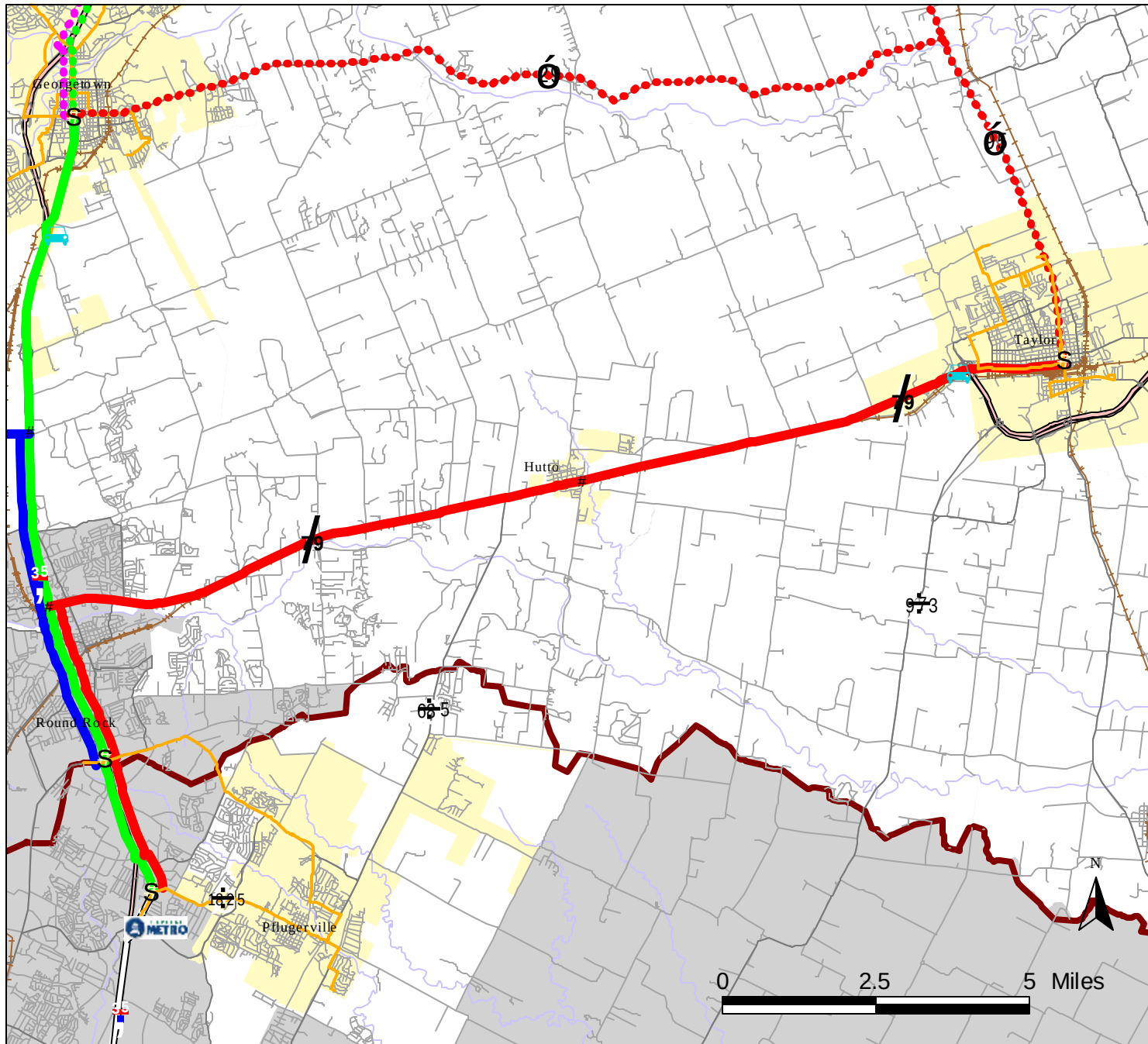
The fare for the regional service should be low enough to attract riders, but still reflect the longer trip associated with this service. It is recommended that the fare for regional service be \$2 with half fare for elderly and disabled and students. This fare is similar to CARTS' Bastrop County commuter fare. It is recommended that tickets be available for single ride, multiple ride (10 and 20 rides) and monthly service, with small discounts for multiple ride and monthly passes. Further, transfers should be arranged for fixed-route (pay one regional fare and transfers to local service are free). An arrangement should also be worked out with Capital Metro to allow for a discounted fare when transferring from CARTS to Capital Metro's express service.

Regional Routes - Daily

The following regional routes are proposed for service with a minimum of five runs each weekday. These are the primary routes that will connect the population centers of the county. Local fixed-route and fixed schedule service will feed into this service.

Regional Route A: Taylor-Round Rock- Capital Metro Park and Ride

Route A (Figure 11) will provide service from Taylor and Hutto to Round Rock via US 79 and to Capital Metro's Park and Ride facility off of IH 35. Stops will be located in downtown Taylor, the Taylor park-and-ride lot, Hutto, downtown Round Rock, south Round Rock along Louis Henna Drive (transit hub), and Capital Metro North IH 35 Park and Ride Lot. This route should operate one way in the a.m. and p.m. peaks and a mid day round trip starting at the Capital Metro Park and Ride lot. This route will probably need a second peak bus for the two back to back a.m. and



SERVICE STATISTICS

One-Way Trip Length:	22 miles
Round Trip Time:	1:30 hours
Vehicle Hours:	2,550
Annual Cost:	\$102,080
Annual Ridership:	12,750

LEGEND

- Incorporated Area
 - Remainder of Study Area
 - Area Outside Study Area
 - Williamson County Border
- Road Network**
- Interstate
 - US Highway
 - State Highway
 - Local Road
 - Railroad
- Routes**
- Taylor-Pflugerville Route
 - Limited Service
 - Cedar Park Route
 - Georgetown Route
 - Local Route
 - CapMetro Service
- Local Destinations**
- S Transfer Point
 - # Other Key Stops
 - # Park & Ride Lot
 - # CapMetro Park & Ride Lot

p.m. runs. The second vehicle could be the existing CARTS vehicle that operates in that corridor now.

One-way trip length:	22 miles
One-way travel time:	45 minutes, including layover time
Weekday trips:	5
Annual revenue hours:	2,550
Annual cost:	\$102,000

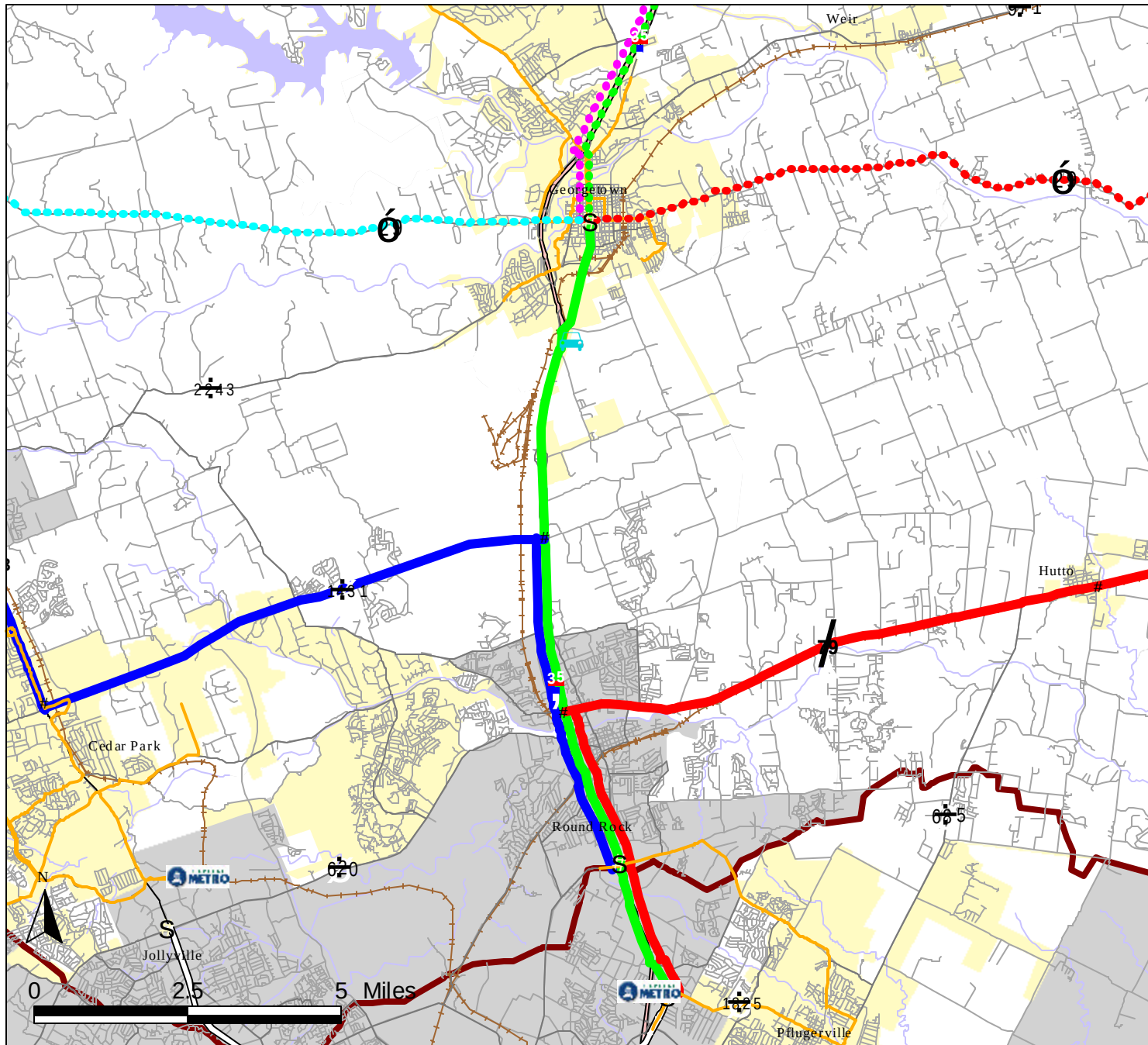
Regional Route B: Georgetown-Round Rock - Capital Metro Park and Ride

Route B (Figure 12) provides service from Georgetown to Round Rock via IH 35. Stops will be located in downtown Georgetown (local transit hub), Georgetown Park and Ride Lot, north Round Rock at RM 1431 (proposed regional mall), south Round Rock along Louis Henna Drive (transit hub), and Capital Metro North IH 35 Park and Ride lot. This will be round trip service for each of its five runs.

One-way trip length:	13 miles
One-way travel time:	30 minutes, including layover time
Weekday trips:	5
Annual revenue hours:	1,275
Annual operating cost:	\$51,000

Regional Route C: Liberty Hill-Cedar Park-Round Rock

Route C (Figure 13) provides service from Liberty Hill through Cedar Park to Round Rock and Georgetown (through a transfer) via US 183, RM 1431, and IH 35. Stops will be located in Liberty Hill, Leander (Capital Metro transfer hub), Cedar Park at local transit hub, north Round Rock at RM 1431 (proposed regional mall), south Round Rock along Louis Henna Drive (transit hub), and Capital Metro North IH 35 Park and Ride Lot. Additional local service within Cedar Park would be available to provide local circulation and connections to Capital Metro's Northwest Park and Ride Lot. This will be round trip service.

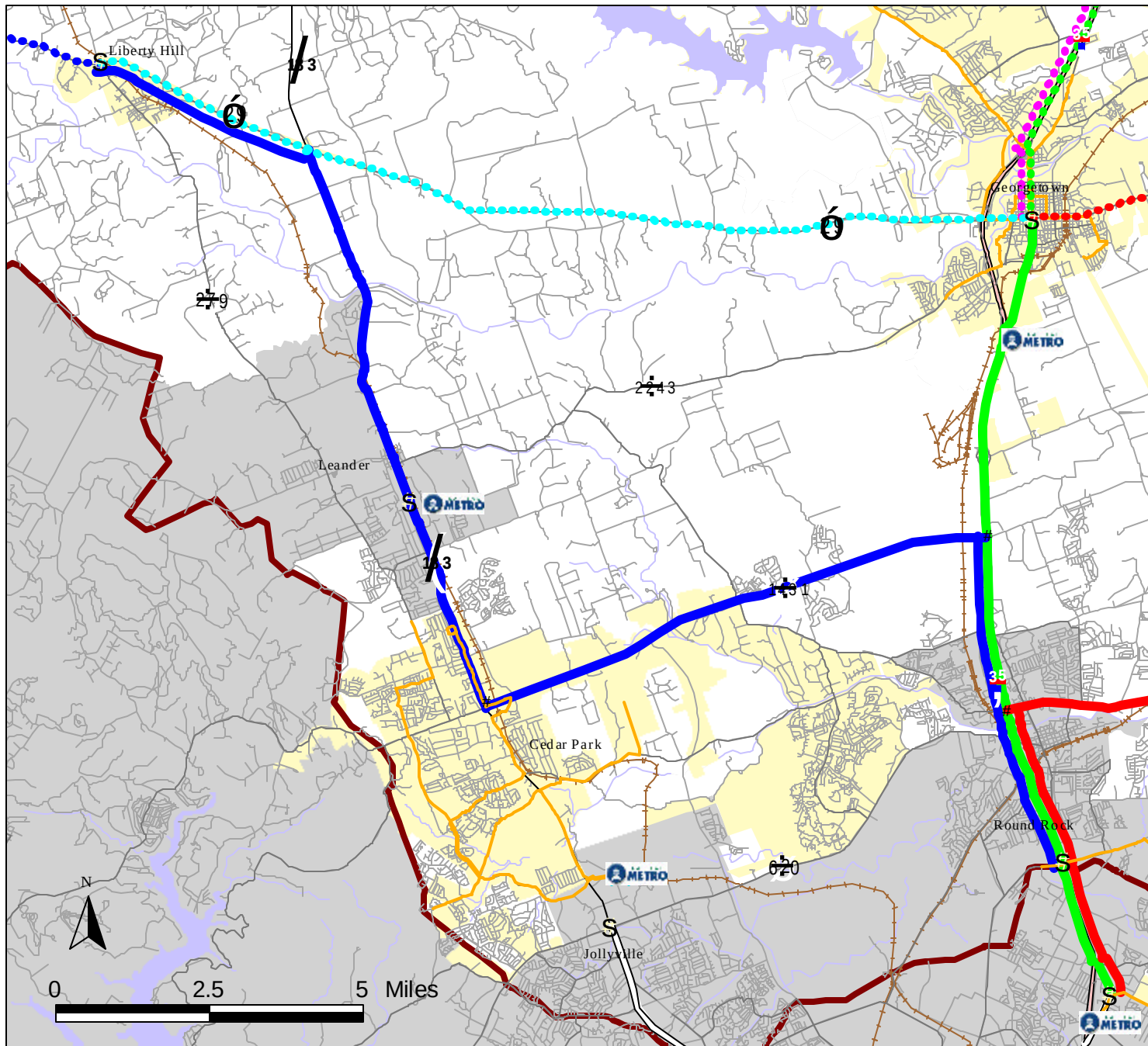


SERVICE STATISTICS

One-Way Trip Length:	13 miles
Round Trip Time:	1:00 hours
Vehicle Hours:	1,275
Annual Cost:	\$51,000
Annual Ridership:	12,750

LEGEND

- Incorporated Area
 - Remainder of Study Area
 - Area Outside Study Area
 - Williamson County Border
- Road Network**
- Interstate
 - US Highway
 - State Highway
 - Local Road
 - Railroad
- Routes**
- Liberty Hill-Cedar Park
 - Round Rock Route
 - Georgetown Route
 - Taylor Route
 - Georgetown Route
 - Liberty Hill Route
 - Local Route
 - CapMetro Service
- Local Destinations**
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SERVICE STATISTICS

One-Way Trip Length:	27 miles
Round Trip Time:	2 hours
Vehicle Hours:	2,550
Annual Cost:	\$102,000
Annual Ridership:	12,750

LEGEND

- Incorporated Area
 - Remainder of Study Area
 - Area Outside Study Area
 - Williamson County Border
- Road Network**
- Interstate
 - US Highway
 - State Highway
 - Local Road
 - Railroad
- Routes**
- Liberty Hill-Cedar Park
 - Round Rock Route
 - Georgetown Route
 - Taylor Route
 - Georgetown Route
 - Liberty Hill Route
 - Local Route
 - CapMetro Service
- Local Destinations**
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One-way trip length:	27 miles
One-way travel time:	60 minutes, including layover time
Weekday trips:	5
Annual revenue hours:	2550
Annual operating cost:	\$102,000

These three routes will constitute the backbone of the regional service. Figure 14 illustrates the entire daily network. There may be a point in the future where it may make sense to operate at least one of the a.m. and p.m. runs all the way into Austin, without transferring to Capital Metro. If CARTS experiences full buses, it may want to offer this added service quality.

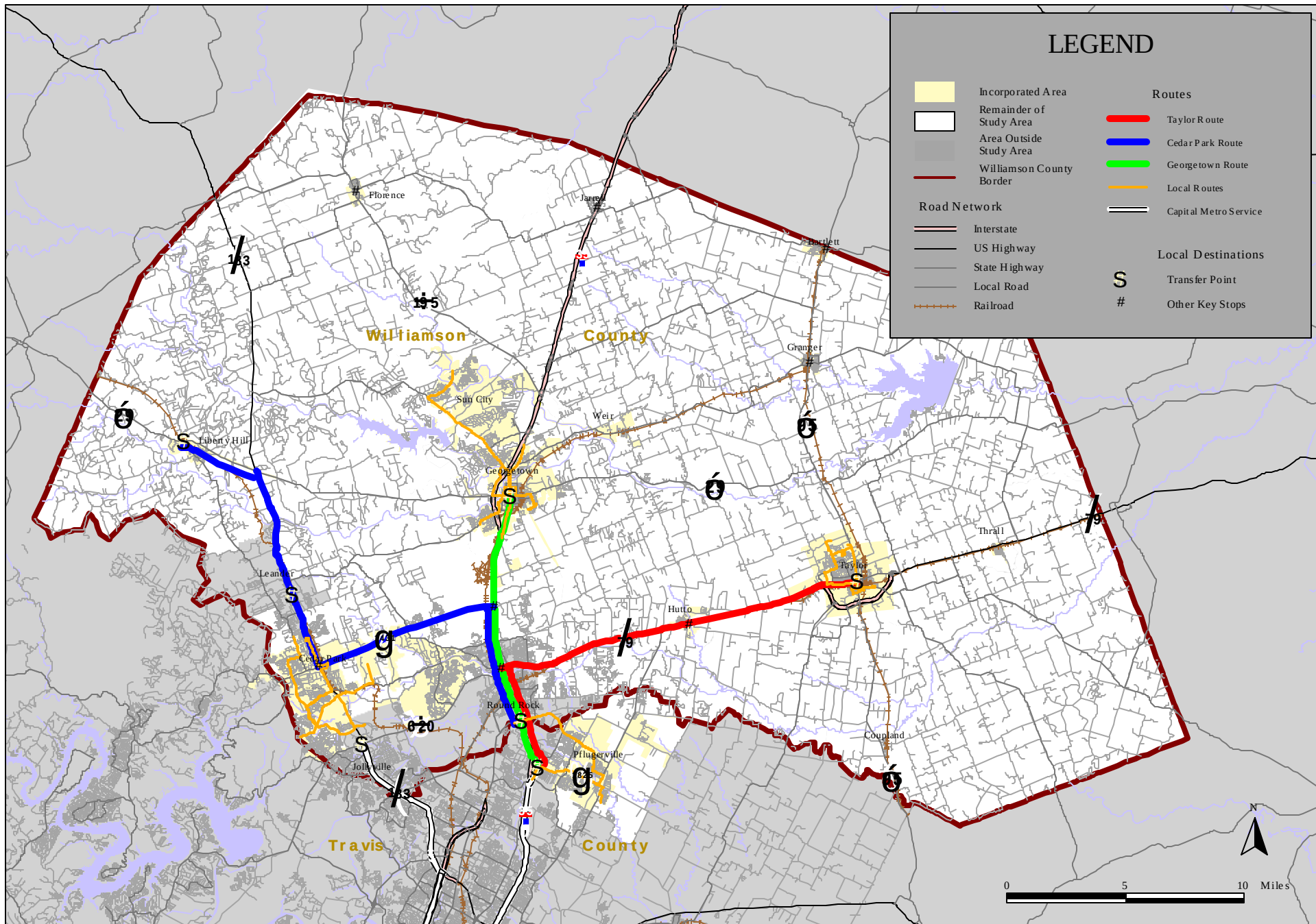
Vehicles - Daily Regional Service

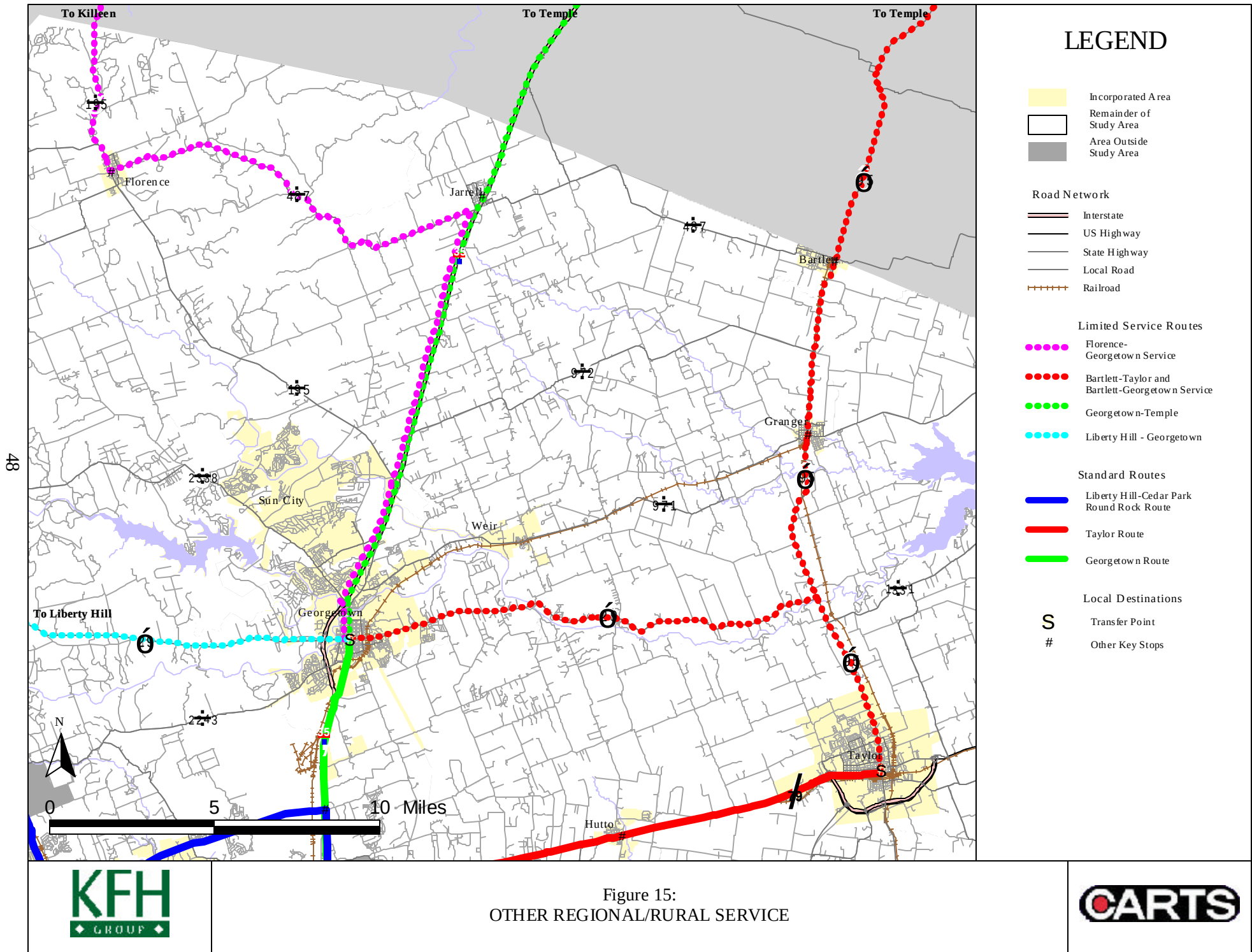
The vehicles used for the Daily Regional Service will be body on truck chassis vehicles similar to those used by CARTS in other commuter services. These vehicles are designed to last up to seven years. Three vehicles plus a spare will be required at \$120,000 each. All vehicles will be accessible to persons with disabilities.

Regional Service - Rural

Other regional services will include less than daily service in a number of corridors (Figure 15):

- Bartlett and Granger to Taylor and Georgetown
- Florence, Jarrell, and Liberty Hill to Georgetown
- Liberty Hill, Florence and Jarrell to Temple
- Taylor, Granger and Bartlett to Temple
- Florence to Killeen





These communities are too small and the demand is too low for daily service. Please note that these routes are intended to be able to go off route to pick up other rural passengers in the area, the routes are not limited to the roads shown on the map. This service will be designed to meet rural needs using a fixed schedule service similar to that currently in place. This service will allow for curb-to-curb service when trip requests are called in. Additionally passengers may ride the bus by going to the bus stop. By providing a limited scheduled service, passengers will know when they can ride to different communities. If commuter needs exist, they can best be accommodated through vanpools that can be supported by CARTS. Vehicles for this service will be existing five year cutaway vehicles.

Regional Route D: Bartlett and Granger to Taylor

Route D is similar to the current service that operates three days per week to Taylor. This service will continue on a similar schedule unless additional ridership is manifested.

One-way trip length:	20 miles
One-way travel time:	1 hour including layover time
Weekly roundtrips:	3
Annual revenue hours:	624
Annual operating cost:	\$24,960

Regional Route E: Florence and Jarrell to Georgetown Liberty Hill to Georgetown

Route E provides service from Florence and Jarrell to Georgetown with connections to Round Rock and Capital Metro Park and Ride via IH 35. One day per week service will be provided from Liberty Hill to Georgetown. Stops will be located in Florence, Jarrell, and downtown Georgetown (local transit hub).

One-way trip length:	36 miles
One-way travel time:	1 hour, including layover time
Weekly roundtrips:	3
Annual revenue hours:	624
Annual operating cost:	\$24,960

Regional Route F - Williamson County to Temple and Killeen

This service is currently available to Temple on a limited basis. This level of service will be continued unless additional ridership is found.

Florence to Killeen:

One-way trip length:	37.0 miles
One-way travel time:	1 hour, including layover time
Weekly roundtrips:	1
Annual revenue hours:	208
Annual operating cost:	\$8,320

Georgetown - Jarrell to Temple (with feeder service from Liberty Hill):

One-way trip length:	40.0 miles
One-way travel time:	1 hours and 10 minutes, including layover time
Weekly roundtrips:	1
Annual revenue hours:	260
Annual operating cost:	\$10,400

Service to Temple from Taylor, Granger and Bartlett will be available 1- 2 times per month as is currently available.

One way trip length:	40 miles
One way travel time:	1 hour, including layover
Round trips:	1 - 2 monthly
Annual revenue hours:	208
Annual operating cost:	\$8,320

Summary - Regional Service Costs

Table 7 details the costs associated with this service and Figure 16 depicts all of the regional and rural service. The costs are broken out by route. Capital costs are also reflected, which includes the additional vehicles associated with the daily service (4 including spare). The rural component of this service requires two vehicles including spare equipment.

3. ADA and Human Service Paratransit

ADA Paratransit (door-to-door) service will be provided in each of the communities with fixed-route, using existing services currently in place. Service will be available during the hours of fixed route service. ADA complementary paratransit is required for all areas within three-quarters of a mile on either side of a fixed-route, as well as within three-quarters of a mile radius of a commuter bus or rail system. Human service needs (in many cases these will be the same passengers) will be met by a combination of the fixed-route, regional services, ADA paratransit, and existing human service runs that will not change.

ADA Paratransit

Current CARTS and/or Capital Metro service (in Pflugerville and Cedar Park) should meet the needs for each of the cities. This assumes that CARTS takes a proactive approach to placing persons with disabilities onto fixed-route. It is very important for CARTS to make sure it is not competing with itself, or service will be less than productive. That is, CARTS should use all of the available techniques to place as many riders as possible on fixed route, rather than paratransit. The fixed route and paratransit services should serve different people.

Cedar Park and Pflugerville both have paratransit programs through Capital Metro and in the future these trips will be brokered by CARTS. Georgetown and

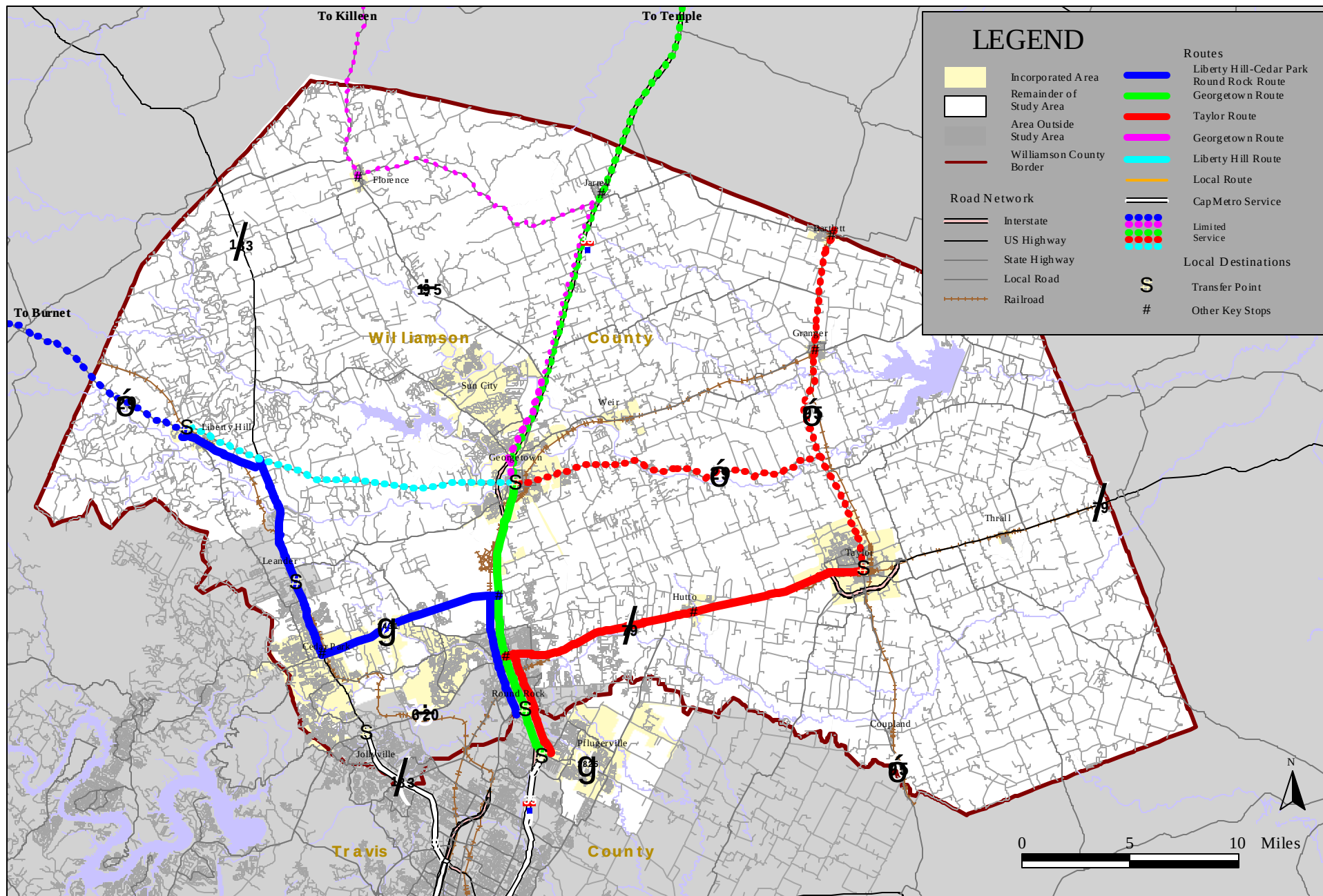
Table 7 - WILLIAMSON COUNTY REGIONAL SERVICE - POTENTIAL RIDERSHIP AND COSTS

DAILY REGIONAL SERVICE

Route	Frequency	Vehicles Required (Peak)	Headway	Route Length One-Way	Estimated Ridership by Day	Service Hours	Service Miles	Estimated Ridership (Annual - Yr. 1)	Fare Revenue	Annual Operating Cost	Capital Costs
Route A Taylor - Park and Ride	5 trips daily - M-F	1(2)	1 hr. 30 min.	22	50	2,550	56,100	12,750	22,313	\$102,000	
Route B Georgetown - Park and Ride	5 trips daily M-F	1	1 hr.	13	50	1,275	33,150	12,750	22,313	\$51,000	
Route C - Liberty Hill to Round Rock	5 trips daily M-F	1(2)	3 hr.	27	50	2,550	68,850	12,750	22,313	\$102,000	
Total Net Operating Cost		3(5)			150	6,375	158,100	38,250	66,938	\$255,000 \$188,063	\$480,000

RURAL REGIONAL SERVICE

Route	Frequency	Vehicles Required		Route Length One-Way	Estimated Ridership by Day	Service Hours	Service Miles	Estimated Ridership (Annual - Yr. 1)	Fare Revenue	Annual Operating Cost	Capital Costs
Route D - East County to Taylor and Georgetown	3 trips per week	1		20	12	624	6,240	1,872	3,276	\$24,960	
Route E - Florence, Jarrell, Liberty Hill - Georgetown	3 trips per week	1		36	12	624	11,232	2,322	3,276	\$24,960	
Route F - Williamson County to Bell Co.	2 trips per week 1 trip per two weeks	1		40	12	676	10,088	1,248	2,184	\$27,040	
Total Rural Service Net Operating Cost					36	1,924	27,560	5,442	9,524	\$62,400 \$52,877	\$140,000



Taylor currently have full day paratransit service which can meet the needs of persons that cannot ride fixed-route, since it is anticipated that some of the riders of the current service will be able to use the fixed-route system.

It is important to mainstream as many of the current human service passengers onto the local and regional public systems described above. Through training, fare incentives, and a flexible county-wide service, it is possible to transport many human service clients on the regular services illustrated above.

There are possible cost savings in coordinating this service with the existing or proposed rural and human service transportation programs. Most of the current services can be used in combination with human service and ADA paratransit.

Human Service/Medical Transportation

It is proposed that most of the contract services such as Medicaid and Title III continue to be operated as they are at present (with some fine tuning that is addressed in a subsequent section). It is anticipated that some of the current riders will be able to use fixed-route and that should be encouraged (as discussed above). Many of the Workforce Development Board clients will be able to use fixed-route to access jobs.

4. Non-Traditional - Market Development/Ridesharing/Shopper Shuttles

Williamson County's unique geography and development patterns make traditional transit and commuter service difficult or impossible to operate in many rural areas of the county. There are a number of non traditional services that are low in cost and flexible enough to meet a variety of rural needs.

The nature of the non-traditional family of services is that service is not implemented (and costs are not incurred) until demand has met minimum thresholds and funding either through fares or other sources is available. Market development service requires a minimum number of riders for a group to request service.

Shopper Shuttles

With peak hour vehicles available for other services during mid day (the regional routes), it may be possible to offer shopper shuttle services to sponsors willing to support the transit system. The shopper shuttle targets neighborhoods with high numbers of transit dependent populations and frequent destinations (e.g. Wal-Mart, HEB, and medical centers), and can be very effective during off peak hours. Often these arrangements pay for themselves through funding from the retailers, who in return, receive the business, advertising/promotion, and they become involved in a positive way with their communities.

Ridesharing/Vanpooling

Ridesharing, vanpooling, and carpooling are other approaches that can help meet the needs of commuters in a very cost-effective manner. While Capital Metro provides some ridesharing services, there are other potential ridesharing opportunities for CARTS and the county.

Ridesharing and vanpooling efforts should be encouraged for work trips both going out of the county as well as those coming into the county from other jurisdictions. These services can be offered in areas that do not generate enough ridership for a traditional fixed-route service. CARTS should work with Capital Metro to ensure that there is no duplication of effort with their program. CARTS can bolster its ridesharing efforts and provide more extensive marketing/recruitment of employers and riders. This service should pay for itself operationally through the monthly fares of the riders. Administrative/marketing costs will be borne by the county. Vanpooling may be a good way to serve those persons commuting solely within the county or out of county to Temple, Killeen, and Rockdale.

Market Development

Market development is similar to a vanpool, except that the vehicle is then used for other services, when it is not used for market development – typically for commuters. This service allows CARTS to use bigger vehicles and to keep those assets in service throughout the day. As with shopper shuttles, these services can be offered when there is downtime with other vehicles, for example, the regional routes all have mid morning, mid afternoon, and evening availability, and many of the routes have early morning and late afternoon availability.

5. Pflugerville and Cedar Park Service for Persons with Disabilities

Cedar Park and Pflugerville currently pay Capital Metro about \$15 per one-way paratransit trip using the STS. Annual costs are about \$60,000 for Cedar Park and for Pflugerville about \$45,000, for 4,000 and 3,000 one- way trips, respectively. Some of the trips provided are cost effective for the cities and some are not. The objective of the plan is to reduce costs while maintaining the quality currently provided these customers.

CARTS Brokerage

Cedar Park and Pflugerville should maintain their agreement with Capital Metro and use it in combination with CARTS service, taking advantage of the least expensive appropriate mode. CARTS will serve as a broker of service to the least expensive provider. Services will include the current STS service as well as the CARTS family of services - existing express service, the new local service, regional service, or other CARTS service. The objective is for CARTS to identify the most appropriate mode for each trip. For example, CARTS operates service from Pflugerville to Austin every day. Some of the STS riders can probably use that service, rather than STS. Group runs may be more effectively accommodated through CARTS, if a vehicle is available.

Some trips may be more appropriate for Capital Metro and CARTS can assign those riders to STS.

This approach will reduce costs for each city by using the least expensive mode for each trip. While CARTS cannot provide one-on-one service less expensively than STS (at half price), there are many trips they can accommodate in group mode, or on existing runs, reducing the per trip and total costs.

IMPLEMENTATION PLAN

The Implementation Plan consists of short-term and mid-term activities needed to develop the new transit system. The plan also looks at long-term activities to be considered in years 6-10. The short-term activities call for simple, inexpensive changes to improve the existing operation. The mid-term activities include all of the tasks needed for the fixed routes, regional routes, and shopper shuttles.

CARTS, as the public transportation provider in the region, should lead this effort with assistance and support from the county and each of the cities.

Short-Term Activities

While CARTS is preparing for new services, it should fine tune the existing system to eliminate duplication and better utilize existing resources. The Review of Existing Services (Appendix C) indicated that there are a number of activities that can increase ridership without expending significant additional funds. These are discussed as follows:

1. **Coordinate Service with Capital Metro** – CARTS and Capital Metro will continue to coordinate activities in the area of general planning activities, commuter service and STS service. Capital Metro will play a key role for Williamson County commuters traveling to Austin. This Plan calls for connections at Capital Metro's park and ride lots at US 183 and IH 35. It will be important to ensure Capital Metro's cooperation in accessing space for CARTS vehicles at the park and ride facilities. The plan calls for close

coordination between CARTS and STS to ensure the least cost service for persons with disabilities.

2. **Coordinate Service with Hill Country Transit** – HCT operates in Bell County to the North and Milam County to the east. In each of those counties, HCT operates through Williamson County to Round Rock for dialysis. In the case of Taylor, CARTS has more demand than it can manage, and HCT has excess capacity on its way to Round Rock. In Bartlett, both HCT and CARTS provide service to Round Rock for dialysis. It is recommended that CARTS purchase trips on the underutilized Rockdale to Round Rock route and that HCT purchase service from CARTS for the Bartlett dialysis trip. The second aspect of this could be the use of HCT vehicles while they are waiting in Round Rock, and the use of CARTS vehicles that sit in Temple.
3. **Coordinate Existing Pflugerville Service with Williamson County** – Currently service in Pflugerville is operated out of Travis County, while service in Williamson County is based in Round Rock. As a result, there is some duplication of services when there is more than one vehicle going to Austin at one time. Most importantly, since Pflugerville will become part of the Williamson County system under this plan, it would be best to implement that change operationally prior to implementation of new services.
4. **Implement Brokerage** – CARTS should set up the brokerage for Cedar Park and Pflugerville STS riders. This can be done very quickly due to the infrastructure that CARTS has in place. Passengers will call CARTS to set up their trip, and CARTS will assign each passenger the most appropriate mode for their needs. The few riders and the subscription nature of the service will ensure that the number of calls will be manageable with existing resources.

CARTS Implementation Activities

Year One (FY 2004)

- Fine tune existing system.
- Develop funding resources and secure commitments for sponsors and partners.
- Keep involved in regional transportation activities to identify partnering opportunities.

- Develop site specific feasibility and implementation plans for each city and the county.

Year Two (FY 2005)

- Purchase vehicles.
- Shelters/bus stop signs.
- Initiate marketing promotion:
 - name the system campaign to generate local interest,
 - go to the schools,
 - find sponsors/supporters, and
 - develop a speaker's bureau.

Year Three (FY 2006)

- Implement fixed-route and commuter together if possible-to maximize ridership.
- Closely monitor service and generate appropriate ridership reports.
- Continue marketing efforts.

Years Four and Five (FY 2007 - 2008)

- Fine tune the system, evaluate quarterly, making regular changes as necessary.
- Continue to be actively involved in regional planning activities.
- Continue marketing efforts.

Six to Ten Year Activities

Regional mobility efforts include several major infrastructure projects. Among them are development of SH 130 as part of the Central Texas Turnpike project, construction of HOV lanes as part of IH 35 improvements, and operation of commuter rail service between Georgetown, Austin, and San Antonio with a possible extension in

the future to eastern Williamson County. The proposed regional transit services identified in this plan are designed to complement these major infrastructure improvements and further support future growth in Williamson County. The regional transit system will connect communities throughout the county to the urban core of the county along IH 35 and Round Rock. Several of these infrastructure improvements are likely to be under development and may be operating within the six to ten year time frame.

Regional services may extend into Austin to serve commuters destined to downtown Austin, the Capital Complex, and University of Texas. Once HOV lanes on IH 35 begin operating, transit users will have a faster trip than auto drivers, but even services on existing freeway lanes can serve potential transit users who may prefer not to drive. These services could help establish a ridership base for future HOV transit services and commuter rail.

Commuter rail service may also begin in the six to ten year time frame. Expectations include frequent peak period service with some off peak and weekend service. Once commuter rail service begins operations, regional bus services in Williamson County would be realigned so that communities throughout the county would have connections to commuter rail stations to match train departure and arrival schedules. Parallel bus services would be minimized to eliminate competition with commuter rail services and better utilize resources to provide bus connections to the commuter rail system.

A second bus procurement will be required for local service in Year 8. In Year 10, another purchase will be required for the regional service.

Funding Issues

Federal funds are restricted in their use. Urbanized portions of the study area, such as Pflugerville and Cedar Park, are eligible only for FTA's Section 5307 urbanized area formula grants and its Section 5309 discretionary grant program. CARTS is already working with Cedar Park, Pflugerville, and Capital Metro to obtain a fair share

of Section 5307 formula funds using a population-based formula. It is likely that CARTS will be designated as a secondary recipient to these funds in the near future and that these funds will also be extended to Round Rock. This would effectively give these communities a stable source of the federal share of funding for transit capital programs for the purchase of transit facilities and vehicles. Federal funding is not available to support operations within the urbanized area, but the county's ability to leverage discretionary capital grant funds with strong support from elected officials should not be underestimated.

The State of Texas provides funding from its general revenues and allocates rural transit funds from FTA's Section 5311 program. State funding for transit has been declining dramatically in recent years, even for existing operators. State budgets are established each biennium, and the state operating budget for the next two years will be established in the first half of 2003. Given the existing fiscal climate, it may prove a challenge to obtain any significant amount of state funds in competition with existing operators who are already facing dramatic funding decreases. While a limited amount of state funding may be available to support new services, local funding sources have become increasingly important for local transit systems.

Local funding comes from several sources:

- Local government contributions from general or specialized tax revenue sources (property taxes, general sales tax, or special purpose sales taxes),
- Farebox revenues,
- Advertising and sponsor revenues,
- Contracted and subscription services.

Implementation of short-term transit improvements would likely take place with a mix of funding from various agencies:

- Section 5311 transit funds would remain to serve rural portions of Williamson County. These Federal funds are allocated through the TxDOT to CARTS.
- Section 5307 transit funds would be a new source of urban funds for CARTS. These federal funds would be allocated from the FTA according to a new agreement with Capital Metro. This requires that CARTS be designated a secondary recipient of the regional funds, a process that is already underway for portions of the study area.
- Section 5309 transit funds would be a new source of urban capital funds that could provide assistance in implementing new transit services through bus and facility purchases. These federal funds are obtained through Congressional earmarks.
- State funding allocations will continue, but the state has been reducing its local match for both rural and small urban transportation systems.
- Local funding, usually general revenue funds and increasingly from advertising, sponsorships/partnerships, can be pooled from multiple agencies to provide the local match for transit operating and capital funds. This is how CARTS and all other rural transit systems, along with most small urban transit systems receive their local funds. Local funds will increasingly be important as the state contribution is reduced. CARTS will have to seek alternative sources of funding.

Where transit services are provided to a single jurisdiction, local funding comes solely from that jurisdiction. Small urban systems in Tyler and Beaumont are examples of this type of system. However, transit agencies that cover multiple jurisdictions and receive local general revenue funds must decide on a more complex allocation of funds. This allocation is typically based on some combination of population, transit trips, and amount of services provided in each jurisdiction. As transit options are narrowed and a phasing plan for services is developed, the contribution of local funding for transit will increasingly be the focus.

SUMMARY

Williamson County is one of the largest counties in the state without a fixed-route public transit system. This is due primarily to the inability of funding to keep up with the unprecedented growth. For funding purposes until 2002, the county was recognized as a rural rather than urbanized county, resulting in a lower funding level.

This plan is designed to bring a practical set of transit solutions to the county and the larger municipal jurisdictions. While the local and the regional service can operate independently, they will be most effective when operated together as one seamless service. The greatest economies of scale can be gained by all jurisdictions participating in these efforts.

The key element in the success of this plan is funding in these fiscally constrained times. New approaches and new, private sources of funding should be explored to supplement the essential local contributions. With commitments from all key participants, CARTS and its partners in this effort will be able to implement and sustain a successful transit system.

Findings Regarding Inclusion of Williamson County in Non-Attainment Area
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Gary Boyd, Parks
Submitted For: Gary Boyd
Department: Parks
Agenda Category: Regular Agenda Items

Information

Agenda Item

Discuss and take appropriate action regarding final draft report "Result of Findings Regarding Proposed Inclusion of Williamson County with Travis County in Austin-Round Rock Non-Attainment Area."

Background

The final draft report is before the Court for adoption. This report will become a part of the State's Designation Recommendations in response to the Environmental Protection Agency rules on implementation for ground level ozone under the revised (March 2008) National Ambient Air Quality Standards. A final printed copy will be bound and transmitted to the Office of the Governor for inclusion with the Recommendation Letter to EPA.

Please note: Section 2.4, as attached, is in process of being updated to reflect status of resolutions from communities and school districts in the county and will be finalized in the printed and bound version.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [draft report](#)

Link: [Exhibit A](#)

Link: [Exhibit B](#)

Link: [Exhibit C](#)

Link: [Exhibit D](#)

Link: [Exhibit E](#)

Link: [Exhibit E-1](#)

Link: [Exhibit F](#)

Link: [Exhibit G](#)

Link: [Exhibit H](#)

Link: [Exhibit I](#)

Link: [Exhibit J](#)

Link: [Exhibit K](#)

Link: [Exhibit L](#)

Link: [Exhibit M](#)

Link: [Exhibit P](#)

Link: [Exhibit S](#)

Link: [Exhibit U](#)

Link: [Exhibit V](#)

Link: [Exhibit W](#)

Link: [Exhibit X](#)

Link: [Exhibit Y](#)

Link: [Exhibit Z](#)

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Report on Potential Inclusion of Williamson County

In the Austin-Round Rock MSA

Table of Contents

Table of Contents.....	1
SECTION 1: Executive Summary.....	2
SECTION 2: Background.....	6
2.1. Redefinition of Core Based Statistical Areas.....	6
2.2. New Ozone (O ₃) Standard.....	Error! Bookmark not defined.
2.3. Brief Characterization of Williamson County	10
2.4. Response of Williamson County Leadership to Proposed Inclusion in the Austin-Round Rock MSA.....	12
SECTION 3: Findings on Nine Factors.....	13
Summary	13
Finding 1: Air quality data (Factor 1).....	16
Finding 2: Emissions data (location of sources and contribution to ozone concentrations) (Factor 2).....	19
Finding 3: Population density and degree of urbanizations (including commercial developments) (Factor 3)	25
Finding 4: Traffic and commuting patterns (Factor 4)	27
Finding 5: Growth Rates and Patterns (Factor 5)	31
Finding 6: Meteorology (weather/transport patterns) (Factor 6)	36
Finding 7: Geography/Topography (mountain ranges or other air basin boundaries) (Factor 7).....	40
Finding 8: Jurisdictional boundaries (e.g., counties, air districts, existing non- attainment areas, reservations, metropolitan planning organizations (MPOs)) (Factor 8).....	42
Finding 9: Level of control of emissions sources (Factor 9)	45
SECTION 4: Conclusions.....	50
SECTION 5: Recommendations.....	54
SECTION 6: Exhibits	55

SECTION 1: Executive Summary

At the request of Williamson County Commissioners Court, GDS Associates, Inc. (GDS) prepared this response to a proposed decision by United States Environmental Protection Agency (USEPA) to include Williamson County in the Austin-Round Rock MSA. GDS examined of the environmental and demographic data relative to the Nine Factors (see below), which must be addressed by USEPA and other regulators in making this decision. Based on this review, GDS found **only one** economic statistic that supported the inclusion of Williamson County in the Travis County Non-Attainment Area and **many more that do not support inclusion**.

As revised by their December 4, 2008 letter on this process (see Exhibit A), the Nine Factors required by USEPA to be considered in this process are:

1. Air quality data
2. Emissions data (location of sources and contribution to ozone concentrations)
3. Population density and degree of urbanizations (including commercial developments)
4. Traffic and commuting patterns
5. Growth rates and patterns
6. Meteorology (weather/transport patterns)
7. Geography/Topography (mountain ranges or other air basin boundaries)
8. Jurisdictional boundaries (e.g., counties, air districts, existing non-attainment areas, reservations, metropolitan planning organizations (MPOs))
9. Level of control of emissions sources

The only statistic that supports inclusion is the commuting statistic between Williamson County and Travis County inside the Austin-Round Rock MSA. According to CAMPO data, 54.6 percent of the employed residents of Williamson County commute daily to Travis County while 5 percent of Travis County's employed residents commute daily to Williamson County. However, this draw of commuters to Travis County and the core city of Austin, Texas is not unique to Williamson County. Over two-thirds of the employed residents of Hays, Caldwell, Bastrop, Williamson, and Travis Counties work in Travis County (see Exhibit L and Finding 4).

This means that an estimated 90 thousand Williamson County residents commute to Travis County and 119 thousand employed residents of Hays, Caldwell, and Bastrop Counties commute to Travis County each day. However, Travis County has **1.5 times** more employed residents (and potential commuters) than Hays, Caldwell, Bastrop, and Williamson Counties combined. In addition, the portion of employed residents commuting from Hays, Caldwell, Bastrop, and Williamson Counties into Travis County ranges 30 to 55 percent. The OMB standard for establishing a MSA relationship is 25 percent

Therefore, if air pollution from commuters were the only test for whether or not to join a county to Travis County in forming a non-attainment area, clearly Hays, Caldwell, and Bastrop Counties would be included as well as Williamson County. However, the TCEQ staff did not recommend including these three counties in the A-RR Non-Attainment Area. Therefore, the TCEQ staff must have judged the other eight USEPA factors as having more weight

In examining the other eight factors, GDS concluded that the balance of the actual environmental and demographic data **does not support** an adverse environmental connection between Williamson County and Travis County in forming the A-RR Non-Attainment Area. These facts include:

1. All of the monitors outside Travis County were deactivated prior to the end of 2008. Available monitoring data shows steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

2. The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (<100 tons per year) that are only a small fraction (<1 percent) of the emissions in A-RR MSA.

3. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

4. The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined.

5. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

6. Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame.

7. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles. The difference in population density growth rates alone represents **almost 4 times** as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

8. The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between

Williamson County and the Travis County is more likely from Travis County to Williamson County.

9. Geological and geographical features such as deep valleys and mountain ranges or plateaus conducive to the formation of air pollution do not appear to be present in Williamson County.

10. Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard.

11. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

12. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently being experienced.

At their December 10, 2008 agenda session, the TCEQ Commissioners raised questions about why the TCEQ staff would not consider air quality data provided by non-state monitors in the absence of state monitors. The state removed its two Williamson County monitors as well as the monitors in Bastrop and Hays Counties from service in December 2008. Without local monitoring data in Williamson County, it is next to impossible to say with any absolute scientific certainty (1) the actual ozone level in Williamson County, (2) the impact of its emissions on the Travis County Non-Attainment Area, or (3) the impact of the Travis County Non-Attainment Area on Williamson County. Instead, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

Given (1) the chilling effect that being included in the Travis County Non-Attainment Area would have on the ability of Williamson County to grow and develop its resources in the long term and (2) the fact that voluntary efforts in the region have resulted in ozone levels below the 75 ppb standard everywhere but Travis County, it makes a lot of sense to base the decision on ***actual, measured environmental data*** rather than a ***superficial economic statistic*** (i.e., commuting percentages) and inferred levels from mathematical models.. In fact, it is entirely possible that preserving the ability of the county to develop its own resources would grow jobs inside Williamson County and actually reduce the commuters from Williamson County to Travis County.

Until such ***real*** environmental data from monitor(s) on the ground in Williamson County is available, this proposed ***inclusion*** of Williamson County in the Travis County Non-Attainment Area ***is unfounded*** based on the preponderance of evidence available.

GDS makes the following recommendations:

1. USEPA should reconsider this decision and hold it abeyance until scientifically sound environmental data from state air quality monitors shows that the voluntary measures in the region are not maintaining ozone levels in Williamson County at or below the 75 ppb standard.

2. As USEPA's agent for overseeing air quality programs in Texas, TCEQ should work with stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties to return the deactivated monitors to service so they can track the effectiveness of the voluntary efforts by determining and measuring:

- Ground level ozone in Williamson County as well as surrounding counties without monitors.
- Compliance with the new 8-hour ozone NAAQS.
- Ozone precursors (i.e., NO_x and VOC)

3. Throughout this process, TCEQ (as agent for USEPA) should meet regularly with and seek input from stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties regarding the monitoring results, trends, and expected controls.

SECTION 2: Background

2.1. Redefinition of Core Based Statistical Areas

The Office of Management and Budget (OMB) recently implemented new Standards for Defining Metropolitan and Micropolitan Statistical Areas. While these standards took effect in 2003, the rational for their final form was published in the December 27, 2000 issue of the *Federal Register* (see Exhibit A).

These new standards replaced and superseded the 1990 standards for defining Metropolitan Statistical Areas (MSA). The purpose of the Standards for Defining Metropolitan and Micropolitan Statistical Areas was to provide nationally consistent definitions for collecting, tabulating, and publishing Federal statistics for a set of geographic areas. The new standards also implemented a new set of definitions that included the following:

- *Core Based Statistical Area (CBSA)*. A statistical geographic entity consisting of the county or counties associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties containing the core. Metropolitan and Micropolitan Statistical Areas are the two categories of Core Based Statistical Areas.
- *Metropolitan Statistical Area (MeSA)*. A Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000. The Metropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.
- *Micropolitan Statistical Area (MiSA)*. A Core Based Statistical Area associated with at least one urban cluster that has a population of at least 10,000, but less than 50,000. The Micropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

Under these standards, Texas now has 25 areas that are either MeSA or MiSA (instead of the previous 27 MSA). As a result, the Greater Austin Area was redefined as the Austin-Round Rock (A-RR) metropolitan area. The A-RR Area consists of the following five (5) counties: Williamson, Travis, Hays, Caldwell, and Bastrop. The central county (Travis in this case) has an estimated 2007 population of 974,365 (see Table 2.1). This certainly more than meets the criteria for a MeSA where the central county must have a population of at least 50,000 and have at least 50 percent of its population living in urban areas of 10,000 or more.

Table 2.1: 2007 Population Estimates of Counties in Austin-Round Rock Metropolitan Statistical Area	
COUNTY	POPULATION
Travis	974,365
Williamson	373,363
Hays	141,480
Bastrop	72,248
Caldwell	36,705
Annual Estimates of the Population for Counties of Texas: April 1, 2000 to July 1, 2007 (CO-EST2007-2007-01-48); Source: Population Division, U.S. Census Bureau, Release Date: March 20, 2008	

Figure 1 demonstrates the configuration of the A-RR MSA. The four outlying counties border Travis County on the north, east, and south. Together, these five Central Texas counties have a history of voluntary cooperation in reducing the emissions of ozone precursors since 1997. These efforts included implementing an Early Action Compact (EAC) and executing two Memoranda of Agreement (MOA) to ensure continued attainment of the ozone NAAQS.

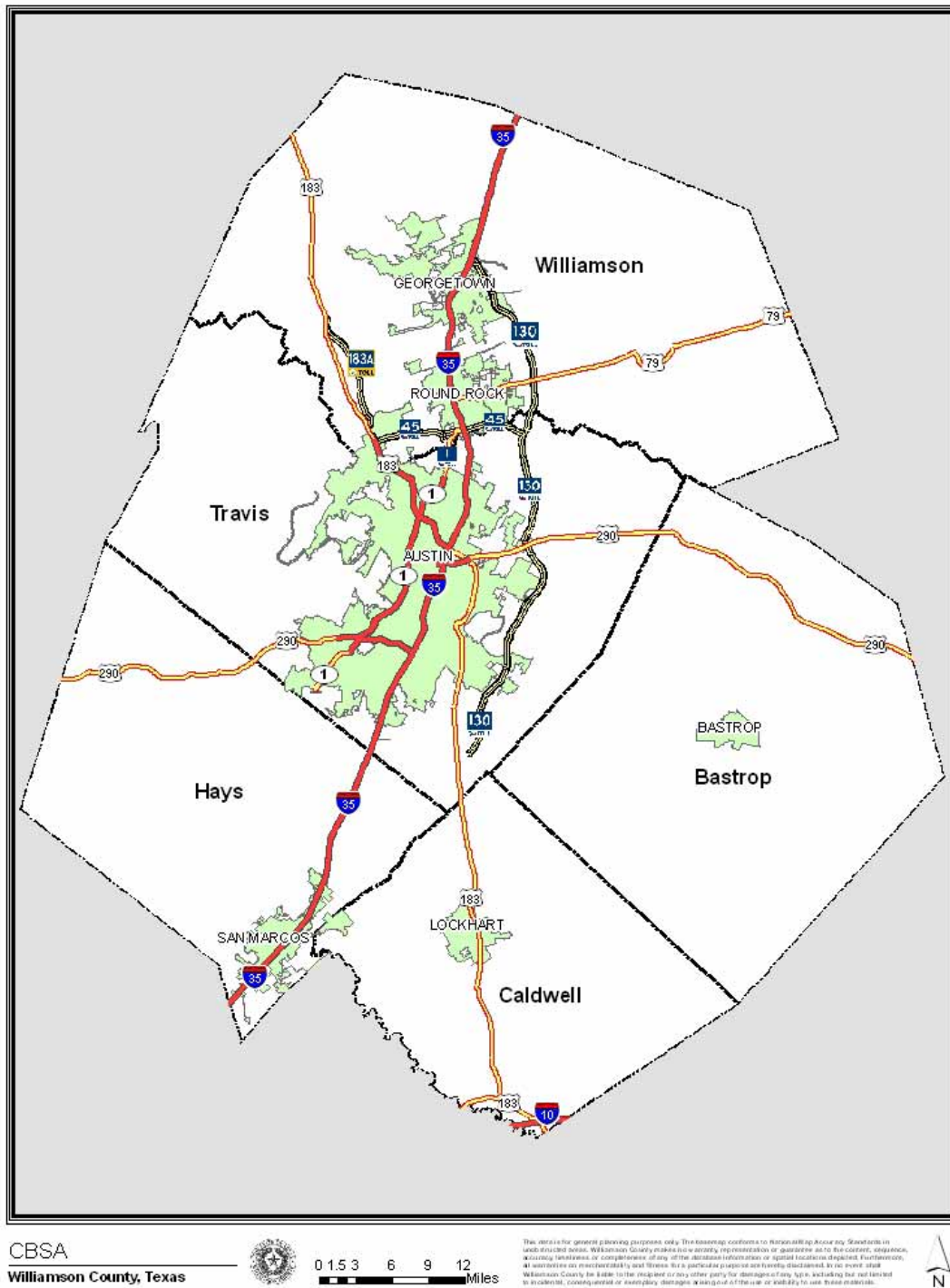


Figure 1: Map of county alignment under new CBSA (see Exhibit B)

2.2. New Ozone (O₃) Standard

Effective March 27, 2008, USEPA revised the level of the 8-hour standard from 0.08 parts per million (ppm) to 0.075 ppm. See Exhibit C for the notice published in the *Federal Register*. With regard to the secondary standard for O₃, EPA revised the 8-hour standard by making it identical to the revised primary standard. EPA also made conforming changes to the Air Quality Index (AQI) for O₃, setting an AQI value of 100 equal to 0.075 ppm, 8-hour average, and made proportional changes to the AQI values of 50, 150 and 200).

According to Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality standard (NAAQS) of USEPA (see Exhibit D), “In reducing ozone concentrations above the NAAQS, EPA believes it is best to consider controls on sources over a larger area due to the pervasive nature of ground level ozone and transport of ozone and its precursors. Thus, EPA recommends that the Metropolitan Statistical Area or the Consolidated Metropolitan Statistical Area (C/MSA) serve as the presumptive boundary for 8-hour NAAQS nonattainment areas.”

This assertion is based on the demonstrated concept that ozone and ozone precursors [e.g., oxides of nitrogen (NO_x) and volatile organic compounds (VOC)] wash into and out of a geographic area with the prevailing winds creating increased O₃ levels as the process unfolds. As discussed in Finding 6 on Meteorology, the prevailing winds from the area airports are as follows:

- Austin-Bergstrom International Airport (ABIA) – predominantly from the south to southeast towards the north to north west (41 percent combined) and north to north-northeast towards the south to south-southwest (15 percent combined)
- Waco – predominantly from the south-southeast to north-northwest (43 percent combined) and from the north towards the south (10 percent)

Under the previous and new ozone regulations and rules, each state is required to operate USEPA-approved O₃ monitors in each MSA. The minimum number of monitors is based on the population of each of their Metropolitan Statistical Areas (MSA) and the most recently measured O₃ levels in each area. There are eight O₃ monitors in or near the A-RR MSA: two in Williamson County, two in Travis County, two in Hays County, one in Bastrop County, one in Fayette County, and none in Caldwell County.

In his March 2000 memorandum (see Exhibit E), John S. Seitz, Director of the USEPA Office of Air Quality Planning and Standards, stated that the EPA believes that any county with an ozone monitor showing a violation of the NAAQS and any nearby contributing area needs to be designated as non-attainment. He alluded to difficulty in defining the boundaries of new attainment/non-attainment areas without additional monitoring in the MSA below 350,000.

2.3. Brief Characterization of Williamson County

Williamson County covers 1,136 square miles and is situated in Central Texas, with its nearest border about 15 miles north-northeast of downtown Austin. Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

State Highways 130 and 45 as well as Loop 1 are toll roads in Williamson County. SH130 splits from IH35 north of Georgetown and runs parallel to IH 35 but to the east of Georgetown, Round Rock, and Pflugerville. SH45 runs east to west connecting SH130 to US 183 and Loop1. Loop 1 runs north to south connecting Round Rock to Austin. The rest of the county's paved roads are farm-to-market roads and state highways. Figure 2.3.1 from Exhibit F below describes the general layout of Williamson County.

Currently, 373,363 people live in Williamson County. Georgetown is the county seat and has 46,867 residents. Round Rock is the largest city with a population of 95,444 while Cedar Park has 56,724 residents (Williamson County profile, see Exhibit N). The Williamson County profile lists 16 cities that are wholly or partly in the County boundaries. The balance of the county living in unincorporated areas amounts to 100,396 people or approximately 27 percent of the county's residents.

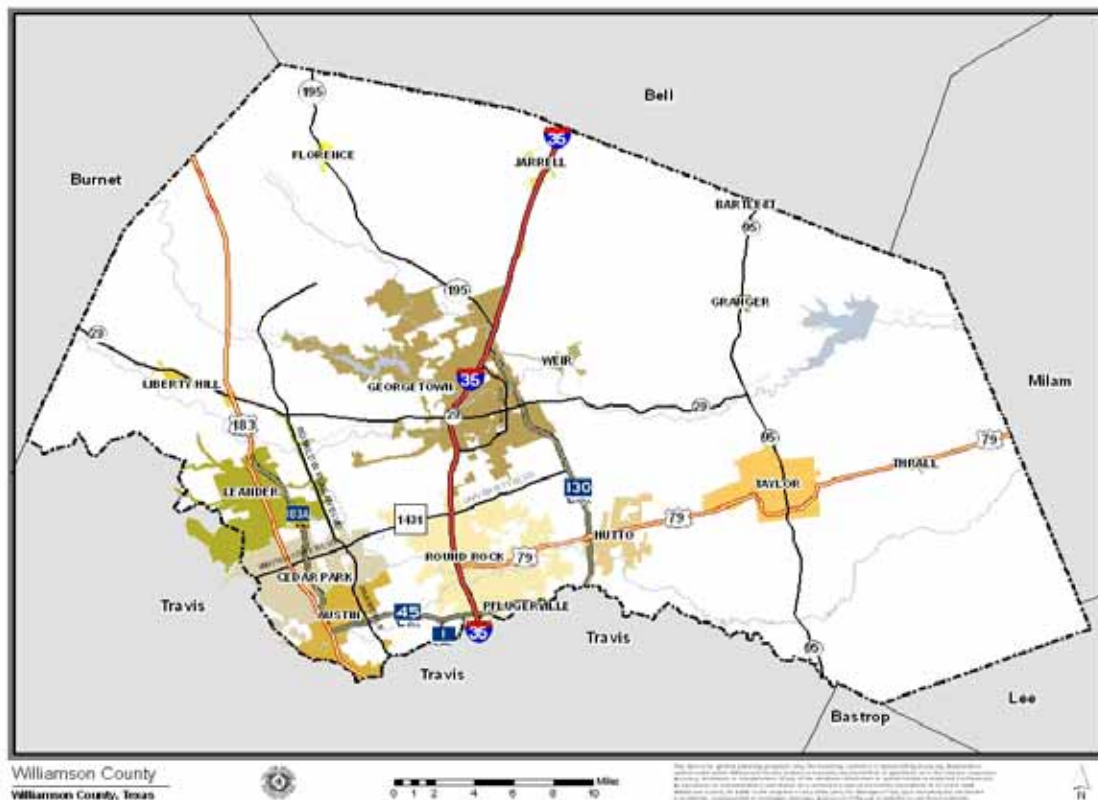


Figure 2.3.1: General layout of Williamson County.

Terrain falls away from a peak elevation of about 1,208 feet at the western-most county boundary to 400 feet at its eastern-most boundary. The San Gabriel River runs generally west to east bisecting the county to northern and southern halves. The San Gabriel River is impounded at two places: Lake Georgetown west of Georgetown, Texas and Granger Lake east of Granger, Texas.

Rolling hills characterize the southern county boundary with Travis County. Substantial limestone quarries are distributed in the western and southwestern part of the county. The western part of the county is largely committed to ranching and the vegetation is mostly grasslands, cedars, and live oak. The eastern part of the County is largely committed to cattle and farming using the rich alluvial soils in the area and principle crops include corn, grain sorghum, cotton, and wheat. See Exhibit Figure 2.3.2.

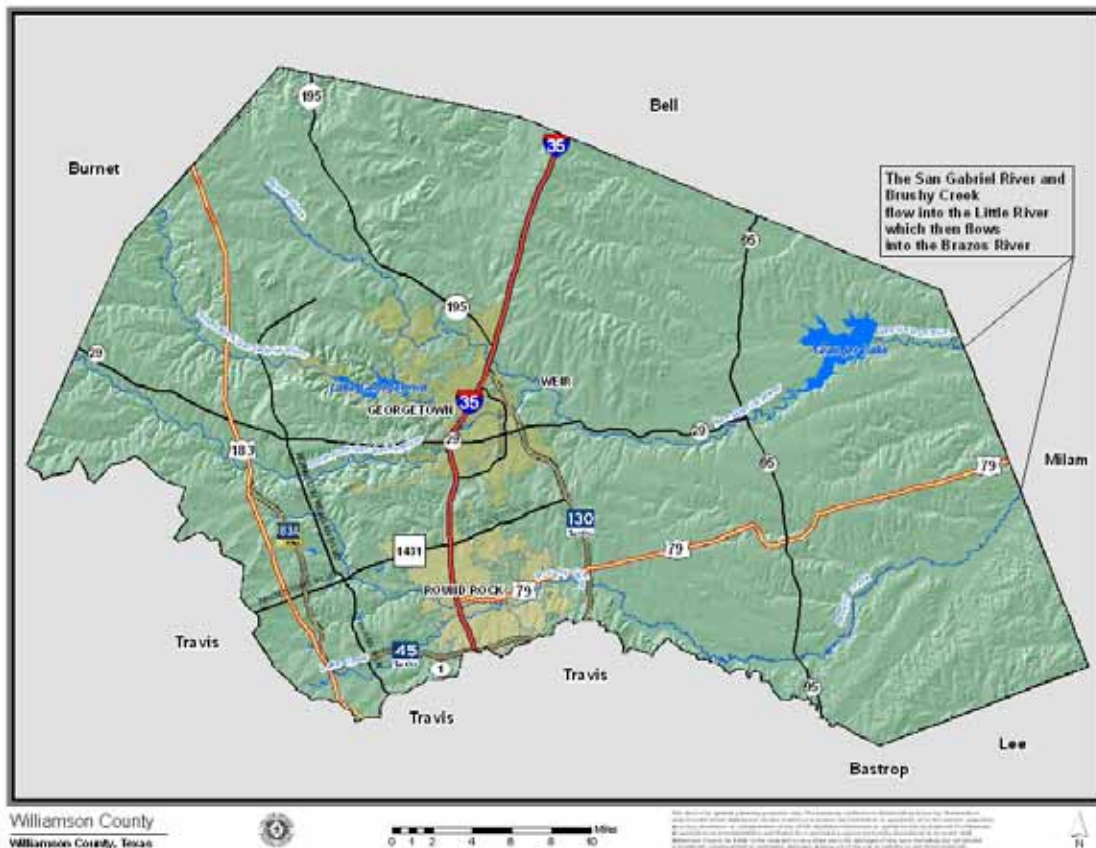


Figure 2.3.2: Relief Map of Williamson County geography, topography, and connecting roads

According to the 2006 TCEQ list of air emissions sources, there are only five operating permitted sources in Williamson County. These permitted sources emit between 26.6 and 35.0 tons of NO_x and between 44.9 and 78.2 tons of VOC per year (see Exhibit G). At the same time, the same TCEQ data shows that the 18 permitted point sources in Travis County emit between 2,390.6 and 3,865.4 tons of NO_x and between 324.6 and 545 tons of VOC per year. Compared to the total VOC and NO_x emissions from permitted point sources within the A-RR MSA, the Williamson County emissions are less than 1 percent of the total emissions in the MSA.

2.4. Response of Williamson County Leadership to Proposed Inclusion in the Austin-Round Rock MSA

On December 10, 2008, Williamson County Commissioner Valerie Covey testified before the TCEQ in opposition to the proposed inclusion of Williamson County with Travis County in forming the Austin-Round Rock (A-RR) Non-attainment Area. The TCEQ Commissioners were persuaded to support her opposition. They directed the TCEQ staff to withdraw Williamson County from the proposed non-attainment area.

Out of continued concern for the adverse impact upon its population of the possible inclusion of their county into the Austin-Round Rock MSA, the Williamson County Commissioners Court at their February ___, 2009 meeting, hired GDS Associates, Inc. (GDS) to prepare a study that responded to the revised USEPA “Nine Factors.” This report is to provide TCEQ, the Governor, and USEPA with necessary information that must be considered before deciding whether or not the inclusion is justified.

SECTION 3: Findings on Nine Factors

Summary

Below is a summary of the major findings concerning the nine factors required by USEPA to evaluate the appropriateness of including Williamson County with Travis County as non-attainment for the 75 ppb ozone standard.

Finding 1: Air quality data (Factor 1) – There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County. Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

Finding 2: Emissions data (location of sources and contribution to ozone concentrations) (Factor 2) – The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. Additionally, Bell County on the north side of Williamson County is home to 5 permitted point sources. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (≤ 100 tons per year) that are only a small fraction (<1 percent) of the emissions in A-RR MSA. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County. Unquantified biogenic emission sources include significant ranching and farming within Williamson County. In addition, there is reason to suspect that ozone and ozone precursors may be transported from sources outside the area into the A-RR MSA. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

Finding 3: Population density and degree of urbanizations (including commercial developments) (Factor 3) – The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

Finding 4: Traffic and commuting patterns (Factor 4) – About 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

Finding 5: Growth rates and patterns (Factor 5) – Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles. The difference in population density growth rates alone represents *almost 4 times* as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

Finding 6: Meteorology (weather/transport patterns) (Factor 6) – The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between Williamson County and the Travis County is more likely from Travis County to Williamson County. Because of the prevailing southerly-to-southeasterly wind direction, it is much more likely that pollution comes into Williamson County from Travis County rather than the other way around.

Finding 7: Geography/Topography (mountain ranges or other air basin boundaries) (Factor 7) – Williamson County covers 1,136 square miles and is situated in Central Texas, with its southern boundary about 15 miles north-northeast of downtown Austin. Except for moderately urbanized areas along IH-35 and US-183, the county is largely committed to agriculture. County terrains falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary. The aerial photos in Exhibit W show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself.

Finding 8: Jurisdictional boundaries (e.g., counties, air districts, existing non-attainment areas, reservations, metropolitan planning organizations (MPOs)) (Factor 8) – Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. There have been as many as seven O₃ monitors in the eight-county Austin-Round Rock MSA. However, only two of these monitors remain in current service. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

Finding 9: Level of control of emissions sources (Factor 9) – The prevailing meteorological conditions (i.e., southerly to southeasterly) and the relatively insignificant (i.e., less than 1.2 percent) contribution of Williamson County permitted point sources to the inventory, including Williamson County with Travis County as non-attainment for ozone would provide inconsequential reductions in ozone levels in the non-attainment area. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently be experienced. Inside a non-attainment area that is either marginal or moderate in the degree of non-attainment, new projects that emit as little as 100 tons per year of either NO_x or VOC are required to install more stringent controls and address offsets for the new emissions. Outside the non-attainment area, only projects producing more than 250 tons per year of a NAAQS pollutant are required to install more stringent controls. Coupling Williamson County to Travis County as a non-attainment area, USEPA will effectively and dramatically reduce the ability of the county to develop vast areas of ranchland and farmland in the county.

Finding 1: Air quality data (Factor 1)

There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County. Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

Evaluating the current level of air quality in Williamson County and the counties currently in the Austin-Round Rock MSA requires a careful examination of available monitoring data. In making this evaluation, GDS accomplished the following tasks:

- Collected air quality data from monitors in Williamson County and the counties currently in the Austin-Round Rock MSA.
- Determined the level of air quality in Williamson County compared to levels in the Austin-Round Rock MSA counties.
- Assessed the likely contribution of Williamson County to the Austin-Round Rock MSA for NO_x and VOC, the precursors to O₃.
- Assessed the likely contribution of the Austin-Round Rock MSA Counties to Williamson County for NO_x and VOC, the precursors to O₃.

In reviewing available monitoring data, GDS found that there have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County.

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

While TCEQ has positioned many air quality monitors in Travis County over time (see Figure 3.1.1 below), relatively few of these monitors kept track of ozone levels. . This low density of O₃ air quality monitors in the Austin-Round Rock MSA stands in stark contrast to the 34 O₃ monitors in Harris County alone. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

However, USEPA has long recognized this disparity in the placement of air quality monitors (see Exhibit C). In fact, about 100 MSA in the United States with populations

Report on Including Williamson County in A-RR Non-attainment Area

Table 3.1.1: 2000 – 2008 Ozone Monitor Data.								
Characteristic Data		Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Number O₃ Monitors	each	1	0	0	2	2	2	1
2000 Fourth Highest Average	ppb	No Data	No Data	No Data	84	88	No Data	No Data
2001 Fourth Highest Average	ppb	No Data	No Data	No Data	75	80	No Data	No Data
2002 Fourth Highest Average	ppb	No Data	No Data	No Data	No Data	91	No Data	No Data
2003 Fourth Highest Average	ppb	No Data	No Data	No Data	77	84	No Data	No Data
2004 Fourth Highest Average	ppb	No Data	No Data	No Data	75	82	No Data	No Data
2005 Fourth Highest Average	ppb	No Data	No Data	No Data	72	82	No Data	71
2006 Fourth Highest Average	ppb	71	No Data	No Data	72	83	76	77
2007 Fourth Highest Average	ppb	72	No Data	No Data	66	76	71	No Data
2008 Fourth Highest Average	ppb	70	No Data	No Data	66	74	71	No Data

Source: http://www.tceq.state.tx.us/cgi-bin/compliance/monops/8hr_attainment.pl

Note 3.1.1: The monitors in Bastrop, Hays, and Williamson Counties were deactivated prior to the close of 2008.

Finding 2: Emissions data (location of sources and contribution to ozone concentrations) (Factor 2)

The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. Additionally, Bell County on the north side of Williamson County is home to 5 permitted point sources. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (≤100 tons per year) that are only a small fraction (<1 percent) of the emissions in A-RR MSA. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County. Unquantified biogenic emission sources include significant ranching and farming within Williamson County. In addition, there is reason to suspect that ozone and ozone precursors may be transported from sources outside the area into the A-RR MSA. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

In determining the location of emission sources in Williamson County, GDS accomplished the following tasks:

- Examined TCEQ and USEPA data on permitted sources and emissions inventories for potential sources of NO_x and VOC in Williamson County and the surrounding counties.
- Identified the major stationary sources of ozone precursors that may contribute to violations of the 8-hour standard in the Williamson County and surrounding counties.
- Prepared a list of major transportation systems in Williamson County and adjacent counties including airports, shipyards, trains, and highways.
- Identified the location of other sources such as biogenic sources of ozone precursors.

The primary sources of manmade VOC and NO_x, the ozone precursors, are:

- (1) evaporation of fuels and solvents such as gasoline and consumer products;
- (2) combustion of fuels in motor vehicles, power plants and non-road engines; and
- (3) emissions from other industrial processes.

To assess the correlation between emissions and air quality in the Williamson County as well the neighboring counties (see Exhibit P), GDS accomplished the following tasks to determine whether or not the high levels of ozone come from the current non-attainment areas and not from adjacent attainment counties:

- Reviewed the current air quality standards for criteria pollutants, including ozone in those counties or areas adjacent to Williamson County and in the A-RRMSA.

- Used TCEQ emissions inventory data for those counties/areas and prepared a list of those counties that their point source data demonstrates contribution to high levels of ozone.
- Demonstrated that Williamson County contains insignificant point sources of emissions in the A-RR MSA.

Five counties in the A-RR MSA formed by the OMB in 2003 include: Travis, Williamson, Bastrop, Caldwell, and Hays (see Figure 3.8.1). Taking their lead from this economic realignment, USEPA proposed to adopt this same alignment for a redefined Austin-Round Rock MSA with the implementation of the new 8-hour ozone NAAQS.

Six counties immediately adjacent to Williamson County include: Burnet, Bell, Milam, Lee, Bastrop, and Travis Counties. As mentioned earlier, Burnet, Bell, Milam, and Lee Counties are A-RR MSA while Bastrop, Caldwell, and Hays Counties are inside the A-RR MSA (see Figure 3.8.1). Table 3.2.1 below describes the number of permitted emissions sources, the 2006 air emissions inventories of NO_x and VOC, the number of O₃ monitors, and the fourth highest eight-hour O₃ average from 2005 through 2008.

Figure 3.2.1 displays the location of point sources in the A-RR MSA. Table 3.9.1 depicts the actual point source VOC and NO_x emissions for the five counties in the Austin-Round Rock MSA from 2000 through 2006. Bell and Burnet County emissions are also included for a point of reference. When studying this data, it becomes readily apparent that Williamson County is about 100 tons or less of combined VOC and NO_x per year from permitted point sources. This amounts to little more than 1 percent of the combined 8,030 tons per year of combined NO_x and VOC coming from permitted point sources throughout the Austin-Round Rock MSA.

A review of the information in USEPA AirData maps of specific countywide emissions maps for existing NO_x and VOC emissions (see Exhibit H) show that annual emissions of Williamson County sources emit between 26 and 35 tons of NO_x and between 45 and 78 tons of VOC per year. The combined point source emissions of VOC and NO_x in Travis County are more than **37 times greater** than the combined point source emissions of VOC and NO_x in Williamson County. See Finding 9.

According to the TCEQ air emissions sources, there are only five operating permitted source in the county (see Exhibit R). In addition, these are very small sources of NO_x and VOC averaging 6 tons of NO_x and 9 tons of VOC each. For comparison purposes, the 18 permitted sources in Travis County average 142 tons of NO_x and 18 tons of VOC each the 10 permitted sources in Bell County average 16 tons of NO_x and 84 tons of VOC each.

The discussion above applies only to point source emissions. As discussed in Finding 4 regarding commuting and traffic issues, mobile source emissions in 2005 accounted for 78 percent of the total anthropogenic NO_x emissions and 33 percent of the total anthropogenic VOC emissions in the A-RR MSA. In their September 5, 2008 letter (see Exhibit X) to the TCEQ, the Capitol Area Council of Governments described an extensive set of voluntary compliance efforts among their member governments to improve air quality in the region and eliminate the need for designation as a non-attainment area.

Currently, 373,363 people live in Williamson County. Georgetown is the county seat and has 46,867 residents. Round Rock is the largest city with a population of 95,444 while Cedar Park has 56,724 residents (Williamson County profile, see Exhibit N). The

Williamson County profile lists 16 cities that are wholly or partly in the County boundaries. The balance of the county living in unincorporated areas amounts to 100,396 people or approximately 27 percent of the county's residents.

According to a recent study conducted by the Capitol Area Metropolitan Planning Organization (CAMPO) (see Exhibit L), about 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

In reviewing available monitoring data, GDS found that there have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County. See Finding 1.

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period. See Finding 1.

While TCEQ has positioned many air quality monitors in Travis County over time (see Figure 3.1.1), relatively few of these monitors kept track of ozone levels. . This low density of O₃ air quality monitors in the Austin-Round Rock MSA stands in stark contrast to the 34 O₃ monitors in Harris County alone. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond. See Finding 1.

In their comments on the TCEQ proposal to include designate the A-RR MSA as non-attainment for the new ozone standard (see Exhibit Z), the Clean Air Advisory Committee (CACAC) shows background concentrations of 65 to 75 ppb. While the exact portion of this background level that is from biogenic sources is not quantified, it is likely that the non-point biogenic sources such as ranching and farming contribute to these levels.

There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County (see Finding 1).

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

Report on Including Williamson County in A-RR Non-attainment Area



Figure 3.2.1: Display of Permitted Point Sources and County Seats.
Source: TCEQ 2006 Emissions Inventory and GIS Data.

Table 3.2.1: Permitted Point Source Emissions and Air Quality Data								
Characteristic Data		Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Permitted Sources	each	8	2	0	4	18	5	10
2006 NO_x Emissions	tons per year	953	1,152	No Data	2,508	2,564	31	159
2006 VOC Emissions	tons per year	131	55	No Data	264	325	47	841
Number of O₃ Monitors	each	1	0	0	2	2	2	0
2005 Fourth Highest Average	ppb	No Data	No Data	No Data	72	82	No Data	No Data
2006 Fourth Highest Average	ppb	71	No Data	No Data	72	83	76	No Data
2007 Fourth Highest Average	ppb	72	No Data	No Data	66	76	71	No Data
2008 Fourth Highest Average	ppb	70	No Data	No Data	66	74	71	No Data

Source: TCEQ 2006 Statesum.xls (<http://www.tceq.state.tx.us/implementation/air/industei/psei/psei.html>)

Note 3.2.1: The monitors in Bastrop, Hays, and Williamson Counties were deactivated prior to the close of 2008.

Finding 3: Population density and degree of urbanizations (including commercial developments) (Factor 3)

The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

To compare the population density and degree of urbanization in Williamson County with that of the Austin-Round Rock MSA counties, GDS accomplished the following tasks:

- Reviewed US Census Bureau and Texas Secretary of State Census data from 2000 as well as projected estimates to date.
- Extracted census data relative to population density and degree of urbanization as well as projected growth areas within Williamson County and the adjacent counties.

Five counties in the A-RR MSA formed by the OMB in 2003 include: Travis, Williamson, Bastrop, Caldwell, and Hays (see Figure 3.8.1). Taking their lead from this economic realignment, USEPA proposed to adopt this same alignment for a redefined Austin-Round Rock MSA with the implementation of the new 8-hour ozone NAAQS.

Six counties immediately adjacent to Williamson County include: Burnet, Bell, Milam, Lee, Bastrop, and Travis Counties. As mentioned earlier, Burnet, Bell, Milam, and Lee Counties are outside the A-RR MSA while Bastrop, Caldwell, and Hays Counties are inside the A-RR MSA (see Figure 3.8.1).

- County surface area,
- County total county population,
- Population of each of the counties four largest cities where available,
- Balance of the population residing in the county, and
- Overall population density in the county.

From the data presented in Table 3.3.1, it becomes readily apparent that the population characteristics of Williamson County are much more like Hays and Bell County than Travis County. The average population density of these three counties is 264 people per square mile compared to 919 in Travis County. This means that Travis County is **3.5 times more** densely populated than these other three counties. This means that Williamson

County is more like less-urbanized Hays and Bell Counties than it is like the very densely urbanized Travis County (see Exhibit K, and Exhibit S).

From the standpoint of urbanization, Williamson County more closely resembles the development patterns in Hays and Bell Counties than it does Travis County. For example, the largest city in Williamson County is Round Rock with a population of 95.4 thousand. This is one-seventh the size of the largest city in Travis County and 85 percent of the largest city in Bell County. However, when we look further down the list to other urban centers in counties inside and outside the Austin-Round Rock MSA, GDS found cities of comparable size in Williamson and Bell Counties.

Table 3.3.1: 2007 Population Density and Degree of Urbanization Data								
Characteristic Data		Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Surface Area	square miles	896	547	1,020	680	1,022	1,136	1,087
2007 Total Population	1,000's	73.78	37.69	44.34	133.82	938.87	370.32	261.58
Largest City Population	1,000's	9.5	13.6	7.3	49.6	727.2	95.4	112.4
2nd Largest City Population	1,000's	7.8	5.4	5.7	23.9	34.4	56.7	58.3
3rd Largest City Population	1,000's	4.4	1.1	2.8	5.6	10.6	46.8	24.5
4th Largest City Population	1,000's	1.0	0.7	1.4	2.8	3.1	22.8	17.3
Balance of Population	1,000's	51.1	16.9	27.1	51.9	163.6	148.6	49.1
Population Density	People per mi²	82	69	43	198	919	326	240

Source: 2007 Census Bureau - The County Information Project's on-line Database.

Finding 4: Traffic and commuting patterns (Factor 4)

About 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

To compare the traffic and commuting patterns in Williamson County with that of the Austin-Round Rock MSA counties, GDS accomplished the following tasks:

- Reviewed US Census Bureau and Texas Secretary of State Census data from 2000 as well as projected estimates to date.
- Extracted census data relative to traffic and commuting patterns within Williamson County and the adjacent counties.
- Identified major highways and road activities in the area.
- Demonstrated that, while there may be a marginal amount of commuting between residences in Williamson County and the immediately adjacent counties (e.g., Montgomery, Liberty, Polk, Trinity, and Walker), there is almost no commuting between Williamson County and Harris County which is the core of the Austin-Round Rock MSA.

Williamson County covers 1,136 square miles and is situated in Central Texas, with its nearest border about 15 miles north-northeast of downtown Austin. Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

State Highways 130 and 45 as well as Loop 1 are toll roads in Williamson County. SH130 splits from IH35 north of Georgetown and runs parallel to IH 35 but to the east of Georgetown, Round Rock, and Pflugerville. SH45 runs east to west connecting SH130 to US 183 and Loop1. Loop 1 runs north to south connecting Round Rock to Austin. The rest of the county's paved roads are farm-to-market roads and state highways. Figure 2.3.1 from Exhibit F below describes the general layout of Williamson County.

Currently, 373,363 people live in Williamson County. Georgetown is the county seat and has 46,867 residents. Round Rock is the largest city with a population of 95,444 while Cedar Park has 56,724 residents (Williamson County profile, see Exhibit N). The Williamson County profile lists 16 cities that are wholly or partly in the County boundaries. The balance of the county living in unincorporated areas amounts to 100,396 people or approximately 27 percent of the county's residents.

According to a recent study conducted by the Capitol Area Metropolitan Planning Organization (CAMPO) (see Exhibit L), about 165 thousand workers reside in Williamson County compared to 417 thousand workers who live in Travis County. Of the Williamson County workers, almost 55 percent commute into Travis County while almost 27 percent

commute to work inside the County. Of the Travis County workers, 79 percent work inside Travis County while 5 percent commute to work in Williamson County.

In the OMB decision to use commuting patterns as a basis for inclusion in a CBSA (either MeSA or MiSA), they said: “OMB accepted the Review Committee’s recommendation to use data on journey to work, or commuting, as the basis for grouping counties together to form CBSAs (i.e., to qualify “outlying counties”). OMB accepted the Review Committee’s recommendation to qualify a county as an outlying county if (a) at least 25 percent of the employed residents of the county work in the CBSA’s central county or counties, or (b) at least 25 percent of the jobs in the potential outlying county are accounted for by workers who reside in the CBSA’s central county or counties. OMB also accepted the Review Committee’s recommendation not to use measures of settlement structure, such as population density, to qualify outlying counties for inclusion in CBSAs.” See page 82233 of Exhibit A.

Figure 3.4.1 below illustrates the flow of commuting traffic into and out of the five counties that comprise the A-RR MSA. Travis County residents work almost exclusively within Travis County while a 29 to 58 percent of the workers residing in the other four counties commute between their county and Travis County. In the other four counties, the fraction of resident workers commuting within the county is from 37 to 50 percent.

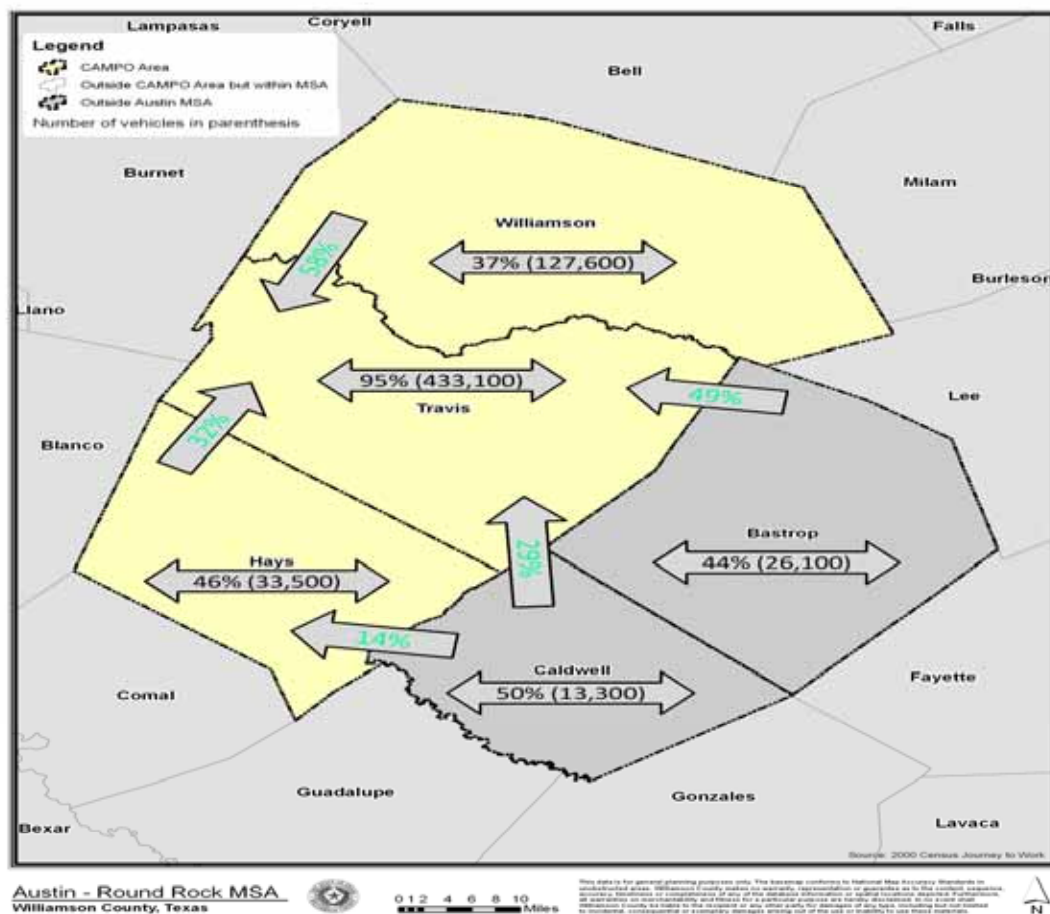


Table 3.4.1: Commuting flow for counties within the A-RR MSA. See Exhibit L.

Source: Capitol Area Metro data

Figure 3.4.2 describes the commuting flow between the San Antonio MSA and the A-RR MSA. As the figure shows, between 0.7 and 1.4 percent of employed residents from one MSA commute to the other MSA each day.

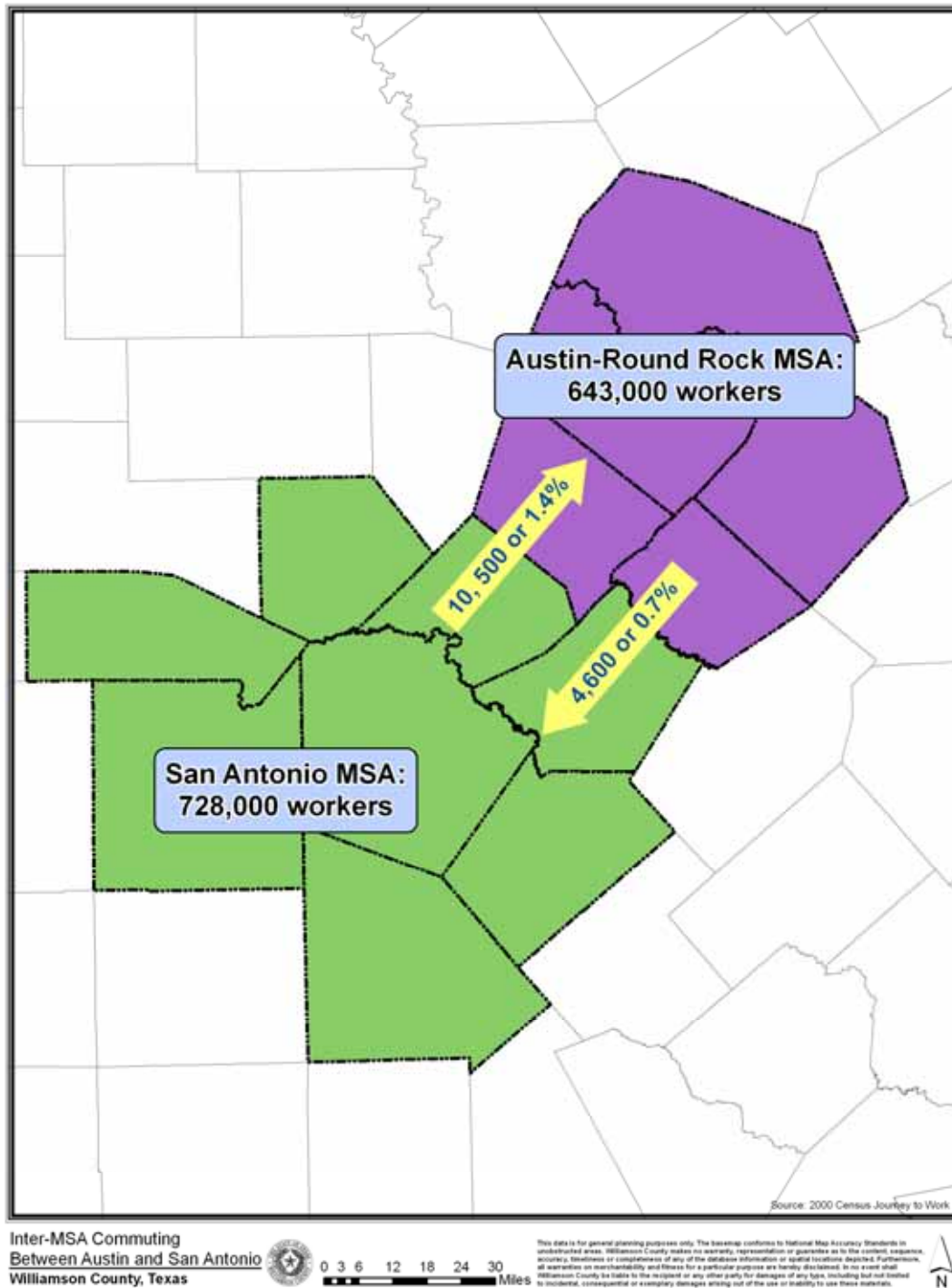


Figure 3.4.2: Commuting flow between San Antonio MSA and the A-RR MSA. See Exhibit X.

Source: Capitol Area Council of Governments September 5, 2008 letter to TCEQ

Finding 5: Growth Rates and Patterns (Factor 5)

Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles. The difference in population density growth rates alone represents *almost 4 times* as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

Evaluating the expected population growth in Williamson County with that of the Austin-Round Rock MSA counties required that GDS accomplish the following tasks:

- Reviewed US Census Bureau and Texas Secretary of State Census data from 2000 as well as projected estimates to date for population growth and trends.
- Extracted census data relative to population as well as projected population growth areas within Williamson County and the adjacent counties.
- Assessed expected growth for industries and potential employers in the area (i.e., Williamson County and the surrounding counties) and the potential impact of that growth on possible violations of the 2008 eight-hour ozone standard.
- Demonstrated that current and expected population growth for the Williamson County is not sufficient to create an adverse impact on air quality in Williamson County and the surrounding counties.

Currently, 373,363 people live in the Williamson County. The largest city in the county is Round Rock with a population of 95,444 (Williamson County profile, see Exhibit N). From the data presented in Tables 3.5.1 and 3.5.2, GDS observed that the compounded 30-year growth rates in population between 1990 and 2020 are estimated at:

- Bastrop County – 3.24%
- Bell County – 1.53%
- Burnet County – 3.36%
- Caldwell County – 2.13%
- Hays County – 3.31%
- Travis County – 2.27%
- Williamson County – 4.78%

GDS compared the average of six counties (Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties) that are either part of the A-RR MSA or are immediately adjacent to Williamson County with Travis County that is also part of the A-RR MSA to determine if there were substantial differences. The composite annual growth rate in the six counties is

3.23% compared to 2.27% annual growth rate in Travis County. However, the absolute 30-year growth in the population in Travis County alone is projected at 561 ***thousand*** compared to total of 775 ***thousand*** in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties over the same period of time.

In Travis County alone, this growth translates into an increase in population density 549 people per square mile compared to 919 people per square mile in 2007. In the other six counties, the projected population growth translates into an increase in population density of 144 people per square mile compared to 172 people per square mile in 2007. The difference in population density growth rates alone represents ***almost 4 times*** as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties. See Table 3.5.3.

Table 3.5.1: 1990 to 2020 Population Data and Projections in Thousands.

Year	Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
1990	38.26	26.28	22.65	65.77	581.02	140.57	191.65
1991	38.87	26.41	22.71	67.13	602.11	146.17	190.66
1992	40.04	26.60	22.97	68.64	624.95	152.62	192.95
1993	41.38	27.01	23.76	70.87	649.23	161.30	205.07
1994	43.43	27.57	25.23	74.78	671.76	171.39	221.13
1995	45.81	28.91	27.41	78.96	696.28	181.61	224.09
1996	48.74	29.55	28.82	82.01	717.19	195.55	228.42
1997	51.06	30.21	30.06	85.90	736.59	207.51	230.44
1998	53.07	30.76	31.33	89.98	761.34	220.43	233.37
1999	55.68	31.49	33.02	93.62	788.50	236.61	233.89
2000	58.31	32.48	34.52	99.01	819.90	255.04	238.76
2001	61.47	33.80	36.02	104.42	843.20	276.91	240.75
2002	64.25	34.85	37.56	111.19	846.60	290.58	244.71
2003	66.78	35.51	38.74	115.59	854.28	303.85	248.93
2004	68.43	36.34	40.24	119.26	869.36	318.10	249.75
2005	69.81	36.54	41.49	124.43	889.54	334.38	254.37
2006	71.68	36.72	42.90	130.33	921.01	353.83	257.90
2007	73.78	37.69	44.34	133.82	938.87	370.32	261.58
2008	75.70	38.56	45.67	136.99	954.36	385.89	264.61
2009	77.60	39.42	47.00	140.12	969.69	401.38	267.61
2010	79.50	40.29	48.32	143.25	984.99	416.84	270.61
2011	81.40	41.16	49.64	146.41	1000.44	432.35	273.67
2012	83.32	42.03	50.98	149.58	1016.06	447.92	276.79
2013	85.26	42.92	52.32	152.78	1031.88	463.58	279.97
2014	87.18	43.79	53.66	155.95	1047.45	479.11	283.09
2015	89.12	44.68	55.01	159.17	1063.37	494.80	286.32
2016	91.06	45.56	56.35	162.38	1079.24	510.46	289.54
2017	93.01	46.45	57.71	165.61	1095.25	526.18	292.80
2018	94.96	47.34	59.06	168.84	1111.23	541.89	296.07
2019	96.89	48.23	60.40	172.03	1127.00	557.50	299.28
2020	98.84	49.11	61.75	175.24	1142.92	573.17	302.55

Source: Woods & Poole Economics, Inc – 2007 State Profile

Table 3.5.2: 1990 to 2020 Population Growth Rate Data and Projections in Percent.

Year	Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
1990	-0.62	-2.03	-0.34	0.53	2.69	3.45	1.26
1991	1.57	0.48	0.25	2.02	3.50	3.83	-0.52
1992	2.91	0.73	1.12	2.20	3.65	4.23	1.19
1993	3.25	1.52	3.34	3.16	3.74	5.38	5.91
1994	4.72	2.02	5.81	5.23	3.35	5.89	7.26
1995	5.19	4.63	7.97	5.29	3.52	5.63	1.32
1996	6.01	2.17	4.88	3.72	2.92	7.13	1.90
1997	4.54	2.19	4.12	4.53	2.63	5.76	0.87
1998	3.78	1.80	4.05	4.53	3.25	5.86	1.26
1999	4.70	2.29	5.12	3.89	3.45	6.84	0.22
2000	4.51	3.06	4.36	5.44	3.83	7.23	2.04
2001	5.13	3.91	4.17	5.18	2.76	7.90	0.83
2002	4.33	3.00	4.10	6.08	0.40	4.71	1.61
2003	3.79	1.87	3.03	3.81	0.90	4.37	1.70
2004	2.42	2.27	3.73	3.08	1.73	4.48	0.33
2005	1.98	0.57	3.02	4.16	2.27	4.87	1.81
2006	2.61	0.48	3.28	4.52	3.42	5.50	1.37
2007	2.85	2.57	3.25	2.61	1.90	4.45	1.41
2008	2.53	2.26	2.92	2.31	1.62	4.03	1.15
2009	2.45	2.19	2.82	2.24	1.58	3.86	1.12
2010	2.39	2.14	2.73	2.19	1.55	3.71	1.11
2011	2.34	2.11	2.68	2.15	1.54	3.59	1.12
2012	2.30	2.08	2.62	2.12	1.54	3.48	1.13
2013	2.27	2.06	2.57	2.10	1.53	3.38	1.14
2014	2.20	1.99	2.48	2.03	1.49	3.24	1.10
2015	2.18	1.99	2.45	2.02	1.50	3.17	1.13
2016	2.13	1.94	2.39	1.98	1.47	3.07	1.11
2017	2.10	1.92	2.34	1.95	1.46	2.99	1.12
2018	2.05	1.88	2.29	1.91	1.44	2.90	1.10
2019	1.99	1.83	2.22	1.86	1.40	2.80	1.07
2020	1.97	1.81	2.18	1.84	1.39	2.73	1.08

Source: Woods & Poole Economics, Inc – 2007 State Profile

Figure 3.5.3: Summary of Population Growth Data from 1990 to 2020							
Type of Data	County-by-County Data						
	Bastrop County	Caldwell County	Burnet County	Hays County	Bell County	Williamson County	Travis County
2020 Projected Population (1,000)	99	49	62	175	303	573	1,142
1990 Actual Population (1,000)	38	26	23	66	192	141	581
30-Year Growth (1,000)	61	23	39	109	111	432	561
Ratio of 2020 Projection to 1990 Census	2.6053	1.8846	2.6956	2.6515	1.5781	4.0638	1.9656
Compounded Annual Growth Rate (%)	3.24	2.13	3.36	3.31	1.53	4.78	2.27
Area 2020 Projected Population (1,000)	1,261						1,142
Area 1990 Actual Population (1,000)	486						581
Area 30-Year Growth (1,000)	775						561
Ratio of 2020 Projection to 1990 Census	2.5947						1.9656
Compounded Annual Growth Rate (%)	3.23						2.27

Finding 6: Meteorology (weather/transport patterns) (Factor 6)

The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between Williamson County and the Travis County is more likely from Travis County to Williamson County. Because of the prevailing southerly-to-southeasterly wind direction, it is much more likely that pollution comes into Williamson County from Travis County rather than the other way around.

To assess the potential impacts of meteorology on air quality, GDS accomplished the following tasks:

- Reviewed wind rose and other available weather data from Williamson County and the surrounding counties.
- Described and evaluated air quality trends in the area that effect air quality.
- Characterized the relationships between individual meteorological parameters and ozone.
- Demonstrate wind direction in the surrounding area.

Figures 3.6.1 through 3.6.2 illustrates the direction of surface wind movement in Austin and Waco from 1984 to 1992 (see Exhibit U). Air quality and transportation planners use to help predict long-term air quality, estimate the transport of airborne COC, and lay out airports. This information came from: TCEQ Web Site: www.tceq.state.tx.us/.../monitoring/air/monops/windroses.html. These wind roses were made using software (WRPLOT) and data from 1984 through 1992 that was obtained from the USEPA.

From these wind roses, the prevailing winds from the area airports are as follows:

- Austin-Bergstrom International Airport (ABIA) – predominantly from the south to southeast towards the north to north west (41 percent combined) and north to north-northeast towards the south to south-southwest (15 percent combined)
- Waco – predominantly from the south-southeast to north-northwest (43 percent combined) and from the north towards the south (10 percent)

Figure 3.6.3 is an aerial photo of Central Texas (see Exhibit V). This photo illustrates the bracketing of Williamson County by the weather stations in Waco (north) and Austin (south). From this figure and the prevailing wind patterns, what little air transport that occurs between Williamson County and Travis County is more likely from Travis County to Williamson County rather than the other way around.

However, because of the prevailing southerly-to-southeasterly wind direction, it is much more likely that pollution comes into Williamson County from Travis County rather than the other way around. According to the Capitol Area Council of Governments letter to the TCEQ in September 2008 (See Exhibit X), the results of air modeling for the A-RR projected a substantial transport of ozone and ozone precursors into the area from anthropogenic and biogenic sources. The study observed background ozone level of

between 65 and 75 ppb so that any transport of ozone into the area either through winds or transient vehicles makes it very difficult to avoid exceedances of the 75 ppb standard.

There are 18 permitted point sources in Travis County compared to only 5 in Williamson County. In addition, the sources in Travis County emit a combined 2,889 tons of NO_x and VOC per year compared to 77 tons of NO_x and VOC per year for permitted sources in Williamson County. Therefore, with 3.6 times as many permitted point sources and 40 times as many emissions of ozone precursors, it is far more likely that Travis County sources adversely affect Williamson County than the converse.

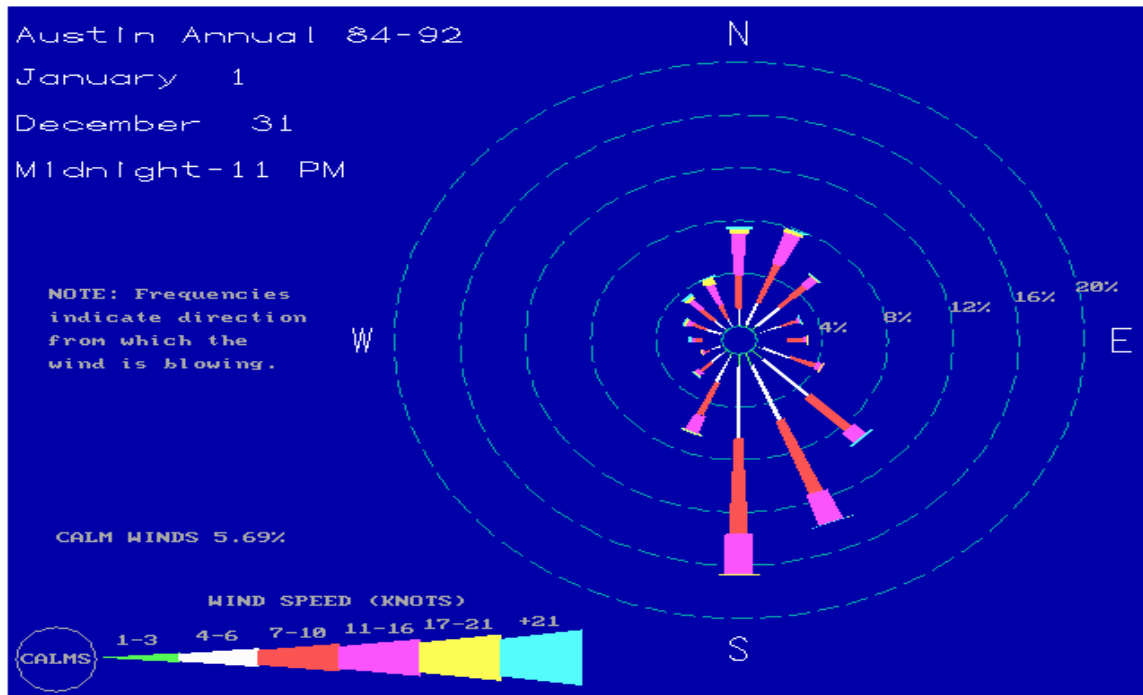


Figure 3.6.1: Wind Direction Movement at Austin

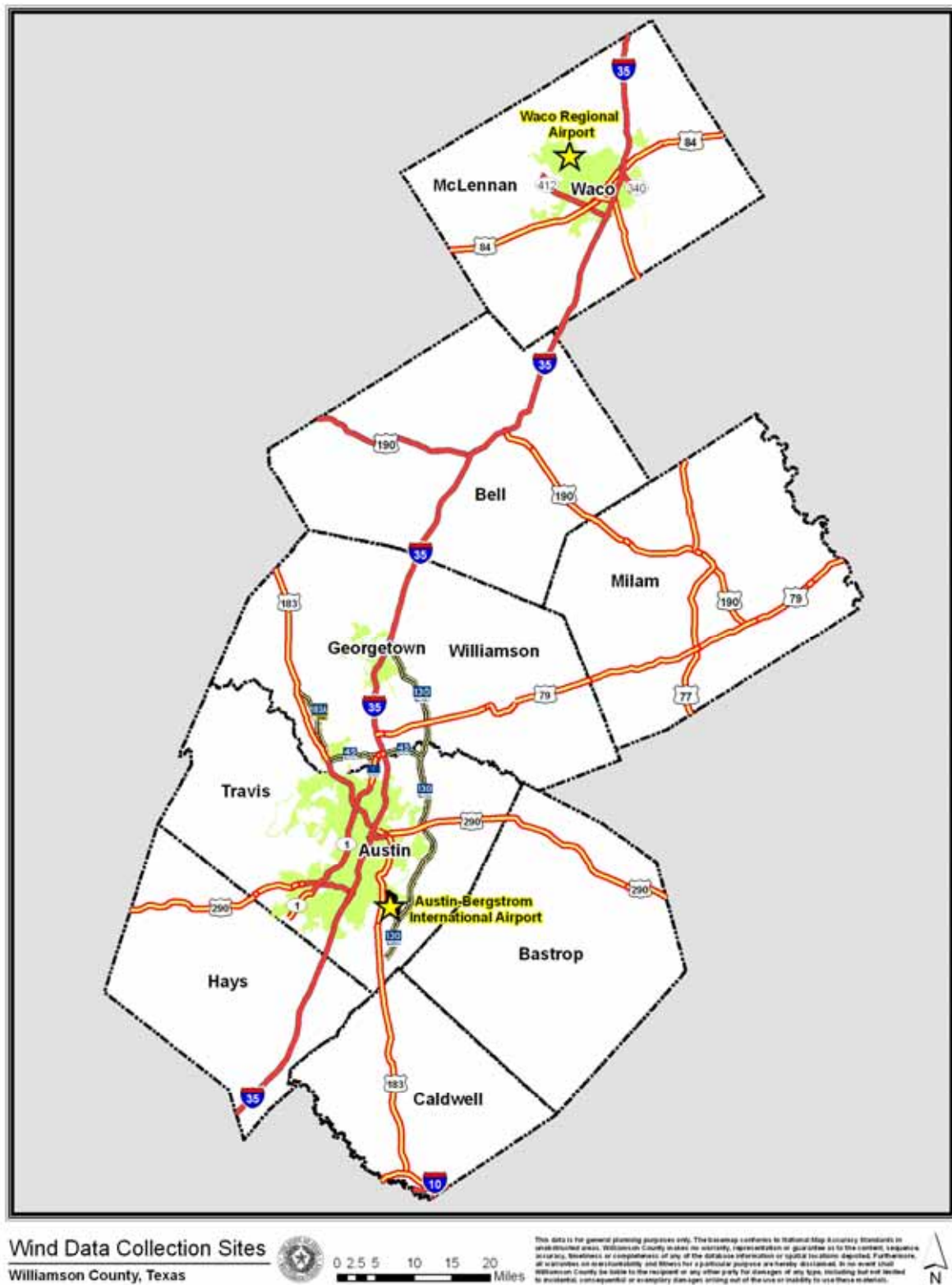


Figure 3.6.3: Location of Wind Data Collection Sites compared to Williamson County.

**Finding 7: Geography/Topography (mountain ranges or other air basin boundaries)
(Factor 7)**

Williamson County covers 1,136 square miles and is situated in Central Texas, with its southern boundary about 15 miles north-northeast of downtown Austin. Except for moderately urbanized areas along IH-35 and US-183, the county is largely committed to agriculture. County terrain falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary. The aerial photos in Exhibit W show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself.

Comparing the geography and topography in Williamson County and surrounding counties to determine the likely impacts on air quality required that GDS accomplish the following tasks:

- Reviewed aerial photos and descriptions of the geographic and topographic details of Williamson County and the surrounding counties.
- Developed generalizations about how this geography and topography of Williamson County and the surrounding counties either mitigate or exacerbate air quality.
- Compared geographic and topographic of the proposed revised Non-Attainment Area to postulate how geography and topography interact with meteorology and emissions to affect air quality in the region.
- Demonstrated that Williamson County is primarily ranch and farm land, has few stationary emissions sources, and is moderately urbanized.

Williamson County covers 1,136 square miles and is situated in Central Texas, with its nearest border about 15 miles north-northeast of downtown Austin. Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

As demonstrated earlier, the 1,136 square miles in Williamson County are primarily farm and ranch land, with few permitted point sources, and moderate urbanization that is dwarfed by the urbanization in Travis County. From the work done in support of Finding 5, GDS found that Williamson County is projected to increase at 4.78 percent compounded annual rate from 1990 through 2020.

The county's center is at 30° 38' 38.12" north latitude and 97° 36' 16.78" west longitude at 717 feet above sea level. In general, the county terrain falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary. The San Gabriel River runs generally west to east bisecting the county to northern and southern halves. The San Gabriel River is impounded at two places: Lake Georgetown west of Georgetown, Texas and Granger Lake east of Granger, Texas.

Rolling hills characterize the southern county boundary with Travis County. Substantial limestone quarries are distributed in the western and southwestern part of the county. The

western part of the county is largely committed to ranching and the vegetation is mostly grasslands, cedars, and live oak. The eastern part of the County is largely committed to cattle and farming using the rich alluvial soils in the area and principle crops include corn, grain sorghum, cotton, and wheat. See Exhibit W.

Aerial photos from the other six surrounding counties are included in Exhibit W. These aerial photos show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself.

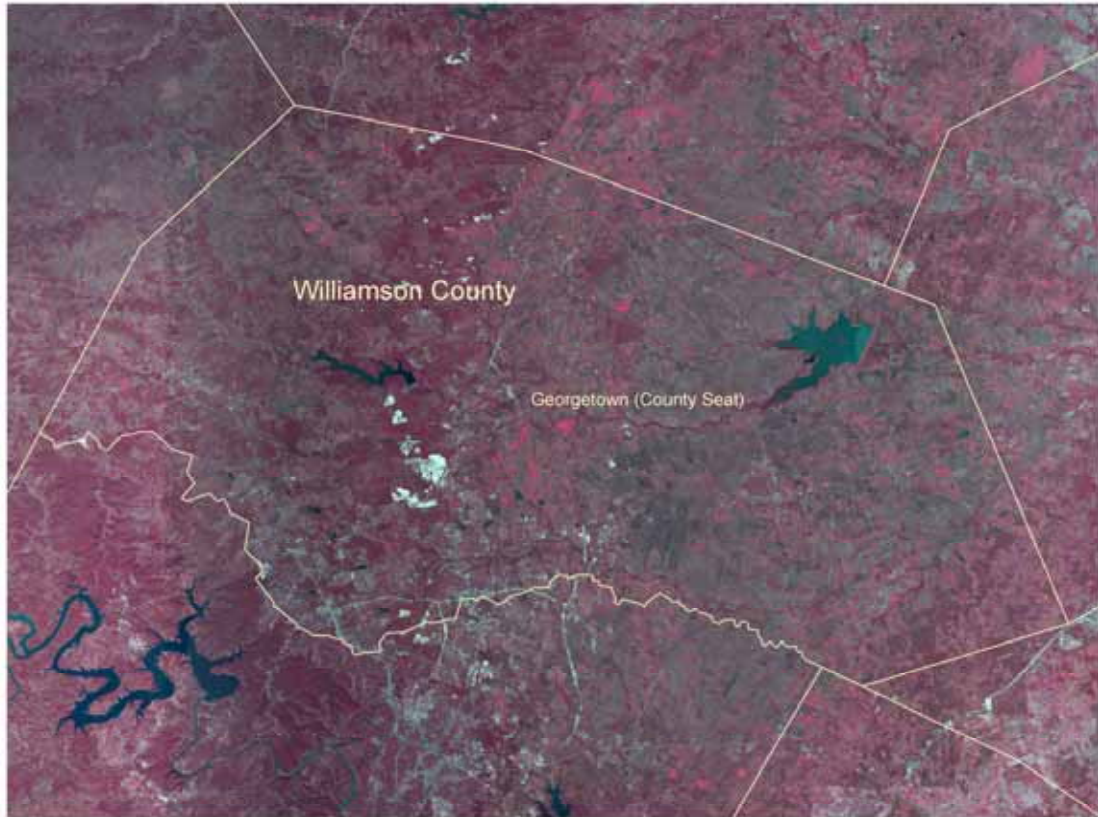


Figure 3.7.1: Aerial photo of Williamson County showing jurisdictional boundaries.

Finding 8: Jurisdictional boundaries (e.g., counties, air districts, existing non-attainment areas, reservations, metropolitan planning organizations (MPOs)) (Factor 8)

Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. There have been as many as seven O₃ monitors in the eight-county Austin-Round Rock MSA. However, only two of these monitors remain in current service. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

Identifying the jurisdictional boundaries of the counties involved and their ability to control air emissions and air quality within their jurisdiction required that GDS accomplish the following tasks:

- List all counties in the Austin-Round Rock MSA and map their boundaries as well as the NO_x and VOC emissions and monitored O₃ design values within their jurisdictions.
- List all counties surrounding Williamson County and map their boundaries as well as the NO_x and VOC emissions and monitored O₃ design values within their jurisdictions.
- Determine the degree to which NO_x and VOC emissions within a county are related to the level of ozone monitored in the area.

Five counties in the A-RR MSA formed by the OMB in 2003 include: Travis, Williamson, Bastrop, Caldwell, and Hays (see Figure 3.8.1). Taking their lead from this economic realignment, USEPA proposed to adopt this same alignment for a redefined Austin-Round Rock MSA with the implementation of the new 8-hour ozone NAAQS.

Six counties immediately adjacent to Williamson County include: Burnet, Bell, Milam, Lee, Bastrop, and Travis Counties. As mentioned earlier, Burnet, Bell, Milam, and Lee Counties are A-RR MSA while Bastrop, Caldwell, and Hays Counties are inside the A-RR MSA (see Figure 3.8.1).

There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County.

USEPA has long recognized this disparity in the placement of air quality monitors (see Exhibit C). In fact, about 100 MSA in the United States with populations less than 350,000 presently are without any O₃ monitors, and hence they do not have an O₃ design value (see page 16502 of Exhibit C).

Table 3.1.1 of this report shows that, since 2000, the 4th highest value monitoring data for seven O₃ monitors in Williamson, Travis, Bastrop, and Hays Counties ranged from 66 to

91 ppb. However, the monitor in Bell County averaged 74 ppb plus or minus 4 percent while the monitor in Bastrop County alone averaged 71 ppb plus or minus 1 percent and the Travis County monitors produced average readings of 82 ppb plus or minus 10 percent and the Williamson County monitors produced average readings of 73 ppb plus or minus 4 percent

A review of the information in USEPA AirData maps of specific countywide emissions maps for existing NO_x and VOC emissions (see Exhibit H) show that annual emissions of Williamson County sources emit between 26 and 35 tons of NO_x and between 45 and 78 tons of VOC per year. The combined point source emissions of VOC and NO_x are 40 times greater than the combined point source emissions of VOC and NO_x in Williamson County. See Finding 9.

GDS compared the average of six counties (Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties) that are either part of the A-RR MSA or are immediately adjacent to Williamson County with Travis County that is also part of the A-RR MSA to determine if there were substantial differences. The composite annual growth rate in the six counties is 3.23% compared to 2.27% annual growth rate in Travis County. However, the absolute 30-year growth in the population in Travis County alone is projected at 561 **thousand** compared to total of 775 **thousand** in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties over the same period of time. See Finding 5.

While there are only five stationary sources of NO_x and VOC in Williamson County, there are also a moderate number of mobile sources as evidenced by population density (326 per square mile). Interstate Highway 35 is the principle transportation route through the center of the county for about 12 miles. State Highway (SH) 29 runs east to west through Georgetown while RR 1431 runs east to west from midway between Round Rock and Georgetown to Cedar Park. US Highway 183 transects Williamson County on the western half of the county from northwest Austin to Cedar Park and on to Leander and Lampasas.

State Highways 130 and 45 as well as Loop 1 are toll roads in Williamson County. SH130 splits from IH35 north of Georgetown and runs parallel to IH 35 but to the east of Georgetown, Round Rock, and Pflugerville. SH45 runs east to west connecting SH130 to US 183 and Loop1. Loop 1 runs north to south connecting Round Rock to Austin. The rest of the county's paved roads are farm-to-market roads and state highways.

About 90 thousand (55 percent) employed residents commute from Williamson County Travis County each day. Another 44 thousand (27 percent) commute within Williamson County. About 330 thousand (79 percent) employed residents commute within Travis County each day. Another 21 thousand (5 percent) commute from Travis County to Williamson County. See Finding 4.

According to an August 25, 2008 letter from the Capitol Area Metropolitan Planning Organization (CAMPO) (see Exhibit Y), explained that the voluntary efforts within the region are significant. In addition, the CAMPO letter said that implementation of the federally mandated fuel and fleet measures should decrease on-road mobile sources significantly by 2015. CAMPO also recommended against linking the A-RR MSA with the San Antonio MSA because of existing independent transportation planning efforts and very low rates (about 1 percent) of commuting between the two areas. Finally, the CAMPO letter observes that the federal timeline ignores the impact of ozone transport into

marginal non-attainment areas from more heavily polluted areas by allowing the more heavily polluted areas more time to come into compliance. See Finding 4.

In reviewing available monitoring data, GDS found that there have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008. There is no O₃ monitor in Caldwell County.

While TCEQ has positioned many air quality monitors in Travis County over time (see Figure 3.3.1 below), relatively few of these monitors kept track of ozone levels. . This low density of O₃ air quality monitors in the Austin-Round Rock MSA stands in stark contrast to the 34 O₃ monitors in Harris County alone. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

This makes it difficult to determine with certainty the degree to which emissions in neighboring counties influence Williamson County ozone levels. Given the prevailing meteorological conditions (see Finding 6) and emissions from point sources (see Findings 2 and 9), it is much more likely that ozone levels in Williamson County are adversely effected by transport into Williamson County rather than the other way around.

Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

Finding 9: Level of control of emissions sources (Factor 9)

The prevailing meteorological conditions (i.e., southerly to southeasterly) and the relatively insignificant (i.e., less than 1.2 percent) contribution of Williamson County permitted point sources to the inventory, including Williamson County with Travis County as non-attainment for ozone would provide inconsequential reductions in ozone levels in the non-attainment area. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently be experienced. Inside a non-attainment area that is either marginal or moderate in the degree of non-attainment, new projects that emit as little as 100 tons per year of either NO_x or VOC are required to install more stringent controls and address offsets for the new emissions. Outside the non-attainment area, only projects producing more than 250 tons per year of a NAAQS pollutant are required to install more stringent controls. Coupling Williamson County to Travis County as a non-attainment area, USEPA will effectively and dramatically reduce the ability of the county to develop vast areas of ranchland and farmland in the county.

Examining the level of emissions controls and therefore the degree to which emissions are currently reduced required that GDS accomplish the following tasks:

- Reviewed the Best Available Control Technology (BACT) or Maximum Available Control Technology (MACT) being applied to common sources in the Austin-Round Rock MSA.
- Reviewed the Best Available Control Technology (BACT) or Maximum Available Control Technology (MACT) being applied to common sources in Williamson County and the adjacent counties not included in the Austin-Round Rock MSA.
- Compared the efficacy of these controls on reducing emissions of NO_x and VOC as well as improving air quality through reduced O₃ levels.

30 TAC 116.12(16) defines a Major facility as “Any facility that emits or has the potential to emit 100 tons per year or more of the plant-wide applicability limit (PAL) pollutant in an attainment area; or any facility that emits or has the potential to emit the PAL pollutant in an amount that is equal to or greater than the major source threshold for the PAL pollutant in Table I of this section for nonattainment areas.”

30 TAC 116.12(17) defines a Major stationary source as “Any stationary source that emits, or has the potential to emit, a threshold quantity of emissions or more of any air contaminant (including volatile organic compounds (VOCs) for which a national ambient air quality standard has been issued. The major source thresholds are identified in Table I of this section for nonattainment pollutants and the major source thresholds for prevention of significant deterioration pollutants are identified in 40 Code of Federal Regulations (CFR) §51.166(b)(1). A source that emits, or has the potential to emit a federally regulated new source review pollutant at levels greater than those identified in 40 CFR §51.166(b)(1) is considered major for all prevention of significant deterioration pollutants.

A major stationary source that is major for VOCs or nitrogen oxides is considered to be major for ozone. The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this definition whether it is a major stationary source, unless the source belongs to one of the categories of stationary sources listed in 40 CFR §51.165(a)(1)(iv)(C).”

Table I of the 30 TAC 116.12 on page 46 of this report describes what sources constitute a major source or what amount of emissions rise to a significant level as well as how many offsets are required for sources located in a given non-attainment condition. Please note that sources become “major” at progressively lower levels depending on the degree to which the area’s air quality is impaired. Currently, Austin-Round Rock MSA is designated by the USEPA as Category IV Severe Non-Attainment with the old 8-hour ozone NAAQS. The significant impact of this designation is the requirement of relatively small sources of NO_x and VOC (larger than 25 tons per year of each) to install stringent environmental controls and buy offsets or reduce other emissions at a rate greater than what will be emitted from the new source or modification to an existing source. This requirement bears directly on the economic viability of a project.

On the other hand, prevention of significant deterioration (PSD) standards applies to projects in counties that are outside a defined non-attainment area. In the PSD world, a major source is defined by a standard of 250 tons per year of any NAAQS air pollutant. Therefore, by assigning Williamson County to the Austin-Round Rock MSA, USEPA will effectively and dramatically reduce the ability of the county to develop the part of its land that is available for development. See Exhibit X.

TABLE I

MAJOR SOURCE/MAJOR MODIFICATION EMISSION THRESHOLDS

POLLUTANT DESIGNATION	MAJOR SOURCE THRESHOLD (tons/yea)r	SIGNIFICANT LEVEL² tons/year	OFFSET RATIO minimum
OZONE (VOC, NO_x)^{3, 6}			
I marginal⁷	100	40	1.10 to 1
II moderate	100	40	1.15 to 1
III serious	50	25	1.20 to 1
IV severe	25	25	1.30 to 1
CO			
I moderate	100	100	1.00 to 1 ⁴
II serious	50	50	1.00 to 1 ⁴
SO₂	100	40	1.00 to 1 ⁴
PM₁₀			
I moderate	100	15	1.00 to 1 ⁴
II serious	70	15	1.00 to 1 ⁴
NO_x⁵	100	40	1.00 to 1 ⁴
Lead	100	0.6	1.00 to 1 ⁴

1 – Texas nonattainment area designations are specified in 40 Code of Federal Regulations §81.344.

2 – The significant level is applicable only to existing major sources and shall be evaluated after netting, unless the applicant chooses to apply nonattainment new source review (NNSR) directly to the project. The appropriate netting triggers for existing major sources of NO_x and VOC are specified in §116.150 of this title (relating to New Major Source or Major Modification in Ozone Non-Attainment Areas) and for other pollutants are equal to the major modification level listed in this table.

3 – VOC and NO_x are precursors to ozone formation and should be quantified individually to determine whether a source is subject to NNSR under §116.150 of this title. As specified in §116.150 of this title, for El Paso County, the NNSR rules apply to sources of VOC, but not to sources of NO_x.

4 – The offset ratio is specified to be greater than 1.00 to 1.

VOC = volatile organic compounds

To understand and evaluate the contribution of Williamson County to regional emissions and the impact of regional emissions reduction plans on Williamson County, GDS accomplished the following tasks:

- Reviewed the number of permitted point sources and emissions of NO_x and VOC from these sources in the Austin-Round Rock MSA since 2000.
- Identify the amounts and methods by which these emissions were reduced since 2000.
- Identify the proposed control strategies for reducing emissions as part of the HGB SIP Modeling.
- Determine the relative impact of these types of reductions on the existing and permitted point sources in Williamson County.

Table 3.9.1 depicts the actual point source VOC and NO_x emissions for the five counties in the Austin-Round Rock MSA from 2000 through 2006. Bell and Burnet County emissions are also included for a point of reference. When studying this data, it becomes readily apparent that Williamson County is about 100 tons or less of combined VOC and NO_x per year from permitted point sources. This amounts to little more than 1 percent of the combined 8,030 tons per year of combined NO_x and VOC coming from permitted point sources throughout the Austin-Round Rock MSA.

The discussion above applies only to point source emissions. As discussed in Finding 4 regarding commuting and traffic issues, mobile source emissions in 2005 accounted for 78 percent of the total anthropogenic NO_x emissions and 33 percent of the total anthropogenic VOC emissions in the A-RR MSA. In their September 5, 2008 letter (see Exhibit X) to the TCEQ, the Capitol Area Council of Governments described an extensive set of voluntary compliance efforts among their member governments to improve air quality in the region and eliminate the need for designation as a non-attainment area. These efforts include:

- Implementing an Ozone Flex Plan
- Cementing inter-county cooperation in the Early Action Compact
- Using measures such as vehicle inspection and maintenance programs, locally enforced heavy vehicle idling limits, power plant emission reductions, and 200 other locally implemented measures to reduce NO_x and VOC emissions.

According to the Capitol Area Council of Governments letter, the ozone monitoring data shows that the level of ozone in 2007 was one part per billion lower than it was in 1997 despite the fact that population in the area has increased from about 700 thousand in 1997 to 1.55 million in 2007. After peaking at 89 ppb in 1999 and 2000, the measured ozone in the area dropped steadily over the next seven years to 80 ppb. Citing the Texas Transportation Institute research and the results of air modeling for the A-RR MSA, the Capitol Area Council of Governments projected a substantial decrease in on-road mobile source emissions of VOC and NO_x from a combined 99.5 tons per year in 2007 to 47.2 tons per year in 2015 to 33.7 tons per year in 2030.

Given the prevailing meteorological conditions described elsewhere in this report and the relatively insignificant contribution of Williamson County permitted point sources to the inventory, including Williamson County in the non-attainment area based on the Austin-

Round Rock MSA would provide inconsequential reductions in ozone levels in the non-attainment area. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction.

Table 3.9.1: Regional Point Source Emissions Reductions									
Characteristic Data			Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Permitted Sources		each	8	2	0	4	18	5	10
2000	VOC	tpy	155.75	19.98	0	247.77	545.04	51.34	817.74
	NO_x	tpy	2,693.34	888.58	0	2,831.80	3,865.35	33.50	146.95
2001	VOC	tpy	187.44	13.87	0	298.64	416.34	44.93	673.47
	NO_x	tpy	1,491.99	409.42	0	2,318.82	3,050.75	30.80	133.94
2002	VOC	tpy	131.91	23.13	0	349.02	364.47	65.67	770.99
	NO_x	tpy	1,383.47	898.32	0	2,610.76	2,390.55	35.0	131.63
2003	VOC	tpy	128.17	48.64	0	259.58	337.62	65.56	1,109.67
	NO_x	tpy	1,254.16	1,262.81	0	2,485.16	2,506.67	26.60	202.61
2004	VOC	tpy	139.11	35.07	0	222.75	376.79	78.21	1,039.42
	NO_x	tpy	989.20	1,768.60	0	2,525.71	2,965.14	32.40	197.94
2005	VOC	tpy	131.25	54.58	0	263.55	324.58	70.71	840.76
	NO_x	tpy	953.36	1,152.44	0	2,507.91	2,564.32	30.79	158.64
2006	VOC	tpy	131.25	54.58	0	263.55	324.58	46.69	840.76
	NO_x	tpy	953.36	1,152.44	0	2507.91	2,564.32	30.79	158.64

Source: TCEQ 2006 Statesum.xls

(<http://www.tceq.state.tx.us/implementation/air/industei/psei/psei.html>)

SECTION 4: Conclusions

After a thorough review of the Nine Factors to be considered by USEPA in making the decision whether or not to include Williamson County with Travis County in the Austin-Round Rock Non-attainment Area, there is only one statistic or observation that supports inclusion while there are many others that do not support inclusion.

The only statistic that supports inclusion is the commuting statistic between Williamson County and Travis County inside the Austin-Round Rock MSA. According to CAMPO data, 54.6 percent of the employed residents of Williamson County commute daily to Travis County while 5 percent of Travis County's employed residents commute daily to Williamson County. However, this draw of commuters to Travis County and the core city of Austin, Texas is not unique to Williamson County. Over two-thirds of the employed residents of Hays, Caldwell, Bastrop, Williamson, and Travis Counties work in Travis County (see Exhibit L and Finding 4).

This means that an estimated 90 thousand Williamson County residents commute to Travis County and 119 thousand employed residents of Hays, Caldwell, and Bastrop Counties commute to Travis County each day. However, Travis County has **1.5 times** more employed residents (and potential commuters) than Hays, Caldwell, Bastrop, and Williamson Counties combined. In addition, the portion of employed residents commuting from Hays, Caldwell, Bastrop, and Williamson Counties into Travis County ranges 30 to 55 percent. The OMB standard for establishing a MSA relationship is 25 percent

Therefore, if air pollution from commuters were the only test for whether or not to join a county to Travis County in forming a non-attainment area, clearly Hays, Caldwell, and Bastrop Counties would be included as well as Williamson County. However, the TCEQ staff did not recommend including these three counties in the A-RR Non-Attainment Area. Therefore, the TCEQ staff must have judged the other eight USEPA factors as having more weight

In examining the other eight factors, GDS concluded that the balance of the actual environmental and demographic data **does not support** an adverse environmental connection between Williamson County and Travis County in forming the A-RR Non-Attainment Area. These facts include:

1. There have been as many as seven O₃ monitors in the five-county A-RR MSA. Of these seven monitors, two monitors are in Travis County, two are in Williamson County, one is Bastrop County, and two are in Hays County. However, all of the monitors outside Travis County were deactivated prior to the end of 2008.

2. Available monitoring data throughout the A-RR MSA shows peak 4th highest values of 91 ppb in 2002. This level has been on a steady decline to 74 ppb in 2008 despite a 17 percent increase in population over the same time. State monitors installed in Williamson County from 2006 through 2008 appears to indicate that O₃ levels were 76 ppb in 2006 and decreased to 71 ppb in 2007 and 2008 despite a 9 percent increase in population over the same time period.

3. The TCEQ data on permitted point sources (see Exhibit O) shows 18 permitted point sources in Travis County alone compared to 5 respectively in Williamson County. Additionally, Bell County on the north side of Williamson County is home to 5 permitted point sources while Bastrop, Caldwell, and Hays Counties have a combined 14 permitted point sources.

4. The permitted point source data for Williamson County show combined emissions of VOC and NO_x (≤ 100 tons per year) that are only a small fraction (< 1 percent) of the emissions in A-RR MSA.

5. Unquantified biogenic emission sources include significant ranching and farming within Williamson County. In addition, there is reason to suspect that ozone and ozone precursors may be transported from sources outside the area into the A-RR MSA.

6. Because the only two ozone monitors in Williamson County have been deactivated, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

7. The population density and degree of urbanization in Williamson County more closely resembles Hays and Bell Counties than Travis County. Williamson County's population density of 326 people per square mile is: (1) only 23 percent greater than the average of Bell, Hays, and Williamson Counties, and (2) 35 percent of Travis County. By contrast, Travis County's population density of 919 people per square mile is: (1) 3.5 times greater than the composite density of Hays, Bell, and Williamson Counties; (2) almost 14.5 times greater than the composite density of Bastrop, Burnet, and Caldwell counties; and (3) more than 5 times the composite density of all six of these other counties combined.

8. The largest city in Williamson County is Round Rock at just over 95 thousand people. The largest city in Travis County is Austin at just over 727 thousand people. Austin is more than 7 times bigger than Round Rock and is positioned south of Round Rock in the prevailing wind direction.

9. Overall projected population growth from 1990 to 2020 in the A-RR MSA plus Burnet and Bell Counties is 2.71 per year.

10. In absolute numbers, Travis County population over this 30-year period is projected to grow by 561 thousand while the population in Bastrop, Bell, Burnet, Caldwell, Hays, and Williamson Counties is projected to grow by 775 thousand in the same time frame.

11. However, this projected incremental growth in the counties outside Travis County is dispersed over a combined area of 5,366 square miles while the Travis County growth will occur over an area of only 1,022 square miles.

13. The difference in population density growth rates alone represents **almost 4 times** as much of a potential impact on the region's air quality coming from growth in Travis County alone compared to the combined growth in the other six counties.

14. The prevailing wind flow in the area is from a southerly-to-southeasterly direction during the ozone formation season. What little air transport that occurs between Williamson County and the Travis County is more likely from Travis County to Williamson County.

15. Williamson County covers 1,136 square miles and is situated in Central Texas, with its southern boundary about 15 miles north-northeast of downtown Austin. Except for moderately urbanized areas along IH-35 and US-183, the county is largely committed to agriculture. County terrains falls away from a peak elevation of about 1,208 feet at the western most boundary to 400 feet at its eastern most boundary.

16. The aerial photos in Exhibit W show that the topography and geography of Williamson County more closely resembles its neighbors outside Travis County than Travis County itself. Geological and geographical features such as deep valleys and mountain ranges or plateaus conducive to the formation of air pollution do not appear to be present in Williamson County.

17. Only one Central Texas county is non-attainment for the 75 ppb eight-hour ozone standard. That county is Travis County. However, four other Central Texas counties (i.e., Williamson, Bastrop, Caldwell, and Hays) are included in the newly formed Austin-Round Rock (A-RR) MSA, but are in attainment with the 75 ppb eight-hour ozone standard.

18. There are active planning efforts and mitigation efforts being conducted by: the Capital Area Council of Governments, Clean Air Task Force of Central Texas, Capitol Area Metropolitan Planning Organization, and Capitol Metro transportation system. The active planning efforts by local agencies show an ability to reduce and maintain ozone levels below the 75 ppb standard.

19. The prevailing meteorological conditions (i.e., southerly to southeasterly) and the relatively insignificant (i.e., less than 1.2 percent) contribution of Williamson County permitted point sources to the inventory, including Williamson County with Travis County as non-attainment for ozone would provide inconsequential reductions in ozone levels in the non-attainment area.

20. At the same time, the additional controls that would be required as a result of this action would severely constrain, if not eliminate, the ability county to develop its resources and bring some independent economic projects to its jurisdiction and thereby reduce the amount of inter-county (Williamson to Travis) commuting currently be experienced. Inside a non-attainment area that is either marginal or moderate in the degree of non-attainment, new projects that emit as little as 100 tons per year of either NO_x or VOC are required to install more stringent controls and address offsets for the new emissions. Outside the non-attainment area, only projects producing more than 250 tons per year of a NAAQS pollutant are required to install more stringent controls. Coupling Williamson County to Travis County as a non-attainment area, USEPA will effectively and dramatically reduce the ability of the county to develop vast areas of ranchland and farmland in the county.

At their December 10, 2008 agenda session, the TCEQ Commissioners raised questions about why the TCEQ staff would not consider air quality data provided by non-state monitors in the absence of state monitors. As stated earlier in this report the state removed its two Williamson County monitors as well as the monitors in Bastrop and Hays Counties from service in December 2008. Without local monitoring data in Williamson County, it is next to impossible to say with any absolute scientific certainty (1) the actual ozone level in Williamson County, (2) the impact of its emissions on the Travis County Non-Attainment Area, or (3) the impact of the Travis County Non-Attainment Area on

Williamson County. Instead, state officials will only be able to infer from modeling rather than measure ozone levels in Williamson County in 2009 and beyond.

Given (1) the chilling effect that being included in the Travis County Non-Attainment Area would have on the ability of Williamson County to grow and develop its resources in the long term and (2) the fact that voluntary efforts in the region have resulted in ozone levels below the 75 ppb standard everywhere but Travis County, it makes a lot of sense to base the decision on ***actual, measured environmental data*** rather than a ***superficial economic statistic*** (i.e., commuting percentages) and inferred levels from mathematical models.. In fact, it is entirely possible that preserving the ability of the county to develop its own resources would grow jobs inside Williamson County and actually reduce the commuters from Williamson County to Travis County.

Until such ***real*** environmental data from monitor(s) on the ground in Williamson County is available, this proposed ***inclusion*** of Williamson County in the Travis County Non-Attainment Area ***is unfounded*** based on the preponderance of evidence available.

SECTION 5: Recommendations

While there is *only one economic* statistic or observation that supports including Williamson County in the Austin-Round Rock MSA, there are many more environmental and demographic facts that *do not support* this inclusion. This decision has an enormous effect on the growth and future of Williamson County and should be made only after a careful consideration of sound, scientifically gathered environmental data rather than on a single commuting statistic used to establish the economic relationships within a region.

In this case, voluntary efforts involving governmental agencies (i.e., city, county, and regional) responsible for environmental, health, planning, and transportation in Central Texas over the past decade resulted in a demonstrable decrease in ozone levels since 2000 despite experiencing population growth rates about 3 times the national average. Since the voluntary efforts are achieving what mandatory efforts are intended to do, it makes little sense to implement mandatory measures at this time.

For these reasons, GDS makes the following recommendations:

4. USEPA should reconsider this decision and hold it abeyance until scientifically sound environmental data from state air quality monitors shows that the voluntary measures in the region are not maintaining ozone levels in Williamson County at or below the 75 ppb standard.
5. As USEPA's agent for overseeing air quality programs in Texas, TCEQ should work with stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties to return the deactivated monitors to service so they can track the effectiveness of the voluntary efforts by determining and measuring:
 - Ground level ozone in Williamson County as well as surrounding counties without monitors.
 - Compliance with the new 8-hour ozone NAAQS.
 - Ozone precursors (i.e., NO_x and VOC)
6. Throughout this process, TCEQ (as agent for USEPA) should meet regularly with and seek input from stakeholders in Hays, Caldwell, Bastrop, Williamson, and Bell Counties regarding the monitoring results, trends, and expected controls.

Until such *environmental data* rather than a *single economic statistic* demonstrates that mandatory controls are required to maintain the 75 ppb standard, it is inappropriate to expand the Travis County Non-attainment Area beyond Travis County at this time.

SECTION 6: Exhibits

Exhibit A: December 4, 2008 letter from Robert Meyers, USEPA revising non-attainment area designations criteria from 11 factors to 9 factors

Exhibit B: Williamson County Community Resolutions Regarding Clean Air

Exhibit C: March 27, 2008, USEPA revising the level of the 8-hour standard from 0.08 parts per million (ppm) to 0.075 ppm published in the *Federal Register*.

Exhibit D: Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality standard (NAAQS) of USEPA

Exhibit E: March 2000 memorandum, John S. Seitz, Director of the USEPA Office of Air Quality Planning and Standards

Exhibit F: General layout and transportation system in and around Williamson County

Exhibit G: TCEQ List of Permitted Point Sources in nine Central Texas Counties

Exhibit H: USEPA AirData maps of specific countywide emissions maps for existing NO_x and VOC emissions

Exhibit I: 2008 Season Highest 8-hour Ozone Values from A-RR MSA

Exhibit J: Distribution of State CAMS Monitors

Exhibit K: Secretary of State County Profiles for Williamson, Hays and Bell Counties

Exhibit L: Capitol Area Metropolitan Planning Organization commuting data for Central Texas

Exhibit M: December 27, 2000 OMB “Standards for Defining Metropolitan and Micropolitan Statistical Areas” published in the *Federal Register*

Exhibit N: Reserved

Exhibit O: Reserved

Exhibit P: Permitted Point Source Emissions and Air Quality Data in Central Texas

Exhibit Q: Reserved

Exhibit R: Reserved

Exhibit S: Secretary of State County Profile for Travis County

Exhibit T: Reserved

Exhibit U: Austin and Waco Meteorological Data from 1984 to 1992

Exhibit V: Map of Central Texas Counties showing bracketing of Williamson County by Austin and Waco Airports

Exhibit W: Aerial photos of Williamson County and surrounding counties

Exhibit X: September 5, 2008 to the TCEQ from Capitol Area Council of Governments

Exhibit Y: August 25, 2008 letter from the Capitol Area Metropolitan Planning Organization (CAMPO) to TCEQ

Exhibit Z: Clean Air Advisory Committee (CACAC) comments to TCEQ on proposal to include designate the A-RR MSA as non-attainment for the new ozone standard



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC - 4 2008

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standards

FROM: Robert J. Meyers 
Principal Deputy Assistant Administrator

TO: Regional Administrators, Regions I-X

This memorandum provides information on the timeline for designating areas for the purpose of implementing the 2008 revised primary and secondary ozone National Ambient Air Quality Standards (NAAQS). In addition, this memorandum identifies important factors states and tribes should consider in making recommendations for area designations. Please share this information with the state and tribal agencies in your Region.

The U.S. Environmental Protection Agency (EPA) revised the ozone NAAQS on March 12, 2008 (73 FR 16436; March 27, 2008). The new primary ozone standard was lowered from 0.08 parts per million (ppm) to a level of 0.075 ppm based on numerous epidemiological studies conducted during the past decade in which many of the health effects associated with ozone exposure were identified. These studies showed health effects at and below the level of the 0.08 ppm standard, which was promulgated in 1997. Prolonged (i.e., 8-hour) exposure to ozone is associated with increased mortality and a range of serious morbidity health effects, including aggravation of a variety of respiratory symptoms and lung impairment, asthma attacks, respiratory hospital admissions and emergency department visits, and cardiovascular problems. In March 2008, EPA also strengthened the secondary ozone standard to provide increased protection against adverse public welfare effects including impacts on vegetation and forested ecosystems. EPA made the secondary standard identical in all respects to the revised primary standard.

Section 107(d) of the Clean Air Act (CAA) governs the process for area designations following the establishment of new or revised NAAQS. Under section 107(d), states are required to submit recommendations on designations for their areas to EPA not later than one year after the promulgation of a new or revised standard. If, after careful consideration of the recommendations, EPA intends to promulgate a designation that deviates from a state recommendation, EPA must notify the state at least 120 days prior to promulgating the final designation, and EPA must provide the state an opportunity to demonstrate why the potential

modification is inappropriate. The CAA requires EPA to complete the designation process within two years of promulgation of a new or revised NAAQS unless the Administrator has insufficient information to make these decisions. In such a case, EPA may take up to an additional year to make the designations. While the language of section 107 specifically addresses states, EPA intends to follow the same process for tribes to the extent practicable, pursuant to section 301(d) of the CAA and the Tribal Authority Rule, or TAR (see 63 FR 7254).

Accordingly, state designation recommendations for the 2008 revised ozone standards should be submitted to the Administrator no later than March 12, 2009. Areas should be identified as attainment, nonattainment, or unclassifiable on the basis of available information. We will notify states by letter no later than November 12, 2009 if we plan to modify a state's recommendation. In order to consider public input in the designation process, we plan to provide a 30-day public comment period immediately following issuance of EPA's response letters to the states and tribes; we anticipate the comment period would conclude in mid-December 2009. If a state or tribe has additional information that they want EPA to consider with respect to a designation recommendation EPA plans to modify, we would request such information be submitted by January 12, 2010. This will ensure that EPA can fully consider any such information as we move forward to issue designations by March 12, 2010. Because the 2008 revised primary and secondary ozone NAAQS are identical, EPA expects that each area will have the same designation and boundary for both standards.

We recommend that states and tribes identify violating areas using the most recent three consecutive years of quality-assured, certified air quality data. In most cases, we expect these to be data from 2005-2007 or 2006-2008 (if these 2006-2008 data have been certified more quickly than is required) that are stored in the EPA Air Quality System (AQS).¹ In general, violations are identified using data from Federal reference method (FRM) and Federal equivalent method (FEM) monitors that are sited and operated in accordance with 40 CFR Part 58. Special Purpose Monitors (SPM) using an FRM or FEM which have operated for more than 24 months are eligible for comparison to the relevant NAAQS, subject to the requirements given in the October 17, 2006 Revision to Ambient Air Monitoring Regulations (71 FR 61236). Procedures for using the air quality data to determine whether a violation has occurred are given in 40 CFR Part 50 Appendix P, as revised on March 27, 2008 (73 FR 16511). We expect to base the final designations in March 2010 on the most recent quality-assured data which would be from 2006-2008 or 2007-2009.

Air quality monitoring data affected by exceptional events may be excluded from use in identifying a violation if they meet the criteria for exclusion, as specified in the Final Rule on the Treatment of Data Influenced by Exceptional Events (72 FR 13560; March 22, 2007). We recently issued a direct final rule to provide schedules for flagging exceptional event data and submitting documentation specifically for ozone data collected from 2005 through 2009 that are used in the designations process for the 2008 ozone NAAQS. (See 73 FR 58042; October 6, 2008). These schedules reflect our interest in assuring that the exceptional events claims can be fully considered by EPA in the final designations.

¹ This information is available on EPA's website at www.epa.gov/ttn/airs/airsaqs/.

Section 107(d)(1) of the CAA defines an area as nonattainment if it is violating the NAAQS or if it is contributing to a violation in a nearby area. Ground-level ozone and ozone precursor emissions are pervasive and readily transported. Therefore, EPA believes it is important to examine ozone-contributing emissions across a relatively broad geographic area. Accordingly, we recommend that the Core Based Statistical Area (CBSA) or Combined Statistical Area (which includes 2 or more adjacent CBSA's) associated with the violating monitor(s) serve as the starting point or "presumptive" boundary for evaluating the geographic boundaries of an ozone nonattainment area. CBSA is a collective term that refers to both metropolitan and micropolitan statistical areas, which are distinguished based on population size.² Each CBSA consists of a county or counties containing at least one urban core plus adjacent counties that have a high degree of social and economic integration with the urban core as measured by commuting ties.³ EPA recommends starting with this presumption because the factors used to establish the CBSAs and CSAs are similar to the factors EPA plans to consider in determining whether a nearby area is contributing to the violation(s) of the standard. EPA used this same conceptual approach in the designations process for the 1997 ozone NAAQS.^{4,5} Where a violating monitor is not located in a CBSA or CSA, we recommend that the boundary of the county containing the monitor serve as the starting point for considering the extent of the nonattainment area.

EPA believes that each potential nonattainment area should be evaluated on a case-by-case basis and recognizes that these area-specific analyses conducted by states, tribes, and/or EPA may support nonattainment area boundaries that are larger or smaller than the presumptive area starting point. As a framework for area-specific analyses, we recommend that states and tribes base their boundary recommendations on an evaluation of the 9 factors listed in attachment 2. These factors are consistent with those used in the designations process for the 1997 ozone standard and are factors EPA plans to consider in evaluating and making decisions on the nonattainment area boundaries for the 2008 ozone standards. Additionally, states and tribes may

² The Office of Management and Budget (OMB) delineates CBSAs (metropolitan and micropolitan statistical areas) and CSAs. OMB adopted new standards for defining metropolitan and micropolitan statistical areas on December 27, 2000 (65 FR 82229). A micropolitan statistical area has a population of at least 10,000 but less than 50,000. A metropolitan statistical area has a population of at least 50,000.

³ For lists of the CBSAs and CSAs and their geographic components see www.census.gov/population/www/metroareas/metrodef.html. EPA recommends using the most recent available updated lists of the statistical areas. The lists are updated annually to reflect the most recent Census Bureau population estimates.

⁴ Memorandum from John S. Seitz, Director of Office of Air Quality Planning and Standards to Air Directors, Regions I-X, "Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards," March 23, 2000.

⁵ In addition, CAA section 107(d)(4) established the consolidated metropolitan statistical area or metropolitan statistical area as the presumptive boundary for the most polluted areas that were designated nonattainment by operation of law in 1991 for the 1-hour ozone NAAQS.

identify and evaluate other relevant factors or circumstances specific to a particular area.

In addition to nearby areas with sources contributing to nonattainment, ozone concentrations in a local area may be affected by long-range transport of ozone and its precursors (notably nitrogen oxides). In certain parts of the country, such as the eastern United States, ozone is a widespread problem. Where this is the case, the CAA does not require that all contributing areas be designated nonattainment, only the nearby areas. Regional strategies, such as those employed in the Ozone Transport Region and EPA's NO_x SIP Call are needed to address the long-range transport component of ozone nonattainment, while the local component must be addressed through local planning in and around the designated nonattainment area.

This memorandum provides EPA's current views on how boundaries should be determined for ozone designations. The guidance is not binding on states, tribes, the public, or EPA. Issues concerning nonattainment area boundaries will be addressed in EPA's action to designate areas under the 2008 ozone standard. When EPA promulgates designations, those determinations will be binding on states, tribes, the public, and EPA as a matter of law. Ozone nonattainment areas will be classified at the time of designation. The approach EPA will use to classify nonattainment areas under the 2008 revised ozone NAAQS will be established through a separate notice-and-comment rulemaking. Information related to the designations for the 2008 revised ozone NAAQS will be provided on EPA's website at www.epa.gov/ozonedesignations.

Attachment 1 is a timeline of important dates in the designation process for the revised 2008 ozone NAAQS designation process. Attachment 2 provides the list of nine factors that EPA plans to consider in evaluating and making decisions on nonattainment area boundaries.

Staff in EPA's Office of Air Quality Planning and Standards are available for assistance and consultation throughout the designation process. Questions on this guidance may be directed to Carla Oldham at 919-541-3347.

Attachments (2)

cc: Air Division Directors, Regions I-X
Greg Green, OAQPS
Bill Harnett, OAQPS
Brian McLean, OAP
Margo Oge, OTAQ
Stephen D. Page, OAQPS
Peter Tsirigotis, OAQPS
Richard Wayland, OAQPS
Lydia Wegman, OAQPS

ATTACHMENT 1

TIMELINE FOR REVISED 2008 OZONE NAAQS DESIGNATION PROCESS*	
Milestone	Date
EPA promulgated revised ozone NAAQS	March 12, 2008
State and tribal recommendations due for ozone designations	No later than March 12, 2009
EPA notifies states and tribes concerning any modifications to their recommendations (120-day letters).	No later than November 12, 2009 (120 days prior to final designations)
EPA publishes public notice of state recommendations and EPA's proposed modifications and initiates 30-day public comment period.	Mid-November 2009
End of 30-day public comment period.	Mid-December 2009
States and Tribes submit additional information to demonstrate why an EPA modification is inappropriate.	No later than January 12, 2010
EPA promulgates final ozone designations.	No later than March 12, 2010

* This schedule assumes EPA has sufficient information to promulgate designations within 2 years. In the event EPA determines that insufficient information is available to do so, the designation process could be extended up to one year, but no later than March 12, 2011.

ATTACHMENT 2

Factors EPA Plans to Consider in Determining Nonattainment Area Boundaries in Designations for the 2008 Ozone NAAQS

EPA recommends that the Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA) (which includes 2 or more adjacent CBSA's) serve as the starting point or "presumptive" boundary for considering what should be the geographic boundaries of an ozone nonattainment area.⁶ Where a violating monitor is not located in a CBSA or CSA, we recommend that the boundary of the county containing the monitor serve as the presumptive boundary for the nonattainment area. As a framework for area-specific analyses to support nonattainment area boundary recommendations and final boundary determinations, we recommend an evaluation of the 9 factors listed below:

- Air quality data
- Emissions data (location of sources and contribution to ozone concentrations)
- Population density and degree of urbanization (including commercial development)
- Traffic and commuting patterns
- Growth rates and patterns
- Meteorology (weather/transport patterns)
- Geography/topography (mountain ranges or other air basin boundaries)
- Jurisdictional boundaries (e.g., counties, air districts, existing nonattainment areas, Reservations, metropolitan planning organizations (MPOs))
- Level of control of emission sources

Analysis of these factors may support nonattainment boundaries that are either larger or smaller than the presumptive boundary. EPA plans to consider these factors, along with any other relevant information, in determining whether to make modifications to the boundary recommendations from states and tribes. The factors listed above, while generally comprehensive, are not intended to be exhaustive. States and tribes may submit additional information they believe is relevant for EPA to consider. In general, a state's or tribe's demonstration supporting their boundary recommendation for an area should show that: 1) violations are not occurring in nearby portions that are excluded from the recommended area, and 2) the excluded nearby portions do not contain emission sources that contribute meaningfully to the observed violations. While states are not bound to use the approach outlined here, EPA plans to evaluate a state recommendation and determine whether to modify such recommendation based on the above factors and any other information the Agency determines is relevant.

⁶ For lists of the CBSAs and CSAs and their geographic components see www.census.gov/population/www/metroareas/metrodef.html.

Resolution R09-6

A RESOLUTION OF THE CITY OF TAYLOR, TEXAS, TO IMPLEMENT EMISSION REDUCTION ACTIONS TO ASSIST IN CLEAN AIR EFFORTS AND TO MAINTAIN WILLIAMSON COUNTY'S DESIGNATION AS "ATTAINMENT" IN REGARDS TO GROUND LEVEL OZONE STANDARDS

WHEREAS, The Citizens of Williamson County recognize the value of and are conscious of the need for clean air; *and*

WHEREAS, New ozone standards as promulgated by the US Environmental Protection Agency expose Williamson County and its citizens to possible designation as a non-attainment area under the new standards; *and*

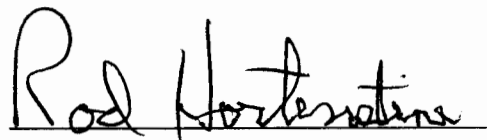
WHEREAS, Current and on-going efforts of Williamson County and communities to use approved emission reduction measures, including enhanced vehicle inspection and maintenance programs, provided support to the Texas Commission on Environmental Quality to omit Williamson County from a proposed list of non-attainment counties; *and*

WHEREAS, Concerted effort to reduce ozone forming emissions by the citizens, communities, schools and industry in Williamson County during the April through October ozone season will help preclude Williamson County being listed as non-attainment for 2009 and future years; *and*

WHEREAS, A designation of non-attainment will inhibit local flexibility in planning and development and create economic impacts to the citizens of Williamson County for up to twenty years.

NOW, THEREFORE, BE IT RESOLVED BY THE TAYLOR CITY COUNCIL that the City of Taylor, Texas, affirms its commitment to helping reduce ozone forming emissions by implementing actions that are accepted by TCEQ in line with existing reduction measures and agrees to assist in public awareness and outreach on the need for reduction measures to help voluntarily secure an ongoing designation of "in attainment" under the National Ambient Air Quality Standards for Ground Level Ozone.

Resolved, this 12th day of February, 2009.


Rod Hortenstine, Mayor



Federal Register

**Thursday,
March 27, 2008**

Part II

Environmental Protection Agency

40 CFR Parts 50 and 58

**National Ambient Air Quality Standards
for Ozone; Final Rule**

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 50 and 58

[EPA-HQ-OAR-2005-0172; FRL-8544-3]

RIN 2060-AN24

National Ambient Air Quality Standards for Ozone

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Based on its review of the air quality criteria for ozone (O₃) and related photochemical oxidants and national ambient air quality standards (NAAQS) for O₃, EPA is making revisions to the primary and secondary NAAQS for O₃ to provide requisite protection of public health and welfare, respectively. With regard to the primary standard for O₃, EPA is revising the level of the 8-hour standard to 0.075 parts per million (ppm), expressed to three decimal places. With regard to the secondary standard for O₃, EPA is revising the current 8-hour standard by making it identical to the revised primary standard. EPA is also making conforming changes to the Air Quality Index (AQI) for O₃, setting an AQI value of 100 equal to 0.075 ppm, 8-hour average, and making proportional changes to the AQI values of 50, 150 and 200.

DATES: This final rule is effective on May 27, 2008.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2005-0172. All documents in the docket are listed on the www.regulations.gov Web site. Although listed in the index, some information is not publicly available, e.g., confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov or in hard copy at the Air and Radiation Docket and Information Center, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The Docket telephone number is 202-566-1742. The telephone number for the Public Reading Room is 202-566-1744.

FOR FURTHER INFORMATION CONTACT: Dr. David J. McKee, Health and

Environmental Impacts Division, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Mail Code C504-06, Research Triangle Park, NC 27711; *telephone:* 919-541-5288; *fax:* 919-541-0237; *e-mail:* mckee.dave@epa.gov.

SUPPLEMENTARY INFORMATION:

Table of Contents

The following topics are discussed in this preamble:

- I. Background
 - A. Summary of Revisions to the O₃ NAAQS
 - B. Legislative Requirements
 - C. Review of Air Quality Criteria and Standards for O₃
 - D. Summary of Proposed Revisions to the O₃ NAAQS
 - E. Organization and Approach to Final Decision on O₃ NAAQS
- II. Rationale for Final Decision on the Primary O₃ Standard
 - A. Introduction
 - 1. Overview
 - 2. Overview of Health Effects
 - 3. Overview of Human Exposure and Health Risk Assessments
 - B. Need for Revision of the Current Primary O₃ Standard
 - 1. Introduction
 - 2. Comments on the Need for Revision
 - 3. Conclusions Regarding the Need for Revision
 - C. Conclusions on the Elements of the Primary O₃ Standard
 - 1. Indicator
 - 2. Averaging Time
 - 3. Form
 - 4. Level
 - D. Final Decision on the Primary O₃ Standard
- III. Communication of Public Health Information
- IV. Rationale for Final Decision on the Secondary O₃ Standard
 - A. Introduction
 - 1. Overview
 - 2. Overview of Vegetation Effects Evidence
 - 3. Overview of Biologically Relevant Exposure Indices
 - 4. Overview of Vegetation Exposure and Risk Assessments
 - B. Need for Revision of the Current Secondary O₃ Standard
 - 1. Introduction
 - 2. Comments on the Need for Revision
 - 3. Conclusions Regarding the Need for Revision
 - C. Conclusions on the Secondary O₃ Standard
 - 1. Staff Paper Evaluation
 - 2. CASAC Views
 - 3. Administrator's Proposed Conclusions
 - 4. Comments on the Secondary Standard Options
 - 5. Administrator's Final Conclusions
 - D. Final Decision on the Secondary O₃ Standard
- V. Creation of Appendix P—Interpretation of the NAAQS for O₃
 - A. General
 - B. Data Completeness
 - C. Data Reporting and Handling and Rounding Conventions

- VI. Ambient Monitoring Related to Revised O₃ Standards
- VII. Implementation and Related Control Requirements
 - A. Future Implementation Steps
 - 1. Designations
 - 2. State Implementation Plans
 - 3. Trans-boundary Emissions
 - 4. Monitoring Requirements
 - B. Related Control Requirements
- VIII. Statutory and Executive Order Reviews
 - A. Executive Order 12866: Regulatory Planning and Review
 - B. Paperwork Reduction Act
 - C. Regulatory Flexibility Act
 - D. Unfunded Mandates Reform Act
 - E. Executive Order 13132: Federalism
 - F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments
 - G. Executive Order 13045: Protection of Children From Environmental Health & Safety Risks
 - H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution or Use
 - I. National Technology Transfer and Advancement Act
 - J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
 - K. Congressional Review Act

References

I. Background

A. Summary of Revisions to the O₃ NAAQS

Based on its review of the air quality criteria for O₃ and related photochemical oxidants and national ambient air quality standards (NAAQS) for O₃, EPA is making revisions to the primary and secondary NAAQS for O₃ to provide protection of public health and welfare, respectively, that is appropriate under section 109, and is making corresponding revisions in data handling conventions for O₃.

With regard to the primary standard for O₃, EPA is revising the level of the 8-hour standard to a level of 0.075 parts per million (ppm), to provide increased protection for children and other “at risk” populations against an array of O₃-related adverse health effects that range from decreased lung function and increased respiratory symptoms to serious indicators of respiratory morbidity including emergency department visits and hospital admissions for respiratory causes, and possibly cardiovascular-related morbidity as well as total nonaccidental and cardiorespiratory mortality. EPA is specifying the level of the primary standard to the nearest thousandth ppm.

With regard to the secondary standard for O₃, EPA is revising the standard by making it identical to the revised primary standard.

B. Legislative Requirements

Two sections of the Clean Air Act (CAA) govern the establishment and revision of the NAAQS. Section 108 (42 U.S.C. 7408) directs the Administrator to identify and list "air pollutants" emissions of which "in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare," whose "presence * * * in the ambient air results from numerous or diverse mobile or stationary sources," and for which the Administrator plans to issue air quality criteria, and to issue air quality criteria for those that are listed. Air quality criteria are to "accurately reflect the latest scientific knowledge useful in indicating the kind and extent of identifiable effects on public health or welfare which may be expected from the presence of [a] pollutant in ambient air, in varying quantities * * *." Section 109 (42 U.S.C. 7409) directs the Administrator to propose and promulgate "primary" and "secondary" NAAQS for pollutants listed under section 108. Section 109(b)(1) defines a primary standard as one "the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health."¹ A secondary standard, as defined in section 109(b)(2), must "specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of [the] pollutant in the ambient air."²

The requirement that primary standards provide an adequate margin of safety was intended to address uncertainties associated with inconclusive scientific and technical information available at the time of standard setting. It was also intended to provide a reasonable degree of protection against hazards that research has not yet identified. *Lead Industries*

Association v. EPA, 647 F.2d 1130, 1154 (DC Cir 1980), *cert. denied*, 449 U.S. 1042 (1980); *American Petroleum Institute v. Costle*, 665 F.2d 1176, 1186 (DC Cir. 1981), *cert. denied*, 455 U.S. 1034 (1982). Both kinds of uncertainties are components of the risk associated with pollution at levels below those at which human health effects can be said to occur with reasonable scientific certainty. Thus, in selecting primary standards that provide an adequate margin of safety, the Administrator is seeking not only to prevent pollution levels that have been demonstrated to be harmful but also to prevent lower pollutant levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. The CAA does not require the Administrator to establish a primary NAAQS at a zero-risk level or at background concentration levels, *see Lead Industries Association v. EPA*, 647 F.2d at 1156 n. 51, but rather at a level that reduces risk sufficiently so as to protect public health with an adequate margin of safety.

The selection of any particular approach to providing an adequate margin of safety is a policy choice left specifically to the Administrator's judgment. *Lead Industries Association v. EPA*, 647 F.2d at 1161–62. In addressing the requirement for an adequate margin of safety, EPA considers such factors as the nature and severity of the health effects involved, the size of the population(s) at risk, and the kind and degree of the uncertainties that must be addressed.

In setting standards that are "requisite" to protect public health and welfare, as provided in section 109(b), EPA's task is to establish standards that are neither more nor less stringent than necessary for these purposes. *Whitman v. American Trucking Associations*, 531 U.S. 457, 473. Further the Supreme Court ruled that "[t]he text of § 109(b), interpreted in its statutory and historical context and with appreciation for its importance to the CAA as a whole, unambiguously bars cost considerations from the NAAQS-setting process * * *." *Id.* at 472.³

Section 109(d)(1) of the CAA requires that "not later than December 31, 1980, and at 5-year intervals thereafter, the Administrator shall complete a

thorough review of the criteria published under section 108 and the national ambient air quality standards * * * and shall make such revisions in such criteria and standards and promulgate such new standards as may be appropriate in accordance with section 108 and [109(b)]." Section 109(d)(2) requires that an independent scientific review committee "shall complete a review of the criteria * * * and the national primary and secondary ambient air quality standards * * * and shall recommend to the Administrator any new * * * standards and revisions of existing criteria and standards as may be appropriate under section 108 and [section 109(b)]." This independent review function is performed by the Clean Air Scientific Advisory Committee (CASAC) of EPA's Science Advisory Board.

C. Review of Air Quality Criteria and Standards for O₃

Ground-level O₃ is formed from biogenic and anthropogenic precursor emissions. Naturally occurring O₃ in the troposphere can result from biogenic organic precursors reacting with naturally occurring nitrogen oxides (NO_x) and by stratospheric O₃ intrusion into the troposphere. Anthropogenic precursors of O₃, specifically NO_x and volatile organic compounds (VOC), originate from a wide variety of stationary and mobile sources. Ambient O₃ concentrations produced by these emissions are directly affected by temperature, solar radiation, wind speed and other meteorological factors.

The last review of the O₃ NAAQS was completed on July 18, 1997, based on the 1996 O₃ Air Quality Criteria Document (EPA, 1996a) and 1996 O₃ Staff Paper (EPA, 1996b). EPA revised the primary and secondary O₃ standards on the basis of the then latest scientific evidence linking exposures to ambient O₃ to adverse health and welfare effects at levels allowed by the 1-hour average standards (62 FR 38856). The O₃ standards were revised by replacing the existing primary 1-hour average standard with an 8-hour average O₃ standard set at a level of 0.08 ppm, which is equivalent to 0.084 ppm using the standard rounding conventions. The form of the primary standard was changed to the annual fourth-highest daily maximum 8-hour average concentration, averaged over 3 years. The secondary O₃ standard was changed by making it identical in all respects to the revised primary standard.

EPA initiated this current review in September 2000 with a call for information (65 FR 57810) for the development of a revised Air Quality

¹ The legislative history of section 109 indicates that a primary standard is to be set at "the maximum permissible ambient air level * * * which will protect the health of any [sensitive] group of the population," and that for this purpose "reference should be made to a representative sample of persons comprising the sensitive group rather than to a single person in such a group" [S. Rep. No. 91–1196, 91st Cong., 2d Sess. 10 (1970)].

² Welfare effects as defined in section 302(h) (42 U.S.C. 7602(h)) include, but are not limited to, "effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being."

³ In considering whether the CAA allowed for economic considerations to play a role in the promulgation of the NAAQS, the Supreme Court rejected arguments that because many more factors than air pollution might affect public health, EPA should consider compliance costs that produce health losses in setting the NAAQS. 531 U.S. at 466. Thus, EPA may not take into account possible public health impacts from the economic cost of implementation. *Id.*

Criteria Document for O₃ and Other Photochemical Oxidants (henceforth the "Criteria Document"). A project work plan (EPA, 2002) for the preparation of the Criteria Document was released in November 2002 for CASAC O₃ Panel⁴ (henceforth, "CASAC Panel") and public review. EPA held a series of workshops in mid-2003 on several draft chapters of the Criteria Document to obtain broad input from the relevant scientific communities. These workshops helped to inform the preparation of the first draft Criteria Document (EPA, 2005a), which was released for CASAC Panel and public review on January 31, 2005; a CASAC Panel meeting was held on May 4–5, 2005 to review the first draft Criteria Document. A second draft Criteria Document (EPA, 2005b) was released for CASAC Panel and public review on August 31, 2005, and was discussed along with a first draft Staff Paper (EPA, 2005c) at a CASAC Panel meeting held on December 6–8, 2005. In a February 16, 2006 letter to the Administrator, the CASAC Panel offered final comments on all chapters of the Criteria Document (Henderson, 2006a), and the final Criteria Document (EPA, 2006a) was released on March 21, 2006. In a June 8, 2006 letter (Henderson, 2006b) to the Administrator, the CASAC Panel offered additional advice to the Agency concerning chapter 8 of the final Criteria Document (Integrative Synthesis) to help inform the second draft Staff Paper.

A second draft Staff Paper (EPA, 2006b) was released on July 17, 2006 and reviewed by the CASAC Panel on August 24 and 25, 2006. In an October 24, 2006 letter to the Administrator, CASAC Panel provided advice and recommendations to the Agency concerning the second draft Staff Paper (Henderson, 2006c). A final Staff Paper (EPA, 2007a) was released on January 31, 2007. Around the time of the release of the final Staff Paper in January 2007, EPA discovered a small error in the exposure model that when corrected resulted in slight increases in the human exposure estimates. Since the exposure estimates are an input to the lung function portion of the health risk assessment, this correction also resulted in slight increases in the lung function risk estimates as well. The exposure and risk estimates discussed in this final rule reflect the corrected estimates, and thus are slightly different than the exposure and risk estimates cited in the

January 31, 2007 Staff Paper.⁵ In a March 26, 2007 letter (Henderson, 2007), the CASAC Panel offered additional advice to the Administrator with regard to recommendations and revisions to the primary and secondary O₃ NAAQS.

The schedule for completion of this review has been governed by a consent decree resolving a lawsuit filed in March 2003 by a group of plaintiffs representing national environmental and public health organizations, alleging that EPA had failed to complete the current review within the period provided by statute.⁶ The modified consent decree that currently governs this review provides that EPA sign for publication notices of proposed and final rulemaking concerning its review of the O₃ NAAQS no later than June 20, 2007 and March 12, 2008, respectively. The proposed decision (henceforth "proposal") was signed on June 20, 2007 and published in the **Federal Register** on July 11, 2007.

A large number of comments were received from various commenters on the proposed revisions to the O₃ NAAQS. Significant issues raised in the public comments are discussed throughout the preamble of this final action. A comprehensive summary of all significant comments, along with EPA's responses (henceforth "Response to Comments"), can be found in the docket for this rulemaking.

Various commenters have referred to and discussed a number of new scientific studies on the health effects of O₃ that had been published recently and therefore were not included in the Criteria Document (EPA, 2006a, henceforth "Criteria Document").⁷ EPA has provisionally considered any significant "new" studies, including those submitted during the public comment period. The purpose of this effort was to ensure that the Administrator was fully aware of the "new" science before making a final

decision on whether to revise the current O₃ NAAQS. EPA provisionally considered these studies to place their results in the context of the findings of the Criteria Document.

As in prior NAAQS reviews, EPA is basing its decision in this review on studies and related information included in the Criteria Document and Staff Paper, which have undergone CASAC and public review. The studies assessed in the Criteria Document, and the integration of the scientific evidence presented in that document, have undergone extensive critical review by EPA, CASAC, and the public during the development of the Criteria Document. The rigor of that review makes these studies, and their integrative assessment, the most reliable source of scientific information on which to base decisions on the NAAQS, decisions that all parties recognize as of great import. NAAQS decisions can have profound impacts on public health and welfare, and NAAQS decisions should be based on studies that have been rigorously assessed in an integrative manner not only by EPA but also by the statutorily mandated independent advisory committee, as well as the public review that accompanies this process. As described above, EPA's provisional consideration of these studies did not and could not provide that kind of in-depth critical review.

This decision is consistent with EPA's practice in prior NAAQS reviews. Since the 1970 amendments, the EPA has taken the view that NAAQS decisions are to be based on scientific studies and related information that have been assessed as a part of the pertinent air quality criteria, and has consistently followed this approach. See 71 FR 61144, 61148 (October 17, 2006) (final decision on review of PM NAAQS) for a detailed discussion of this issue and EPA's past practice.

As discussed in EPA's 1993 decision not to revise the NAAQS for O₃ "new" studies may sometimes be of such significance that it is appropriate to delay a decision on revision of a NAAQS and to supplement the pertinent air quality criteria so the studies can be taken into account (58 FR at 13013–13014, March 9, 1993). In the present case, EPA's provisional consideration of "new" studies concludes that, taken in context, the "new" information and findings do not materially change any of the broad scientific conclusions regarding the health effects of O₃ exposure made in the Criteria Document. For this reason, reopening the air quality criteria review would not be warranted even if there were time to do so under the court order

⁴ The CASAC O₃ Review Panel includes the seven members of the chartered CASAC, supplemented by fifteen subject-matter experts appointed by the Administrator to provide additional scientific expertise relevant to this review of the O₃ NAAQS.

⁵ EPA made available corrected versions of the final Staff Paper (EPA, 2007b, henceforth, "Staff Paper") and the human exposure and health risk assessment technical support documents on July 31, 2007 on the EPA Web site <http://www.epa.gov/ttn/naaqs>.

⁶ *American Lung Association v. Whitman* (No. 1:03CV00778, D.D.C. 2003).

⁷ For ease of reference, these studies will be referred to as "new" studies or "new" science, using quotation marks around the word new. Referring to studies that were published too recently to have been included in the 2004 Criteria Document as "new" studies is intended to clearly differentiate such studies from those that have been published since the last review and are included in the 2004 Criteria Document (these studies are sometimes referred to as new (without quotation marks) or more recent studies, to indicate that they were not included in the 1996 Criteria Document and thus are newly available in this review.

governing the schedule for this rulemaking. Accordingly, EPA is basing the final decisions in this review on the studies and related information included in the O₃ air quality criteria that have undergone CASAC and public review. EPA will consider the newly published studies for purposes of decision making in the next periodic review of the O₃ NAAQS, which will provide the opportunity to fully assess them through a more rigorous review process involving EPA, CASAC, and the public. Further discussion of these “new” studies can be found in the Response to Comments document.

This action presents the Administrator's final decisions on the review of the current primary and secondary O₃ standards. Throughout this preamble a number of conclusions, findings, and determinations made by the Administrator are noted. They identify the reasoning that supports this final decision and are intended to be final and conclusive.

D. Summary of Proposed Revisions to the O₃ NAAQS

For reasons discussed in the proposal, the Administrator proposed to revise the current primary and secondary O₃ standards. With regard to the primary O₃ standard, the Administrator proposed to revise the level of the 8-hour O₃ standard to a level within the range of 0.070 ppm to 0.075 ppm, based on a 3-year average of the fourth-highest maximum 8-hour average concentration. Related revisions for O₃ data handling conventions and for the reference method for monitoring O₃ were also proposed. These revisions were proposed to provide increased protection for children and other “at risk” populations against an array of O₃-related adverse health effects that range from decreased lung function and increased respiratory symptoms to serious indicators of respiratory morbidity, including emergency department visits and hospital admissions for respiratory causes, and possibly cardiovascular-related morbidity, as well as total nonaccidental and cardiorespiratory mortality. EPA also proposed to specify the level of the primary standard to the nearest thousandth ppm. EPA solicited comment on alternative levels down to 0.060 ppm and up to and including retaining the current 8-hour standard of 0.08 ppm (effectively 0.084 ppm using current data rounding conventions).

With regard to the secondary standard for O₃, EPA proposed to revise the current 8-hour standard with one of two options to provide increased protection against O₃-related adverse impacts on

vegetation and forested ecosystems. One option was to replace the current standard with a cumulative, seasonal standard expressed as an index of the annual sum of weighted hourly concentrations, cumulated over 12 hours per day (8 am to 8 pm) during the consecutive 3-month period within the O₃ season with the maximum index value, set at a level within the range of 7 to 21 ppm-hours. The other option was to make the secondary standard identical to the proposed primary 8-hour standard. EPA solicited comment on specifying a cumulative, seasonal standard in terms of a 3-year average of the annual sums of weighted hourly concentrations; on the range of alternative 8-hour standard levels for which comment was being solicited for the primary standard, including retaining the current secondary standard, which is identical to the current primary standard; and on an alternative approach to setting a cumulative, seasonal secondary standard.

E. Organization and Approach to Final O₃ NAAQS Decisions

This action presents the Administrator's final decisions regarding the need to revise the current primary and secondary O₃ standards. Revisions to the primary standard for O₃ are addressed below in section II, and a discussion on communication of public health information regarding revisions to the primary O₃ standard is presented in section III. The secondary O₃ standard is addressed below in section IV. Related data completeness and data handling and rounding conventions are addressed in section V, and federal reference methods for monitoring O₃ are addressed below in section VI. Future implementation steps and related control requirements are discussed in section VII. A discussion of statutory and executive order reviews is provided in section VIII.

Today's final decisions are based on a thorough review in the Criteria Document of scientific information on known and potential human health and welfare effects associated with exposure to O₃ at levels typically found in the ambient air. These final decisions also take into account: (1) Staff assessments in the Staff Paper of the most policy-relevant information in the Criteria Document as well as quantitative exposure and risk assessments based on that information; (2) CASAC Panel advice and recommendations, as reflected in its letters to the Administrator, its discussions of drafts of the Criteria Document and Staff Paper at public meetings, and separate written

comments prepared by individual members of the CASAC Panel; (3) public comments received during the development of these documents, either in connection with CASAC Panel meetings or separately; and (4) extensive public comments received on the proposed rulemaking.

II. Rationale for Final Decisions on the Primary O₃ Standard

A. Introduction

1. Overview

This section presents the Administrator's final decisions regarding the need to revise the current primary O₃ NAAQS, and the appropriate revision to the level of the 8-hour standard. As discussed more fully below, the rationale for the final decision on appropriate revisions to the primary O₃ NAAQS includes consideration of: (1) Evidence of health effects related to short-term exposures to O₃; (2) insights gained from quantitative exposure and health risk assessments; (3) public and CASAC Panel comments received during the development and review of the Criteria Document, Staff Paper, exposure and risk assessments and on the proposal notice.

In developing this rationale, EPA has drawn upon an integrative synthesis of the entire body of evidence⁸ relevant to examining associations between exposure to ambient O₃ and a broad range of health endpoints (EPA, 2006a, Chapter 8), focusing on those health endpoints for which the Criteria Document concluded that the associations are causal or likely to be causal. This body of evidence includes hundreds of studies conducted in many countries around the world. In its assessment of the evidence judged to be most relevant to decisions on elements of the primary O₃ standards, EPA has placed greater weight on U.S. and Canadian studies, since studies conducted in other countries may well reflect different demographic and air pollution characteristics.

As discussed below, a significant amount of new research has been conducted since the last review, with important new information coming from epidemiological, toxicological, controlled human exposure, and dosimetric studies. Moreover, the newly available research studies evaluated in the Criteria Document have undergone intensive scrutiny through multiple layers of peer review, with extended

⁸ The word “evidence” is used in this notice to refer to studies that provide information relevant to an area of inquiry, which can include studies that report positive or negative results or that provide interpretative information.

opportunities for review and comment by CASAC Panel and the public. As with virtually any policy-relevant scientific research, there is uncertainty in the characterization of health effects attributable to exposure to ambient O₃, most generally with regard to whether observed health effects and associations are causal or likely causal in nature and, if so, the certainty of causal associations at various exposure levels. While important uncertainties remain, the review of the health effects information has been extensive and deliberate. In the judgment of the Administrator, this intensive evaluation of the scientific evidence provides an adequate basis for regulatory decision making at this time. This review also provides important input to EPA's research plan for improving our future understanding of the relationships between exposures to ambient O₃ and health effects.

The health effects information and quantitative exposure and health risk assessment were summarized in sections II.A and II.B of the proposal (72 FR at 37824–37862) and are only briefly outlined below in sections II.A.2 and II.A.3. Subsequent sections of this preamble provide a more complete discussion of the Administrator's rationale, in light of key issues raised in public comments, for concluding that the current standard is not requisite to protect public health with an adequate margin of safety, and it is appropriate to revise the current primary O₃ standards to provide additional public health protection (section II.B), as well as a more complete discussion of the Administrator's rationale for retaining or revising the specific elements of the primary O₃ standards (section II.C), namely the indicator (section II.C.1); averaging time (section II.C.2); form (section II.C.3); and level (section II.C.4). A summary of the final decisions on revisions to the primary O₃ standards is presented in section II.D.

2. Overview of Health Effects

This section outlines the information presented in Section II.A of the proposal on known or potential effects on public health which may be expected from the presence of O₃ in ambient air. The decision in the last review focused primarily on evidence from short-term (e.g., 1 to 3 hours) and prolonged (6 to 8 hours) controlled-exposure studies reporting lung function decrements, respiratory symptoms, and respiratory inflammation in humans, as well as epidemiology studies reporting excess hospital admissions and emergency department visits for respiratory causes. The Criteria Document prepared for this review emphasizes a large number of

epidemiological studies published since the last review with these and additional health endpoints, including the effects of acute (short-term and prolonged) and chronic exposures to O₃ on lung function decrements and enhanced respiratory symptoms in asthmatic individuals, school absences, and premature mortality. It also emphasizes important new information from toxicology, dosimetry, and controlled human exposure studies. Highlights of the evidence include:

(1) Two new controlled human-exposure studies are now available that examine respiratory effects associated with prolonged O₃ exposures at levels at and below 0.080 ppm, which was the lowest exposure level that had been examined in the last review.

(2) Numerous recent controlled human-exposure studies have examined indicators of O₃-induced inflammatory response in both the upper respiratory tract (URT) and lower respiratory tract (LRT), while other studies have examined changes in host defense capability following O₃ exposure of healthy young adults and increased airway responsiveness to allergens in subjects with allergic asthma and allergic rhinitis exposed to O₃.

(3) New evidence from controlled human exposure studies showing that asthmatics have greater respiratory-related physiological responses than healthy subjects and new evidence from epidemiological studies showing associations between O₃ exposure and lung function and respiratory symptom responses; these findings differ from the presumption in the last review that people with asthma had generally the same magnitude of respiratory responses to O₃ as those experienced by healthy individuals.

(4) Animal toxicology studies provide new information regarding potential mechanisms of action, increased susceptibility to respiratory infection, and biological plausibility of acute effects as well as chronic, irreversible respiratory damage observed in animals.

(5) Numerous epidemiological studies published during the past decade offer added evidence of associations between acute ambient O₃ exposures and lung function decrements and respiratory symptoms in physically active healthy subjects and asthmatic subjects, as well as new evidence regarding additional health endpoints, including relationships between ambient O₃ concentrations and school absenteeism and between ambient O₃ and cardiac-related physiological endpoints.

(6) Several additional studies have been published over the last decade examining the temporal associations

between acute O₃ exposures and both emergency department visits for respiratory diseases and respiratory-related hospital admissions.

(7) A large number of newly available epidemiological studies have examined the effects of acute exposure to PM and O₃ on premature mortality, notably including large multi-city studies that provide much more robust information than was available in the last review, as well as recent meta-analyses that have evaluated potential sources of heterogeneity in O₃-mortality associations.

Section II.A of the proposal provides a detailed summary of key information contained in the Criteria Document (chapters 4–8) and in the Staff Paper (chapter 3), on the known and potential effects of O₃ exposure and information on the effects of O₃ exposure in combination with other pollutants that are routinely present in the ambient air (72 FR 37824–37851). The information there summarizes:

(1) New information available on potential mechanisms for morbidity and mortality effects associated with exposure to O₃, including potential mechanisms or pathways related to direct effects on the respiratory system, systemic effects that are secondary to effects in the respiratory system (e.g., cardiovascular effects);

(2) The nature of effects that have been associated directly with exposure to O₃ or indirectly with the presence of O₃ in ambient air, including premature mortality, aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions and emergency department visits), changes in lung function and increased respiratory symptoms, as well as new evidence for more subtle indicators of cardiovascular health;

(3) An integrative interpretation of the health effects evidence, focusing on the biological plausibility and coherence of the evidence and key issues raised in interpreting epidemiological studies, along with supporting evidence from experimental (e.g., dosimetric and toxicological) studies as well as the limitations of the evidence; and

(4) Considerations in characterizing the public health impact of O₃, including the identification of sensitive and vulnerable subpopulations that are potentially at risk to such effects, including active people, people with pre-existing lung and heart diseases, children and older adults, and people with increased responsiveness to O₃.

3. Overview of Human Exposure and Health Risk Assessments

To put judgments about health effects that are adverse for individuals into a broader public health context, EPA developed and applied models to estimate human exposures and health risks. This broader public health context included consideration of the size of particular population groups at risk for various effects, the likelihood that exposures of concern would occur for individuals in such groups under varying air quality scenarios, estimates of the number of people likely to experience O₃-related effects, the variability in estimated exposures and risks, and the kind and degree of uncertainties inherent in assessing the exposures and risks involved.

As discussed in more detail in section II.B of the proposal, there are a number of important uncertainties that affect the exposure and health risk estimates. It is also important to note that there have been significant improvements since the last review in both the exposure and health risk models. The CASAC Panel expressed the view that the exposure analysis represents a state-of-the-art modeling approach and that the health risk assessment was "well done, balanced and reasonably communicated" (Henderson, 2006c).

In modeling exposures and health risks associated with just meeting the current and alternative O₃ standards, EPA simulated air quality just meeting these standards based on O₃ air quality patterns in several recent years and on how the shape of the O₃ air quality distributions has changed over time based on historical trends in monitored O₃ air quality data. As discussed in the proposal notice and in the Staff Paper (section 4.5.8), recent O₃ air quality distributions were statistically adjusted to simulate just meeting the current and selected alternative standards. Specifically, the exposure and risk assessment included estimates for a recent year of air quality and for air quality adjusted to simulate just meeting the current and alternative standards based on O₃ season data from a recent three-year period (2002–2004). The O₃ season in each area included the period of the year for which routine hourly O₃ monitoring data are available. Typically this period spans from March or April through September or October, although in some areas it includes the entire year. Three years were modeled to reflect the substantial year-to-year variability that occurs in O₃ levels and related meteorological conditions, and because the standard is specified in terms of a three-year period. The year-to-year

variability observed in O₃ levels is due to a combination of different weather patterns and the variation in emissions of O₃ precursors. Nationally, 2002 was a relatively high year with respect to the 4th highest daily maximum 8-hour O₃ levels observed in urban areas across the U.S. (see Staff Paper, Figure 2–16), with the mean of the distribution of annual 4th highest daily maximum 8-hour O₃ levels for urban monitors nationwide being in the upper third among the years 1990 through 2004. In contrast, on a national basis, 2004 was the lowest year on record with respect to the mean of the distribution of annual 4th highest daily maximum 8-hour O₃ levels for this same 15 year period. The 4th highest daily maximum 8-hour levels observed in most, but not all of the 12 urban areas included in the exposure and risk assessment, were relatively low in 2004 compared to other recent years. The 4th highest daily maximum 8-hour O₃ levels observed in 2003 in the 12 urban areas and nationally generally were between those observed in 2002 and 2004. As a result of the variability in air quality, the exposure and risk estimates associated with just meeting the current or any alternative standard also will vary depending on the year chosen for the analysis. Thus, exposure and risk estimates based on 2002 air quality generally show relatively higher numbers of children affected and the estimates based on 2004 air quality generally show relatively fewer numbers of children affected.

These simulations do not reflect any consideration of specific control programs or strategies designed to achieve the reductions in emissions required to meet the specified standards. Further, these simulations do not represent predictions of when, whether, or how areas might meet the specified standards.⁹ Instead these simulations represent a projection of the kind of air quality levels that would be likely to occur in areas just attaining various alternative standards, when historical patterns of air quality, reflecting averages over many areas, are applied in the urban areas examined.

a. Exposure Analyses

As discussed in section II.B.1 of the proposal, EPA conducted human exposure analyses using a simulation model to estimate O₃ exposures for the general population, school age children (ages 5–18), and school age children

⁹For informational purposes only, modeling that projects how areas might attain alternative standards in a future year as a result of Federal, State, local, and Tribal efforts is presented in the final Regulatory Impact Analysis being prepared in connection with this decision.

with asthma living in 12 U.S. metropolitan areas representing different regions of the country where the current 8-hour O₃ standard is not met. The emphasis on children reflected the finding of the last review that children are an important at-risk group. Exposure estimates were developed using a probabilistic exposure model that is designed to explicitly model the numerous sources of variability that affect people's exposures. This exposure assessment is more fully described and presented in the Staff Paper and in a technical support document, *Ozone Population Exposure Analysis for Selected Urban Areas* (EPA, 2007c; henceforth "Exposure Analysis TSD"). As noted in the proposal, the scope and methodology for this exposure assessment were developed over the last few years with considerable input from the CASAC Panel and the public.

As discussed in the proposal notice and in greater detail in the Staff Paper (chapter 4) and Exposure Analysis TSD, EPA recognized that there are many sources of variability and uncertainty inherent in the input to this assessment and that there was uncertainty in the resulting O₃ exposure estimates. In EPA's judgment, the most important uncertainties affecting the exposure estimates are related to the modeling of human activity patterns over an O₃ season, the modeling of variations in ambient concentrations near roadways, and the modeling of air exchange rates that affect the amount of O₃ that penetrates indoors. Another important uncertainty that affects the estimation of how many exposures are associated with moderate or greater exertion is the characterization of energy expenditure for children engaged in various activities. As discussed in more detail in the Staff Paper (section 4.3.4.7), the uncertainty in energy expenditure values carries over to the uncertainty of the modeled breathing rates, which are important since they are used to classify exposures occurring at moderate or greater exertion. These are the relevant exposures since O₃-related effects observed in clinical studies only are observed when individuals are engaged in some form of exercise. The uncertainties in the exposure model inputs and the estimated exposures have been assessed using quantitative uncertainty and sensitivity analyses. Details are discussed in the Staff Paper (section 4.6) and in a technical memorandum describing the exposure modeling uncertainty analysis (Langstaff, 2007).

The exposure assessment, which provided estimates of the number of people exposed to different levels of

ambient O₃ while at elevated exertion¹⁰, served two purposes. First, the entire range of modeled personal exposures to ambient O₃ was an essential input to the portion of the health risk assessment based on exposure-response functions from controlled human exposure studies, discussed in the next section. Second, estimates of personal exposures to ambient O₃ concentrations at and above specified benchmark levels while at elevated exertion provided some perspective on the public health impacts of health effects that we cannot currently evaluate in quantitative risk assessments but that may occur at current air quality levels, and the extent to which such impacts might be reduced by meeting the current and alternative standards. In the proposal, we referred to exposures at and above these benchmark levels while at elevated exertion as “exposures of concern.”

Based on the observation from the exposure analyses conducted in the prior review that children represented the population subgroup with the greatest exposure to ambient O₃, EPA chose to model 8-hour exposures at elevated exertion for all school age children, and separately for asthmatic school age children, as well as for the general population in the current exposure assessment. While outdoor workers and other adults who engage in moderate or greater exertion for prolonged periods while outdoors during the day in areas experiencing elevated O₃ concentrations also are at risk for O₃-related health effects, EPA did not focus on developing quantitative exposure estimates for these population subgroups due to the lack of information about the number of individuals who regularly work or exercise outdoors. Thus, as presented in the proposal and in the Staff Paper the exposure estimates are most useful for making relative comparisons of estimated exposures in school age children across alternative air quality scenarios. This assessment does not provide information on exposures for adult subgroups within the general population associated with the air quality scenarios.

EPA noted in the proposal key observations that were important to consider in comparing exposure estimates associated with just meeting the current NAAQS and alternative standards considered. These included:

¹⁰ As discussed in section II.A of the proposal, O₃ health responses observed in controlled human exposure studies are associated with exposures while subjects are engaged in moderate or greater exertion on average over the exposure period (hereafter referred to as “elevated exertion”) and, therefore, these are the exposures of interest.

(1) As shown in Table 6–1 of the Staff Paper, the patterns of exposures in terms of percentages of the population exceeding given exposure levels were very similar for the general population and for asthmatic and all school age (5–18) children, although children were about twice as likely as the general population to be exposed at any given level.

(2) As shown in Table 1 in the proposal (72 FR 37855), the number and percentage of asthmatic and all school age children aggregated across the 12 urban areas estimated to experience 1 or more exposures of concern declined from simulations of just meeting the current standard to simulations of alternative 8-hour standards by varying amounts, depending on the benchmark level, the population subgroup considered, and the air quality year chosen.¹¹

(3) Substantial year-to-year variability in exposure estimates was observed over the three-year modeling period.

(4) There was substantial variability observed across the 12 urban areas in the percent of the population subgroups estimated to experience exposures at and above specified benchmark levels while at elevated exertion.

(5) Of particular note, there is high inter-individual variability in responsiveness such that only a subset of individuals who were exposed at and above a given benchmark level while at elevated exertion would actually be expected to experience any such potential adverse health effects.

(6) In considering these observations, it was important to take into account the variability, uncertainties, and limitations associated with this assessment, including the degree of uncertainty associated with a number of model inputs and uncertainty in the model itself.

b. Quantitative Health Risk Assessment

As discussed in section II.B.2 of the proposal, the approach used to develop quantitative risk estimates associated with exposures to O₃ builds upon the risk assessment conducted during the last review.¹² The expanded and

¹¹ While the proposal notice stated in the text that “approximately 2 to 4 percent of all and asthmatic children” were estimated to experience exposures of concern at and above the 0.070 ppm benchmark level for standards in the range of 0.070 to 0.075 ppm (72 FR 37879), the correct range is about 1 to 5 percent consistent with the estimates provided in Table 1 of the proposal (72 FR 37855).

¹² The methodology, scope, and results from the risk assessment conducted in the last review are described in Chapter 6 of the 1996 Staff Paper (EPA, 1996) and in several technical reports (Whitfield *et al.*, 1996; Whitfield, 1997) and publication (Whitfield *et al.*, 1998).

updated assessment conducted in this review includes estimates of (1) risks of lung function decrements in all and asthmatic school age children, respiratory symptoms in asthmatic children, respiratory-related hospital admissions, and non-accidental and cardiorespiratory-related mortality associated with recent short-term ambient O₃ levels; (2) risk reductions and remaining risks associated with just meeting the current 8-hour O₃ NAAQS; and (3) risk reductions and remaining risks associated with just meeting various alternative 8-hour O₃ NAAQS in a number of example urban areas. The health risk assessment was discussed in the Staff Paper (chapter 5) and presented more fully in a technical support document, *Ozone Health Risk Assessment for Selected Urban Areas* (Abt Associates, 2007a). As noted in the proposal, the scope and methodology for this risk assessment was developed over several years with considerable input from the CASAC Panel and the public.

EPA recognized that there were many sources of uncertainty and variability inherent in the inputs to these assessments and that there was a high degree of uncertainty in the resulting O₃ risk estimates. Such uncertainties generally relate to a lack of clear understanding of a number of important factors, including, for example, the shape of exposure-response and concentration-response functions, particularly when, as here, effect thresholds can neither be discerned nor determined not to exist; issues related to selection of appropriate statistical models for the analysis of the epidemiologic data; the role of potentially confounding and modifying factors in the concentration-response relationships; and issues related to simulating how O₃ air quality distributions will likely change in any given area upon attaining a particular standard, since strategies to reduce emissions are not yet fully defined. While some of these uncertainties were addressed quantitatively in the form of estimated confidence ranges around central risk estimates, other uncertainties and the variability in key inputs were not reflected in these confidence ranges, but rather were partially characterized through separate sensitivity analyses or discussed qualitatively.

Key observations and insights from the O₃ risk assessment, together with important caveats and limitations, were discussed in section II.B of the proposal. In general, estimated risk reductions associated with going from current O₃ levels to just meeting the current and

alternative 8-hour standards show patterns of increasing estimated risk reductions associated with just meeting the lower alternative 8-hour standards considered. Furthermore, the estimated percentage reductions in risk were strongly influenced by the baseline air quality year used in the analysis (see Staff Paper, Figures 6–1 through 6–6)

Key observations important in comparing estimated health risks associated with attainment of the current NAAQS and alternative standards included:

(1) As discussed in the Staff paper (section 5.4.5), EPA has greater confidence in relative comparisons in risk estimates between alternative standards than in the absolute magnitude of risk estimates associated with any particular standard.

(2) Significant year-to-year variability in O₃ concentrations combined with the use of a 3-year design value to determine the amount of air quality adjustment to be applied to each year analyzed, results in significant year-to-year variability in the annual health risk estimates upon just meeting the current and potential alternative standards.

(3) There is noticeable city-to-city variability in estimated O₃-related incidence of morbidity and mortality across the 12 urban areas analyzed for both recent years of air quality and for air quality adjusted to simulate just meeting the current and selected potential alternative standards. This variability is likely due to differences in air quality distributions, differences in estimated exposure related to many factors including varying activity patterns and air exchange rates, differences in baseline incidence rates, and differences in susceptible populations and age distributions across the 12 urban areas.

(4) With respect to the uncertainties about estimated policy-relevant background (PRB) concentrations,¹³ as

discussed in the Staff Paper (section 5.4.3), alternative assumptions about background levels had a variable impact depending on the health effect considered and the location and standard analyzed in terms of the absolute magnitude and relative changes in the risk estimates. There was relatively little impact on either absolute magnitude or relative changes in lung function risk estimates due to alternative assumptions about background levels.¹⁴ With respect to O₃-related non-accidental mortality, while notable differences (i.e., greater than 50 percent) were observed in some areas, particularly for more stringent standards, the overall pattern of estimated reductions, expressed in terms of percentage reduction relative to the current standard, was significantly less impacted.

(5) Concerning the part of the risk assessment based on effects reported in epidemiological studies, important uncertainties include uncertainties (1) surrounding estimates of the O₃ coefficients for concentration-response relationships used in the assessment, (2) involving the shape of the concentration-response relationship and whether or not a population threshold or non-linear relationship exists within the range of concentrations examined in the studies, (3) related to the extent to which concentration-response relationships derived from studies in a given location and time when O₃ levels were higher or behavior and/or housing conditions were different provide accurate representations of the relationships for the same locations with lower air quality distributions and/or different behavior and/or housing conditions, and (4) concerning the possible role of co-pollutants which also may have varied between the time of the studies and the current assessment period. An important additional uncertainty for the mortality risk estimates is the extent to which the associations reported between O₃ and non-accidental and cardiorespiratory mortality actually reflect causal relationships.

As discussed in the proposal, some of these uncertainties have been addressed quantitatively in the form of estimated confidence ranges around central risk estimates; others are addressed through separate sensitivity analyses (e.g., the

influence of alternative estimates for policy-relevant background levels) or are characterized qualitatively. For both parts of the health risk assessment, statistical uncertainty due to sampling error has been characterized and is expressed in terms of 95 percent credible intervals. EPA recognizes that these credible intervals do not reflect all of the uncertainties noted above.

B. Need for Revision of the Current Primary O₃ Standard

1. Introduction

The initial issue to be addressed in this review of the primary O₃ standard is whether, in view of the advances in scientific knowledge reflected in the Criteria Document and Staff Paper, the current standard should be revised. As discussed in section II.C of the proposal, in evaluating whether it was appropriate to propose to retain or revise the current standard, the Administrator built upon the last review and reflected the broader body of evidence and information now available. In the proposal, EPA presented information, judgments, and conclusions from the last review, which revised the level, averaging time, and form of the standard, from the Staff Paper's evaluation of the adequacy of the current primary standard, including both evidence- and exposure/risk-based considerations, as well as from the CASAC Panel's advice and recommendations. The Staff Paper evaluation, CASAC Panel's views, and the Administrator's proposed conclusions on the adequacy of the current primary standard are presented below.

a. Staff Paper Evaluation

The Staff Paper considered the evidence presented in the Criteria Document as a basis for evaluating the adequacy of the current O₃ standard, recognizing that important uncertainties remain. The extensive body of human clinical, toxicological, and epidemiological evidence, highlighted above in section II.A.2 and discussed in section II.A of the proposal, serves as the basis for judgments about O₃-related health effects, including judgments about causal relationships with a range of respiratory morbidity effects, including lung function decrements, increased respiratory symptoms, airway inflammation, increased airway responsiveness, and respiratory-related hospitalizations and emergency department visits in the warm season, and about the evidence being highly suggestive that O₃ directly or indirectly contributes to non-accidental and cardiorespiratory-related mortality.

¹³ PRB O₃ concentrations used in the O₃ risk assessment were defined in chapter 2 of the Staff Paper (EPA, 2007, pp. 2–48, 2–54) as the O₃ concentrations that would be observed in the U.S. in the absence of anthropogenic emissions of precursors (e.g., VOC, NO_x, and CO) in the U.S., Canada, and Mexico. Based on runs of the GEOS-CHEM model (a global tropospheric O₃ model) applied for the 2001 warm season (i.e., April to September), monthly background daily diurnal profiles for each of the 12 urban areas for each month of the O₃ season were simulated using meteorology for the year 2001. Based on these model runs, the Criteria Document states that current estimates of PRB O₃ concentrations are generally in the range of 0.015 to 0.035 ppm in the afternoon, and they are generally lower under conditions conducive to high O₃ episodes. They are highest during spring due to contributions from hemispheric pollution and stratospheric intrusions. The Criteria Document states that the GEOS-CHEM model applied for the 2001 warm season reports

PRB O₃ concentrations for afternoon surface air over the United States that are likely 10 ppbv too high in the southeast in summer, and accurate within 5 ppbv in other regions and seasons.

¹⁴ Sensitivity analyses examining the impact of alternative assumptions about PRB were only conducted for lung function decrements and non-accidental mortality.

These judgments take into account important uncertainties that remain in interpreting this evidence. For example, with regard to the utility of time-series epidemiological studies to inform judgments about a NAAQS for an individual pollutant, such as O₃, within a mix of highly correlated pollutants, such as the mix of oxidants produced in photochemical reactions in the atmosphere, the Staff Paper noted that there are limitations especially at ambient O₃ concentrations below levels at which O₃-related effects have been observed in controlled human exposure studies. The Staff Paper also recognized that the available epidemiological evidence neither supports nor refutes the existence of thresholds at the population level for effects such as increased hospital admissions and premature mortality. There are limitations in epidemiological studies that make discerning thresholds in populations difficult, including low data density in the lower concentration ranges, the possible influence of exposure measurement error, and variability in susceptibility to O₃-related effects in populations.

While noting these limitations in the interpretation of the findings from the epidemiological studies, the Staff Paper concluded that if a population threshold level does exist, it would likely be well below the level of the current O₃ standard and possibly within the range of background levels. This conclusion is supported by several epidemiological studies that have explored the question of potential thresholds either by using a statistical curve-fitting approach to evaluate whether linear or non-linear models fit the data better using, or by analyzing, sub-sets of the data where days over or under a specific cutpoint (e.g., 0.080 ppm or even lower O₃ levels) were excluded and then evaluating the association for statistical significance. In addition to consideration of the epidemiological studies, findings from controlled human exposure studies indicate that prolonged exposures produced statistically significant group mean FEV₁ decrements and symptoms in healthy adult subjects at levels down to at least 0.060 ppm, with a small percentage of subjects experiencing notable effects (e.g., >10 percent FEV₁ decrement, pain on deep inspiration). Controlled human exposure studies evaluated in the last review also found significant responses in indicators of lung inflammation and cell injury at 0.080 ppm in healthy adult subjects. The effects in these controlled human exposure studies were observed in healthy young adult subjects, and it is

likely that more serious responses, and responses at lower levels, would occur in people with asthma and other respiratory diseases. These physiological effects can lead to aggravation of asthma and increased susceptibility to respiratory infection. The observations provide support for the conclusion in the Staff Paper that the associations observed in the epidemiological studies, particularly for respiratory-related effects such as increased medication use, increased school and work absences, increased visits to doctors' offices and emergency departments, and increased hospital admissions, extend down to O₃ levels well below the current standard (i.e., 0.084 ppm) (p. 6–7).

The newly available information reinforces the judgments in the Staff Paper from the last review about the likelihood of causal relationships between O₃ exposures and respiratory effects and broadens the evidence of O₃-related associations to include additional respiratory-related endpoints, newly identified cardiovascular-related health endpoints, and mortality. Newly available evidence also led the Staff Paper to conclude that people with asthma are likely to experience more serious effects than people who do not have asthma. The Staff Paper also concluded that substantial progress has been made since the last review in advancing the understanding of potential mechanisms by which ambient O₃, alone and in combination with other pollutants, is causally linked to a range of respiratory-related health endpoints, and may be causally linked to a range of cardiovascular-related health endpoints. Thus, the Staff Paper found strong support in the evidence available since the last review, for consideration of an O₃ standard that is at least as protective as the current standard and finds no support for consideration of an O₃ standard that is less protective than the current standard. This conclusion is consistent with the advice and recommendations of the CASAC Panel and with the views expressed by all interested parties who provided comments on drafts of the Staff Paper. While the CASAC Panel and some commenters on drafts of the Staff Paper supported revising the current standard to provide increased public health protection and other such commenters supported retaining the current standard, no one who provided comments on drafts of the Staff Paper supported a standard that would be less protective than the current standard.

i. Evidence-Based Considerations

In looking more specifically at the controlled human exposure and epidemiological evidence, the Staff Paper first noted that controlled human exposure studies provide the clearest and most compelling evidence for an array of human health effects that are directly attributable to acute exposures to O₃ *per se*. Evidence from such human studies, together with animal toxicological studies, help to provide biological plausibility for health effects observed in epidemiological studies. In considering the available evidence, the Staff Paper focused on studies that examined health effects that have been demonstrated to be caused by exposure to O₃, or for which the Criteria Document judges associations with O₃ to be causal or likely causal, or for which the evidence is highly suggestive that O₃ contributes to the reported effects.

In considering the epidemiological evidence as a basis for reaching conclusions about the adequacy of the current standard, the Staff Paper focused on studies reporting effects in the warm season, for which the effect estimates are more consistently positive and statistically significant than those from all-year studies. The Staff Paper considered the extent to which such studies provide evidence of associations that extend down to ambient O₃ concentrations below the level of the current standard, which would thereby call into question the adequacy of the current standard. In so doing, the Staff Paper noted that if a population threshold level does exist for an effect observed in such studies, it would likely be at a level well below the level of the current standard. The Staff Paper also attempted to characterize whether the area in which a study was conducted likely would or would not have met the current standard during the time of the study, although it recognizes that the confidence that would appropriately be placed on the associations observed in any given study, or on the extent to which the association would likely extend down to relatively low O₃ concentrations, is not dependent on this distinction. Further, the Staff Paper considered studies that examined subsets of data that include only days with ambient O₃ concentrations below the level of the current O₃ standard, or below even lower O₃ concentrations, and continue to report statistically significant associations. The Staff Paper judged that such studies are directly relevant to considering the adequacy of the current standard, particularly in light of reported responses to O₃ at

levels below the current standard found in controlled human exposure studies.

The Staff Paper evaluation of such studies is discussed below and in section II.C.2.a of the proposal, focusing in turn on studies of (1) lung function, respiratory symptoms and other respiratory-related physiological effects, (2) respiratory hospital admissions and emergency department visits, and (3) mortality.

(1) Lung function, respiratory symptoms and other respiratory-related physiological effects. Health effects for which the Criteria Document continued to find clear evidence of causal associations with short-term O₃ exposures include lung function decrements, respiratory symptoms, pulmonary inflammation, and increased airway responsiveness. In the last review, these O₃-induced effects were demonstrated with statistical significance down to the lowest level tested in controlled human exposure studies at that time (i.e., 0.080 ppm). Two new studies are notable in that they are the only controlled human exposure studies that examined respiratory effects, including lung function decrements and respiratory symptoms, in healthy adults at lower exposure levels than had previously been examined. EPA's reanalysis of the data from the most recent study shows small group mean decrements in lung function responses to be statistically significant at the 0.060 ppm exposure level, while the author's analysis did not yield statistically significant lung function responses but did yield some statistically significant respiratory symptom responses toward the end of the exposure period. These studies report a small percentage of subjects experiencing lung function decrements (≥ 10 percent) at the 0.060 ppm exposure level. These studies provide very limited evidence of O₃-related lung function decrements and respiratory symptoms at this lower exposure level.

The Staff Paper noted that evidence from controlled human exposures studies indicates that people with moderate-to-severe asthma have somewhat larger decreases in lung function in response to O₃ relative to healthy individuals. In addition, lung function responses in people with asthma appear to be affected by baseline lung function (i.e., magnitude of responses increases with increasing disease severity). This newer information expands our understanding of the physiological basis for increased sensitivity in people with asthma and other airway diseases, recognizing that people with asthma present a different response profile for cellular, molecular,

and biochemical responses than people who do not have asthma. New evidence indicates that some people with asthma have increased occurrence and duration of nonspecific airway responsiveness, which is an increased bronchoconstrictive response to airway irritants. Controlled human exposure studies also indicate that some people with allergic asthma and rhinitis have increased airway responsiveness to allergens following O₃ exposure. Exposures to O₃ exacerbated lung function decrements in people with pre-existing allergic airway disease, with and without asthma. Ozone-induced exacerbation of airway responsiveness persists longer and attenuates more slowly than O₃-induced lung function decrements and respiratory symptom responses and can have important clinical implications for asthmatics.

The Staff Paper also concluded that newly available human exposure studies suggest that some people with asthma also have increased inflammatory responses, relative to non-asthmatic subjects, and that this inflammation may take longer to resolve. The new data on airway responsiveness, inflammation, and various molecular markers of inflammation and bronchoconstriction indicate that people with asthma and allergic rhinitis (with or without asthma) comprise susceptible groups for O₃-induced adverse effects. This body of evidence qualitatively informs the Staff Paper's evaluation of the adequacy of the current O₃ standard in that it indicates that controlled human exposure and epidemiological panel studies of lung function decrements and respiratory symptoms that evaluate only healthy, non-asthmatic subjects likely underestimate the effects of O₃ exposure on asthmatics and other susceptible populations.

The Staff Paper noted that in addition to the experimental evidence of lung function decrements, respiratory symptoms, and other respiratory effects in healthy and asthmatic populations discussed above, epidemiological studies have reported associations of lung function decrements and respiratory symptoms in several locations. Two large U.S. panel studies which together followed over 1,000 asthmatic children on a daily basis (Mortimer *et al.*, 2002, the National Cooperative Inner-City Asthma Study, or NCICAS; and Gent *et al.*, 2003), as well as several smaller U.S. and international studies, have reported robust associations between ambient O₃ concentrations and measures of lung function, daily respiratory symptoms (e.g., chest tightness, wheeze, shortness

of breath), and increased asthma medication use in children with moderate to severe asthma. Mortimer *et al.* (2002) found that of the pollutants measured (including O₃, NO₂, SO₂ and PM₁₀), O₃ was the only one that had a statistically significant effect on lung function. (Mortimer *et al.* 2002) also found associations between NO₂, SO₂ and PM₁₀ and respiratory symptoms that were stronger than those between O₃ and respiratory symptoms. Gent *et al.* (2003) found that in co-pollutant models, O₃ but not PM_{2.5} significantly predicted increased risk of respiratory symptoms and rescue medication use among children using asthma maintenance medication. Overall, the multi-city NCICAS (Mortimer *et al.*, 2002), (Gent *et al.* 2003), and several other single-city studies indicate a robust positive association between ambient O₃ concentrations and increased respiratory symptoms and increased medication use in asthmatic children.

In considering the large number of single-city epidemiological studies reporting lung function or respiratory symptoms effects in healthy or asthmatic populations, the Staff Paper noted that most such studies that reported positive and often statistically significant associations in the warm season were conducted in areas that likely would not have met the current standard. In considering the large multi-city NCICAS (Mortimer *et al.*, 2002), the Staff Paper noted that the 98th percentile 8-hour daily maximum O₃ concentrations at the monitor reporting the highest O₃ concentrations in each of the study areas ranged from 0.084 ppm to > 0.10 ppm. However, the authors indicate that less than 5 percent of the days in the eight urban areas had 8-hour daily O₃ concentrations exceeding 0.080 ppm. Moreover, the authors observed that when days with 8-hour average O₃ levels greater than 0.080 ppm were excluded, similar effect estimates were seen compared to estimates that included all of the days. There are also a few other studies in which the relevant air quality statistics provide some indication that lung function and respiratory symptom effects may be occurring in areas that likely would have met the current standard (EPA, 2007b, p. 6–12).

(2) Respiratory hospital admissions and emergency department visits. At the time of the last review, many time-series studies indicated positive associations between ambient O₃ and increased respiratory hospital admissions and emergency room visits, providing strong evidence for a relationship between O₃ exposure and increased exacerbations of

preexisting lung disease extending below the level of the then current 1-hour O₃ standard (EPA 2007b, section 3.3.1.1.6). Analyses of data from studies conducted in the northeastern U.S. indicated that O₃ air pollution was consistently and strongly associated with summertime respiratory hospital admissions.

Since the last review, new epidemiological studies have evaluated the association between short-term exposures to O₃ and unscheduled hospital admissions for respiratory causes. Large multi-city studies, as well as many studies from individual cities, have reported positive and often statistically significant O₃ associations with total respiratory hospitalizations as well as asthma- and chronic obstructive pulmonary disease (COPD)-related hospitalizations, especially in studies analyzing the O₃ effect during the summer or warm season. Analyses using multipollutant regression models generally indicate that copollutants do not confound the association between O₃ and respiratory hospitalizations and that the O₃ effect estimates were robust to PM adjustment in all-year and warm-season only data. The Criteria Document concluded that the evidence supports a causal relationship between acute O₃ exposures and increased respiratory-related hospitalizations during the warm season.

In looking specifically at U.S. and Canadian respiratory hospitalization studies that reported positive and often statistically significant associations (and that either did not use GAM or were reanalyzed to address GAM-related problems), the Staff Paper noted that many such studies were conducted in areas that likely would not have met the current O₃ standard, with many providing only all-year effect estimates, and with some reporting a statistically significant association in the warm season. Of the studies that provide some indication that O₃-related respiratory hospitalizations may be occurring in areas that likely would have met the current standard, the Staff Paper noted that some are all-year studies, whereas others reported statistically significant warm-season associations.

Emergency department visits for respiratory causes have been the focus of a number of new studies that have examined visits related to asthma, COPD, bronchitis, pneumonia, and other upper and lower respiratory infections, such as influenza, with asthma visits typically dominating the daily incidence counts. Among studies with adequate controls for seasonal patterns, many reported at least one significant positive association

involving O₃. However, inconsistencies were observed which were at least partially attributable to differences in model specifications and analysis approach among various studies. In general, O₃ effect estimates from summer-only analyses tended to be positive and larger compared to results from cool season or all-year analyses. Almost all of the studies that reported statistically significant effect estimates were conducted in areas that likely would not have met the current standard. The Criteria Document concluded that analyses stratified by season generally supported a positive association between O₃ concentrations and emergency department visits for asthma in the warm season. These studies provide evidence of effects in areas that likely would not have met the current standard and evidence of associations that likely extend down to relatively low ambient O₃ concentrations.

(3) Mortality. The 1996 Criteria Document concluded that an association between daily mortality and O₃ concentrations for areas with high O₃ levels (e.g., Los Angeles) was suggested. However, due to inconsistencies in the results from the very limited number of studies available at that time, there was insufficient evidence to determine whether the observed association was likely causal, and thus the possibility that O₃ exposure may be associated with mortality was not relied upon in the 1997 decision on the O₃ primary standard.

Since the last review, the body of evidence with regard to O₃-related health effects has been expanded by animal, controlled human exposure, and epidemiological studies and now identifies biologically plausible mechanisms by which O₃ may affect the cardiovascular system. In addition, there is stronger information linking O₃ to serious morbidity outcomes, such as hospitalization, that are associated with increased mortality. Thus, there is now a coherent body of evidence that describes a range of health outcomes from lung function decrements to hospitalization and premature mortality.

Newly available large multi-city studies and related analyses (Bell *et al.*, 2004; Huang *et al.*, 2005; and Schwartz, 2005) designed specifically to examine the effect of O₃ and other pollutants on mortality have provided much more robust and credible information. Together these studies have reported significant associations between O₃ and mortality that were robust to adjustment for PM and different adjustment methods for temperature and suggest that the effect of O₃ on mortality may be

immediate but may also persist for several days. Further analysis of one of these multi-city studies (Bell *et al.*, 2006) examined the shape of the concentration-response function for the O₃-mortality relationship in 98 U.S. urban communities for the period 1987 to 2000 specifically to evaluate whether a threshold level exists. Results from various analytic methods all indicated that any threshold, if it exists, would likely occur at very low concentrations, far below the level of the current O₃ NAAQS and nearing background levels.

New data are also available from several single-city studies conducted worldwide, as well as from several meta-analyses that have combined information from multiple studies. Three recent meta-analyses evaluated potential sources of heterogeneity in O₃-mortality associations. All three analyses reported common findings, including effect estimates that were statistically significant and larger in warm season analyses. Reanalysis of results using default GAM criteria did not change the effect estimates, and there was no strong evidence of confounding by PM.

Overall, the Criteria Document (p. 8–78) found that the results from U.S. multi-city time-series studies, along with the meta-analyses, provide relatively strong evidence for associations between short-term O₃ exposure and all-cause mortality even after adjustment for the influence of season and PM. The results of these analyses of studies considered in this review indicate that copollutants generally do not appear to substantially confound the association between O₃ and mortality. In addition, several single-city studies observed positive associations of ambient O₃ concentrations with total nonaccidental and cardiorespiratory mortality.

Finally, from those studies that included assessment of associations with specific causes of death, it appears that effect estimates for associations with cardiovascular mortality are larger than those for total mortality; effect estimates for respiratory mortality are less consistent in size, possibly due to reduced statistical power in this subcategory of mortality. For cardiovascular mortality, the Criteria Document (p. 7–106) suggested that effect estimates are consistently positive and more likely to be larger and statistically significant in warm season analyses. The Criteria Document (p. 8–78) concluded that these findings are highly suggestive that short-term O₃ exposure directly or indirectly contributes to nonaccidental and cardiorespiratory-related mortality, but

additional research is needed to more fully establish underlying mechanisms by which such effects occur.¹⁵

ii. Exposure- and Risk-Based Considerations

In evaluating the adequacy of the current standard, the Staff Paper also considered estimated quantitative exposures and health risks, and important uncertainties and limitations in those estimates, which are highlighted above in section II.A.3 and discussed in section II.B of the proposal. These estimates are derived from an EPA assessment of exposures and health risks associated with recent air quality levels and with air quality simulated to just meet the current standard to help inform judgments about whether or not the current standard provides adequate protection of public health.

The Staff Paper (and the CASAC Panel) recognized that the exposure and risk analyses could not provide a full picture of the O₃ exposures and O₃-related health risks posed nationally. The Staff Paper did not have sufficient information to evaluate all relevant at-risk groups (e.g., outdoor workers, children under age 5) or all O₃-related health outcomes (e.g., increased medication use, school absences, and emergency department visits that are part of a broader pyramid of effects), and the scope of the Staff Paper analyses was generally limited to estimating exposures and risks in 12 urban areas across the U.S., and to only five or just one area for some health effects included in the risk assessment. Thus, due to the limited geographic scope of the exposure and risk assessments, EPA recognizes that national-scale public health impacts of ambient O₃ exposures would be much larger than the quantitative exposure and risk estimates associated with recent air quality or air quality that just meets the current or alternative standards in the 12 urban areas analyzed. On the other hand, inter-individual variability in

responsiveness means that only a subset of individuals in each group estimated to experience exposures at and above a given benchmark level while at elevated exertion would actually be expected to experience such adverse health effects.

The Staff Paper estimated exposures and risks for the three most recent years (2002–2004) for which data were available at the time of the analyses. As discussed above in section II.A.3.a, within this 3-year period, 2002 was a year with relatively higher O₃ levels in most, but not all, areas and simulation of just meeting the current standard based on 2002 air quality data provides a generally higher-end estimate of exposures and risks, while 2004 was a year with relatively lower O₃ levels in most, but not all, areas and simulation of just meeting the current standard using 2004 air quality data provides a generally lower-end estimate of exposures and risks.

The Staff Paper consideration of such exposure and risk analyses is discussed below and in section II.C.2.b of the proposal, focusing on both the exposure analyses and the human health risk assessment.

(1) Exposure analyses. EPA's exposure analysis estimated personal exposures to ambient O₃ levels at and above specific benchmark levels while at elevated exertion to provide some perspective on the potential public health impacts of respiratory symptoms and respiratory-related physiological effects that cannot currently be evaluated in quantitative risk assessments but that may occur at current air quality levels, and the extent to which such impacts might be reduced by meeting the current and alternative standards. As noted above in section II.A.3, the Staff Paper referred to exposures at and above these benchmark levels as "exposures of concern." The Staff Paper noted that potential public health impacts likely occur across a range of O₃ exposure levels, such that there is no one exposure level that addresses all relevant public health impacts. Therefore, with the concurrence of the CASAC Panel, the Staff Paper estimated exposures of concern not only at 0.080 ppm O₃, a level at which there are demonstrated effects, but also at 0.070 and 0.060 ppm O₃. The Staff Paper recognized that there will be varying degrees of concern about exposures at each of these levels, based in part on the population subgroups experiencing them. Given that there is clear evidence of inflammation, increased airway responsiveness, and changes in host defenses in healthy people exposed to 0.080 ppm O₃ and reason to infer that

such effects will continue at lower exposure levels, but with increasing uncertainty about the extent to which such effects occur at lower O₃ concentrations, the Staff Paper focused on exposures at or above benchmark levels of 0.070 and 0.060 ppm O₃ while at elevated exertion for purposes of evaluating the adequacy of the current standard.

Exposure estimates were presented in the Staff Paper and in section II.B (Table 1) of the proposal for the number and percent of all school age children and asthmatic school age children exposed, and the number of person-days (occurrences) of exposures, with daily 8-hour maximum exposures at or above several benchmark levels while at intermittent moderate or greater exertion. The percent of population exposed at any given level is very similar for all and asthmatic school age children. Substantial year-to-year variability in exposure estimates is observed, ranging to over an order of magnitude at the current standard level, in estimates of the number of children and the number of occurrences of exposures at both of these benchmark levels while at elevated exertion. The Staff Paper stated that it is appropriate to consider not just the average estimates across all years, but also to consider public health impacts in years with relatively higher O₃ levels. The Staff Paper also noted that there is substantial city-to-city variability in these estimates, and notes that it is appropriate to consider not just the aggregate estimates across all cities, but also to consider the public health impacts in cities where these estimates are higher than the average upon meeting the current standard.

About 50 percent of asthmatic of all school age children, representing nearly 1.3 million asthmatic children and about 8.5 million school age children in the 12 urban areas examined, are estimated to experience exposures at or above the 0.070 ppm benchmark level while at elevated exertion (i.e., these individuals are estimated to experience 8-hour O₃ exposures at or above 0.070 ppm while engaged in moderate or greater exertion 1 or more times during the O₃ season) associated with 2002 O₃ air quality levels. In contrast, about 17 percent of asthmatic and all school age children are estimated to experience exposures at or above the 0.070 ppm benchmark level while at elevated exertion associated with 2004 O₃ air quality levels. Just meeting the current standard results in an aggregate estimate of about 20 percent of asthmatic or 18 percent of all school age children likely to experience exposures at or above the

¹⁵ In commenting on the Criteria Document, the CASAC Ozone Panel raised questions about the implications of these time-series results in a policy context, emphasizing that " * * * while the time-series study design is a powerful tool to detect very small effects that could not be detected using other designs, it is also a blunt tool" (Henderson, 2006b). They note that " * * * not only is the interpretation of these associations complicated by the fact that the day-to-day variation in concentrations of these pollutants is, to a varying degree, determined by meteorology, the pollutants are often part of a large and highly correlated mix of pollutants, only a very few of which are measured" (Henderson, 2006b). Even with these uncertainties, the CASAC Ozone Panel, in its review of the Staff Paper, found " * * * premature total non-accidental and cardiorespiratory mortality for inclusion in the quantitative risk assessment to be appropriate." (Henderson, 2006b)

0.070 ppm benchmark level while at elevated exertion using the 2002 simulation. The exposure estimates for this benchmark level range up to about 40 percent of asthmatic or all school age children in the single city with the highest estimate among the cities analyzed. Just meeting the current standard based on the 2004 simulation, results in an aggregate estimate of about 1 percent of asthmatic or all school age children experiencing exposures exceeding the 0.070 ppm benchmark level while at elevated exertion.

At the benchmark level of 0.060 ppm, about 70 percent of all or asthmatic school age children are estimated to experience exposures at or above this benchmark level while at elevated exertion for the aggregate of the 12 urban areas associated with 2002 O₃ levels. Just meeting the current standard would result in an aggregate estimate of about 45 percent of asthmatic or all school age children likely to experience exposures at or above the 0.060 ppm benchmark level while at elevated exertion using the 2002 simulation. The exposure estimates for this benchmark level range up to nearly 70 percent of all or asthmatic school age children in the single city with the highest estimate among the cities analyzed associated with just meeting the current standard using the 2002 simulation. The Staff Paper indicated an aggregate estimate of about 10 percent of asthmatic or all school age children would experience exposures at or above the 0.060 ppm benchmark level while at elevated exertion associated with just meeting the current standard using the 2004 simulation.

(2) Risk assessment. The health risk assessment estimated risks for several important health endpoints, including: (1) Lung function decrements (i.e., ≥ 15 percent and ≥ 20 percent reductions in FEV₁) in all school age children for 12 urban areas; (2) lung function decrements (i.e., ≥ 10 percent and ≥ 20 percent reductions in FEV₁) in asthmatic school age children for 5 urban areas (a subset of the 12 urban areas); (3) respiratory symptoms (i.e., chest tightness, shortness of breath, wheeze) in moderate to severe asthmatic children for the Boston area; (4) respiratory-related hospital admissions for 3 urban areas; and (5) nonaccidental and cardiorespiratory mortality for 12 urban areas for three recent years (2002 to 2004) and for just meeting the current standard using a 2002 simulation and a 2004 simulation.

With regard to estimates of moderate lung function decrements, meeting the current standard substantially reduces the estimated number of school age

children experiencing one or more occurrences of FEV₁ decrements ≥ 15 percent for the 12 urban areas, going from about 1.3 million children (7 percent of children) under 2002 air quality to about 610,000 (3 percent of children) based on the 2002 simulation, and from about 620,000 children (3 percent of children) to about 230,000 (1 percent of children) using the 2004 simulation. In asthmatic children, the estimated number of children experiencing one or more occurrences of FEV₁ decrements ≥ 10 percent for the 5 urban areas goes from about 250,000 children (16 percent of asthmatic children) under 2002 air quality to about 130,000 (8 percent of asthmatic children) using the 2002 simulation, and from about 160,000 (10 percent of asthmatic children) to about 70,000 (4 percent of asthmatic children) using the 2004 simulation. Thus, even when the current standard is met, about 4 to 8 percent of asthmatic school age children are estimated to experience one or more occurrences of moderate lung function decrements, resulting in about 1 million occurrences (using the 2002 simulation) and nearly 700,000 occurrences (using the 2004 simulation) in just 5 urban areas. Moreover, the estimated number of occurrences of moderate or greater lung function decrements per child is on average approximately 6 to 7 in all children and 8 to 10 in asthmatic children in an O₃ season, even when the current standard is met, depending on the year used to simulate meeting the current standard. In the 1997 review of the O₃ standard a general consensus view of the adversity of such moderate responses emerged as the frequency of occurrences increases, with the judgment that repeated occurrences of moderate responses, even in otherwise healthy individuals, may be considered adverse since they may well set the stage for more serious illness.

With regard to estimates of large lung function decrements, the Staff Paper noted that FEV₁ decrements > 20 percent would likely interfere with normal activities in many healthy individuals, therefore single occurrences would be considered to be adverse. In people with asthma, large lung function responses would likely interfere with normal activities for most individuals and would also increase the likelihood that these individuals would use additional medication or seek medical treatment. Single occurrences would be considered to be adverse to asthmatic individuals under the ATS definition. They also would be cause for medical concern in some individuals. While the current standard reduces the

occurrences of large lung function decrements in all children and asthmatic children from about 60 to 70%, in a year with relatively higher O₃ levels (2002), there are estimated to be about 500,000 occurrences in all school children across the entire 12 urban areas, and about 40,000 occurrences in asthmatic children across just 5 urban areas. As noted above, it is clear that even when the current standard is met over a three-year period, O₃ levels in each year can vary considerably, as evidenced by relatively large differences between risk estimates based on 2002 to 2004 air quality. The Staff Paper expressed the view that it was appropriate to consider this yearly variation in O₃ levels allowed by the current standard in judging the extent to which impacts on members of at-risk groups in a year with relatively higher O₃ levels remain of concern from a public health perspective.

With regard to other O₃-related health effects, the estimated risks of respiratory symptom days in moderate to severe asthmatic children, respiratory-related hospital admissions, and non-accidental and cardiorespiratory mortality, respectively, are not reduced to as great an extent by meeting the current standard as are lung function decrements. For example, just meeting the current standard reduces the estimated average incidence of chest tightness in moderate to severe asthmatic children living in the Boston urban area by 11 to 15%, based on 2002 and 2004 simulations, respectively, resulting in an estimated incidence of about 23,000 to 31,000 per 100,000 children attributable to O₃ exposure (Table 6–4). Just meeting the current standard is estimated to reduce the incidence of respiratory-related hospital admissions in the New York City urban area by about 16 to 18%, based on 2002 and 2004 simulations, respectively, resulting in an estimated incidence per 100,000 population of 4.6 to 6.4, respectively. Across the 12 urban areas, the estimates of non-accidental mortality incidence per 100,000 relevant population range from 0.4 to 2.6 (for 2002) and 0.5 to 1.5 (for 2004). Meeting the current standard results in a reduction of the estimated incidence per 100,000 population to a range of 0.3 to 2.4 based on the 2002 simulation and a range of 0.3 to 1.2 based on the 2004 simulation. Estimates for cardiorespiratory mortality show similar patterns.

In considering the estimates of the proportion of population affected and the number of occurrences of the health effects that are included in the risk assessment, the Staff Paper noted that

these limited estimates are indicative of a much broader array of potential O₃-related health endpoints that we consider part of a “pyramid of effects” that include various indicators of morbidity that could not be included in the risk assessment (e.g., school absences, increased medication use, emergency department visits) and which primarily affect members of at-risk groups. While the Staff Paper had sufficient information to estimate and consider the number of symptom days in children with moderate to severe asthma, it recognized that there are many other effects that may be associated with symptom days, such as increased medication use, school and work absences, or visits to doctors’ offices, for which there was not sufficient information to estimate risks but which are important to consider in assessing the adequacy of the current standard. The same is true for more serious, but less frequent effects. The Staff Paper estimated hospital admissions, but there was not sufficient information to estimate emergency department visits in a quantitative risk assessment. Consideration of such unquantified risks in the Staff Paper reinforced the Staff Paper conclusion that consideration should be given to revising the standard so as to provide increased public health protection, especially for at-risk groups such as people with asthma or other lung diseases, as well as children and older adults, particularly those active outdoors, and outdoor workers.

iii. Summary of Staff Paper Considerations

The Staff Paper concluded that the overall body of evidence clearly calls into question the adequacy of the current standard in protecting at-risk groups against an array of adverse health effects that range from decreased lung function and respiratory symptoms to serious indicators of respiratory morbidity including emergency department visits and hospital admissions for respiratory causes, nonaccidental mortality, and possibly cardiovascular effects. These at-risk groups notably include asthmatic children and other people with lung disease, as well as all children and older adults, especially those active outdoors, and outdoor workers.¹⁶ The available information provides strong support for consideration of an O₃ standard that would provide increased health protection for these at-risk groups. The

Staff Paper also concluded that risks projected to remain upon meeting the current standard are indicative of risks to at-risk groups that can be judged to be important from a public health perspective. This information reinforced the Staff Paper conclusion that consideration should be given to revising the level of the standard so as to provide increased public health protection.

b. CASAC Views

The CASAC Panel unanimously concluded in a letter to the Administrator that there is “no scientific justification for retaining” the current primary O₃ standard, and the current standard “needs to be substantially reduced to protect human health, particularly in sensitive subpopulations” (Henderson, 2006c, pp. 1–2). In its rationale for this conclusion, the CASAC Panel concluded that “new evidence supports and builds-upon key, health-related conclusions drawn in the 1997 O₃ NAAQS review” (id., p. 3). The Panel noted that several new single-city studies and large multi-city studies have provided more evidence for adverse health effects at concentrations lower than the current standard, and that these epidemiological studies are backed-up by evidence from controlled human exposure studies. The Panel specifically noted evidence from the recent Adams (2006) study that reported statistically significant decrements in the lung function of healthy, moderately exercising adults at a 0.080 ppm exposure level, and importantly, also reported adverse lung function effects in some healthy individuals at 0.060 ppm. The CASAC Panel concluded that these results indicate that the current standard “is not sufficiently health-protective with an adequate margin of safety,” noting that while similar studies in sensitive groups such as asthmatics have yet to be conducted, “people with asthma, and particularly children, have been found to be more sensitive and to experience larger decrements in lung function in response to O₃ exposures than would healthy volunteers (Mortimer *et al.*, 2002)” (Henderson, 2006c, p. 4).

The CASAC Panel also highlighted a number of O₃-related adverse health effects that are associated with exposure to ambient O₃, below the level of the current standard based on a broad range of epidemiological studies (Henderson, 2006c). These adverse health effects include increases in school absenteeism, respiratory hospital emergency department visits among asthmatics and patients with other respiratory diseases, hospitalizations for respiratory illnesses,

symptoms associated with adverse health effects (including chest tightness and medication usage), and premature mortality (nonaccidental, cardiorespiratory deaths) reported at exposure levels well below the current standard. “The CASAC considers each of these findings to be an important indicator of adverse health effects” (Henderson, 2006c).

The CASAC Panel expressed the view that more emphasis should be placed on the subjects in controlled human exposure studies with FEV₁ decrements greater than 10 percent, which can be clinically significant, rather than on the relatively small average decrements. The Panel also emphasized significant O₃-related inflammatory responses and markers of injury to the epithelial lining of the lung that are independent of spirometric responses. Further, the Panel expressed the view that the Staff Paper did not place enough emphasis on serious morbidity (e.g., hospital admissions) and mortality observed in epidemiological studies. On the basis of the large amount of recent data evaluating adverse health effects at levels at and below the current O₃ standard, it was the unanimous opinion of the CASAC Panel that the current primary O₃ standard is not adequate to protect human health, that the relevant scientific data do not support consideration of retaining the current standard, and that the current standard needs to be substantially reduced to be protective of human health, particularly in sensitive subpopulations (Henderson, 2006c, pp. 4–5).

Further, the CASAC letter noted that “there is no longer significant scientific uncertainty regarding the CASAC’s conclusion that the current 8-hour primary NAAQS must be lowered” (Henderson, 2006c, p. 5). The Panel noted that a “large body of data clearly demonstrates adverse human health effects at the current level” of the standard, such that “[R]etaining this standard would continue to put large numbers of individuals at risk for respiratory effects and/or significant impact on quality of life including asthma exacerbations, emergency room visits, hospital admissions and mortality” (Henderson, 2006c).

c. Administrator’s Proposed Conclusions

At the time of proposal, in considering whether the current primary standard should be revised, the Administrator carefully considered the conclusions contained in the Criteria Document, the rationale and recommendations contained in the Staff Paper, the advice and recommendations

¹⁶ In defining at-risk groups this way we are including both groups with greater inherent sensitivity and those more likely to be exposed.

from CASAC, and public comments to date on this issue. In so doing, the Administrator noted the following: (1) That evidence of a range of respiratory-related morbidity effects seen in the last review has been considerably strengthened, both through toxicological and controlled human exposure studies as well as through many new panel and epidemiological studies; (2) that new evidence from controlled human exposure and epidemiological studies identifies people with asthma (including children with asthma) as an important susceptible population for which estimates of respiratory effects in the general population likely underestimate the magnitude or importance of these effects; (3) that new evidence about mechanisms of toxicity further contributes to the biological plausibility of O₃-induced respiratory effects and is beginning to suggest mechanisms that may link O₃ exposure to cardiovascular effects; (4) that there is now relatively strong evidence for associations between O₃ and total nonaccidental and cardiopulmonary mortality, even after adjustment for the influence of season and PM; and (5) the limits of the available evidence. Relative to the information that was available to inform the Agency's 1997 decision to set the current standard, the newly available evidence increased the Administrator's confidence that respiratory morbidity effects such as lung function decrements and respiratory symptoms are causally related to O₃ exposures, that indicators of respiratory morbidity such as emergency department visits and hospital admissions are causally related to O₃ exposures, and that the evidence is highly suggestive that O₃ exposures during the O₃ season contribute to premature mortality.

The Administrator judged that there is important new evidence demonstrating that exposures to O₃ at levels below the level of the current standard are associated with a broad array of adverse health effects, especially in at-risk populations that include people with asthma or other lung diseases who are likely to experience more serious effects from exposure to O₃, children and older adults with increased susceptibility, as well as those who are likely to be vulnerable as a result of spending a lot of time outdoors engaged in physical activity, especially active children and outdoor workers. Examples of this important new evidence include demonstration of O₃-induced lung function effects and respiratory symptoms in some healthy individuals down to the previously observed

exposure level of 0.080 ppm, as well as very limited new evidence at exposure levels well below the level of the current standard. In addition, there is now epidemiological evidence of statistically significant O₃-related associations with lung function and respiratory symptom effects, respiratory-related emergency department visits and hospital admissions, and increased mortality, in areas that likely would have met the current standard. There are also many epidemiological studies done in areas that likely would not have met the current standard but which nonetheless report statistically significant associations that generally extend down to ambient O₃ concentrations that are below the level of the current standard. Further, there are a few studies that have examined subsets of data that include only days with ambient O₃ concentrations below the level of the current standard, or below even much lower O₃ concentrations, and continue to report statistically significant associations with respiratory morbidity outcomes and mortality. The Administrator recognized that the evidence from controlled human exposure studies, together with animal toxicological studies, provides considerable support for the biological plausibility of the respiratory morbidity associations observed in the epidemiological studies and for concluding that the associations extend below the level of the current standard. However, the Administrator recognized that in the body of epidemiological evidence, many studies reported positive and statistically significant associations, while others reported positive results that were not statistically significant, and a few did not report any positive O₃-related associations. In addition, the Administrator judged that evidence of a causal relationship between adverse health outcomes and O₃ exposures became increasingly uncertain at lower levels of exposure.

Based on the strength of the currently available evidence of adverse health effects, and on the extent to which the evidence indicates that such effects likely result from exposures to ambient O₃ concentrations below the level of the current standard, the Administrator judged that the current standard does not protect public health with an adequate margin of safety and that the standard should be revised to provide such protection, especially for at-risk groups, against a broad array of adverse health effects.

In reaching this judgment, the Administrator had also considered the results of both the exposure and risk

assessments conducted for this review, to provide some perspective on the extent to which at-risk groups would likely experience "exposures of concern"¹⁷ and on the potential magnitude of the risk of experiencing various adverse health effects when recent air quality data (from 2002 to 2004) are used to simulate meeting the current standard and alternative standards in a number of urban areas in the U.S.¹⁸ In considering the results of the health risk assessment, as discussed in the proposal notice (section II.C.2), the Administrator noted that there were important uncertainties and assumptions inherent in the risk assessment and that this assessment was most appropriately used to simulate trends and patterns that could be expected, as well as providing informed, but still imprecise, estimates of the potential magnitude of risks.

In considering the exposure assessment results at the time of proposal, the Administrator considered analyses that define "exposures of concern" by three benchmark exposure levels: 0.080, 0.070, and 0.060 ppm. Estimates of exposures in at-risk groups at and above these benchmark levels while at elevated exertion, using O₃ air quality data in 2002 and 2004, provide some indication of the potential magnitude of the incidence of health outcomes that cannot currently be evaluated in a quantitative risk assessment, such as increased airway responsiveness, increased pulmonary inflammation, increased cellular permeability, and decreased pulmonary defense mechanisms. These respiratory-related physiological effects have been demonstrated to occur in healthy people at O₃ exposures as low as 0.080 ppm, the lowest level tested for these effects. These physiological effects provide plausible mechanisms underlying observed associations with aggravation of asthma, increased medication use, increased school and work absences,

¹⁷ As discussed in section II.A.3 above, "exposures of concern" are estimates of personal exposures while at moderate or greater exertion to 8-hour average ambient O₃ levels at and above specific benchmark levels which represent exposure levels at which O₃-related health effects are known or can with varying degrees of certainty be inferred to occur in some individuals. Estimates of exposures of concern provide some perspective on the public health impacts of health effects that may occur in some individuals at recent air quality levels but cannot be evaluated in quantitative risk assessments, and the extent to which such impacts might be reduced by meeting the current and alternative standards.

¹⁸ As noted above in section II.A.3, recent O₃ air quality distributions have been statistically adjusted to simulate just meeting the current and selected alternative standards. These simulations do not represent predictions of when, whether, or how areas might meet the specified standards.

increased susceptibility to respiratory infection, increased visits to doctors' offices and emergency departments, and increased admissions to hospitals. In addition, these physiological effects, if repeated over time, have the potential to lead to chronic effects such as chronic bronchitis or long-term damage to the lungs that can lead to reduced quality of life.

In considering these various benchmark levels for exposures of concern at the time of proposal, the Administrator focused primarily on estimated exposures at and above the 0.070 ppm benchmark level while at elevated exertion as an important surrogate measure for potentially more serious health effects in at-risk groups such as people with asthma. This judgment was based on the strong evidence of effects in healthy people at the 0.080 ppm exposure level and the new evidence that people with asthma are likely to experience larger and more serious effects than healthy people at the same level of exposure. In the Administrator's view at the time of proposal, this evidence did not support a focus on exposures at and above the benchmark level of 0.080 ppm O₃, as it would not adequately account for the increased risk of harm from exposure for members of at-risk groups, especially people with asthma. The Administrator also judged that the evidence of demonstrated effects is too limited to support a primary focus on exposures down to the lowest benchmark level considered of 0.060 ppm. The Administrator particularly noted that although the analysis of "exposures of concern" was conducted to estimate exposures at and above three discrete benchmark levels (0.080, 0.070, and 0.060 ppm) while at elevated exertion, the concept is appropriately viewed as a continuum. In so doing, the Administrator sought to balance concern about the potential for health effects and their severity with the increasing uncertainty associated with our understanding of the likelihood of such effects at lower O₃ exposure levels.

The Administrator observed that based on the aggregate exposure estimates for the 2002 simulation (summarized in section II.B.1, Table 1, of the proposal) for the 12 U.S. urban areas included in the exposure analysis, upon just meeting the current standard up to about 20 percent of asthmatic or all school age children are likely to experience one or more exposures at and above the 0.070 ppm benchmark level while at elevated exertion; the 2004 simulation yielded an estimate of about 1 percent of such children. The Administrator noted from this

comparison that there is substantial year-to-year variability, ranging up to an order of magnitude or more in estimates of the number of people and the number of occurrences of exposures at and above this benchmark level while at elevated exertion. Moreover, within any given year, the exposure assessment indicates that there is substantial city-to-city variability in the estimates of the children exposed or the number of occurrences of exposure at and above this benchmark level while at elevated exertion. For example, city-specific estimates of the percent of asthmatic or all school age children likely to experience exposures at and above the benchmark level of 0.070 ppm while at elevated exertion ranges from about 1 percent up to about 40 percent across the 12 urban areas upon just meeting the current standard based on the 2002 simulation; the 2004 simulation yielded estimates that range from about 0 up to about 7 percent. The Administrator judged that it was important to recognize the substantial year-to-year and city-to-city variability in considering these estimates.

With regard to the results of the risk assessment, the Administrator focused on the risks estimated to remain upon just meeting the current standard. Based on the aggregate risk estimates (summarized in section II.B.2, Table 2, of the proposal), the Administrator observed that upon just meeting the current standard based on the 2002 simulation, approximately 8 percent of asthmatic school age children across 5 urban areas (ranging up to about 11 percent in the city with the highest estimate among the cities analyzed) would still be estimated to experience moderate or greater lung function decrements one or more times within an O₃ season. These estimated percentages would be approximately 3 percent of all school age children across 12 urban areas (ranging up to over 5 percent in the city with the highest estimate among the cities analyzed). The Administrator recognized that, as with the estimates of exposures of concern, there is substantial year-to-year and city-to-city variability in these risk estimates.

In addition to the percentage of asthmatic or all children estimated to experience one or more occurrences of an effect, the Administrator recognized that some individuals are estimated to have multiple occurrences. For example, across all the cities in the assessment, approximately 6 to 7 occurrences of moderate or greater lung function decrements per child are estimated to occur in all children and approximately 8 to 10 occurrences are estimated to occur in asthmatic children

in an O₃ season, even upon just meeting the current standard. In the last review, a general consensus view of the adversity of such responses emerged as the frequency of occurrences increases, with the judgment that repeated occurrences of moderate responses, even in otherwise healthy individuals, may be considered adverse since they may well set the stage for more serious illness. The Administrator continued to support this view.

Large lung function decrements (i.e., ≥ 20 percent FEV₁ decrement) would likely interfere with normal activities in many healthy individuals, therefore single occurrences would be considered to be adverse. In people with asthma, large lung function responses (i.e., ≥ 20 percent FEV₁ decrement), would likely interfere with normal activities for most individuals and would also increase the likelihood that these individuals would use additional medication or seek medical treatment. Not only would single occurrences be considered to be adverse to asthmatic individuals under the ATS definition, but they also would be cause for medical concern for some individuals. Upon just meeting the current standard based on the 2002 simulation, close to 1 percent of asthmatic and all school age children are estimated to experience one or more occurrences of large lung function decrements in the aggregate across 5 and 12 urban areas, respectively, with close to 2 percent of both asthmatic and all school age children estimated to experience such effects in the city that receives relatively less protection from this standard. These estimates translate into approximately 500,000 occurrences of large lung function decrements in all children across 12 urban areas, and about 40,000 occurrences in asthmatic children across 5 urban areas upon just meeting the current standard based on the 2002 simulation; the 2004 simulation yielded estimates that translate into approximately 160,000 and 10,000 such occurrences in all children and asthmatic children, respectively.

Upon just meeting the current standard based on the 2002 simulation, the estimate of the O₃-related risk of respiratory symptom days in moderate to severe asthmatic children in the Boston area is about 8,000 symptom days; the 2004 simulation yielded an estimate of about 6,000 such symptoms days. These estimates translate into as many as one symptom day in six, and one symptom day in eight, respectively, that are attributable to O₃ exposure during the O₃ season of the total number of symptom days associated with all

causes of respiratory symptoms in asthmatic children during those years.

The estimated O₃-related risk of respiratory-related hospital admissions upon just meeting the current standard based on the 2002 simulation is greater than 500 hospital admissions in the New York City area alone, or about 1.5 percent of the total incidence of respiratory-related admissions associated with all causes; the 2004 simulation yielded an estimate of approximately 400 such hospital admissions. For nonaccidental mortality, just meeting the current standard based on the 2002 simulation results in an estimated incidence of from 0.3 to 2.4 per 100,000 population; the 2004 simulation resulted in an estimated incidence of from 0.3 to 1.2 per 100,000 population. Estimates for cardiorespiratory mortality show similar patterns (Abt Associates, 2007a, Table 4–26).

The Administrator recognized that in considering the estimates of the proportion of population affected and the number of occurrences of those specific health effects that are included in the risk assessment, these limited estimates based on 2002 and 2004 simulations are indicative of a much broader array of O₃-related health endpoints that are part of a “pyramid of effects” (discussed in section II.A.4.d of the proposal) that include various indicators of morbidity that could not be included in the risk assessment (e.g., school absences, increased medication use, emergency department visits) and which primarily affect members of at-risk groups. Moreover, the Administrator noted that the CASAC Panel supported a qualitative consideration of the much broader array of O₃-related health endpoints, and specifically referred to respiratory emergency department visits in asthmatics and people with other lung diseases, increased medication use, and increased respiratory symptoms reported at exposure levels well below the current standard.

The Administrator expressed the view in the proposal that the exposure and risk estimates discussed in the Staff Paper and summarized above are important from a public health perspective and indicative of potential exposures and risks to at-risk groups. In reaching this proposed judgment, the Administrator considered the following factors: (1) The estimates of numbers of persons exposed at and above the 0.070 ppm benchmark level; (2) the risk estimates of the proportion of the population and number of occurrences of various health effects in areas upon just meeting the current standard; (3)

the year-to-year and city-to-city variability in both the exposure and risk estimates; (4) the uncertainties in these estimates; and (5) recognition that there is a broader array of O₃-related adverse health outcomes for which risk estimates could not be quantified (that are part of a broader “pyramid of effects”) and that the scope of the assessment was limited to just a sample of urban areas and to some but not all at-risk populations, leading to an incomplete estimation of public health impacts associated with O₃ exposures across the country. The Administrator also noted that it was the unanimous conclusion of the CASAC Panel that there is no scientific justification for retaining the current primary O₃ standard, that the current standard is not sufficiently health-protective with an adequate margin of safety, and that the standard needs to be substantially reduced to protect human health, particularly in at-risk subpopulations.

Based on all of these considerations, the Administrator proposed that the current O₃ standard is not requisite to protect public health with an adequate margin of safety because it does not provide sufficient protection and that revision would result in increased public health protection, especially for members of at-risk groups.

2. Comments on the Need for Revision

The above section outlines the health effects evidence and assessments used by the Administrator to inform his proposed judgments about the adequacy of the current O₃ primary standard. General comments received on the proposal that either supported or opposed the proposed decision to revise the current O₃ primary standard are addressed in this section. Comments on the health effects evidence, which includes evidence from controlled human exposure and epidemiological studies, are considered in section II.B.2.a below. Comments on human exposure and health risk assessments are considered in section II.B.2.b, and comments on other policy-related issues are considered in section II.B.2.c, below. Comments on specific issues, health effects evidence, or the human exposure and health risk assessments that relate to consideration of the appropriate averaging time, form, or level of the O₃ standard are addressed below in sections II.C.3 and II.C.4. General comments based on implementation-related factors that are not a permissible basis for considering the need to revise the current standard are noted in the Response to Comments document.

a. Consideration of Health Effects Evidence

With regard to the need to revise the current primary O₃ standard, sharply divergent comments were received from two general sets of commenters. Many public comments received on the proposal asserted that the current O₃ standard is insufficient to protect public health, especially the health of sensitive groups, with an adequate margin of safety and revisions to the standard are appropriate. Among those calling for revisions to the current primary standard were medical groups, including for example, the American Medical Association (AMA), the American Thoracic Society (ATS), the American Academy of Pediatrics (AAP), and the American College of Chest Physicians (ACCP), as well as medical doctors and academic researchers. For example, the ATS stated:

We believe that the Administrator has correctly stated that, beyond any degree of scientific uncertainty, convincing and compelling evidence has demonstrated that exposure to ozone at levels below the current standard is responsible for measurable and significant adverse health effects, both in terms of morbidity and mortality. * * * The known respiratory, cardiac and perinatal effects of ozone pollution are each in their own right major public health issues. In combination they provide immediate, actionable information and require a meaningful public health policy response from the EPA. [ATS *et al.* pp. 1, 11]

Similar conclusions were also reached in comments by many national, State, and local public health organizations, including, for example, the American Lung Association (ALA) in a joint set of comments with several environmental groups, the American Heart Association (AHA), the American Nurses Association (ANA), the American Public Health Association (APHA), and the National Association of County and City Health Officials (NACCHO), as well as in letters to the Administrator from EPA's advisory panel on children's environmental health (Children's Health Protection Advisory Committee; Marty *et al.*, 2007a, 2007b). Environmental groups also commented in support of revising the standard, including the Sierra Club, Environmental Defense, the Natural Resources Defense Council (NRDC), Earthjustice, and the U.S. Public Interest Research Group (US PIRG). All of these medical, environmental and public health commenters stated that the current O₃ standard needs to be revised and that an even more protective standard than proposed by EPA is needed to protect the health of sensitive population

groups. Many individual commenters also expressed such views.

The majority of State and local air pollution control authorities who commented on the O₃ standard supported revision of the current O₃ standard, as did the National Tribal Air Association (NTAA). Environmental agencies that supported revising the standard include agencies from: Arkansas; California; Delaware; Iowa; Illinois; Michigan; North Carolina; New Mexico; New York; Oklahoma; Oregon; Pennsylvania; Utah; Wisconsin; and Washington, DC. State organizations, including the National Association of Clean Air Agencies (NACAA), Northeast States for Coordinated Air Use Management (NESCAUM), and the Ozone Transport Commission (OTC) urged that EPA revise the O₃ standard. All of these commenters supported revisions to the current standard, with most supporting a standard consistent with CASAC's recommendations.

In general, the commenters noted above primarily based their views on the body of evidence assessed in the Criteria Document, finding it to be stronger and more compelling than in the last review. Some specifically agreed with the weight of evidence approach taken by the Criteria Document. These commenters generally placed much weight on CASAC's interpretation of the body of available evidence and the results of EPA's exposure and risk assessments, both of which formed the basis for CASAC's recommendation to revise the O₃ standard to provide increased public health protection.

In recent years, a broad scientific consensus has emerged that EPA's current air quality standards for ozone are not sufficient to protect public health, and that the levels and form must be greatly tightened. This consensus is evidenced by the by the strong unanimous comments of the CASAC, which was backed by the endorsement of over 100 leading independent air quality scientists, EPA's Children's Health Protection Advisory Committee, and many others. In the face of this strong consensus, it is untenable to cite "uncertainty" as a rationale for failing to propose tighter standards. [ALA *et al.*, p. 15] Medical and public health commenters also expressed the view that EPA must not use uncertainty in the scientific evidence as justification for retaining the current O₃ standard.

EPA generally agrees with these commenters' conclusion regarding the need to revise the current primary O₃ standard. The scientific evidence-related health effects to O₃ exposure noted by these commenters was generally the same as that assessed in the Criteria Document and the proposal. EPA agrees that this information

provides a basis for concluding that the current O₃ standard is not adequately protective of public health. For reasons discussed below in sections II.C.3 and II.C.4, however, EPA disagrees with aspects of these commenters' views on the level of protection that is appropriate and supported by the available scientific information.

Another group of commenters representing industry associations and businesses opposed revising the current primary O₃ standard. These views were extensively presented in comments from the Utility Air Regulatory Group (UARG), representing a group of electric generating companies and organizations and several national trade associations, and in comments from other industry and business associations including, for example: Exxon Mobil Corporation; the Alliance of Automobile Manufacturers (AAM); the National Association of Manufacturers (NAM), the American Petroleum Institute (API). The API sponsored a workshop at the University of Rochester in June 2007 to review the scientific information and health risk assessment considered by EPA during the review of the O₃ NAAQS. Although the report (hereafter, "Rochester Report") from this workshop does not offer judgments on the specific elements of the current or proposed standard, it has been cited in a number of public comments that opposed revision of the current 8-hour standard. The Annapolis Center for Science-Based Public Policy issued a report (hereafter, "Annapolis Center") on the science and health effects of O₃, which explicitly opposed revising the current O₃ primary standard. Several State environmental agencies also opposed revising the current O₃ primary standard, including agencies from: Georgia; Indiana; Kentucky; Louisiana; Nevada; and Texas.

As discussed more fully below in sections dealing with specific comments, these and other commenters in this group generally mentioned many of the same studies from the body of evidence in the Criteria Document that were cited by the commenters who supported revising the standards, but highlighted different aspects of these studies in reaching substantially different conclusions about their strength and the extent to which progress has been made in reducing uncertainties in the evidence since the last review. They then considered whether the evidence that has become available since the last review has established a more certain risk or a risk of effects that is significantly different in character from those that provided a basis for the current standards, or

whether the evidence demonstrates that the risk to public health upon attainment of the current standards would be greater than was understood when EPA established the current O₃ standard in 1997. These commenters generally expressed the view that the current standard provides the requisite degree of public health protection.

In supporting their view that the present primary O₃ standard continues to provide the requisite public health protection and should not be revised, UARG and others generally stated: That the effects of concern have not changed significantly since 1997; that the uncertainties in the underlying health science are as great or greater than in 1997; that the estimated number of exposures of concern and health risks upon attainment of the current O₃ standard has not changed or decreased since 1997; and that "new" studies not included in the Criteria Document continue to demonstrate uncertainties about possible health risks associated with exposure to O₃ at levels below the current standard. As noted above, EPA disagrees with this general assessment, and agrees with the general position that the available information provides a basis for concluding that the current O₃ standard is not adequately protective of public health. The rationale for this position is discussed more fully in the responses to specific comments that are presented below.

More specific comments on the evidence and EPA's responses are discussed below. Section II.B.2.a.i contains comments on evidence from controlled human exposure studies; section II.B.2.a.ii contains comments on evidence from epidemiological studies, including interpretation of the evidence and specific methodological issues. Comments on evidence pertaining to at-risk subgroups for O₃-related effects can be found in section II.B.2.a.iii below. EPA notes here that most of the issues and concerns raised by commenters concerning the health effects evidence, including both the interpretation of the evidence and specific technical or methodological issues, were essentially restatements of issues raised during the review of the Criteria Document and the Staff Paper. Most of these issues were highlighted and thoroughly discussed during the review of these documents by the CASAC. More detailed responses related to the interpretation of the health effects evidence and its role in the decision on the O₃ NAAQS are contained in the Response to Comments document.

i. Evidence from Controlled Human Exposure Studies

As noted in the overview of health effects evidence, section II.A.2 above, two new controlled human-exposure studies (Adams 2002, 2006) are now available that examine respiratory effects associated with prolonged O₃ exposures at levels at and below 0.080 ppm, which was the lowest exposure level that had been examined in the last review. One group of commenters that included national medical (e.g., ATS, AMA, ACCP) and national environmental and public health organizations (e.g., ALA in a joint set of comments with Environmental Defense, Sierra Club), agreed with EPA's reanalysis of the Adams' data while disagreeing with EPA's characterization of the evidence from the Adams studies as "very limited" (72 FR 37870). These commenters expressed the view that the Adams studies provide evidence of effects at lower concentrations than had previously been reported. They noted that Adams, while finding small group mean changes at 0.060 ppm, reported total subjective symptom scores reached statistical significance (relative to pre-exposure) at 5.6 and 6.6 hours, with the triangular exposure scenario, and that pain on deep inspiration values followed a similar pattern to total subjective symptoms scores. In addition, Adams (2002) reports that "some sensitive subjects experience notable effects at 0.060 ppm," based on a greater than 10% reduction in FEV₁. These commenters made the point that the responses of individuals are more important than group mean responses and that when the Adams (2002, 2006) study data are corrected for the effects of exercise in clean air, 7 percent of subjects experience FEV₁ decrements greater than 10% at the 0.040 and 0.060 ppm exposure levels. They expressed the view that while 2 of 30 tested subjects responding at the 0.060 ppm level may seem like a small number, a 7 percent response rate is far from trivial. Seven percent of the U.S. population is 21.2 million people (ALA *et al.*, p. 51). Noting that the subjects in the Adams' studies were all healthy adults, these groups expressed concern that "in some vulnerable populations the magnitude of the response would be greater and the exposure level at which responses are observed to occur would be lower" (ATS, p. 4).

These commenters generally supported EPA's reanalysis of the Adams' data, stating that EPA has undertaken a careful reanalysis of the underlying data in the Adams studies to assess the change in FEV₁ following

exposure to 0.060 ppm O₃ and filtered air, and concluding that "the reanalysis employs the standard approach used by other researchers, and supported by CASAC" (ALA *et al.*, p. 49), and "we believe that the Adams study shows significant health effects at 0.06 ppm exposure levels" (ATS, p. 5). The American Thoracic Society, AMA and other medical organizations conclude:

The Adams study confirms our understanding that in healthy populations, an important fraction of the population will experience larger-than-average decrements in FEV₁ when exposed to low levels of ozone. It is reasonable to assume that these effects would be even greater when extrapolated to other populations known to have sensitivities to ozone (children, asthmatics, COPD patients). We feel the correct conclusion to draw from the Adams study is that there is a significant fraction of the population that will express significant responses to low levels of ozone. [ATS, p. 5]

EPA generally agrees with most of the comments summarized above, while placing more emphasis on the limited nature of the evidence addressing O₃-related lung function and respiratory symptom responses at the 0.060 and 0.040 ppm exposure levels. As characterized in the proposal notice, EPA's reanalysis of the data from the most recent Adams study shows small group mean decrements in lung function responses to be statistically significant at the 0.060 ppm exposure level, while acknowledging that the author's analysis did not yield statistically significant lung function responses. The Adams studies report a small percentage of subjects experiencing lung function decrements (≥ 10 percent) at the 0.060 ppm exposure level. EPA disagrees with these commenters that the percent of subjects that experienced FEV₁ decrements greater than 10% in this study of 30 subjects can appropriately be generalized to the U.S. population. The Administrator concludes that these studies provide very limited evidence of O₃-related lung function decrements and respiratory symptoms at this lower exposure level.

The second group of commenters, who opposed revision of the standard, raised many concerns about the role of the Adams studies and EPA's reanalysis of the Adams data in the decision. With regard to the results reported by Adams, these commenters expressed the view that the group mean FEV₁ decrement measured at 0.060 ppm was small, less than 3%, which is within the 3 to 5% range of normal measurement variability for an individual (UARG, p. 12). Moreover even the reported group mean FEV₁ decrements in Adams subjects

when exposed to an O₃ concentration of 0.080 ppm were described as quite minimal, likely non-detectable by the subjects and within the range that the EPA would consider to be normal or mild (UARG, p. 13); With respect to the larger decrements in FEV₁ (≥ 10 %) experienced by some subjects in the Adams studies, these commenters stated the view that such decrements would not be considered adverse in healthy individuals, and that "reliance on the individual responses of such a miniscule number of subjects (2 of 30) is woefully inadequate as any basis for a nationwide O₃ standard" (UARG, p. 14). Some of these commenters put the results of the Adams studies (2002, 2006) in the context of the 1997 decision on the O₃ standard to reach the conclusion that there is no basis for revising that standard. They stated that the data from Adams (2002, 2006) on O₃ levels below 0.080 ppm was too limited to support a revised standard, and noted that responses reported in the Adams studies at 0.080 ppm were similar to responses reported previously (Horstmann *et al.*, 1990 and McDonnell *et al.*, 1991), and therefore, provided no new information on O₃ that was not known at the time of EPA's last review (Exxon Mobil, pp. 5–6).

These commenters raised one or more of the following concerns about EPA's reanalysis of the Adams data: (1) EPA's re-analysis was not published or peer-reviewed, and therefore neither the scientific community nor the public was afforded opportunity to appropriately review the analysis (Exxon Mobil, p. 6); (2) EPA has misinterpreted the studies of Dr. Adams, and over his objections used a different analytical methodology to reach a different conclusion; (3) EPA's reanalysis did not employ an appropriate statistical test; the ANOVA statistical test employed by Adams was preferred over the statistical test used in EPA's reanalysis (paired t-test); and (4) the reanalysis of the Adams data is evidence that EPA interpreted and presented scientific information in a systematically biased manner, reflecting purposeful bias because the reanalysis supported staff policy recommendations and Adams' own analysis did not, and the 10% decrement in FEV₁ was a post-hoc threshold chosen for compatibility with EPA staff policy recommendations (NAM, p. 19).

First, EPA agrees that the group mean lung function decrement observed in the Adams study at the 0.060 ppm exposure level is relatively small. However, EPA and the CASAC Panel observed that the study showed some individuals experienced lung function decrements ≥ 10 percent, which is the most

important finding from this study in terms of public health implications. The magnitude of changes in the group mean do not address whether a subset of the population is at risk of health effects. The clinical evidence to date makes it clear that there is significant variability in responses across individuals, so it is important to look beyond group mean to the response of subsets of the group to evaluate the potential impact for sensitive or susceptible parts of the population. The Administrator also agrees with both EPA staff and CASAC's views that this level of response may not represent an adverse health effect in healthy individuals but does represent a level that should be considered adverse for asthmatic individuals.

Second, EPA notes that its reanalysis of the Adams (2006) study was prepared in response to the issues and analysis raised by a public commenter who made a presentation to the CASAC Panel at its March 5, 2007 teleconference. EPA replicated the analysis and addressed issues raised in these public comments concerning the statistical significance of 0.060 ppm O₃ exposure on lung function response in the Adams (2006) publication. EPA documented its response in a technical memorandum (Brown, 2007), which was placed in the rulemaking docket prior to publication of the proposal. EPA has clearly stated that the additional statistical analyses conducted by both the public commenter and by EPA staff do not contradict or undercut the statistical analysis presented by Dr. Adams in his published study, as EPA and the author were addressing different questions. While the author of the original study was focused on determining whether the changes observed on an hour-by-hour basis were statistically significant for different exposure protocols, EPA's reanalysis was focused on the different question of whether there was a statistically significant difference in lung function decrement before and after the entire 6.6 hour exposure period between the 0.060 ppm exposure protocol and filtered air.

Third, with respect to the concerns raised by Dr. Adams and other commenters that EPA had used an inappropriate statistical approach to address the question regarding statistical significance of the average lung function response at 0.060 ppm, members of the CASAC Panel noted on the March 5, 2007 teleconference the very conservative nature of the approach used by Adams to evaluate the research questions posed by the author. These same CASAC Panel members also supported the use of the statistical approach (i.e., paired-t test) used in the

analysis prepared by the public commenter, which was the same approach later used in EPA's reanalysis, as the preferred method for analyzing the pre-minus post-exposure lung function responses reported in this study. EPA agrees with the characterization of the Adams (2006) study in the Rochester Report, which stated, "Although these findings have not been confirmed or replicated, the responses to 0.06 ppm ozone in this [Adams] study are consistent with the presence of an exposure-response curve with responses that do not end abruptly below 0.08 ppm." This same report also concluded,

The statistical test used in Adams (2006) did not identify the response of the 0.06 ppm exposure as statistically different from that of the filtered air exposure. However, alternative statistical tests suggest that the observed small group mean response in FEV₁ induced by exposure to 0.06 ppm compared to filtered air is not the result of chance alone. [Rochester Report, p. 56].

Fourth, EPA rejects the contention that the conduct and presentation of its reanalysis of the Adams (2006) study to address issues raised by public commenters represents purposeful bias and was developed only to support a pre-determined policy position. As discussed above, EPA's reanalysis addressed a different question than the author's analysis contained in the publication. Other controlled human exposure studies had routinely examined the same question EPA's reanalysis addressed, whether or not there was a statistically significant group mean response for the entire exposure period compared to filtered air.

ii Evidence from Epidemiological Studies

This section contains major comments on EPA's assessment of epidemiological studies in the proposal and the Agency's general responses to those comments. Many of the issues discussed below are addressed in more detail in the Response to Comments document. Comments on EPA's interpretation and assessment of the body of epidemiological evidence are discussed first and then comments on methodological issues and particular study designs are discussed. EPA notes here that most of the issues and concerns raised by commenters on the interpretation of the epidemiological evidence and methodological issues are essentially restatements of issues raised during the review of the Criteria Document and Staff Paper. EPA presented and the CASAC Panel reviewed the interpretation of the

epidemiological evidence in the Criteria Document and the integration of the evidence with policy considerations in the development of the policy options presented in the Staff Paper for consideration by the Administrator. CASAC reviewed both the O₃ Criteria Document and O₃ Staff Paper and approved of the scientific content and accuracy of both documents. The CASAC chairman sent to the Administrator one letter (Henderson, 2006a) for the O₃ Criteria Document and another letter for the O₃ Staff Paper (Henderson, 2006c) indicating that these documents provided an appropriate basis for use in regulatory decision making regarding the O₃ NAAQS.

As with evidence from controlled human exposure studies, sharply divergent comments were received on the evidence from epidemiological studies, including EPA's interpretation of the evidence. One group of commenters from medical, public health and environmental organizations, in general, supported EPA's interpretation of the epidemiological evidence (72 FR 37838, section II.a.3.a-c) with regard to whether the evidence for associations is consistent and coherent and whether there is biological plausibility for judging whether exposure to O₃ is causally related to respiratory and cardiovascular morbidity and mortality effects. Comments of public health and environmental groups, including a joint set of comments from ALA and several environmental groups, note that more than 250 new epidemiological studies, published from 1996 to 2005, were included in the Criteria Document and point to a figure from the Staff Paper and proposal (72 FR 37842, Figure 1) of short-term O₃ exposures and respiratory health outcome showing consistency in an array of positive effects estimates and health endpoints observed in multiple locations in Canada and the U.S. Medical commenters, including ATS and AMA, stated that these "real world" studies support the findings of chamber studies to show adverse respiratory health effects at levels below the current 8-hour O₃ standard. These commenters generally expressed agreement with the weight of evidence approach taken by the Criteria Document and the conclusions reached, which were reviewed by CASAC, that the effects of O₃ on respiratory symptoms, lung function changes, emergency department visits for respiratory and cardiovascular effects, and hospital admissions can be considered causal.

EPA generally agrees with this interpretation of the epidemiological evidence. The Criteria Document concludes that positive and robust

associations were found between ambient O₃ concentrations and various respiratory disease hospitalization outcomes and emergency department visits for asthma, when focusing particularly on results of warm-season analyses. These positive and robust associations are supported by the human clinical, animal toxicological, and epidemiological evidence for lung function decrements, increased respiratory symptoms, airway inflammation, and increased airway responsiveness. Taken together, the overall evidence supports a causal relationship between acute ambient O₃ exposures and increased respiratory morbidity outcomes resulting in increased emergency department visits and hospitalizations during the warm season (EPA, 2006a, p. 8–77).

However, in contrast with EPA, these commenters from ALA and other environmental, medical and public health groups asserted that the causal associations extend down to the lowest ambient O₃ concentrations reported in these studies. These commenters also expressed the view that the respiratory and cardiovascular system effects are well-supported by the Hill criteria¹⁹ of judging causality: strength of association, consistency between studies, coherence among studies, and biological plausibility (ALA *et al.*, pp. 51–52). They also noted that recent studies provide compelling evidence that exposure to O₃ results in adverse cardiovascular health effects (ATS, p. 6–7).

EPA disagrees with the assertion of these commenters that the causal associations extend down to the lowest ambient O₃ concentrations reported in these studies. The biological plausibility of the epidemiological associations is generally supported by controlled human exposure and toxicological evidence of respiratory morbidity effects for levels at and below 0.080 ppm, but that biological plausibility becomes increasingly uncertain at much lower levels. Further, at much lower levels, it becomes increasingly uncertain as to whether the reported associations are related to O₃ alone rather than to the broader mix of air pollutants present in the ambient air. With regard to cardiovascular health outcomes, the Criteria Document concludes that the generally limited body of evidence from animal toxicology, human controlled

exposure, and epidemiologic studies is suggestive that O₃ can directly and/or indirectly contribute to cardiovascular-related morbidity, and that for cardiovascular mortality the Criteria Document suggests that effects estimates are more consistently positive and statistically significant in warm season analyses but that additional research is needed to more fully establish the underlying mechanisms by which such mortality effects occur (EPA, 2006a, pp. 8–77–78).

The second group of commenters, mostly representing industry associations and some businesses opposed to revising the primary O₃ standard, disagreed with EPA's interpretation of the epidemiological evidence. These commenters expressed the view that while many new epidemiological studies have been published since the current primary O₃ standard was promulgated, the inconsistencies and uncertainties inherent in these studies as a whole should preclude any reliance on them as justification for a more stringent primary O₃ NAAQS. They contend that the purported consistency is the result of inappropriate selectivity in focusing on specific studies and specific results within those studies (UARG, p. 15). With regard to daily mortality, the proposal emphasizes the multi-city studies, suggesting that they have the statistical power to allow the authors to reliably distinguish even weak relationships from the null hypothesis with statistical confidence. However, these commenters note that these studies are not consistent, with regard to the findings concerning individual cities analyzed in the multi-city analyses. One commenter asserted that each of the multi-city studies and meta-analyses cited by EPA involves cities for which the city-specific estimates of O₃ effects have been observed to vary over a wide range that includes negative [i.e., beneficial] effects (API, p. 15). To illustrate this point, many commenters point to EPA's use of the study by Bell *et al.*, 2004. They note that in focusing on the national estimate from Bell of the association between 24-hour average O₃ levels and daily mortality, the Administrator overlooks the very significant and heterogeneous information of the individual analyses of the 95 cities used to produce the national estimate and, based on this inconsistency, question whether what is being seen is actually an O₃ mortality association at all (UARG, p. 16).

EPA has accurately characterized the inconsistencies and uncertainties in the epidemiological evidence and strongly denies that it has inappropriately

focused on specific positive studies or specific positive results within those studies. EPA's assessment of the health effects evidence in the Criteria Document has been reviewed by the CASAC Panel. EPA has appropriately characterized the heterogeneity in O₃ health effects in assessing the results of the single-city and multi-city studies and the meta-analyses, as discussed in section 7.6.6 of the Criteria Document. In general, in the proposal, the Administrator recognized that in the body of epidemiological evidence, many studies reported positive and statistically significant associations, while others reported positive results that were not statistically significant, and a few did not report any positive O₃-related associations. In addition, the Administrator judged that evidence of a causal relationship between adverse health outcomes and O₃ exposures became increasingly uncertain at lower levels of exposure.

More specifically, the Bell *et al.* (2004) study observed a statistically significant, positive association between short-term O₃ concentrations (24-hour average) and all-cause mortality using data from 95 U.S. National Morbidity, Mortality, and Air Pollution Study (NMMAPS) communities. The objective of the NMMAPS was to develop an overall national effect estimate using multi-city time-series analyses, by drawing on information from all of the individual cities. The strength of this approach is the use of a uniform analytic methodology, avoidance of selection bias, and larger statistical power. Significant intercity heterogeneity was noted in the Bell *et al.* and other multi-city studies, probably due to many factors, including city-specific differences in pollution characteristics, the use of air conditioning, time spent indoors versus outdoors, and socioeconomic factors. Levy *et al.* (2005) found suggestive evidence that air conditioning prevalence was a predictor of heterogeneity in O₃ risk estimates in their meta-analysis.

Several commenters argued that EPA overstates the probability of causal links between health effects and exposure to O₃, especially at the lower concentrations examined, and that the statistical associations found in the cited epidemiological studies do not automatically imply that a causal relationship exists. These commenters expressed the view that the correlation between health effects and O₃ exposure must be rigorously evaluated according to a standard set of criteria before concluding that there is a causal link and that EPA fails to articulate and

¹⁹ The Hill criteria, published by Sir Bradford Hill (1965), are commonly used criteria for reaching judgments about causality from observed associations, and these criteria were the basis for the critical assessment of the epidemiological evidence presented in the Criteria Document (pp. 7–3–7–4).

follow the weight of the evidence or established causality criteria for evaluating epidemiological studies in drawing conclusion regarding causality (Exxon Mobil, pp. 10–11).

In the proposal, EPA explicitly stated that epidemiological studies are not themselves direct evidence of a causal link between exposure to O₃ and the occurrence of effects (72 FR 37879). Throughout the O₃ review, a standard set of criteria have been used to evaluate evidence of a causal link. The critical assessment of epidemiological evidence presented in the Criteria Document was conceptually based upon consideration of salient aspects of the evidence of associations so as to reach fundamental judgments as to the likely causal significance of the observed associations in accordance with the Hill criteria (Criteria Document, pp. 7–3—7–4). Moreover, consistent with the proposal the Administrator has specifically considered evidence from epidemiological studies in the context of all the other available evidence in evaluating the degree of certainty that O₃-related adverse health effects occur at various levels at and below 0.080 ppm, including the strong evidence from controlled human exposure studies and the toxicological studies that demonstrate biological plausibility and mechanisms for effects. More detailed discussion of the criteria used to evaluate evidence with regard to judgments about causality can be found in the Response to Comments document.

Several commenters made the point that the results of the new epidemiological studies included in this review are not coherent. They state that although EPA notes that estimates of risk from cardiovascular mortality are higher than those for total mortality and indicates that these findings are highly suggestive that short-term O₃ exposure directly or indirectly contributes to cardiovascular mortality, the Agency fails to contrast the mortality studies to studies of hospital admissions for cardiovascular causes. Most studies of cardiovascular causes have not found statistically significant associations with O₃ exposures (UARG, pp. 16–17).

EPA strongly disagrees that it has failed to appropriately characterize the association between O₃ exposure and potential cardiovascular morbidity and mortality effects. As noted above, the Criteria Document characterizes the overall body of evidence as limited, but highly suggestive, and concludes that much needs to be done to more fully integrate links between ambient O₃ exposures and adverse cardiovascular outcomes (EPA, 2006a, p. 8–77). Some

field/panel studies that examined associations between O₃ and various cardiac physiologic endpoints have yielded limited epidemiological evidence suggestive of a potential association between acute O₃ exposure and altered HRV, ventricular arrhythmias, and incidence of myocardial infarction (Criteria Document, section 7.2.7). In addition, there were approximately 20 single-city studies of emergency department visits and hospital admissions for all cardiovascular diseases or specific diseases (i.e., myocardial infarction, congestive heart failure, ischemic heart disease, dysrhythmias). In the studies using all year data, many showed positive results but few were statistically significant. Given the strong seasonal variations in O₃ concentrations and the changing relationship between O₃ and other copollutants by season, inadequate adjustment for seasonal effects might have masked or underestimated the associations. In the limited number of studies that analyzed data by season (6 studies), statistically significant associations were observed in all but one study (Criteria Document, section 7.3.4). Newly available animal toxicology data provide some plausibility for the observed associations between O₃ and cardiovascular outcomes. EPA believes that its characterization of the evidence for O₃-related cardiovascular system effects is appropriate. It is clear that coherence is stronger in the much larger body of evidence of O₃-related respiratory morbidity and mortality effects.

Many commenters who did not support revising the current O₃ primary standard also submitted comments on specific methodological issues related to the epidemiological evidence, including: The adequacy of exposure data; confounding by copollutants; model selection; evidence of mortality; and, new studies not included in the Criteria Document. Some of the major comments on methodological issues raised by these commenters are discussed below. The Response to Comments document contains more detailed responses to many of these comments, as well as responses to other comments not considered here.

(1) Adequacy of exposure data. Many commenters expressed concern about the adequacy of exposure data both for time-series and panel studies. These commenters argued that almost all of the epidemiological studies on which EPA relies in recommending a more stringent O₃ standard are based on data from ambient monitors for which there is a poor correlation with the actual

personal exposure subjects receive during their daily activities. They questioned the Administrator's conclusion that in the absence of available data on personal O₃ exposure, the use of routinely monitored ambient O₃ concentrations as a surrogate for personal exposures is not generally expected to change the principal conclusions from epidemiological studies. These commenters also note that, in its June 2006 letter, the CASAC Panel raised the issue of exposure error, concluding that it called into question whether observed associations could be attributed to O₃ alone (API, p. 17). One of these commenters cited studies (e.g., Sarnat *et al.*, 2001; Sarnat *et al.*, 2005) that show a lack of correlation between personal exposures and ambient concentrations (NAM, p. 22). Another cited studies (Sarnat *et al.*, 2001, 2005, and 2006; and Koutrakis *et al.*, 2005) that have found that the ability of ambient gas monitors to represent personal exposure to such gases is similarly quite limited, including: (1) Most personal exposures are so low as to be not detectable at a level of 5 parts per billion (ppb), resulting in very low correlation between concentrations reported from central ambient monitors and personal monitors; (2) O₃ measurements from ambient monitors are a better surrogate for personal exposure to PM_{2.5} than to O₃; and (3) populations expected to be potentially susceptible to O₃, including children, the elderly, and those with COPD, are at the low end of the population exposure distribution (Exxon Mobil, pp. 15–16). These commenters contended that without such a correlation there is no legitimate way for EPA to conclude that O₃ exposure has caused the reported health effects, or to conclude that use of routinely monitored ambient O₃ concentrations as a surrogate for personal exposures is adequate. Some of these commenters also contended that EPA incorrectly concludes that the exposure error in epidemiological studies results in an underestimate of risk (Exxon Mobil, p. 20).

With regard to the views on exposure measurement error expressed by CASAC, while the commenter is correct that the CASAC Panel raised the question of exposure error and whether observed associations could be attributed to O₃ alone, the commenter failed to note that CASAC's comment was focused on the association between O₃ and mortality, at very low O₃ concentrations and in the group of people most susceptible to premature mortality. The CASAC Panel in its June 2006 letter stated:

The population that would be expected to be potentially susceptible to dying from exposure to ozone is likely to have ozone exposures that are at the lower end of the ozone population distribution, in which case the population would be exposed to very low ozone concentrations, and especially so in winter. Therefore it seems unlikely that the observed associations between short-term ozone concentrations and daily mortality are due solely to ozone itself. [Henderson 2006b, pp. 3–4]

This section of the quote, which was not addressed in the comment submitted by API, together with the conclusions in the final CASAC letter (Henderson, 2007), leads EPA to conclude that contrary to the commenters' assertion, the CASAC Panel was not calling into question the association between O₃ exposure and the full range of morbidity effects found in panel or time-series studies that rely on ambient monitoring data as a surrogate for personal exposure data. It is important to note that EPA agrees that the evidence is only highly suggestive that O₃ directly or indirectly contributes to mortality, as compared to the stronger evidence of causality for respiratory morbidity effects.

EPA agrees that exposure measurement error may result from the use of stationary ambient monitors as an indicator of personal exposure in population studies. There is a full discussion of measurement error and its effect on the estimates of relative risk in section 7.1.3.1 of the Criteria Document. However, the possibility of measurement error does not preclude the use of ambient monitoring data as a surrogate for personal exposure data in time-series or panel studies. It simply means that in some situations where the likelihood of measurement error is greatest, effects estimates must be evaluated carefully and that caution must be used in interpreting the results from these studies. Throughout this review, EPA has recognized this concern. The Criteria Document states that there is supportive evidence that ambient O₃ concentrations from central monitors may serve as valid surrogate measures for mean personal O₃ exposures experienced by the population, which is of most relevance to time-series studies, in which individual variations in factors affecting exposure tend to average out across the study population. This is especially true for respiratory hospital admission studies for which much of the response is attributable to O₃ effects on asthmatics. In children, for whom asthma is more prevalent than for adults, ambient monitors are more likely to correlate reasonably well with

personal exposure to O₃ of ambient origin because children tend to spend more time outdoors than adults in the warm season. EPA does not agree that the correlation between personal exposure and ambient monitoring data is necessarily poor, especially in children. Moreover, the CASAC Panel supported this view as they noted that “[p]ersonal exposures most likely correlate better with central site values for those subpopulations that spend a good deal of time outdoors, which coincides, for example, with children actively engaged in outdoor activities, and which happens to be a group that the ozone risk assessment focuses upon.” (Henderson, 2006c. p. 10). However, the Criteria Document notes that there is some concern in considering certain mortality and hospitalization time-series studies regarding the extent to which ambient O₃ concentrations are representative of personal O₃ exposures in another particularly susceptible group of individuals, the debilitated elderly, as the correlation between the two measurements has not been examined in this population. A better understanding of the relationship between ambient concentrations and personal exposures, as well as of the factors that affect the relationship, will improve the interpretation of observed associations between ambient concentration and population health response.

With regard to the specific comments that reference the findings of studies by Sarnat *et al.* (2001, 2005, 2006) and Koutrakis *et al.* (2005), the fact that personal exposure monitors cannot detect O₃ levels of 5 ppb and below may in part explain why there was a poor correlation between personal exposure measurements and ambient monitoring data in the winter relative to the correlation in the warm season, along with differences in activity patterns and building ventilation. In one study conducted in Baltimore, Sarnat *et al.* (2001) observed that ambient O₃ concentrations showed stronger associations with personal exposure to PM_{2.5} than to O₃; however, in a later study conducted in Boston (Sarnat *et al.*, 2005), ambient O₃ concentrations and personal O₃ exposures were found to be significantly associated in the summer. Another study cited by the commenter, but not included in the Criteria Document, conducted in Steubenville (Sarnat *et al.*, 2006), also observed significant associations between ambient O₃ concentrations and personal O₃. The authors noted that the city-specific discrepancy in the results may be attributable to differences in

ventilation. Though the studies by Sarnat *et al.* (2001, 2005, and 2006) included senior citizens, the study selection criteria required them to be nonsmoking and physically healthy. EPA is not relying on studies that are not in the Criteria Document, such as Sarnat *et al.* (2006), to refute the commenters. However, EPA notes that Sarnat *et al.* (2006) does not support the conclusion drawn by the commenters that this study shows very limited associations between ambient O₃ concentrations and personal exposures.

Existing epidemiologic models may not fully take into consideration all the biologically relevant exposure history or reflect the complexities of all the underlying biological processes. Using ambient concentrations to determine exposure generally overestimates true personal O₃ exposures (by approximately 2- to 4-fold in the various studies described in the Criteria Document, section 3.9), which assuming the relationship is causal, would result in biased descriptions of underlying concentration-response relationships (i.e., in attenuated effect estimates). From this perspective, the implication is that the effects being estimated in relationship to ambient levels occur at fairly low personal exposures and the potency of O₃ is greater than these effect estimates indicate. On the other hand, as very few studies evaluating O₃ health effects with personal O₃ exposure measurements exist in the literature, effect estimates determined from ambient O₃ concentrations must be evaluated and used with caution to assess the health risks of O₃ (Criteria Document, pp. 7–8 to 7–10). Nonetheless, as noted in section II.C.3 of the proposal, the use of routinely monitored ambient O₃ concentrations as a surrogate for personal exposures is not generally expected to change the principal conclusions from O₃ epidemiologic studies. Therefore, population risk estimates derived using ambient O₃ concentrations from currently available observational studies, with appropriate caveats about personal exposure considerations, remain useful (72 FR 37839).

(2) Confounding by copollutants. Many commenters argued that known confounders are inadequately controlled in the epidemiological studies of O₃ and various health outcomes and that the health effects of O₃ are often not statistically significant when epidemiological studies consider the effects of confounding air pollutants (e.g., PM_{2.5}, CO, nitrogen dioxide (NO₂) in multi-pollutant models. For example, Mortimer *et al.* (2002), a large multi-city asthma panel study, found that when

other pollutants, i.e., sulfur dioxide (SO₂), NO₂, and particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀), were placed in a multi-pollutant model with O₃, the O₃-related associations with respiratory symptoms and lung function became non-significant.

The National Cooperative Inner-City Asthma Study (Mortimer *et al.*, 2002) evaluated air pollution health effects in 846 asthmatic children in 8 urban areas. The pollutants evaluated included O₃, PM₁₀, SO₂, and NO₂. Three effects were evaluated: (1) Daily percent change in lung function, measured as peak expiratory flow rate (PEFR); (2) incidence of ($\geq 10\%$ reduction in lung function (PEFR); and, (3) incidence of symptoms (i.e., cough, chest tightness, and wheeze). EPA notes that in this study, O₃ was the only pollutant associated with reduction in lung function. Nitrogen dioxide had the strongest effect on morning symptoms, and the authors concluded it “* * * may be a better marker for the summer-pollutant mix in these cities” but had no association with morning lung function. In a two-pollutant model with NO₂, the O₃ effect on morning symptoms remained relatively unchanged. Sulfur dioxide had statistically significant effects on morning symptoms but no association with morning lung function. Particulate matter (PM₁₀), which was measured daily in 3 cities, had no statistically significant effect on morning lung function. In a two-pollutant model with O₃, the PM₁₀ estimate for morning symptoms was slightly reduced and there was a larger reduction in the O₃ estimate, which remained positive but not statistically significant. A more general discussion and response to this issue concerning confounding by copollutants is presented in the Response to Comments document.

(3) Model selection. Commenters who did not support revision of the primary O₃ standard raised issues regarding the adequacy of model specification including control of temporal and weather variables in the time-series epidemiological studies that EPA has claimed support the finding of O₃-related morbidity and mortality health outcomes. Specifically, concerns were expressed regarding the following issues: (i) Commenters noted that recent meta-analyses have confirmed the important effects of model selection in the results of the time-series studies, including the choice of models to address weather and the degree of smoothing, in direct contradiction of the Staff Paper’s conclusion on the robustness of the models used in the O₃

time-series studies (Exxon Mobil, p. 41); (ii) commenters contended that there were no criteria for how confounders such as temperature or other factors were to be addressed, resulting in arbitrary model selection potentially impacting the resulting effect estimates; and (iii) commenters expressed the view that to appropriately address concerns about model selection in the O₃ time-series studies, EPA should rely on an alternative statistical approach, Bayesian model averaging, that incorporates a range of models addressing confounding variables, pollutants, and lags rather than a single model.

In response to the first issue, EPA agrees that the results of the meta-analyses do support the conclusion that there are important effects of model selection and that, for example, alternative models to address weather might make a difference of a factor of two in the effect estimates. However, as noted in the Criteria Document, one of the meta-analyses (Ito *et al.*, 2005) suggested that the stringent weather model used in the Bell *et al.* (2004) NMMAPS study may tend to yield smaller effect estimates than those used in other studies (Criteria Document, p. 7–96), and, thus concerns about appropriate choice of models could result in either higher or lower effect estimates than reported. In addressing this issue, the Criteria Document concluded,

Considering the wide variability in possible study designs and statistical model specification choices, the reported O₃ risk estimates for the various health outcomes are in reasonably good agreement. In the case of O₃-mortality time-series studies, combinations of choices in model specifications * * * alone may explain the extent of difference in O₃ risk estimates across studies. (Criteria Document, p. 7–174)

Second, the issues surrounding sensitivity to model specifications were thoroughly discussed in the Criteria Document (see section 7.1.3.6) and evaluated in some of the meta-analyses reviewed in the Criteria Document and Staff Paper. As stated in the Criteria Document, O₃ effect estimates “were generally more sensitive to alternative weather models than to varying degrees of freedom for temporal trend adjustment” (Criteria Document, p. 7–176). The Criteria Document also concluded that “although there is some concern regarding the use of multipollutant models * * * results generally suggest that the inclusion of copollutants into the models do not substantially affect O₃ risk estimates” and the results of the time-series studies are “robust and independent of the

effects of other copollutants” (Criteria Document, p. 7–177). Overall, EPA continues to believe that based on its integrated assessment, the time-series studies provide strong support for concluding there are O₃-related morbidity effects, including respiratory-related hospital admissions and emergency department visits during the warm season, and that the time-series studies provide findings that are highly suggestive that short-term O₃ exposure directly or indirectly contributes to non-accidental and cardiorespiratory-related mortality.

The Administrator acknowledges that uncertainties concerning appropriate model selection are an important source of uncertainty affecting the specific risk estimates included in EPA’s risk assessment and that these quantitative risk estimates must be used with appropriate caution, keeping in mind these important uncertainties, as discussed above in section II.A.3. As discussed later in this notice, the Administrator is not relying on any specific quantitative effect estimates from the time-series studies or any risk estimates based on the time-series studies in reaching his judgment about the need to revise the current 8-hour O₃ standard.

Third, in response to commenters who suggested that EPA adopt an alternative statistical approach, i.e., Bayesian model averaging, to address concerns about potential arbitrary selection of models, the Criteria Document evaluated the strengths and weaknesses of such methods in the context of air pollution epidemiology. The Criteria Document noted several limitations, especially where there are many interaction terms and meteorological variables and where variables are highly correlated, as is the case for air pollution studies, which makes it very difficult to interpret the results using this alternative approach. EPA believes further research is needed to address concerns about model selection and to develop appropriate methods addressing these concerns.

(4) Evidence of mortality. Many commenters, including those that argued for revising the current O₃ standard as well as those that argued against revisions, focused on the new evidence from multi-city time-series analyses and meta-analyses linking O₃ exposure with mortality. Again, the comments were highly polarized. One set of commenters, including medical, public health, and environmental organizations argued that recent published research has provided more robust, consistent evidence linking O₃ to cardiovascular and respiratory

mortality. The ATS, AMA, and others stated that data from single-city studies, multiple-city studies, and meta-analyses show a consistent relationship between O₃ exposure and mortality from respiratory and cardiovascular causes. These commenters noted that this effect was observed after controlling for co-pollutants and seasonal impacts. These commenters stated that research has demonstrated that exposure to O₃ pollution is causing premature deaths, and has also provided clues on the possible mechanisms that lead to premature mortality (ATS, p. 4). These commenters noted that people may die from O₃ exposure even when the concentrations are well below the current standard. They pointed to a study (Bell *et al.*, 2006) in which the authors followed up on their 2004 multi-city study to estimate the exposure-response curve for O₃ and the risk of mortality and to evaluate whether a threshold exists below which there is no effect. The authors applied several statistical models to data on air pollution, weather, and mortality for 98 U.S. urban communities for the period 1987 to 2000. The study reported that O₃ and mortality results did not appear to be confounded by temperature or PM and showed that any threshold, if it existed, would have to be at very low concentrations, far below the current standard (ALA *et al.*, p. 74). Another approach also indicated that the mortality effect is unlikely to be confounded by temperature. A case-crossover study (Schwartz 2005) of over one million deaths in 14 U.S. cities, designed to control for the effect of temperature on daily deaths attributable to O₃, found that the association between O₃ and mortality risk reported in the multi-city studies is unlikely to be due to confounding by temperature (ALA *et al.*, p. 76). These commenters argue that meta-analyses also provide compelling evidence that the O₃-mortality findings are consistent. They point to three independent analyses conducted by separate research groups at Johns Hopkins University, Harvard University and New York University, using their own methods and study criteria, which reported a remarkably consistent link between daily O₃ levels and total mortality.

In response, EPA notes that the Criteria Document states that the results from the U.S. multi-city time-series studies provide the strongest evidence to date for O₃ effects on acute mortality. Recent meta-analyses also indicate positive risk estimates that are unlikely to be confounded by PM; however, future work is needed to better

understand the influence of model specifications on the risk coefficient (EPA, 2006a, p. 7–175). The Criteria Document concludes that these findings are highly suggestive that short-term O₃ exposure directly or indirectly contributes to non-accidental and cardiorespiratory-related mortality but that additional research is needed to more fully establish the underlying mechanisms by which such effects occur (72 FR 37836). Thus while EPA generally agrees with the direction of the comment, EPA believes the evidence supports a view as noted above. In addition, it must be noted that the Administrator did not focus on mortality as a basis for proposing that the current O₃ standard was not adequate. In the proposal, the Administrator focused on the very strong evidence of respiratory morbidity effects in healthy people at the 0.080 ppm exposure level and new evidence that people with asthma are likely to experience larger and more serious effects than healthy people at the same level of exposure (72 FR 37870). With regard to the ambient concentrations at which O₃-related mortality effects may be occurring, EPA recognized in the proposal that evidence of a causal relationship between adverse health effects and O₃ exposures becomes increasingly uncertain at lower levels of exposure (72 FR 37880). This is discussed more fully in section (b) below.

Several industry organizations argued against placing any reliance on the time-series epidemiological studies, especially those studies related to mortality effects. The Annapolis Center (p. 46) makes the point that although there may be somewhat more positive associations than negative associations, there is so much noise or variability in the data that identifying which positive associations may be real health effects and which are not is beyond the capability of current methods. They cite the view that the CASAC Panel expressed in a June 2006 letter (Henderson, 2006b), noting that “Because results of time-series studies implicate all of the criteria pollutants, findings of mortality time-series studies do not seem to allow us to confidently attribute observed effects specifically to individual pollutants.”

Because of the importance of the O₃ mortality multi-city studies in EPA’s analysis of this issue, several of these commenters focused on them in particular, arguing that, although these studies have the statistical power to distinguish weak relationships between daily O₃ and mortality, they do not provide reliable or consistent evidence

implicating O₃ exposures as a cause of mortality. Several reasons were given, including: (a) The multi-city studies cited by EPA involve a wide range of city-specific effects estimates, including some large cities that have very slight or negligible effects (e.g., Los Angeles) (Bell *et al.*, 2004), thus causing several commenters to question the relevance of a “national” effect of O₃ on mortality and argue that a single national O₃ concentration-mortality coefficient should be used and interpreted with caution (Rochester Report p. 4); (b) the multi-city mortality studies did not sufficiently account for other pollutants, for example, Bell *et al.* (2004) adjusted for PM₁₀ but did not have the necessary air quality data to adequately adjust for PM_{2.5}, which EPA has concluded also causes mortality and is correlated with O₃, especially in the summer months (Annapolis Center, p. 42); and (c) these studies contain several findings that are inconsistent or implausible, such as premature mortality reported at such low levels as to imply that O₃-related mortality is occurring at levels well within natural background, which is not biologically plausible (Annapolis Center, p. 42).

Evidence supporting an association between short-term O₃ exposure and premature mortality is not limited to multi-city time-series studies. Most single-city studies show elevated risk of total, non-accidental mortality, cardiorespiratory, and respiratory mortality (> 20 studies), including one study in an area that would have met current standard (Vedal *et al.*, 2003). Three large meta-analyses, which pool data from many single-city studies to increase statistical power, reported statistically significant associations and examined sources of heterogeneity in those associations (Bell *et al.*, 2005; Ito *et al.*, 2005; Levy *et al.* 2005). These studies found: (1) Larger and more significant effects in the warm season than in the cool season or all year; (2) no strong evidence of confounding by PM; and (3) suggestive evidence of publication bias, but significant associations remain even after adjustment for the publication bias.

Moreover, EPA asserts that the biological plausibility of the epidemiological mortality associations is generally supported by controlled human exposure and toxicological evidence of respiratory morbidity effects for levels at and below 0.080 ppm, but that biological plausibility becomes increasingly uncertain especially below 0.060 ppm, the lowest level at which effects were observed in controlled human exposure studies. Further, at lower levels, it becomes increasingly

uncertain as to whether the reported associations are related to O₃ alone rather than to the broader mix of air pollutants present in the ambient air. EPA agrees that the multi-city times series studies evaluated in this review do not completely resolve this issue. It also becomes increasingly uncertain as to whether effect thresholds exist but cannot be clearly discerned by statistical analyses. Thus, when considering the epidemiological evidence in light of the other available information, it is reasonable to judge that at some point the epidemiological associations cannot be interpreted with confidence as providing evidence that the observed health effects can be attributed to O₃ alone.

In the letter cited, the CASAC Panel did raise the issue of the utility of time-series studies in the standard setting process with regard to time-series mortality studies. Nevertheless, in a subsequent letter to the Administrator, CASAC noted these mortality studies as evidence to support a recommendation to revise the current primary O₃ standard. "Several new single-city studies and large multi-city studies designed specifically to examine the effects of ozone and other pollutants on both morbidity and mortality have provided more evidence for adverse health effects at concentrations lower than the current standard (Henderson, 2006c, p. 3)."

With regard to the specific issues raised in the comments as to why the times-series mortality studies do not provide reliable or consistent evidence implicating O₃ exposure as a cause of mortality, EPA has the following responses:

(a) The purpose of the NMMAPS approach is not to single out individual city results but rather to estimate the overall effect from the 95 communities. It was designed to provide a general, nationwide estimate. With regard to the very slight or negligible effects estimates for some large cities (e.g., Los Angeles), an important factor to consider is that the Bell *et al.* (2004) study used all available data in their analyses. Bell *et al.*, reported that the effect estimate for all available (including 55 cities with all year data) and warm season (April–October) analyses for the 95 U.S. cities were similar in magnitude; however, in most other studies, larger excess mortality risks were reported in the summer season (generally June–August when O₃ concentrations are the highest) compared to all year or the cold season. Though the effect estimate for Los Angeles is small compared to some of the other communities, it should be noted that all year data (combined warm

and cool seasons) was used in the analyses for this city, which likely resulted in a smaller effect estimate. Because all year data was used for Los Angeles, the median O₃ concentration for Los Angeles is fairly low compared to the other communities, ranked 23rd out of 95 communities. The median 24-hour average O₃ concentration for Los Angeles in this dataset was 22 ppb, with a 10th percentile of 8 ppb to a 90th percentile of 38 ppb. The importance of seasonal differences in O₃-related health outcomes has been well documented.

(b) In section 7.4.6, O₃ mortality risk estimates adjusting for PM exposure, the Criteria Document states that the main confounders of interest for O₃, especially for the northeast U.S., are "summer haze-type" pollutants such as acid aerosols and sulfates. Since very few studies included these chemical measurements, PM (especially PM_{2.5}) data, may serve as surrogates. However, due to the expected high correlation among the constituents of the "summer haze mix," multipollutant models including these pollutants may result in unstable coefficients; and, therefore, interpretation of such results requires some caution.

In this section, Figure 7–22 shows the O₃ risk estimates with and without adjustment for PM indices using all-year data in studies that conducted two-pollutant analyses. Approximately half of the O₃ risk estimates increased slightly, whereas the other half decreased slightly with the inclusion of PM in the models. In general, the O₃ mortality risk estimates were robust to adjustment for PM in the models.

The U.S. 95 communities study by Bell *et al.* (2004) examined the sensitivity of acute O₃-mortality effects to potential confounding by PM₁₀. Restricting analysis to days when both O₃ and PM₁₀ data were available, the community-specific O₃-mortality effect estimates as well as the national average results indicated that O₃ was robust to adjustment for PM₁₀ (Bell *et al.*, 2004). As commenters noted, there were insufficient data available to examine potential confounding by PM_{2.5}. One study (Lipfert *et al.*, 2000) reported O₃ risk estimates with and without adjustment for sulfate, a component of PM_{2.5}. Lipfert *et al.* (2000) calculated O₃ risk estimates based on mean (45 ppb) less background (not stated) levels of 1-hour max O₃ in seven counties in Pennsylvania and New Jersey. The O₃ risk estimate was not substantially affected by the addition of sulfate in the model (3.2% versus 3.0% with sulfate) and remained statistically significant.

Several O₃ mortality studies examined the effect of confounding by PM indices

in different seasons (Figure 7–23, section 7.4.6, Criteria Document). In analyses using all-year data and warm-season only data, O₃ risk estimates were once again fairly robust to adjustment for PM indices, with values showing both slight increases and decreases with the inclusion of PM in the model. In the analyses using cool season data only, the O₃ risk estimates all increased slightly with the adjustment of PM indices, although none reached statistical significance.

The three recent meta-analyses (Bell *et al.*, 2005; Ito *et al.*, 2005; Levy *et al.*, 2005) all examined the influence of PM on O₃ risk estimates. No substantial influence was observed in any of these studies. In the analysis by Bell *et al.* (2005), the combined estimate without PM adjustment was 1.75% (95% PI: 1.10, 2.37) from 41 estimates, and the combined estimate with PM adjustment was 1.95% (95% PI: –0.06, 4.00) from 11 estimates per 20 ppb increase in 24-hour average O₃. In the meta-analysis of 15 cities by Ito *et al.* (2005), the combined estimate was 1.6% (95% CI: 1.1, 2.2) and 1.5% (95% CI: 0.8, 2.2) per 20 ppb in 24-hour average O₃ without and with PM adjustment, respectively. The additional time-series analysis of six cities by Ito *et al.* found that the influence of PM by season varied across alternative weather models but was never substantial. Levy *et al.* (2005) examined the regression relationships between O₃ and PM indices (PM₁₀ and PM_{2.5}) with O₃-mortality effect estimates for all year and by season. Positive slopes, which might indicate potential confounding, were observed for PM_{2.5} on O₃ risk estimates in the summer and all-year periods, but the relationships were weak. The effect of one causal variable (i.e., O₃) is expected to be overestimated when a second causal variable (e.g., PM) is excluded from the analysis, if the two variables are positively correlated and act in the same direction. However, EPA notes that the results from these meta-analyses, as well as several single- and multiple-city studies, indicate that copollutants, including PM, generally do not appear to substantially confound the association between O₃ and mortality.

(c) With regard to the biological plausibility of O₃-related mortality occurring at levels well within natural background, EPA concluded in the proposal that additional research is needed to more fully establish underlying mechanisms by which mortality effects occur (72 FR 37836). Such research would likely also help determine whether it is plausible that mortality would occur at such low levels. As noted above, the multi-city

times series studies evaluated in this review can not resolve the issue of whether the reported associations at such low levels are related to O₃ alone rather than to the broader mix of air pollutants present in the ambient air.

(5) “New” studies not included in the Criteria Document. Many commenters identified “new” studies that were not included in the Criteria Document that they stated support arguments both for and against the revision of the current O₃ standard. Commenters who supported revising the current O₃ standard identified new studies that generally supported EPA’s conclusions about the associations between O₃ exposure and a range of respiratory and cardiovascular health outcomes. These commenters also identified new studies that provide evidence for associations with health outcomes that EPA has not linked to O₃ exposure, such as cancer, and populations that EPA has not identified as being susceptible or vulnerable to O₃ exposure, including African-American men and women. Commenters who did not support revision of the current O₃ standard often submitted the same “new” studies, but focused on different aspects of the findings. Commenters who did not support revision of the current O₃ standard stated that these “new” studies provide inconsistent and sometimes conflicting findings that do little to resolve uncertainties regarding whether O₃ has a causal role in the reported associations with adverse health outcomes, including premature mortality and various morbidity outcomes. More detail about the topic areas covered in the “new” studies can be found in the Response to Comments document.

To the extent that these commenters included “new” scientific studies, studies that were published too late to be considered in the Criteria Document, in support of their arguments for revising or not revising the standards, EPA notes, as discussed in section I above, that as in past NAAQS reviews, it is basing the final decisions in this review on the studies and related information included in the O₃ air quality criteria that have undergone CASAC and public review and will consider newly published studies for purposes of decision making in the next O₃ NAAQS review. In provisionally evaluating commenters’ arguments, as discussed in the Response to Comments document, EPA notes that its provisional consideration of “new” science found that such studies did not materially change the conclusions in the Criteria Document.

iii. Evidence Pertaining to At-Risk Subgroups for O₃-Related Effects

This section contains major comments on EPA’s assessment of the body of evidence, including controlled human exposure and epidemiological studies, related to the effects of O₃ exposure on sensitive subpopulations. Since new information about the increased responsiveness of people with lung disease, especially children and adults with asthma, was an important consideration in the Administrator’s proposed decision that the current O₃ standard is not adequate, many of the comments focused on this information and the conclusions drawn from it. There were also comments on other sensitive groups identified by EPA, as well as comments suggesting that additional groups should be considered at increased risk from O₃ exposure. Many of the issues discussed below, as well as other related issues, are addressed in more detail in the Response to Comments document.

As with the comments on controlled human exposure and epidemiological studies, upon which judgments about sensitive subpopulations were based, the comments about EPA’s delineation of these groups were highly polarized. In general, one group of commenters who supported revising the current O₃ primary standard, including medical associations, public health and environmental groups, agreed in part with EPA’s assessment of the subpopulations that are at increased risk from O₃ exposure, but commented that there are additional groups that need to be considered. A comment from ATS, AMA and other medical associations noted:

Within this population exists a number of individuals uniquely at much higher risk for adverse health effects from ozone exposures, including children, people with respiratory illness, the elderly, outdoor workers and healthy children and adults who exercise outdoors. [ATS, p. 2]

These commenters agreed with EPA that, based on evidence from controlled human exposure and epidemiology studies, people with asthma, especially children, are likely to have greater lung function decrements and respiratory symptoms in response to O₃ exposure than people who do not have asthma, and are likely to respond at lower levels. Because of this, these commenters make the point that controlled human exposure studies that employ healthy subjects will underestimate the effects of O₃ exposures in people with asthma.

These commenters agreed with EPA’s assessment that epidemiological studies provide evidence of increased morbidity

effects, including lung function decrements, respiratory symptoms, emergency department visits and hospital admissions, in people with asthma and that controlled human exposure studies provide biological plausibility for these morbidity outcomes. Further, the Rochester Report, funded by API, evaluated some of the same the studies that EPA did and found similar results with regard to the increased inflammatory responses and increased airway responsiveness of people with asthma when exposed to O₃. The Rochester Report reached the same conclusion that EPA did, that this increased responsiveness provides biological plausibility for the respiratory morbidity effects found in epidemiological studies.

Several new studies have demonstrated that exposure of individuals with atopic asthma to sufficient levels of ozone produces an increase in specific airway responsiveness to inhaled allergens* * * These findings, in combination with previously observed effects of ozone on nonspecific airway responsiveness and airway inflammation, supports the idea that ambient ozone exposure could result in exacerbation of asthma several days following exposure, and provides biological plausibility for the epidemiologic studies in which ambient ozone concentration has been associated with increased asthma symptoms, medication use, emergency room visits, and hospitalizations for asthma. [Rochester Report, pp. 57–58]

Commenters also often mentioned the increased susceptibility of people with COPD, and in this case cited new studies not considered in the Criteria Document.

They identify one potentially susceptible subpopulation that EPA did not focus on in the proposal is infants. Commenters from medical associations, and environmental and public health groups expressed the view that O₃ exposure can have important effects on infants, including reduced birth weight, pre-term birth, and increased respiratory morbidity effects in infants. Exposure to O₃ during pregnancy, especially during the second and third trimesters, was associated with reduced birth weight in full-term infants. Although this effect was noted at relatively low O₃ exposure levels, the ATS notes that, “* * * the reduced birth weight in infants in the highest ozone exposures communities equaled the reduced birth weight observed in pregnant women who smoke” (ATS, p. 7).

In general, EPA agrees with comments that there is very strong evidence from controlled human exposure and epidemiological studies that people with lung disease, especially children and adults with asthma, are susceptible to O₃ exposure and are likely to

experience more serious effects than those people who do not have lung disease. This means that controlled human exposure studies that employ subjects who do not have lung disease will likely underestimate effects in those people that do have asthma or other lung diseases.

In summarizing the epidemiological evidence related to birth-related health outcomes, the Criteria Document (p. 7–133) concludes that O₃ was not an important predictor of several birth-related outcomes including premature births and low birth weight. Birth-related outcomes generally appeared to be associated with air pollutants that tend to peak in the winter and are possibly traffic-related. However, given that most of these studies did not analyze the data by season, seasonal confounding may have therefore influenced the reported associations. One study reported some results suggestive of associations between exposures to O₃ in the second month of pregnancy and birth defects, but further evaluation of such potential associations is needed. With regard to comments about effect in infants, EPA notes that some of the studies cited by commenters were not considered in the Criteria Document. More detailed responses to studies submitted by commenters but not considered in the Criteria Document can be found in the Response to Comments document.

The second group of commenters, mostly representing industry associations and some businesses opposed to revising the primary O₃ standard, asserted that EPA is wrong to claim that new evidence indicates that the current standard does not provide adequate health public health protection for people with asthma. In support of this position, these commenters made the following major comments: (1) Lung function decrements and respiratory symptoms observed in controlled human exposure studies of asthmatics are not clinically important; (2) EPA postulates that asthmatics would likely experience more serious responses and responses at lower levels than the subjects of controlled human exposure experiments, but that hypothesis is not supported by scientific evidence; and, (3) EPA recognized asthmatics as a sensitive subpopulation in 1997, and new information does not suggest greater susceptibility than was previously believed.

With regard to the first point, these commenters expressed the view that asthmatics are not likely to experience medically significant lung function changes or respiratory symptoms at ambient O₃ concentrations at or even

above the level of the current standard. Many of these commenters cited the opinion of one physician who was asked on behalf of a group of trade associations and companies to provide his views on the health significance for asthmatics of the types of responses that have been reported in controlled human exposure studies of O₃. This commenter (McFadden) reviewed earlier controlled human exposure studies of asthmatics (from the last review) as well as the recent controlled human exposure studies of healthy individuals (Adams 2002, 2003a,b, and 2006) at 0.12, 0.08, 0.06, and 0.04 ppm and expressed the view that “* * * these studies on asthmatics indicate that ozone exposures at ~0.12 ppm do not produce medically significant functional changes and are right around the inflection point where one begins to see an increase in symptoms; however, that increase is small” (McFadden, p. 3). This commenter went on to express the view that responses to O₃ exposure at levels < 0.08 ppm would be even less and that the available data are not sufficiently robust to indicate that such exposures would present a significant health concern even to sensitive people like asthmatics.

EPA notes that this commenter based his comment on the group mean functional and respiratory symptom changes in the studies he reviewed. EPA agrees that group mean changes at these levels are relatively small and has described them as such in both the previous review and this one (72 FR 37828). The importance of group mean changes is to evaluate the statistical significance of the association between the exposures and the observed effects, to try to determine if the observed effects are likely due to O₃ exposure rather than chance. In the previous review as well as in this one, EPA has also focused on the fact that some individuals experience more severe effects that may be clinically significant. With regard to the significance of individual responses, this commenter (McFadden, p. 2) states “* * * transient decreases in FEV₁ of 10–20% are not by themselves significant or meaningful to asthmatics* * *. It has been my experience from examining and studying thousands of patients for both clinical and research purposes that asthmatics typically will not begin to sense bronchoconstriction until their FEV₁ falls about 50% from normal.” EPA strongly disagrees with this assessment. As stated in the Criteria Document (Table 8–3, p. 8–68) for people with lung disease, even moderate functional responses (e.g.,

FEV₁ decrements ≥ 10% but < 20%) would likely interfere with normal activities for many individuals, and would likely result in more frequent medication use. EPA notes that in the context of standard setting, CASAC indicated (Henderson, 2006c) that a focus on the lower end of the range of moderate functional responses (e.g., FEV₁ decrements ≥ 10%) is most appropriate for estimating potentially adverse lung function decrements in people with lung disease.

With regard to the second point, whether asthmatics would likely experience more serious responses and responses at lower levels than the subjects of controlled human exposure experiments and EPA’s discussion of the relationship of increased airway responsiveness and inflammation experienced by asthmatics to exacerbation of asthma, this commenter stated that “there simply are no data to support the sequence described” and that “the assumption that these responses would lead to clinical manifestations in terms of exacerbations of asthma or other adverse health effects remains unproven theory” (McFadden, p. 3).

In these sections of the proposal (72 FR 37826 and 37846–37847), EPA describes the evidence indicating that people with asthma are as sensitive as, if not more sensitive than, normal subjects in manifesting O₃-induced pulmonary function decrements. Controlled human exposure studies show that asthmatics present a differential response profile for cellular, molecular, and biochemical parameters that are altered in response to acute O₃ exposure. Asthmatics have greater O₃-induced inflammatory responses and increased O₃-induced airway responsiveness (both incidence and duration) that could have important clinical implications.

There are two ways to interpret these comments. One way to interpret them is that because these controlled human exposure studies have not produced exacerbations of asthma in study subjects resulting in the need for medical attention, there are no data to support the clinical significance of the results. EPA rejects this interpretation because it would be unethical to knowingly conduct a controlled human exposure study that would lead to exacerbation of asthma. Controlled human exposure studies are specifically designed to avoid these types of responses. The other interpretation is that the commenter does not agree that the differences in lung function, inflammation and increased airway responsiveness found in these

controlled human exposure studies support the inference that asthmatics are likely to have more serious responses than healthy subjects, and that these responses could have important clinical implications. EPA rejects this interpretation as well. EPA did not base its increased concern for asthmatics solely on the results of the controlled human exposure studies, but has appropriately used a weight of evidence approach, integrating evidence from animal toxicological, controlled human exposure and epidemiological studies as a basis for this concern. The Criteria Document concludes that the positive and robust epidemiological associations between O₃ exposure and emergency department visits and hospitalizations in the warm season are supported by the human clinical, animal toxicological and epidemiological evidence for lung function decrements, increased respiratory symptoms, airway inflammation, and increased airway responsiveness (72 FR 37832). The CASAC Panel itself expressed the view that people with asthma, especially children, have been found to be more sensitive to O₃ exposure, and indicated that EPA should place more weight on inflammatory responses and serious morbidity effects, such as increased respiratory-related emergency department visits and hospitalizations (Henderson, p. 4). Moreover, the Rochester Report, cited above, reaches essentially the same conclusions as EPA did, that the evidence from controlled human exposure studies provides biological plausibility for the epidemiological studies in which ambient O₃ concentrations have been associated with increased asthma symptoms, medication use, emergency room visits, and hospitalizations for asthma. Therefore, EPA continues to assert that there is strong evidence that asthmatics likely have more serious responses to O₃ exposure than people without asthma, and that these responses have the potential to lead to exacerbation of asthma as indicated by the serious morbidity effects, such as increased respiratory-related emergency department visits and hospitalizations found in epidemiological studies.

With regard to the third point, commenters expressed the view that there is no significant new evidence establishing greater risk to asthmatics than was accepted in 1997, when EPA concluded that the existing NAAQS was sufficiently stringent to protect public health—including asthmatics—with an adequate margin of safety (UARG, pp. 22–23). To support this view, these

commenters noted the points made above and expressed the view that epidemiological studies of asthmatics that provide new evidence of respiratory symptoms and medication use in asthmatic children are subject to the limitations of epidemiological studies discussed above (e.g., confounding by co-pollutants, heterogeneity of results). In addition, these commenters identified a new, large multi-city panel study, not included in the Criteria Document, by Schildcrout *et al.* (2006), which the commenters characterize as reporting no association between O₃ concentrations and exacerbation of asthma.

At the time of the last review, EPA concluded that people with asthma were at greater risk because the impact of O₃-induced responses on already-compromised respiratory systems would noticeably impair an individual's ability to engage in normal activity or would be more likely to result in increased self-medication or medical treatment. At that time there was little evidence that people with pre-existing disease were more responsive than healthy individuals in terms of the magnitude of pulmonary function decrements or symptomatic responses. The new results from controlled exposure and epidemiologic studies indicate that individuals with preexisting lung disease, especially people with asthma, are likely to have more serious responses than people who do not have lung disease and therefore are at greater risk for O₃ health effects than previously judged in the 1997 review. EPA notes that comments on the limitations of epidemiological studies and evidence from “new” studies (not in the Criteria Document) have been addressed above. As with other “new” studies, this study by Schildcrout *et al.* (2006) is specifically discussed in the Response to Comments document.

b. Consideration of Human Exposure and Health Risk Assessments

Section II.A.3 above provides a summary overview of the exposure and risk assessment information used by the Administrator to inform judgments about exposure and health risk estimates associated with attainment of the current and alternative standards. EPA notes here that most of the issues and concerns raised by commenters concerning the methods used in the exposure and risk assessments are essentially restatements of concerns raised during the review of the Criteria Document and the development and review of these quantitative assessments as part of the preparation and review of the Staff Paper and the associated

analyses. EPA presented and the CASAC Panel reviewed in detail the approaches used to assess exposure and health risk, the studies and health effect categories selected for which exposure-response and concentration-response relationships were estimated, and the presentation of the exposure and risk results summarized in the Staff Paper. As stated in the proposal notice, EPA believes and CASAC Panel concurred, that the model selected to estimate exposure represent the state of the art and that the risk assessment was “well done, balanced and reasonably communicated” and that the selection of health endpoints for inclusion in the quantitative risk assessment was appropriate (Henderson, 2006c). EPA does not believe that the exposure or risk assessments are fundamentally biased in one direction or the other as claimed in some of the comments.

Comments received after proposal related to the development of exposure and health risk assessments, interpretation of exposure and risk results, and the role of the quantitative human exposure and health risk assessments in considering the need to revise the current 8-hour O₃ standard generally fell into two groups. One group of commenters that included national environmental and public health organizations (e.g., joint set of comments by ALA and several environmental groups including Environmental Defense and Sierra Club), NESCAUM, and some State and local health and air pollution agencies argued that the exposure and health risk assessments underestimated exposure and risks for several reasons including: (1) The geographic scope was limited to at most only 12 urban areas and thus underestimates national public health impacts due to exposures to O₃; (2) the assessments did not include all relevant at risk population groups and excluded populations such as pre-school children, outdoor workers, adults who exercise outdoors; and (3) the risk assessment did not include all of the health effect endpoints for which there is evidence that there are O₃-related health effects (e.g., increased medicine use by asthmatics, lung function decrements and respiratory symptoms in adults, increased doctors' visits, emergency department visits, school absences, inflammation, and decreased resistance to infection among children and adults); and (4) EPA's exposure assessment underestimates exposures since it considers average children, not active children who spend more time outdoors and repeated exposures are also underestimated. The joint set of

comments from ALA and several environmental groups contended that the “exposures of concern” metric presented in the Staff Paper and proposal is “an inappropriate basis for decisionmaking” and urged EPA to set the standard based on the concentrations shown by health studies to cause adverse effects, not on how much O₃ Americans inhale. This same set of commenters stated that if exposures of concern were to be considered then the benchmark level of 0.060 ppm should be the focus, and not higher benchmark levels. These same commenters also stated that EPA should have estimated and considered total risk without excluding risks associated with PRB levels because there is no rational basis for excluding natural and anthropogenic sources from outside North America and that the NAAQS must protect against total exposure. While disagreeing with EPA’s approach of estimating risks only above PRB, these same commenters supported the use of the GEOS-CHEM model as the “best tool available to derive background concentrations” should EPA continue to pursue this approach. These comments are discussed in turn below.

EPA agrees that the exposure and health risk assessments are limited to certain urban areas and do not capture all of the populations at risk for O₃-related effects, and that the risk assessment does not include all potential O₃-related health effects. The criteria and rationale for selecting the populations and health outcomes included in the quantitative assessments were presented in the draft Health Assessment Plan, Staff Paper, and technical support documents for the exposure and health risk assessments that were reviewed by the CASAC Panel and the public. The CASAC Panel indicated in its letter that the health outcomes included in the quantitative risk assessment were appropriate, while recognizing that other health outcomes such as emergency department visits and increased doctors’ visits should be addressed qualitatively (Henderson, 2006c). The Staff Paper (and the CASAC Panel) clearly recognized that the exposure and risk analyses could not provide a full picture of the O₃ exposures and O₃-related health risks posed nationally. The proposal notice made note of this important point and stated that “national-scale public health impacts of ambient O₃ exposures are clearly much larger than the quantitative estimates of O₃-related incidences of adverse health effects and the numbers of children likely to

experience exposures of concern associated with recent air quality or air quality that just meets the current or alternative standards” (72 FR 37866).

However, as stated in the proposal notice, EPA also recognizes that inter-individual variability in responsiveness to O₃ shown in controlled human exposure studies for a variety of effects means that only a subset of individuals in any population group estimated to experience exposures exceeding a given benchmark exposure of concern level would actually be expected to experience such adverse health effects. The Administrator continues to recognize that there is a broader array of O₃-related adverse health outcomes for which risk estimates could not be quantified (that are part of a broader “pyramid of effects”) and that the scope of the assessment was limited to just a sample of urban areas and to some but not all at-risk populations, leading to an incomplete estimation of public health impacts associated with O₃ exposures across the country. The Administrator is fully mindful of these limitations, along with the uncertainties in these estimates, in reaching his conclusion that observations from the exposure and health risk assessments provide additional support for his judgment that the current 8-hour standard does not protect public health with an adequate margin of safety and must be revised. For reasons discussed below in section II.C.4, however, the Administrator disagrees with aspects of these commenters’ views on the level of the standard that is appropriate and supported by the available health effects evidence and quantitative assessments associated with just meeting alternative standards.

EPA does not agree that consideration of exposure estimates is not permitted or is somehow inappropriate in decisions concerning the primary standard. EPA has considered population exposure estimates as a consideration in prior NAAQS review decisions, including the 1997 revision of the O₃ primary standard and the 1994 decision on the carbon monoxide (CO) standard. As indicated in the proposal, estimating exposures of concern is important because it provides some indication of potential public health impacts of a range of O₃-related health outcomes, such as lung inflammation, increased airway responsiveness, and changes in host defenses. These particular health effects have been demonstrated to occur in some individuals in controlled human exposure studies at levels as low as 0.080 ppm O₃ but have not been evaluated at lower levels. While there is

very limited evidence addressing lung function and respiratory symptom responses at 0.060 ppm, this evidence does not address these other health effects.

As noted in the proposal, EPA emphasized that although the analysis of “exposures of concern” was conducted using three discrete benchmark levels (0.080, 0.070, 0.060 ppm), the concept was more appropriately viewed as a continuum, with greater confidence and less uncertainty about the existence of health effects at the upper end and less confidence and greater uncertainty as one considers increasingly lower O₃ exposure levels. EPA recognized that there was no sharp breakpoint within the continuum ranging from at and above 0.080 ppm down to 0.060 ppm. In considering the concept of exposures of concern, the proposal noted that it was important to balance concerns about the potential for health effects and their severity with the increasing uncertainty associated with our understanding of the likelihood of such effects at lower levels.

As noted above, environmental and public health group comments expressed the view that if exposures of concern were considered, then the Administrator should focus only on the 0.060 ppm benchmark based on the contention that adverse health effects had been demonstrated down to this level. In contrast, other commenters, primarily industry and business groups focused on comparisons of the exposures of concern at the 0.080 ppm benchmark level based on their view that there was no convincing evidence demonstrating adverse health effects at levels below this benchmark. In view of the comments received related to the definition and use of the term “exposure of concern” at the time of proposal, the Administrator recognizes that there is a risk for confusion, as it could be read to imply a determination that a certain benchmark level of exposure has been shown to be causally associated with adverse health effects. As a consequence, the Administrator believes that it is more appropriate to consider such exposure estimates in the context of a continuum rather than focusing on any one discrete benchmark level, as was done at the time of proposal, since the Administrator does not believe that the underlying scientific evidence is certain enough to support a focus on any single bright-line benchmark level. Thus, the Administrator believes it is appropriate to consider a range of benchmark levels from 0.080 down to 0.060 ppm, recognizing that exposures of concern must be considered in the

context of a continuum of the potential for health effects of concern, and their severity, with increasing uncertainty associated with the likelihood of such effects at lower O₃ exposure levels.

EPA recognizes that the 0.080 ppm benchmark level represents a level at which several health outcomes including lung inflammation, increased airway responsiveness, and decreased resistance to infection have been shown to occur in healthy adults. The Administrator places relatively great weight on the public health significance of exposures at and above this benchmark level given these physiological effects measured in healthy adults at O₃ exposures of 0.080 ppm and the evidence from controlled human exposure studies showing that people with asthma have more serious responses than people without asthma. However, the Administrator does not agree with those commenters who would only consider this single benchmark level. While the Administrator places less weight on exposures at and above the 0.070 ppm benchmark level, given the increased uncertainty about the fraction of the population and severity of the health responses that might occur associated with exposures at and above this level, he believes that it is appropriate to consider exposures at and above this benchmark as well in judging the adequacy of the current standard to protect public health. Considering exposures at and above the 0.070 ppm benchmark level provides some consideration for the fact that the effects observed at 0.080 ppm were in healthy adult subjects but sensitive population groups such as asthmatics are likely to respond at lower O₃ levels than healthy individuals. The Administrator considered but placed very little weight on exposures at and above the 0.060 ppm benchmark given the very limited scientific evidence supporting a conclusion that O₃ is causally related to various health outcomes at this exposure level.

EPA does not agree that it is inappropriate or impermissible to assess risks that are in excess of PRB or that EPA must focus on total risks when using a risk assessment to inform decisions on the primary standard. Consistent with the approach used in the risk assessment for the prior O₃ standard review and consistent with the approach used in risk assessments for other prior NAAQS reviews, estimating risks in excess of PRB is judged to be more relevant to policy decisions regarding the ambient air quality standard than risk estimates that include effects potentially attributable

to uncontrollable background O₃ concentrations. EPA also notes that with respect to the adequacy of the current standard taking total risks into account would not impact the Administrator's decision, since he judges that the current standard is not adequate even when risks in excess of current PRB estimates are considered. In addition, EPA notes that consideration of the evidence itself, as well as exposures at and above benchmark levels in the range of 0.060 to 0.080 ppm, are not impacted at all by consideration of current PRB estimates.

EPA does agree with the ALA and environmental groups comment that the GEOS-CHEM model represents the best tool currently available to estimate PRB as recognized in the Criteria Document evaluation of this issue and the CASAC Panel support expressed during the review of the Criteria Document.

The second group of commenters mostly representing industry associations, businesses, and some State and local officials opposed to revising the 8-hour standard, and most extensively presented in comments from UARG, API, Exxon-Mobil, AAM, and NAM, raised one or more of the following concerns: (1) That exposures of concern and health risk estimates have not changed significantly since the prior review in 1997; (2) that uncertainties and limitations underlying the exposure and risk assessments make them too speculative to be used in supporting a decision to revise the standard; (3) that EPA should have defined PRB differently and that EPA underestimated PRB levels which results in health risk reductions associated with more stringent standards being overestimated; (4) that exposures are overestimated based on specific methodological choices made by EPA including, for example, O₃ measurements at fixed-site monitors can be higher than other locations where individuals are exposed, the exposure estimates do not account for O₃ avoidance behaviors, and the exposure model overestimates elevated breathing rates; and (5) that health risks are overestimated based on specific methodological choices made by EPA including, for example, selection of inappropriate effect estimates from health effect studies and EPA's approach to addressing the shape of exposure-response relationships and whether or not to incorporate thresholds into its models for the various health effects analyzed. These comments are discussed in turn below. Additional detailed comments related to the development, presentation, and interpretation of EPA's exposure and

health risk assessments, along with EPA's responses to the specific issues raised by these commenters can be found in the Response to Comments document.

(1) In asserting that the estimated exposures and risks associated with air quality just meeting the current standard have not appreciably changed since the prior review, comments from Exxon-Mobil, the Annapolis Center and others have compared results of EPA's lung function risk assessment done in the last review with those from the Agency's risk assessment done as part of this review and have concluded that lung function risks upon attainment of the current O₃ standard are below those that were predicted in 1997 and that uncertainties about other health effects based on epidemiological studies remain the same. These commenters used this conclusion as the basis for a claim that there is no reason to depart from the Administrator's 1997 decision that the current 8-hour standard is requisite to protect public health.

EPA believes that this claim is fundamentally flawed for three reasons, as discussed in turn below: (i) It is factually inappropriate to compare the quantitative risks estimated in 1997 with those estimated in the current rulemaking; (ii) it fails to take into account that with similar risks, increased certainty in the risks presented by O₃ implies greater concern than in the last review, and (iii) it fails to recognize that the Administrator has used these estimates in a supportive role, in light of significant uncertainties in the exposure and risk estimates, to inform the conclusions drawn primarily from integrative assessment of the controlled human exposure and epidemiological evidence on whether ambient O₃ levels allowed under the current standard present a serious public health problem warranting revision of the O₃ standard.

With respect to the first point, the 1997 risk estimates, or any comparison of the 1997 risk estimates to the current estimates, are irrelevant for the purpose of judging the adequacy of the current 8-hour standard, as the 1997 estimates reflect outdated analyses that have been updated in this review to reflect the current science. Just comparing the results for lung function decrements ignores these differences. In particular, as discussed in section 4.6.1 of the Staff Paper, there have been significant improvements to the exposure model and the model inputs since the last review that make comparisons inappropriate between the prior and current review. For example, the geographic areas modeled are larger

than in the previous review and when modeling a larger area, extending well beyond the urban core, there will be more people exposed, but a smaller percentage of the modeled population will be exposed at high levels, if O₃ concentrations are lower in the extended areas. In the prior review, only typical years, in terms of O₃ air quality were modeled, while the current review used the most recent three-year period (i.e., 2002–2004). Also, the prior review estimated exposures for children who spent more time outdoors, while the assessment for the current review included all school age and all asthmatic school age children. Therefore, the population groups examined in the exposure assessment are different between those considered in the 1997 and current review, making comparison of the resulting estimates inappropriate. Another important difference making comparison between the 1997 health risk assessment and the current assessment inappropriate is that a number of additional health effects were included in the current review (e.g., respiratory symptoms in moderate/severe asthmatic children, non-accidental and cardiorespiratory mortality) based on health effects observed in epidemiological studies that were not included in the risk assessment for the prior review. These commenters only compare the risk estimates with respect to lung function decrement, and fail to account for differences in additional and more severe health endpoints not covered in the 1997 assessment, as well as the fact that there are somewhat different and more urban areas included in the current assessment.

Second, it is important to take into account EPA's increased level of confidence in the associations between short-term O₃ exposures and morbidity and mortality effects. In comparing the scientific understanding of the risk presented by exposure to O₃ between the last and current reviews, one must examine not only the quantitative estimate of risk from those exposures (e.g. the numbers of increased hospital admissions at various levels) but also the degree of confidence that the Agency has that the observed health effects are causally linked to O₃ exposure at those levels. As documented in the Criteria Document and the recommendations and conclusions of CASAC, EPA recognizes significant advances in our understanding of the health effects of O₃ based on new epidemiological studies, new human and animal studies documenting effects, new laboratory

studies identifying and investigating biological mechanisms of O₃ toxicity, and new studies addressing the utility of using ambient monitors to assess population exposures to ambient O₃. As a result of these advances, EPA is now more certain that ambient O₃ presents a significant risk to public health at levels at or above the range of levels that the Agency had considered for these standards in 1997. From this more comprehensive perspective, since the risks presented by O₃ are more certain and the current quantitative risk estimates include additional important health effects, O₃-related risks for a wider range of health effects are now of greater concern at the current level of the standard than in the last review.

Third, quantitative risk estimates were not the only basis for EPA's decision in setting a level for the O₃ standard in 1997, and they do not set any quantified "benchmark" for the Agency's decision to revise the O₃ standard at this time. While EPA believes that confidence in the causal relationships between short-term exposures to O₃ and various health effects reported in epidemiological studies has increased markedly since 1997, the Administrator also recognizes that the risk estimates for these effects must be considered in the light of uncertainties about whether or not these O₃-related effects occur at very low O₃ concentrations. The Administrator continues to believe that the exposure and risk estimates associated with just meeting the current standard discussed in the Staff Paper and summarized in the proposal notice are important from a public health perspective and are indicative of potential exposures and risks to at-risk groups. In considering the exposure and risk estimates, the Administrator has considered the year-to-year and city-to-city variability in both the exposure and risk estimates, the uncertainties in these estimates, and recognition that there is a broader array of O₃-related adverse health outcomes for which risk estimates could not be quantified (that are part of a broader "pyramid of effects") and that the scope of the assessment was limited to just a sample of urban areas and to some, but not all, at-risk populations, leading to an incomplete estimation of public health impacts associated with O₃ exposures across the country.

(2) In asserting that uncertainties and limitations associated with the exposure and health risk assessments make them too speculative to be used in supporting a decision to revise the standard, comments from industry associations and others cited a number of issues including: (i) Uncertainties about the air

quality adjustment approach used to simulate just meeting the current and alternative standards; (ii) uncertainties and limitations associated with the definition and estimation of PRB concentrations; (iii) uncertainties about whether the respiratory symptoms, hospital admissions, and non-accidental and cardiorespiratory mortality effects included in the health risk assessment are actually causally related to ambient O₃ concentrations, particularly at levels well below the current standard; and (iv) uncertainties about the shape of the exposure-response relationships for lung function responses and concentration-response relationships for the health effects based on findings from epidemiological studies and the assumption of a linear non-threshold relationship for these responses. In summary, these commenters contend that the substantial uncertainties present in the exposure and risk assessments preclude the Administrator from using any of the results to support a conclusion that the current 8-hour standard does not adequately protect public health.

Several of the issues raised, including whether EPA's judgments about causality for the effects included in the risk assessment are appropriate, the shape of concentration-response relationships, and use of a linear non-threshold relationship for the health outcomes based on the epidemiological evidence, have been discussed in the previous section on health effects evidence. Concerns expressed about the definition and estimation of PRB levels for O₃ and the role of PRB in the risk assessment are addressed as a separate item below. These issues also are addressed in more detail in the Response to Comments document.

With respect to the air quality adjustment approach used in the current review to simulate air quality just meeting the current and alternative O₃ standards, as discussed in the Staff Paper (section 4.5.6) and in more detail in a staff memorandum (Rizzo, 2006), EPA concluded that the quadratic air quality adjustment approach generally best represented the pattern of reductions across the O₃ air quality distribution observed over the last decade in areas implementing control programs designed to attain the O₃ NAAQS. While EPA recognizes that future changes in air quality distributions are area-specific, and will be affected by whatever specific control strategies are implemented in the future to attain a revised NAAQS, there is no empirical evidence to suggest that future reductions in ambient O₃ will be significantly different from past

reductions with respect to impacting the overall shape of the O₃ distribution.

As discussed in the proposal notice, EPA recognizes that the exposure and health risk assessments necessarily contain many sources of uncertainty including those noted by these commenters, and EPA has accounted for such uncertainties to the extent possible. EPA developed and presented an uncertainty analysis addressing the most significant uncertainties affecting the exposure estimates. With respect to the health risk assessment, EPA conducted and presented sensitivity analyses addressing the impact on risk estimates of different assumptions about the shape of the exposure-response relationship for lung function decrements and alternative assumptions about PRB levels. EPA notes that most of the comments summarized above concerning limitations and uncertainties in these assessments are essentially restatements of concerns raised during the development and review of these quantitative assessments as part of the preparation and review of the Staff Paper and assessments. The CASAC Panel reviewed in detail the approaches used to assess exposure and health risks and the presentation of the results in the Staff Paper. EPA believes, and the CASAC Panel concurred, that the model used to estimate exposures represents a state-of-the-art approach and that "there is an explicit discussion of the limitations of the APEX model in terms of variability and quality of the input data, which is appropriate and fine" (Henderson, 2006c, p. 11). The CASAC Panel also found the risk chapter in the Staff Paper and the risk assessment "to be well done, balanced, and reasonably communicated" (Henderson, 2006c, p. 12). Although EPA agrees that important limitations and uncertainties remain, and that future research directed toward addressing these uncertainties is warranted, EPA believes that overall uncertainties about population exposure and possible health risks associated with short-term O₃ exposure have diminished since the last review. The Administrator has carefully considered the limitations and uncertainties associated with these quantitative assessments but continues to believe that they provide general support for concluding that exposures and health risks associated with meeting the current 8-hour standard are important from a public health perspective and that the 8-hour standard needs to be revised to provide additional protection in order to protect public health with an adequate margin of safety.

(3) Comments from several industry organizations, businesses, and others

related to PRB included: (i) That EPA should have defined PRB differently so as to include anthropogenic emissions from Canada and Mexico; (ii) that EPA underestimated PRB levels by relying on estimates from the GEOS-CHEM model using 2001 meteorology and EPA should instead rely on O₃ levels observed at remote monitoring locations or sites that represent PRB conditions; and (iii) that the use of underestimated PRB levels in the risk assessment results in overestimated health risks associated with air quality just meeting the current standard. Finally, some commenters cited concerns expressed by the CASAC Panel that "the current approach to determining PRB is the best method to make this estimation" (Henderson, 2007, p. 2). Each of these concerns is addressed below and in more detail in the Response to Comments document.

First, the U.S. government has influence over emissions at our borders that affect ambient O₃ concentrations entering the U.S. from Canada and Mexico through either regulations or international agreements, and therefore EPA does not agree that these emissions are uncontrollable. PRB is designed to identify O₃ levels that result from emissions that are considered uncontrollable because the U.S. has little if any influence on their control, and in that context anthropogenic emissions from Mexico or Canada should be excluded from PRB. EPA has consistently defined PRB as excluding anthropogenic emissions from Canada and Mexico in NAAQS reviews over more than two decades and sees no basis in the comments to alter this definition.

Second, the criticisms raised concerning the use of a modeling approach (GEOS-CHEM using 2001 meteorology) and the alternative approach of using remote monitoring data to estimate PRB were considered by EPA's scientific staff and the CASAC Panel during the course of reviewing the Criteria Document. Both EPA's experts and CASAC endorsed the use of the peer-reviewed, thoroughly evaluated modeling approach (GEOS-CHEM) described in the Criteria Document as the best current approach for estimating PRB levels. The Criteria Document reviewed detailed evaluations of GEOS-CHEM with O₃ observations at U.S. surface sites (Fiore *et al.*, 2002, 2003) and comparisons of GEOS-CHEM predictions with observations at Trinidad Head, CA (Goldstein *et al.*, 2004) and found no significant differences between the model predictions and observations for all conditions, including those reflecting those given in the current PRB

definition. The Criteria Document states that the current model estimates indicate that PRB in the U.S. is generally 0.015 to 0.035 ppm that declines from spring to summer and is generally < 0.025 ppm under conditions conducive to high O₃ episodes. The Criteria Document acknowledges that PRB can be higher, especially at elevated sites in the spring due to stratospheric exchange. However, unusually high springtime O₃ episodes tied to stratospheric intrusion are rare and generally occur at elevated locations and these can be readily identified and excluded under EPA's exceptional events rule (72 FR 13560) to avoid any impact on attainment/non-attainment status of an area.

Third, many of the commenters who raised the concern that EPA's estimates of PRB were too low and had the impact of exaggerating the risks associated with the current standard ignored the fact that the risk assessment included a sensitivity analysis which showed the potential impact of both lower and higher estimates of PRB or only focused on the impact of higher estimates of PRB. The choices of lower and higher estimates of PRB included in the risk assessment sensitivity analyses were based on the peer-reviewed evaluation of the accuracy of GEOS-CHEM model. The Criteria Document states "in conclusion, we estimate that the PRB O₃ values reported by Fiore *et al.* (2003) for afternoon surface air over the United States are likely 10 parts per billion by volume (ppbv) too high in the southeast in summer, and accurate within 5 ppbv in other regions and seasons." These error estimates are based on comparison of model output with observations for conditions which most nearly reflect those given in the PRB definition, i.e., at the lower end of the probability distribution. As discussed in the Criteria Document and Staff Paper, it can be seen that GEOS-CHEM overestimates O₃ for the southeast and underestimates it by a small amount for the northeast. These commenters generally ignored the scientific conclusion presented in the Criteria Document that for some regions of the country the evidence suggests that the model actually overestimates PRB. Thus, the influence of alternative estimates of PRB on risks in excess of PRB associated with meeting the current standard can be to lower or increase the risk estimates. While the choice of estimates for PRB contributes to the uncertainty in the risk estimates, EPA does not agree that the approach used is biased since peer-reviewed evaluations of the model have shown relatively good

agreement (i.e., generally within 5 ppb for most regions of the country).

Finally, EPA believes that some commenters have misread the CASAC Panel concern "that the current approach to determining PRB is the best method to make this estimation" (Henderson, 2007, p. 2) as a criticism of the use of the GEOS-CHEM modeling approach and/or support for primary reliance on estimates based on remote monitoring sites. However, the CASAC Panel went on to state that one reason for its concern was that the contribution to PRB from beyond North America was uncontrollable by EPA and that "a better scientific understanding of intercontinental transport of air pollutants could serve as the basis for a more concerted effort to control its growth . . ." (Henderson, 2007, p. 3). Hence, CASAC's concern appeared to be more with defining what emissions to include in defining PRB, and the role that PRB should play, as compared to the technical question of the best way to estimate PRB levels. In reviewing the Staff Paper, the atmospheric modeling expert on the CASAC Panel in his comments on how PRB had been estimated using the GEOS-CHEM model concluded that the "current approach has been peer-reviewed, and is appropriate" (Henderson, 2006b, p. D-48).

(4) Some commenters raised concerns about aspects of the exposure modeling that they felt resulted in overestimates of modeled exposures, including: (i) O₃ measurements at downwind monitors are usually higher than the overall area and may not reflect the overall outdoor exposures in the area; (ii) O₃ exposures near roadways will be below that measured at the monitor due to titration of O₃ from automobile emissions of NO; (iii) O₃ concentrations are lower at a person's breathing height compared to measurement height, (iv) exposure estimates do not account for O₃ avoidance behaviors; and (v) the APEX model over predicts elevated ventilation rate occurrences, which results in an overestimation of the number of exposures of concern and risk estimates for lung function decrements.

The concern raised in the first point is unfounded since all O₃ monitors in each area are used to take into account the spatial variations of O₃ concentrations. The geographic variation of O₃ concentration is accounted for by using measurements from the closest O₃ monitor to represent concentrations in a neighborhood and the measurements at downwind monitors are applied only to the downwind areas.

Second, the reduction in O₃ concentrations near roadways due to titration of O₃ from automobile emissions of NO is accounted for and explicitly modeled in APEX and thus does not bias estimates of exposures. This phenomenon was modeled through the use of "proximity factors," which adjust the monitored concentrations to account for the titration of O₃ by NO emissions (the monitored concentrations are multiplied by the proximity factors). Three proximity factor distributions were developed, one for local roads, one for urban roads, and one for interstates, with mean factors of 0.75, 0.75, and 0.36 respectively (section 3.10.2, Exposure Analysis TSD). Furthermore, the uncertainty of these proximity factor distributions was included in the exposure uncertainty analysis.

Third, as discussed in the exposure uncertainty analysis, data were not available to quantify the potential biases of differences between O₃ concentrations at a person's breathing height compared to the heights of nearby monitors. EPA believes that these biases, to the extent that they exist, are relatively small during warm summer afternoons when O₃ concentrations tend to be higher.

Fourth, behavior changes in response to O₃ pollution or in response to AQI notification alerts ("avoidance behavior") is not explicitly taken into account in the exposure modeling. There is not much information about the extent to which people currently modify their activities in response to O₃ alerts. However, under the scenarios modeled for just meeting alternative standards, O₃ alerts would be infrequent relative to the number of alerts that currently occur in the nonattainment areas modeled. Consequently, EPA does not feel that this is an influential factor in the estimation of exposure for the scenarios simulating just meeting the current or proposed standards.

Fifth, a comparison of ventilation rates predicted by APEX to measurements showed APEX overpredicting ventilation rates for ages 5 to 10, underpredicting ventilation rates for ages 11 to 29 and greater than 39, and in close agreement for ages 30 to 39. The overall agreement was judged favorable, and the errors of the predicted ventilation rates were partially incorporated into the overall uncertainty analysis with the uncertainties of the metabolic equivalents (METs), which are the primary drivers of ventilation rates.

(5) Comments from a number of industry organizations, businesses, and others contended that EPA's health risk

assessment was biased and that the resulting risk assessment is "much higher than would have been obtained using objective methods" (NAM), and commenters raised one or more of the following points in support of this view: (i) EPA inappropriately based its risk assessment for respiratory symptoms, hospital admissions, and non-accidental and cardiorespiratory mortality on positive studies with high risk coefficients while ignoring negative studies and studies with lower coefficients; (ii) EPA focused on combined "national" effect estimates from multi-city studies when it should have relied on individual city effect estimates from these studies in its risk assessment; (iii) the risk assessment presented single-pollutant model results that overstate the likely impact of O₃ when co-pollutant model results were available which should have been used; (iv) the risk assessment used linear concentration-response relationships for the health endpoints based on epidemiological studies when non-linear or threshold models should have been used; and (v) the lung function portion of the risk assessment should not rely on what they characterized as "outlier" information to define exposure-response relationships, with reference to the data from the Adams (2006) study, but rather should focus on group central tendency response levels. Each of these issues is discussed below and in more detail in the Response to Comments document.

First, several commenters asserted that the results of time-series studies should not be used at all in quantitative risk assessments, that risk estimates from single-city time-series studies should not be used since they are highly heterogeneous and influenced by publication bias, and that the panel study which served as the basis for the concentration-response relationships for respiratory symptoms in asthmatic children suffered from various weaknesses and was contradicted by a more recent study. EPA notes that the selection of specific studies and effect estimates was based on a careful evaluation of the evidence evaluated in the Criteria Document and that the criteria and rationale for selection of studies and effect estimates were presented and extensively reviewed and discussed by the CASAC Panel and in public comments presented to the CASAC Panel. EPA notes that the CASAC Panel judged the selection of the endpoints based on the epidemiological studies for inclusion in the quantitative risk assessment to be "appropriate" and that the risk

assessment chapter of the Staff Paper and its accompanying risk assessment were "well done, balanced and reasonably communicated" (Henderson, 2006c, p. 12).

While EPA notes that two of the meta-analyses, Bell *et al.* (2005) and Ito *et al.* (2005), provided suggestive evidence of publication bias, O₃-mortality associations remained after accounting for that potential bias. The Criteria Document (p. 7–97) concludes that the "positive O₃ effects estimates, along with the sensitivity analyses in these three meta-analyses, provide evidence of a robust association between ambient O₃ and mortality." Concerns about the heterogeneity of responses observed across different urban areas, particularly for O₃-related mortality are addressed in the section above on health effect considerations.

Second, as discussed in more detail in the Staff Paper (section 5.3.2.3), there are different advantages associated with use of single-city and multi-city effect estimates as the basis for estimating health risks in specific urban areas. Therefore, the risk assessment included estimates based on both types of effect estimates where such information was available.

Third, the risk assessment included risk estimates based on both single pollutant and multi-pollutant concentration-response relationships where such information was available for the health outcomes included in the assessment. Issues related to the consideration of single versus multi-pollutant models have been addressed in the section above on health effects evidence.

Fourth, EPA's approach of using linear concentration-response relationships for the health outcomes based on epidemiological studies and whether or not to include any non-linear models or assumed threshold were reviewed and discussed by the CASAC Panel during the development of the Staff Paper and risk assessment, and the Panel concurred with the approach used. As discussed in the proposal notice, Staff Paper (section 3.4.5), and above in the prior section on health effects evidence, EPA recognizes that the available epidemiological evidence neither supports or refutes the existence of thresholds at the population level for effects such as increased hospital admissions and premature mortality. Noting the limitations of epidemiological evidence to address such questions, EPA concluded that if a population threshold does exist, it would likely be well below the level of the current O₃ standard. The Administrator is very mindful of the

uncertainties related to whether the observed associations between O₃ concentrations at levels well below 0.080 ppm and the health outcomes reported in the epidemiological studies reflect actual causal relationships, and has taken this into account in considering the risk assessment estimates in his decision.

Fifth, consistent with the prior review, the lung function component of the risk assessment has focused on the number and percentage of children that are estimated to experience a degree of lung function decrement that represents an adverse health effect. EPA does not agree that the focus of the quantitative risk assessment should be on the average lung function response in the population, since such an assessment would not address the public health policy question concerning to extent to which a portion of the population would likely experience health effects of concern. Looking at just the average for the population would ignore the evidence of health effects for sensitive subpopulations, an important aspect of public health impact in this and other O₃ reviews. EPA believes that it is appropriate to include all of the individual data from the series of controlled human exposure studies that address lung function responses associated with 6.6-hour exposures to O₃ and which were reviewed and included in the final Criteria Document, and this includes the Adams (2006) study. EPA notes that the CASAC Panel clearly did not judge the responses observed in this study to be an "outlier." Rather, CASAC stated in its comments on the Staff Paper's discussion of this study, "there were clearly a few individuals who experienced declines in lung function at these lower concentrations. These were healthy subjects so the percentage of asthmatic subjects, if they had been studied, would most likely be considerably greater" (Henderson, 2006c, p. 10).

Having considered comments on the quantitative exposure and health risk assessments from both groups of commenters, the Administrator finds no basis to change his position on these quantitative assessments that was taken at the time of proposal. That is, as discussed above, while the Administrator recognizes that the assessments rest on a more extensive body of data and is more comprehensive in scope than the assessment conducted in the last review, he is mindful that significant uncertainties continue to underlie the resulting quantitative exposure and risk estimates. Nevertheless, the Administrator

concludes that the exposure and risk estimates are sufficiently reliable to inform his judgment about the significance of the exposures and risk of health effects in susceptible and vulnerable populations at O₃ levels associated with just meeting the current 8-hour standard. However, the Administrator disagrees with aspects of these commenters' views on the level of the standard that is appropriate and supported by the available health effects evidence and quantitative assessments associated with just meeting alternative standards.

3. Conclusions Regarding the Need for Revision

Having carefully considered the public comments, as discussed above, the Administrator believes the fundamental scientific conclusions on the effects of O₃ reached in the Criteria Document and Staff Paper, briefly summarized above in section II.A.2 and discussed more fully in section II.A of the proposal, remain valid. In considering whether the primary O₃ standard should be revised, the Administrator places primary consideration on the body of scientific evidence available in this review on the health effects associated with O₃ exposure, as summarized above in section II.B.1. The Administrator notes that there is much new evidence that has become available since the last review, including an especially large number of new epidemiological studies. The Administrator believes that this body of scientific evidence is very robust, recognizing that it includes large numbers of various types of studies, including toxicological studies, controlled human exposure studies, field panel studies, and community epidemiological studies, that provide consistent and coherent evidence of an array of O₃-related respiratory morbidity effects and possibly cardiovascular-related morbidity as well as total nonaccidental and cardiorespiratory mortality. The Administrator observes that (1) the evidence of a range of respiratory-related morbidity effects seen in the last review has been considerably strengthened, both through toxicological and controlled human exposure studies as well as through many new panel and epidemiological studies; (2) newly available evidence from controlled human exposure and epidemiological studies identifies people with asthma as an important susceptible population for which estimates of respiratory effects in the general population likely underestimate the magnitude or importance of these effects; (3) newly available evidence

about mechanisms of toxicity more completely explains the biological plausibility of O₃-induced respiratory effects and is beginning to suggest mechanisms that may link O₃ exposure to cardiovascular effects; and (4) there is now relatively strong evidence for associations between O₃ and total nonaccidental and cardiopulmonary mortality, even after adjustment for the influence of season and PM. The Administrator believes that this very robust body of evidence, taken together, enhances our understanding of O₃-related effects relative to what was known at the time of the last review. Further, he believes that the available evidence provides increased confidence that respiratory morbidity effects such as lung function decrements and respiratory symptoms are causally related to O₃ exposures, that indicators of respiratory morbidity such as emergency department visits and hospital admissions are causally related to O₃ exposures, and that the evidence is highly suggestive that O₃ exposures during the warm O₃ season contribute to premature mortality.

Further, the Administrator judges that there is important new evidence demonstrating that exposures to O₃ at levels below the level of the current standard are associated with a broad array of adverse health effects. This is especially true in at-risk populations that include people with asthma or other lung diseases, who are likely to experience more serious effects from exposure to O₃, children, and older adults with increased susceptibility, as well as those who are likely to be vulnerable as a result of spending a lot of time outdoors engaged in physical activity, especially active children and outdoor workers. The Administrator notes that this important new evidence demonstrates O₃-induced lung function effects and respiratory symptoms in some healthy individuals down to the previously observed exposure level of 0.080 ppm, as well as very limited new evidence at exposure levels well below the level of the current standard. In addition, the Administrator notes that (1) there is now epidemiological evidence of statistically significant O₃-related associations with lung function and respiratory symptom effects, respiratory-related emergency department visits and hospital admissions, and increased mortality, in areas that likely would have met the current standard; (2) there are also many epidemiological studies done in areas that likely would not have met the current standard but which nonetheless report statistically significant

associations that generally extend down to ambient O₃ concentrations that are below the level of the current standard; (3) there are a few studies that have examined subsets of data that include only days with ambient O₃ concentrations below the level of the current standard, or below even much lower O₃ concentrations, and continue to report statistically significant associations with respiratory morbidity outcomes and mortality; and (4) the evidence from controlled human exposure studies, together with animal toxicological studies, provides considerable support for the biological plausibility of the respiratory morbidity associations observed in the epidemiological studies and for concluding that the associations extend below the level of the current standard.

Based on the available evidence, the Administrator agrees with the CASAC Panel and the majority of public commenters that the current standard is not requisite to protect public health with an adequate margin of safety because it does not provide sufficient protection and that revision of the current O₃ standard is needed to provide increased public health protection. The Administrator notes that extensive critical review of this body of evidence and related uncertainties during the criteria and standard review process, including review by the CASAC Panel and the public of the basis for EPA's proposed decision to revise the primary O₃ standard, has identified a number of issues about which different reviewers disagree and for which additional research is warranted. Nonetheless, on balance, the Administrator believes that the remaining uncertainties in the available evidence do not diminish confidence in the causal relationships between O₃ exposures and indicators of serious respiratory morbidity effects, or the highly suggestive evidence of associations between O₃ exposures and premature mortality, nor do they diminish confidence in the conclusion that the associations extend below the level of the current standard.

Beyond a primary consideration of the available evidence, the Administrator has also taken into consideration the Agency's exposure and risk assessments to help inform his evaluation of the adequacy of the current standard. As at the time of proposal, the Administrator believes the results of those assessments inform his judgment on the adequacy of the current standard to protect against health effects of concern. In considering the exposure analysis results at this time, the Administrator recognizes that that there is a risk for confusion in the

term "exposure of concern" that was used at the time of proposal, as it could be read to imply a determination that a certain benchmark level of exposure has been shown to be causally associated with adverse health effects. As a consequence, the Administrator believes that it is more appropriate to consider such exposure estimates in the context of a continuum rather than focusing on any one discrete benchmark level, as was done at the time of proposal, since the Administrator does not believe that the underlying scientific evidence is certain enough to support a focus on any bright-line benchmark level. In so doing, the Administrator recognizes that associations between O₃ exposures and health effects of concern become increasingly uncertain at lower O₃ exposure levels. Thus, the Administrator has taken into consideration the pattern of such exposure estimates across the range of discrete benchmark levels considered in EPA's exposure assessment to provide some indication of the potential magnitude of the incidence of health outcomes that could not be evaluated in the Agency's quantitative risk assessment but which have been demonstrated to occur in healthy people at O₃ exposures as low as 0.080 ppm, the lowest level at which such health outcomes have been tested.²⁰

More specifically, the Administrator has considered the pattern of reductions in such exposures across the benchmark levels of 0.080, 0.070, and 0.060 ppm, which span the level at which there is strong evidence of effects in healthy people down to a level at which the Administrator judges the evidence of effects to be very limited. The Administrator observes that based on the aggregated exposure estimates for the 2002 simulation for the 12 urban areas included in the exposure analysis, upon just meeting the current standard, the percentages of asthmatic or all school age children likely to experience one of more exposures at and above these benchmark levels of 0.080, 0.070, and 0.060 ppm (while at moderate or greater exertion) are approximately 4%,

²⁰ As noted above, such health outcomes include increased airway responsiveness, increased pulmonary inflammation, increased cellular permeability, and decreased pulmonary defense mechanisms. These physiological effects provide plausible mechanisms underlying observed associations with aggravation of asthma, increased medication use, increased school and work absences, increased susceptibility to respiratory infection, increased visits to doctors' offices and emergency departments, and increased admissions to hospitals. In addition, these physiological effects, if repeated over time, have the potential to lead to chronic effects such as chronic bronchitis or long-term damage to the lungs that can lead to reduced quality of life.

20%, and 45%, respectively. As noted at the time of proposal, the Administrator recognizes that there is substantial year-to-year and city-to-city variability in these estimates and that it is important to recognize this variability in considering these estimates. For example, for the 0.080, 0.070, and 0.060 ppm benchmark levels, these percentages are estimated to range from approximately 1 to 10%, 1 to 40%, and 7 to 65%, respectively, across each of the 12 urban areas based on the 2002 simulation, and from approximately 0 to 1%, 0 to 7%, and 1 to 25%, respectively, based on the 2004 simulation.

With regard to the results of the risk assessment, the Administrator again considered the risks estimated to remain upon just meeting the current standard. The Administrator takes note of the estimated magnitudes of such risks, which are presented above in section II.B.1.c for a range of health effects including moderate and large lung function decrements (including percentages of children and number of occurrences), respiratory symptom days, respiratory-related hospital admissions, and nonaccidental and cardiorespiratory mortality, as well as year-to-year and city-to-city variability, and the uncertainties in these estimates. Further, the Administrator recognizes that these estimated risks for the specific health effects that could be analyzed in the Agency's risk assessment are indicative of a much broader array of O₃-related health endpoints that are part of a "pyramid of effects" that include various indicators of morbidity that could not be included in the risk assessment (e.g., school absences, increased medication use, emergency department visits) and which primarily affect members of at-risk groups.

In considering these quantitative exposure and risk estimates, as well as the broader array of O₃-related health endpoints that could not be quantified, the Administrator believes that they are important from a public health perspective and indicative of potential exposures and risks to at-risk groups. The Administrator thus finds that the exposure and risk estimates provide additional support to the evidence-based conclusion, reached above, that the current standard needs to be revised. Based on these considerations, and consistent with CASAC Panel's unanimous conclusion that there is no scientific justification for retaining the current standard, the Administrator concludes that the current primary O₃ standard is not sufficient and thus not requisite to protect public health with

an adequate margin of safety, and that revision is needed to provide increased public health protection. It is important to note that this conclusion, and the reasoning on which it is based, does not address the question of what specific revisions are appropriate. That requires looking specifically at the current indicator, averaging time, form, and level of the O₃ standard, and evaluating the evidence relevant to determining whether and to what extent any of these elements should be revised, as is discussed in the following section.

C. Conclusions on the Elements of the Primary O₃ Standard

1. Indicator

In the last review of the air quality criteria for O₃ and other photochemical oxidants and the O₃ standard, as in other prior reviews, EPA focused on a standard for O₃ as the most appropriate surrogate for ambient photochemical oxidants. In this review, while the complex atmospheric chemistry in which O₃ plays a key role has been highlighted, no alternatives to O₃ have been advanced as being a more appropriate surrogate for ambient photochemical oxidants.

The Staff Paper (section 2.2.2) noted that it is generally recognized that control of ambient O₃ levels provides the best means of controlling photochemical oxidants. Among the photochemical oxidants, the acute exposure chamber, panel, and field epidemiological human health database provides specific evidence for O₃ at levels commonly reported in the ambient air, in part because few other photochemical oxidants are routinely measured. However, recent investigations on copollutant interactions have used simulated urban photochemical oxidant mixes. These investigations suggest the need for similar studies to help in understanding the biological basis for effects observed in epidemiological studies that are associated with air pollutant mixtures, where O₃ is used as the surrogate for the mix of photochemical oxidants. Meeting the O₃ standard can be expected to provide some degree of protection against potential health effects that may be independently associated with other photochemical oxidants but which are not discernable from currently available studies indexed by O₃ alone. Since the precursor emissions that lead to the formation of O₃ generally also lead to the formation of other photochemical oxidants, measures leading to reductions in population exposures to O₃ can generally be expected to lead to

reductions in population exposures to other photochemical oxidants.

The Staff Paper noted that while the new body of time-series epidemiological evidence cannot resolve questions about the relative contribution of other photochemical oxidant species to the range of morbidity and mortality effects associated with O₃ in these types of studies, control of ambient O₃ levels is generally understood to provide the best means of controlling photochemical oxidants in general, and thus of protecting against effects that may be associated with individual species and/or the broader mix of photochemical oxidants, independent of effects specifically related to O₃. No public comments specifically suggested changing the indicator for the O₃ NAAQS.

In its letter to the Administrator, the CASAC Panel noted that O₃ is "the key indicator of the extent of oxidative chemistry and serves to integrate multiple pollutants." The CASAC also stated that "although O₃ itself has direct effects on human health and ecosystems, it can also be considered as indicator of the mixture of photochemical oxidants and of the oxidizing potency of the atmosphere" (Henderson, 2006c, p. 9).

Based on the available information, and consistent with the views of EPA staff and the CASAC, the Administrator concludes that it is appropriate to continue to use O₃ as the indicator for a standard that is intended to address effects associated with exposure to O₃, alone or in combination with related photochemical oxidants. In so doing, the Administrator recognizes that measures leading to reductions in population exposures to O₃ will also reduce exposures to other photochemical oxidants.

2. Averaging Time

a. Short-Term and Prolonged (1 to 8 Hours)

The current 8-hour averaging time for the primary O₃ NAAQS was set in 1997. At that time, the decision to revise the averaging time of the primary standard from 1 hour to 8 hours was supported by the following key observations and conclusions:

(1) The 1-hour averaging time of the previous NAAQS was originally selected primarily on the basis of health effects associated with short-term (i.e., 1- to 3-hour) exposures.

(2) Substantial health effects information was available for the 1997 review that demonstrated associations between a wide range of health effects (e.g., moderate to large lung function

decrements, moderate to severe respiratory symptoms and pulmonary inflammation) and prolonged (i.e., 6- to 8-hour) exposures below the level of the then current 1-hour NAAQS.

(3) Results of the quantitative risk analyses showed that reductions in risks from both short-term and prolonged exposures could be achieved through a primary standard with an averaging period of either 1 hour or 8 hours. Thus establishing both a 1-hour and an 8-hour standard would not be necessary to reduce risks associated with the full range of observed health effects.

(4) The 8-hour averaging time was more directly associated with health effects of concern at lower O₃ concentrations than the 1-hour averaging time. It was thus the consensus of the CASAC "that an 8-hour standard was more appropriate for a human health-based standard than a 1-hour standard." (Wolff, 1995)

(5) An 8-hour averaging resulted in a significantly more uniformly protective national standard than the then current 1-hour standard.

(6) An 8-hour averaging time effectively limits both 1- and 8-hour exposures of concern.

In looking at the new information that is discussed in section 7.6.2 of the current Criteria Document, the Staff Paper noted that epidemiological studies have used various averaging periods for O₃ concentrations, most commonly 1-hour, 8-hour and 24-hour averages. As described more specifically in sections 3.3 and 3.4 of the Staff Paper, in general the results presented from U.S. and Canadian studies showed no consistent difference for various averaging times in different studies. Because the 8-hour averaging time continues to be more directly associated with health effects of concern from controlled human exposure studies at lower concentrations than do shorter averaging periods, the Staff Paper did not evaluate alternative averaging times in this review and did not conduct exposure or risk assessments for standards with averaging times other than 8 hours.

The Staff Paper discussed an analysis of a recent three-year period of air quality data (2002 to 2004) which was conducted to determine whether the comparative 1- and 8-hour air quality patterns that were observed in the last review continue to be observed based on more recent air quality data. This updated air quality analysis (McCluney, 2007) was very consistent with the analysis done in the last review in that it indicated that only two urban areas of the U.S. have such "peaky" air quality patterns such that the ratio of 1-hour to

8-hour design values is greater than 1.5. This suggested that based on recent air quality data, it was again reasonable to conclude that an 8-hour average standard at or below the current level would generally be expected to provide protection equal to or greater than the previous 1-hour standard of 0.12 ppm in almost all urban areas. Thus, the Staff Paper again concluded that setting a standard with an 8-hour averaging time can effectively limit both 1- and 8-hour exposures of concern and is appropriate to provide adequate and more uniform protection of public health from both short-term and prolonged exposures to O₃ in the ambient air. In its letter to the Administrator, the CASAC Panel unanimously supported the continued use of an 8-hour averaging time for the primary O₃ standard (Henderson 2007, p. 2).

With respect to comments received on the proposal, most public commenters did not address the issue of whether EPA should consider additional or alternative averaging time standards. A few commenters, most notably the CA EPA and joint comments by ALA and several environmental groups, expressed the view that consideration should be given to setting or reinstating a 1-hour standard, in addition to maintaining the use of an 8-hour averaging time, to protect people in those parts of the country with relatively more "peaky" exposure profiles (e.g., Los Angeles). These commenters pointed out that when controlled exposure studies using triangular exposure patterns (with relatively higher 1-hour peaks) have been compared to constant exposure patterns with the same aggregate O₃ dose (in terms of concentration multiplied by time), "peaky" exposure patterns are seen to lead to higher risks. The CA EPA made particular note of this point, expressing the view that a 1-hour standard would more closely represent actual exposures, in that many people spend only 1 to 2 hours a day outdoors, and that it would be better matched to O₃ concentration profiles along the coasts where O₃ levels are typically high for shorter averaging periods than 8 hours.

For the reasons discussed in the Staff Paper and summarized above and considering the unanimous views of the CASAC Panel supporting the continued use of an 8-hour averaging time for the primary O₃ standard, the Administrator finds that, in combination with the decisions on form and level described below, the 8-hour standard provides adequate protection from both short-term (1 to 3 hours) and prolonged (6 to 8 hours) exposures to O₃ in the ambient

air and that it is appropriate to continue use of the 8-hour averaging time for the O₃ NAAQS.

b. Long-term

During the last review, there was a large animal toxicological database for consideration that provided clear evidence of associations between long-term (e.g., from several months to years) exposures and lung tissue damage, with additional evidence of reduced lung elasticity and accelerated loss of lung function. However, there was no corresponding evidence for humans, and the state of the science had not progressed sufficiently to allow quantitative extrapolation of the animal study findings to humans. For these reasons, consideration of a separate long-term primary O₃ standard was not judged to be appropriate at that time, recognizing that the 8-hour standard would act to limit long-term exposures as well as short-term and prolonged exposures.

Taking into consideration the currently available evidence on long-term O₃ exposures, discussed above in section II.A.2.a.ii, the Staff Paper concluded that a health-based standard with a longer-term averaging time than 8 hours is not warranted at this time. The Staff Paper noted that while potentially more serious health effects have been identified as being associated with longer-term exposure studies of laboratory animals and in epidemiology studies, there remains substantial uncertainty regarding how these data could be used quantitatively to develop a basis for setting a long-term health standard. Because long-term air quality patterns would be improved in areas coming into attainment with an 8-hour standard, the potential risk of health effects associated with long-term exposures would be reduced in any area meeting an 8-hour standard. Thus, the Staff Paper did not recommend consideration of a long-term, health-based standard at this time.

In its final letter to the Administrator, the CASAC Panel offered no views on the long-term exposure evidence, nor did it suggest that consideration of a primary O₃ standard with a long-term averaging time was appropriate, and instead the CASAC Panel agreed with the choice of an 8-hour averaging time for the primary O₃ NAAQS suggested by Agency staff (Henderson, 2007). Similarly, no public commenters expressed support for considering such a long-term standard. Taking into account the evidence, the CASAC Panel's views, and the public comments, the Administrator finds that there is not a sufficient basis for setting

a long-term primary O₃ NAAQS at this time.

c. Administrator's Conclusions on Averaging Time

In considering the information discussed above, the CASAC Panel's views and public comments, the Administrator concludes that a standard with an 8-hour averaging time can effectively limit both 1- and 8-hour exposures of concern and that an 8-hour averaging time is appropriate to provide adequate and more uniform protection of public health from both short-term (1- to 3-hour) and prolonged (6- to 8-hour) exposures to O₃ in the ambient air. This conclusion is based on the observations summarized above, particularly: (1) The fact that the 8-hour averaging time is more directly associated with health effects of concern at lower O₃ concentrations than are averaging times of shorter duration and (2) results from quantitative risk analyses showing that attaining an 8-hour standard reduces the risk of experiencing health effects associated with both 8-hour and shorter duration exposures. Furthermore, the Administrator observes that the CASAC Panel agreed with the choice of averaging time (Henderson, 2007). Therefore, the Administrator finds it appropriate to retain the 8-hour averaging time and to not set a separate 1-hour standard. The Administrator also concludes that a standard with a long-term averaging time is not warranted at this time.

3. Form

In 1997, the primary O₃ NAAQS was changed from a "1-expected-exceedance" form per year over three years²¹ to a concentration-based statistic, specifically the 3-year average of the annual fourth-highest daily maximum 8-hour concentrations. The principal advantage of the concentration-based form is that it is more directly related to the ambient O₃ concentrations that are associated with health effects of concern. With a concentration-based form, days on which higher O₃ concentrations occur would weigh proportionally more than days with lower concentrations, since the actual concentrations are used in determining whether the standard is attained. That is, given that there is a continuum of effects associated with exposures to varying levels of O₃, the extent to which public health is affected

by exposure to ambient O₃ is related to the actual magnitude of the O₃ concentration, not just whether the concentration is above a specified level.

During the 1997 review, consideration was given to a range of alternative forms, including the second-, third-, fourth- and fifth-highest daily maximum 8-hour concentrations in an O₃ season, recognizing that the public health risks associated with exposure to a pollutant without a clear, discernable threshold can be appropriately addressed through a standard that allows for multiple exceedances to provide increased stability, but that also significantly limits the number of days on which the level may be exceeded and the magnitude of such exceedances. Consideration was given to setting a standard with a form that would provide a margin of safety against possible, but uncertain, chronic effects and would also provide greater stability to ongoing control programs. The fourth-highest daily maximum was selected because it was decided that the differences in the degree of protection against potential chronic effects afforded by the alternatives within the range were not well enough understood to use any such differences as a basis for choosing the most restrictive forms. On the other hand, the relatively large percentage of sites that would experience O₃ peaks well above 0.08 ppm and the number of days on which the level of the standard may be exceeded even when attaining a fifth-highest 0.08 ppm concentration-based standard, argued against choosing that form.

As an initial matter, the Staff Paper considered whether it is appropriate to continue to specify the level of the O₃ standard to the nearest hundredth (two decimal places) ppm, or whether the precision with which ambient O₃ concentrations are measured supports specifying the standard level to the thousandth (three decimal places) ppm (i.e., to the part per billion (ppb)). The Staff Paper discussed an analysis conducted by EPA staff to determine the impact of ambient O₃ measurement error on calculated 8-hour average O₃ design value concentrations, which are compared to the level of the standard to determine whether the standard is attained (Cox and Camalier, 2006). The results of this analysis suggested that instrument measurement error, or possible instrument bias, contribute very little to the uncertainty in design values. More specifically, measurement imprecision was determined to contribute less than 1 ppb to design value uncertainty, and a simulation study indicated that randomly occurring

instrument bias could contribute approximately 1 ppb. EPA staff interpreted this analysis as being supportive of specifying the level of the standard to the thousandth ppm. If the current standard were to be specified to this degree of precision, the current standard would effectively be at a level of 0.084 ppm, reflecting the data rounding conventions that are part of the definition of the current 0.08 ppm 8-hour standard. This information was provided to the CASAC Panel and made available to the public.

In evaluating alternative forms for the primary standard in conjunction with specific standard levels, the Staff Paper considered the adequacy of the public health protection provided by the combination of the level and form to be the foremost consideration. In addition, the Staff Paper recognized that it is important to have a form of the standard that is stable and insulated from the impacts of extreme meteorological events that are conducive to O₃ formation. Such instability can have the effect of reducing public health protection, because frequent shifting in and out of attainment due of meteorological conditions can disrupt an area's ongoing implementation plans and associated control programs. Providing more stability is one of the reasons that EPA moved to a concentration-based form in 1997.

The Staff Paper considered two concentration-based forms of the standard: the nth-highest maximum concentration and a percentile-based form. A percentile-based statistic is useful for comparing datasets of varying length because it samples approximately the same place in the distribution of air quality values, whether the dataset is several months or several years long. However, a percentile-based form would allow more days with higher air quality values in locations with longer O₃ seasons relative to places with shorter O₃ seasons. An nth-highest maximum concentration form would more effectively ensure that people who live in areas with different length O₃ seasons receive the same degree of public health protection. For this reason, the exposure and risk analyses were based on a form specified in terms of an nth-highest concentration, with n ranging from 3 to 5.

The results of some of these analyses are shown in the Staff Paper (Figures 6–1 through 6–4) and specifically discussed in chapter 6. These figures illustrate the estimated percent change in risk estimates for the incidence of moderate or greater decrements in lung function (≥ 15 percent FEV₁) in all school age children and moderate or

²¹ The 1-expected-exceedance form essentially requires that the fourth-highest air quality value in 3 years, based on adjustments for missing data, be less than or equal to the level of the standard for the standard to be met at an air quality monitoring site.

greater lung function decrements (≥ 10 percent FEV₁) in asthmatic school age children, associated with going from meeting the current standard to meeting alternative standards with alternative forms based on the 2002 and 2004 simulations. Figures 6–5 and 6–6 illustrate the estimated percent change in the estimated incidence of non-accidental mortality, associated with going from meeting the current standard to meeting alternative standards, based on the 2002 and 2004 simulations. These results are generally representative of the patterns found in all of the analyses. The estimated reductions in risk associated with different forms of the standard, ranging from third- to fourth-highest daily maximum concentrations at 0.084 ppm, and from third- to fifth-highest daily maximum concentrations at 0.074 ppm, are generally less than the estimated reductions associated with the different levels that were analyzed. As seen in these figures, there is much city-to-city variability, particularly in the percent changes associated with going from a fourth-highest to third-highest form at the current level of 0.084 ppm, and with estimated reductions associated with the fifth-highest form at a 0.074 ppm level. In most cities, there are generally only small differences in the estimated reductions in risks associated with the third- to fifth-highest forms at a level of 0.074 ppm simulated using 2002 and 2004 O₃ monitoring data.

The Staff Paper noted that there is not a clear health-based rationale for selecting a particular nth-highest daily maximum form of the standard from among the ones analyzed. It also noted that the changes in the form considered in the analyses result in only small differences in the estimated reductions in risks in most cities, although in some cities larger differences are estimated. The Staff Paper concluded that a range of concentration-based forms from the third- to the fifth-highest daily maximum 8-hour average concentration is appropriate for consideration in setting the standard. Given that there is a continuum of effects associated with exposures to varying levels of O₃, the extent to which public health is affected by exposure to ambient O₃ is related to the actual magnitude of the O₃ concentration, not just whether the concentration is above a specified level. The principal advantage of a concentration-based form is that it is more directly related to the ambient O₃ concentrations that are associated with health effects. Robust, concentration-based forms, in the range of the third- to fifth-highest daily maximum 8-hour

average concentration, including the current 4th-highest daily maximum form, minimize the inherent lack of year-to-year stability of exceedance-based forms and provide insulation from the impacts of extreme meteorological events. Such instability can have the effect of reducing public health protection by disrupting ongoing implementation plans and associated control programs.

With regard to the precision of the standard, in its letter to the Administrator, the CASAC concluded that current monitoring technology “allows accurate measurement of O₃ concentrations with a precision of parts per billion” (Henderson, 2006c). The CASAC recommended that the specification of the level of the O₃ standard should reflect this degree of precision (Henderson, 2006c). While the CASAC Panel unanimously supported specifying the level of the standard to this degree of precision, public comments were mixed. Environmental organizations (e.g., ALA *et al.*) and some State/regional agencies (e.g., NESCAUM, PA Department of Environmental Protection) supported the proposed increased precision and but did not support truncating to the third decimal. However, several industry associations (e.g., API, EMA, AAAM) suggested that there is not sufficient evidence to modify the 1997 decision to round to two decimal places. These comments are addressed in the Response to Comments document.

The Administrator concludes that the level of the standard should be specified to the thousandth ppm (three decimal places), based on the staff’s analysis and conclusions discussed in the Staff Paper that current monitoring technology allows accurate measurement of O₃ to support specifying the 8-hour standard to this degree of precision, and on the CASAC Panel’s reasoning and recommendation with respect to this aspect of the standard.

With regard to the form of the standard, in its letter to the Administrator prior to proposal, the CASAC recommended that “a range of concentration-based forms from the third- to the fifth-highest daily maximum 8-hour average concentration” be considered (Henderson, 2006c, p. 5). Several commenters supported maintaining the current form of the standard because it strikes an appropriate balance between stability and protection, as well as because EPA used this form in their analyses (e.g., EMA, NESCAUM, and Pennsylvania Department of Environmental Protection). Some public commenters that expressed the view that the current

primary O₃ standard is not adequate also submitted comments that supported a more health-protective form of the standard than the current form (e.g., a second- or third-highest daily maximum form) (e.g., ALA *et al.*). Most commenters who expressed the view that the current standard should not be revised did not provide any views on alternative forms that would be appropriate for consideration should the Administrator consider revisions to the standard. A few industry association and business commenters supported changing to a 5th highest form (e.g., Dow Chemical, AAM). One commenter (Oklahoma Department of Transportation) suggested the use of a 6th or 7th highest daily maximum form.

The Administrator recognizes that there is not a clear health-based threshold for selecting a particular nth-highest daily maximum form of the standard from among the ones analyzed in the Staff Paper and that the current form of the standard provides a stable target for implementing programs to improve air quality. The Administrator also agrees that the adequacy of the public health protection provided by the combination of the level and form is a foremost consideration. Based on this, the Administrator finds that the form of the current standard, 4th-highest daily maximum 8-hour average concentration, should be retained, recognizing that the public health protection that would be provided by this standard is based on combining this form with the increased health protection provided by the lower level of the standard discussed in the section below.

4. Level

a. Proposed Range

For the reasons discussed below, and taking into account information and assessments presented in the Criteria Document and Staff Paper, the advice and recommendations of the CASAC, and the public comments received prior to proposal, the Administrator proposed to revise the existing 8-hour primary O₃ standard. Specifically, the Administrator proposed to revise the level of the primary O₃ standard to within a range from 0.070 to 0.075 ppm.

The Administrator’s consideration of alternative levels of the primary O₃ standard builds on his proposal, discussed above, that the overall body of evidence indicates that the current 8-hour O₃ standard is not requisite to protect public health with an adequate margin of safety because it does not provide sufficient protection, and that revision would result in increased public health protection, especially for

members of at-risk groups, notably including asthmatic children and other people with lung disease, as well as all children and older adults, especially those active outdoors, and outdoor workers, against an array of adverse health effects. These effects range from health outcomes that could be quantified in the risk assessment, including decreased lung function, respiratory symptoms, serious indicators of respiratory morbidity such as hospital admissions for respiratory causes, and nonaccidental mortality, to health outcomes that could not be directly estimated, including pulmonary inflammation, increased medication use, emergency department visits, and possibly cardiovascular-related morbidity effects. In reaching a proposed decision about the level of the O₃ primary standard, the Administrator considered: the evidence-based considerations from the Criteria Document and the Staff Paper; the results of the exposure and risk assessments discussed above and in the Staff Paper, giving weight to the exposure and risk assessments as judged appropriate; CASAC advice and recommendations, as reflected in discussions of drafts of the Criteria Document and Staff Paper at public meetings, in separate written comments, and in CASAC's letters to the Administrator; EPA staff recommendations; and public comments received during the development of these documents, either in connection with CASAC meetings or separately. In considering what 8-hour standard is requisite to protect public health with an adequate margin of safety, the Administrator noted at the time of proposal that he was mindful that this choice requires judgment based on an interpretation of the evidence and other information that neither overstates nor understates the strength and limitations of the evidence and information nor the appropriate inferences to be drawn.

The Administrator noted that the most certain evidence of adverse health effects from exposure to O₃ comes from the clinical studies and that the large bulk of this evidence derives from studies of exposures at levels of 0.080 and above. At those levels, there is consistent evidence of lung function decrements and respiratory symptoms in healthy young adults, as well as evidence of inflammation and other medically significant airway responses. Moreover, there is no evidence that the 0.080 ppm level is a threshold for these effects. Although the Administrator took note of the very limited new evidence

of lung function decrements and respiratory symptoms in some healthy individuals at the 0.060 ppm exposure level, he judged this evidence too limited to support a primary focus at this level. The Administrator also noted that clinical studies, supported by epidemiological studies, provide important new evidence that people with asthma were likely to experience larger and more serious effects than healthy people from exposure to O₃. There were also epidemiological studies that provide evidence of statistically significant associations between short-term O₃ exposures and more serious health effects, such as emergency department visits, hospital admissions, and premature mortality, in areas that likely would have met the current standard. The Administrator also took note of the many epidemiological studies done in areas that likely would not have met the current standard but which nonetheless report statistically significant associations that generally extend down to ambient O₃ concentrations that were below the level of the current standard. Further, there were a few studies that have examined subsets of data that include only days with ambient O₃ concentrations below the level of the current standard, or below even much lower O₃ concentrations, and continued to report statistically significant associations with respiratory morbidity outcomes and mortality. In considering this evidence, the Administrator noted that the extent to which these studies provide evidence of causal relationships with exposures to O₃ alone, down to the lowest levels observed, remains uncertain. EPA sought comment on the degree to which associations observed in epidemiological studies reflect causal relationships between important health endpoints and exposure to O₃ alone at ambient O₃ levels below the current standard.

Therefore, the Administrator judged at the time of proposal, and continues to judge as discussed in section II.B.3, that revising the current standard to protect public health with an adequate margin of safety is warranted and would reduce risk to public health, based on: (1) The strong body of clinical evidence in healthy people at exposure levels of 0.080 and above of lung function decrements, respiratory symptoms, pulmonary inflammation, and other medically significant airway responses, as well as some indication of lung function decrements and respiratory symptoms at lower levels; (2) the substantial body of clinical and epidemiological evidence indicating

that people with asthma are likely to experience larger and more serious effects than healthy people; and (3) the body of epidemiological evidence indicating associations are observed for a wide range of serious health effects, including respiratory emergency department visits, hospital admissions, and premature mortality, at and below 0.080 ppm. The Administrator also judged at the time of proposal and continues to conclude that the estimates of exposures of concern and risks remaining upon just meeting the current standard or a standard at the 0.080 ppm level provide additional support for this view. For the same reasons stated in the proposal notice and discussed above in section II.B on the adequacy of the current standard, the Administrator judges that the standard should be set below 0.080 ppm, a level at which the evidence provides a high degree of certainty about the adverse effects of O₃ exposure even in healthy people.

The Administrator next considered what standard level below 0.080 ppm would be requisite to protect public health with an adequate margin of safety that is sufficient, but not more than necessary, to achieve that result, recognizing that such a standard would result in increased public health protection. The assessment of a standard level calls for consideration of both the degree of additional protection that alternative levels of the standard might be expected to provide as well as the certainty that any specific level will in fact provide such protection. In the circumstances present in this review, there is no evidence-based bright line that indicates a single appropriate level. Instead there is a combination of scientific evidence and other information that needs to be considered holistically in making this public health policy judgment and selecting a standard level from a range of reasonable values.

The Administrator noted that at exposure levels below 0.080 ppm there is only a very limited amount of evidence from clinical studies, indicating effects in some healthy individuals at levels as low as 0.060 ppm. The great majority of the evidence concerning effects below 0.080 ppm is from epidemiological studies. The epidemiological studies do not identify any bright-line threshold level for effects. At the same time, the epidemiological studies are not in and of themselves direct evidence of a causal link between exposure to O₃ and the occurrence of the effects. The Administrator considers these studies in the context of all the other available evidence in evaluating the degree of

certainty that O₃-related adverse health effects would occur at various ambient levels below 0.080 ppm, including the strong human clinical studies and the toxicological studies that demonstrate the biological plausibility and mechanisms for the effects of O₃ on airway inflammation and increased airway responsiveness at exposure levels of 0.080 ppm and above.

Based on consideration of the entire body of evidence and information available at this time, as well as the recommendations of the CASAC, the Administrator proposed that a standard within the range of 0.070 to 0.075 ppm would be requisite to protect public health with an adequate margin of safety. As noted at the time of proposal, a standard level within this range is estimated to reduce the risk of a variety of health effects associated with exposure to O₃, including the respiratory symptoms and lung function effects demonstrated in clinical studies, and in emergency department visits, hospital admissions, and mortality effects indicated in the epidemiological studies. All of these effects are indicative of a much broader array of O₃-related health endpoints, as represented by the pyramid of effects, such as school absences and increased medication use that are plausibly linked to these observed effects.

The Administrator also considered the degree of improvements in public health that potentially could be achieved by a standard of 0.070 to 0.075 ppm, giving weight to the exposure and risk assessments as he judged appropriate. As discussed in the proposal notice (section II.D.4) in considering the results of the exposure assessment, the Administrator primarily focused on exposures at and above the 0.070 ppm benchmark level as an important surrogate measure for potentially more serious health effects for at-risk groups, including people with asthma. In so doing, the Administrator noted that although the analysis of "exposures of concern" was conducted to estimate exposures at and above three discrete benchmark levels, the concept is appropriately viewed as a continuum. As discussed above, the Administrator strives to balance concern about the potential for health effects and their severity with the increasing uncertainty associated with our understanding of the likelihood of such effects at lower O₃ exposure levels. In focusing on this benchmark, the Administrator noted that upon just meeting a standard within the range of 0.070 to 0.075 ppm based on the 2002 simulation, the number of school age children likely to experience exposures at and above this

benchmark level in aggregate (for the 12 cities in the assessment) was estimated to be approximately 2 to 4 percent of all and asthmatic children and generally less than 10 percent of children even in cities that receive the least degree of protection from such a standard in a recent year with relatively high O₃ levels. A standard within the 0.070 to 0.075 ppm range would thus substantially reduce exposures of concern by about 90 to 80 percent, respectively, from those estimated to occur upon just meeting the current standard. While placing less weight on the results of the risk assessment, in light of the important uncertainties inherent in the assessment, the Administrator noted that the results indicated that a standard set within this range would likely reduce risks to at-risk groups from the O₃-related health effects considered in the risk assessment, and by inference across the much broader array of O₃-related health effects that could only be considered qualitatively, relative to the level of protection afforded by the current standard. This lent support to the proposed range.

The Administrator judged that a standard set within the range of 0.070 to 0.075 ppm would provide a degree of reduction in risk that is important from a public health perspective and that a standard within this range would be requisite to protect public health, including the health of at-risk groups, with an adequate margin of safety. EPA's evaluation of the body of scientific evidence and quantitative estimates of exposures and risks indicated that substantial reductions in public health risks would occur throughout this range. As noted in the proposal notice, because there is no bright line clearly directing the choice of level within this reasonable range, the choice of what is appropriate, considering the strengths and limitations of the evidence, and the appropriate inference to be drawn from the evidence and the exposure and risk assessments is a public health policy judgment. To further inform this judgment, EPA sought public comment on the extent to which the epidemiological and clinical evidence provide guidance as to the level of a standard that would be requisite to protect public health with an adequate margin of safety, especially for at-risk groups.

In considering the available information, the Administrator also judged that a standard level below 0.070 ppm would not be appropriate. In reaching this judgment, the Administrator noted that there was only

quite limited evidence from clinical studies at exposure levels below 0.080 ppm O₃. Moreover, the Administrator recognized that in the body of epidemiological evidence, many studies reported positive and statistically significant associations, while others reported positive results that were not statistically significant, and a few did not report any positive O₃-related associations. In addition, the Administrator judged that evidence of a causal relationship between adverse health outcomes and O₃ exposures became increasingly uncertain at lower levels of exposure.

The Administrator also considered the results of the exposure assessments in reaching his judgment that a standard level below 0.070 ppm would not be appropriate. The Administrator noted that in considering the results from the exposure assessment, a standard set at the 0.070 ppm level, with the same form as the current standard, was estimated to provide substantial reductions in exposures of concern (i.e., approximately 90 to 92 percent reductions in the numbers of school age children and 94 percent reduction in the total number of occurrences) for both all and asthmatic school age children relative to just meeting the current standard based on a simulation of a recent year with relatively high O₃ levels (2002). Thus, a 0.070 ppm standard would be expected to provide protection from the exposures of concern that the Administrator had primarily focused on for over 98 percent of all and asthmatic school age children even in a year with relatively high O₃ levels, increasing to over 99.9 percent of children in a year with relatively low O₃ levels (2004).

In considering the results of the health risk assessment, as discussed in the proposal notice (section II.C.2), the Administrator noted that there were important uncertainties and assumptions inherent in the risk assessment and that this assessment was most appropriately used to simulate trends and patterns that could be expected, as well as providing informed, but still imprecise, estimates of the potential magnitude of risks. The Administrator particularly noted that as lower standard levels were modeled, including a standard set at a level below 0.070 ppm, the risk assessment continued to assume a causal link between O₃ exposures and the occurrence of the health effects examined, such that the assessment continued to indicate reductions in O₃-related risks upon meeting a lower standard level. As discussed above, however, the Administrator recognized

that evidence of a causal relationship between adverse health effects and O₃ exposures becomes increasingly uncertain at lower levels of exposure. Given all of the information available to him at the time of the proposal, the Administrator judged that the increasing uncertainty of the existence and magnitude of additional public health protection that standards below 0.070 ppm might provide suggested that such lower standard levels would likely be below what is necessary to protect public health with an adequate margin of safety.

In addition, the Administrator judged that a standard level higher than 0.075 ppm would also not be appropriate. This judgment took into consideration the information discussed in the proposal notice (sections II.A and B) and was based on the strong body of clinical evidence in healthy people at exposure levels of 0.080 ppm and above, the substantial body of clinical and epidemiological evidence indicating that people with asthma are likely to experience larger and more serious effects than healthy people, the body of epidemiological evidence indicating that associations are observed for a wide range of more serious health effects at levels below 0.080 ppm, and the estimates of exposure and risk remaining upon just meeting a standard set at 0.080 ppm. The much greater certainty of the existence and magnitude of additional public health protection that such levels would forego provides the basis for judging that levels above 0.075 ppm would be higher than what is requisite to protect public health, including the health of at-risk groups, with an adequate margin of safety.

For the reasons discussed in more detail in the proposal notice and summarized above, the Administrator proposed to revise the level of the primary O₃ standard to within the range of 0.070 to 0.075 ppm.

At the time of proposal, the Administrator recognized that sharply divergent views on the appropriate level of this standard had been presented to EPA as part of the NAAQS review process, and he solicited comment on a wide range of standard levels and alternative approaches to characterizing and addressing scientific uncertainties. One such alternative view focused very strongly on the uncertainties inherent in the controlled human exposure and epidemiological studies and quantitative exposure and health risk assessments as the basis for concluding that no change to the current 8-hour O₃ standard of 0.084 ppm was warranted. In sharp contrast, others viewed the controlled human exposure and

epidemiological studies as strong and robust, and generally placed more weight on the results of the quantitative exposure and risk assessments and the unanimous CASAC recommendations as a basis for concluding that an 8-hour standard at or below 0.070 ppm was warranted. As discussed below, the same sharply divergent views were generally repeated in comments on the proposal by the two distinct groups of commenters identified in II.B.2 above.

b. Comments on Level

i. Health Evidence Considerations

With regard to the evaluation and consideration of the health effects evidence and how such information should be considered in the decision on the standard level, EPA notes that the commenters fell into the same two groups discussed above in section II.B.2. The two groups often cited the same studies and evidence, but they reached sharply divergent conclusions as to what standard level is supported by the health effects evidence. The general views of both groups on the interpretation and use of the health effects evidence are presented above in section II.B.2.a, with most comments from one group arguing that this evidence supports a decision to revise the 8-hour standard to 0.060 ppm or below, and the other group arguing that it supports a decision not to revise the current 8-hour standard.

With regard to the evidence from controlled human exposure studies, commenters that included public health and environmental groups who supported revising the current standard expressed the view that the large body of evidence available at the time of the last review, demonstrating an array of adverse health effects (i.e., reduced lung function, respiratory symptoms, increased airway responsiveness, inflammation, and increased susceptibility to respiratory infection), at concentrations of 0.080 ppm O₃, indicated that the standard should have been set at a lower level. These commenters noted that standards must be set below the level shown to cause effects in healthy subjects in order to protect sensitive populations with an adequate margin of safety. As discussed in section II.B.2.a above, these commenters focused on the results of the Adams studies (2002, 2006) as evidence that exposure to 0.060 ppm O₃ will result in a significant proportion (i.e., 7%) of the adult population who do not have asthma or other lung diseases experiencing notable lung function decrements (FEV₁ decrement $\geq 10\%$), and furthermore that larger

decrements in FEV₁ would be expected in more susceptible populations. This evidence caused these commenters to reject EPA's proposed range:

Clearly, EPA's proposed standard of 0.070 to 0.075 ppm cannot be considered protective of public health in light of experimental evidence demonstrating adverse respiratory effects in healthy individuals exposed to 0.060 ppm, and the legal requirements to protect sensitive populations with an adequate margin of safety. [ALA *et al.*, p. 51]

The second group of commenters, who opposed revision of the standard, expressed the view that the group mean changes reported in the Adams studies (2002, 2006) were small, that such decrements should not be considered to be adverse, and that the individuals who experienced larger responses were too few to serve as a basis for a revised O₃ standard. This group included virtually all commenters representing industry associations and businesses. These general comments are addressed above in section II.B.2.a and in more detail in the Response to Comments document.

In considering comments received on controlled human exposure studies, and how these studies support a focus on particular standard levels, the Administrator observes that in general the comments support his original view that these studies provide the most certain evidence of adverse health effects, and that the large bulk of evidence derives from studies of exposures at levels of 0.080 ppm and above. The Administrator notes that since the last review important new evidence includes demonstration of O₃-induced lung function effects and respiratory symptoms in some healthy adults down to the previously observed exposure level of 0.080 ppm, as well as very limited new evidence of the same effects at exposure levels well below the level of the current standard (Adams, 2002, 2006). EPA disagrees with these commenters that the percent of subjects that experienced FEV₁ decrements greater than 10% in this study of 30 subjects can appropriately be generalized to the U.S. population. Based on careful consideration of the comments, the Administrator again concludes that while the Adams studies provide evidence that some healthy individuals will experience lung function decrements and respiratory symptoms at the 0.060 ppm exposure level, this evidence is too limited to support a primary focus at this level. Moreover, the Administrator notes that while the CASAC Panel supported a level of 0.060 ppm, they also supported a level above 0.060, indicating that they disagree with the commenters' view that

the results of Adams studies mean that the level of the standard has to be set at 0.060 ppm.

With regard to the information from epidemiological studies, commenters representing public health, environmental, and medical organizations generally asserted that the large body of new epidemiological studies provides evidence of causal associations between O₃ exposures and a wide array of respiratory and cardiovascular morbidity effects, including emergency department visits and hospital admissions. They expressed the view that a significant body of strong, consistent evidence links short-term exposures to premature mortality and noted that this evidence is supported by new research that provides biological plausibility for such effects. These commenters noted that various approaches, including air quality assessments which show that statistically significant associations occurred in areas that likely would have met the current standard, or statistical approaches that examined subsets of the data which indicate that statistically significant associations remain down to very low ambient O₃ levels, show effects well below the level of the current standard. Moreover they identified particular studies, including some "new" studies not considered in the Criteria Document, that indicated there are additional sub-populations that are likely to be sensitive to O₃, including infants, women, and African-Americans, that should be considered in deciding the requisite level of protection. They asserted that this information supports a standard set at a level no higher than 0.060 ppm O₃.

With regard to the information from epidemiological studies, the second group of commenters focused strongly on EPA's interpretation of the epidemiological evidence and the uncertainties they saw in this evidence as a basis for concluding that no change to the current level of the 8-hour O₃ standard is warranted. In commenting on the proposed range of levels, these commenters generally relied on the same arguments presented above in section II.B.2.a as to why they believed it would be inappropriate for EPA to make any revisions to the primary O₃ standard. That is, they asserted that the health effects of concern associated with short-term or prolonged exposures to O₃ have not changed significantly since 1997; that the inconsistencies and uncertainties inherent in these studies as a whole should preclude any reliance on them as justification for a more stringent standard; and that "new" science not included in the Criteria

Document continues to increase uncertainty about possible health risks associated with exposure to O₃. Specific methodological issues cited as additional support for their conclusions included: adequacy of exposure data; potential confounding by copollutants; model selection; inconsistent evidence relating O₃ exposure to mortality, and "new" studies that provide additional evidence of inconsistencies. These general comments are addressed above in section II.B.2.a, and in greater detail in the Response to Comments document.

In considering these comments on the epidemiological evidence with regard to the interpretation of the epidemiological evidence and methodological issues, the Administrator notes that in general, most of the issues and concerns raised by those who do not support any revisions to the primary O₃ standard with regard to the interpretation of the epidemiological evidence and methodological issues, are essentially restatements of issues raised during the review of the Criteria Document and Staff Paper. The same is true of the views of commenters who supported a level of the standard no higher than 0.060 ppm O₃. EPA presented and the CASAC Panel reviewed the interpretation of the epidemiological evidence in the Criteria Document and the integration of the evidence with policy considerations in the development of the policy options presented in the Staff Paper for consideration by the Administrator. CASAC reviewed the scientific content of both the Criteria Document and Staff Paper and advised the Administrator that these documents provided an appropriate basis for use in regulatory decision making. Therefore, these comments do not provide a basis for the Administrator to reach fundamentally different conclusions than he reached at the time of proposal.

Moreover, the Administrator notes that epidemiological evidence is most appropriately evaluated in the context of all available evidence, including evidence from controlled human exposure and toxicological studies. In general, the Administrator agrees with the weight of evidence approach used in the Criteria Document and believes that this body of scientific evidence across all types of studies is very robust, recognizing that it includes a large number of various types of studies that provide consistent and coherent evidence of an array of O₃-related respiratory morbidity effects and possibly cardiovascular-related morbidity as well as total nonaccidental and cardiorespiratory mortality. More

specifically, the Administrator judges that the body of epidemiological evidence indicating associations with a wide range of serious health effects, including respiratory emergency department visits and hospital admissions and premature mortality, at and below 0.080 ppm supports revising the current standard to protect public health. While the great majority of evidence concerning effects below 0.080 ppm was from epidemiological studies, the epidemiological studies do not identify any bright-line threshold level for effects. At the same time, the epidemiological studies are not themselves direct evidence of a causal link between exposure to O₃ and the occurrence of the effects. Therefore, Administrator has considered these studies in the context of all the other available evidence in evaluating the degree of certainty that O₃-related adverse health effects would occur at various ambient levels below 0.080 ppm. In that context, there is only quite limited evidence from controlled human exposure studies at exposure levels below 0.080 ppm O₃. The Administrator recognizes that in the body of epidemiological evidence, many studies reported positive and statistically significant associations, while others reported positive results that were not statistically significant, and a few did not report any positive O₃-related associations. In addition, the Administrator judged that evidence of a causal relationship between adverse health outcomes and O₃ exposures became increasingly uncertain at lower levels of exposure. Based on this the Administrator continues to believe that the body of epidemiological evidence does not support setting a standard as low as 0.060 as suggested by some commenters.

The Administrator also notes the many epidemiological studies done in areas that likely would not have met the current standard but which nonetheless report statistically significant associations that generally extend down to ambient O₃ concentrations that were below the level of the current standard. Further, there were a few studies that have examined subsets of data that include only days with ambient O₃ concentrations below the level of the current standard, or below even much lower O₃ concentrations, and continued to report statistically significant associations with respiratory morbidity outcomes and mortality. In the context of the strong clinical evidence of adverse effect in healthy adults at 0.080, the Administrator finds that the body of epidemiological evidence does not

support retaining a standard of 0.080, as suggested by commenters.

Both groups of commenters also considered evidence from controlled human exposure and epidemiological studies of increased susceptibility in people with lung disease, especially people with asthma, but they reached sharply divergent conclusions about what standard level is supported by this evidence. As discussed above in section II.B.2.a, medical organizations and public health and environmental groups agreed with EPA that, based on evidence from controlled human exposure and epidemiological studies, people with asthma, especially children, are likely to have greater lung function decrements and respiratory symptoms in response to O₃ exposure than people who do not have asthma, and are likely to respond at lower levels. Furthermore, these commenters noted that epidemiological studies have identified other potentially sensitive subpopulations, including for example, infants, women and African-Americans, and that effects in these groups should be part of the consideration in providing an adequate margin of safety. These commenters concluded that the appropriate level for the primary O₃ standard is 0.060 ppm, to provide protection for members of sensitive groups, especially people with asthma, who are likely to have more serious responses and to respond at lower levels than healthy people. They also contended that a standard set at this level also would provide protection against anticipated, but as yet unproven effects in the additional groups cited. The Administrator agrees with these commenters that important new evidence shows that asthmatics have more serious responses, and are more likely to respond at lower O₃ levels, than healthy individuals. Moreover, he agrees that this evidence supports a standard set at a level below 0.080 ppm O₃, based on the strong evidence from human clinical studies in healthy adults at this level. However, for the reasons described above, he does not agree that the controlled human exposure and epidemiological evidence provide support for a standard set at 0.060 ppm, for the reasons discussed above.

In contrast, industry association and business commenters asserted that EPA is wrong to claim that new evidence indicates that the current standard does not provide adequate health public health protection for people with asthma. In support of this position, these commenters made the following major comments: (1) The lung function decrements and respiratory symptoms observed in clinical studies of

asthmatics are not clinically important; (2) EPA postulates that asthmatics would likely experience more serious responses and responses at lower levels than the subjects of controlled human exposure experiments, but that hypothesis is not supported by scientific evidence; and, (3) EPA recognized asthmatics as a sensitive subpopulation in 1997, and new information does not suggest greater susceptibility than was previously believed. EPA has generally responded to these comments and those summarized in the paragraph above in section II.B.2.a above, and in greater detail in the Response to Comments document.

After careful consideration of these comments, the Administrator continues to judge that there is important new evidence demonstrating that exposures to O₃ at levels below the level of the current standard are associated with a broad array of adverse health effects, especially in at-risk populations that include people with asthma or other lung diseases who are likely to experience more serious effects from exposure to O₃, as well as children and older adults with increased susceptibility, and those who are likely to be vulnerable as a result of spending a lot of time outdoors engaged in physical activity, especially active children and outdoor workers. The Administrator notes that this important new evidence demonstrates O₃-induced lung function effects and respiratory symptoms in some healthy individuals down to the previously observed exposure level of 0.080 ppm, as well as very limited new evidence at exposure levels well below the level of the current standard. In addition, there are many epidemiological studies done in areas that likely would not have met the current standard but which nonetheless report statistically significant associations that generally extend down to ambient O₃ concentrations that were below the level of the current standard. Further, there were a few studies that have examined subsets of data that include only days with ambient O₃ concentrations below the level of the current standard, or below even much lower O₃ concentrations, and continued to report statistically significant associations with respiratory morbidity outcomes and mortality. The Administrator recognizes that in the body of epidemiological evidence, many studies reported positive and statistically significant associations, while others reported positive results that were not statistically significant, and a few did not report any positive O₃-related associations. In addition, the

Administrator judged that evidence of a causal relationship between adverse health outcomes and O₃ exposures became increasingly uncertain at lower levels of exposure. This body of evidence provides a strong basis for the Administrator's judgment that the standard needs to be revised to provide more protection, and that a revised standard must be set at a level appreciably below 0.080 ppm, the level at which there is considerable evidence of effects in healthy people. At the same time, for the reasons discussed above the Administrator judges that this body of evidence does not support setting a standard as low as 0.060, as suggested by other commenters.

ii. Exposure and Risk Considerations

With regard to considering how the quantitative exposure and health risk assessments should factor into a decision on the standard level, EPA notes that both groups of commenters generally consider these assessments in their comments on the standard level, but they reach sharply divergent conclusions as to what standard level is supported by these assessments. The general views of both groups on the implications of the exposure and risk assessment are presented above in section II.B.2.b, with one group arguing that it supports a decision to revise the 8-hour standard to 0.060 ppm or below, and the other group arguing that it supports a decision not to revise the current 8-hour standard.

A joint set of comments from ALA and several environmental groups expressed the view that EPA cannot use exposures of concern to justify a standard in the range of 0.070 to 0.075 ppm. These commenters contended that standards in the proposed range would continue to expose too many asthmatic children, as well as other at risk groups such as outdoor workers and preschool children, to "demonstrably unhealthy levels of ozone pollution" in only 12 cities which does not represent a national estimate (ALA *et al.*, p. 106). These same commenters asserted that if EPA were to consider exposures of concern, then the benchmark level must be defined as 0.060 ppm based on the considerable evidence of adverse health effects occurring at this level. As discussed in section II.B.2.b above, they also cited various reasons why the exposure estimates were underestimated, including: only 12 cities were included in the assessment, various at risk groups including outdoor workers and preschool children were not included in the assessment, and EPA's exposure assessment underestimated exposures since it

considers average children, not active children who spend more time outdoors and repeated exposures also were underestimated.

In contrast, industry association and business group commenters expressed the view that the concept of exposures of concern should not be considered as a basis for revising the level of the standard because it provided no indication of the probability that individuals would actually experience an adverse health effect. These same commenters also provided various reasons why the exposure estimates were overestimated based on specific methodological choices made by EPA including, for example, O_3 measurements at fixed-site monitors can be higher than other locations where individuals are exposed, the exposure estimates do not account for O_3 avoidance behaviors, and the exposure model overestimates elevated breathing rates. Finally, these commenters also contended that the estimates of exposures of concern associated with just meeting the current standard, using the 0.080 ppm benchmark levels, have not appreciably changed since the prior review and, thus provide no support for revising the current standard.

EPA has responded to the criticisms from both groups of commenters related to concerns that the exposure estimates are either underestimated or overestimated in section II.B.2.b above and in more detail in the Response to Comments document. EPA also has addressed the issues raised by both groups of commenters concerning the appropriateness of considering exposures at and above various benchmark levels as an element in the decision on the adequacy of the current standard in section II.B.2.b.

As discussed in section II.B.2b, the Administrator believes that it is appropriate to consider such exposure estimates in the context of a continuum rather than focusing on any one discrete benchmark level, as was done at the time of proposal, since the Administrator does not believe that the underlying evidence is certain enough to support a focus on any single bright-line benchmark level. Thus, the Administrator believes it is appropriate to consider a range of benchmark levels from 0.080 down to 0.060 ppm, recognizing that exposures at and above these benchmark levels must be considered in the context of a continuum of the potential for health effects of concern, and their severity, with increasing uncertainty associated with the likelihood of such effects at lower O_3 exposure levels.

The Administrator recognizes that the 0.080 ppm benchmark level represents a level at which several health outcomes, including lung inflammation, increased airway responsiveness, and decreased resistance to infection have been shown to occur in healthy adults. The Administrator places great weight on the public health significance of exposures at and above this benchmark level given the greater certainty that these adverse health responses are likely to be observed in a significant fraction of the at-risk population. With respect to his decision on the level of the 8-hour standard, the Administrator notes that upon just meeting a standard within the range of 0.070 to 0.075 ppm based on the 2002 simulation, the number of school age asthmatic children likely to experience exposures at and above the 0.080 ppm benchmark level in aggregate (for the 12 cities in the assessment) is estimated to range from 0.1 to 0.4 percent of asthmatic school age children. Based on the 2004 simulation, the estimates are even lower, with no asthmatic children estimated to experience exposures at and above the 0.080 ppm benchmark level. Similar patterns are observed for all school age children. Recognizing the uncertainties inherent in the exposure assessment, the Administrator concludes that the exposure assessment suggests that exposures at and above the 0.080 ppm level, where several health effects have been shown to occur in healthy individuals, are eliminated or nearly eliminated depending on the modeling year upon just meeting a standard within the range of 0.070 to 0.075 ppm.

The Administrator does not agree with those commenters who would only consider the single benchmark level of 0.080 ppm. While the Administrator places less weight on exposures at and above the 0.070 ppm benchmark level, given the increased uncertainty about the fraction of the population and severity of the health responses that might occur associated with exposures above this level, he believes that it is appropriate to consider exposures at this benchmark as well in judging the adequacy of the current standard to protect public health. Consideration of the 0.070 ppm benchmark level recognizes that the effects observed at 0.080 ppm were in healthy adult subjects and sensitive population groups, such as asthmatics, are expected to respond at lower O_3 levels than healthy individuals. The Administrator notes that upon just meeting a standard within the range of 0.070 to 0.075 ppm based on the 2002 simulation, the number of asthmatic school age children

likely to experience exposures at and above the 0.070 ppm benchmark level in aggregate (for the 12 cities in the assessment) is estimated to range from about 2 to 5 percent of asthmatic school age children. Based on the 2004 simulation, the estimates are substantially lower, with 0 to 0.6 percent of asthmatic children estimated to experience exposures at and above the 0.070 ppm benchmark level upon just meeting a standard within the range of 0.070 to 0.075 ppm.

Finally, the Administrator has considered but places very little weight on the benchmark level of 0.060 ppm given the very limited scientific evidence supporting a conclusion that O_3 is causally related to various health outcomes at this exposure level. Nevertheless, the Administrator observes that there is a similar pattern of reductions in exposures of concern for all and asthmatic school age children at this benchmark level as well when comparing the 0.070 ppm and 0.075 ppm 8-hour standards.

Given the degree of uncertainty associated with the exposure assessment discussed in the Staff Paper and uncertainty assessment (Langstaff, 2007), the Administrator judges that for each specific benchmark level examined there is not an appreciable difference, from a public health perspective, in the estimates of exposures associated with air quality just meeting an 8-hour standard at 0.075 ppm versus an 8-hour standard set at 0.070 ppm. For example, given the uncertainty in the exposure estimates, the difference between an estimate of 2 percent and 5 percent of asthmatic children for the exposure benchmark of 0.070 is not an appreciable difference from a public health perspective. While directionally there are likely to be fewer exposures at and above this benchmark for a standard of 0.070 than a standard of 0.075 ppm, given the uncertainty in the exposure assessment it is not at all clear that the actual difference is large enough to present a public health concern.

With regard to considering how the quantitative risk assessment should factor into a decision on the standard level, as noted above both groups of commenters generally considered the risk assessment in their comments on the standard level, but they reached sharply divergent conclusions as to what standard level is supported by the risk assessment. More specifically, the environmental, public health, and most medical organizations, and some State and regional air pollution agencies (e.g., California, NESCAUM) contended that EPA's proposed range of 0.070 to 0.075 ppm would result in significant residual

public health risks. As articulated most fully in the joint set of comments from ALA and several environmental organizations, these commenters expressed the view that EPA's risk assessment clearly demonstrates that a more stringent 8-hour O₃ standard of 0.065 ppm, the most stringent standard analyzed by EPA, would significantly decrease O₃-related lung function decrements, respiratory symptoms, hospital admissions, and mortality and that "EPA must adopt a more stringent ozone standard of 0.060 ppm or below—a level that incorporates a more adequate margin of safety" (ALA *et al.*, p. 108). These same commenters also cited various reasons for asserting that the risk assessment likely underestimates health risks to a substantial degree, including the limited nature of the assessment with respect to number of cities, populations covered, and health endpoints analyzed. EPA has responded to the comments concerning the scope of the risk assessment and assertion that health risks are likely underestimated both in section II.B.2.b above and in more detail in the Response to Comments document. The Administrator's reasoning and conclusions regarding the weight he places on the health risk assessment in reaching a judgment about the appropriate level for the primary standard are discussed below in section II.C.4.c.

In contrast, industry association and business group commenters who supported not revising the level of the current 8-hour standard generally asserted the following points: (1) That risk estimates have not changed significantly since the prior review in 1997; (2) that uncertainties and limitations underlying the risk assessment make it too speculative to be used in supporting a decision to revise the standard; (3) that EPA should have defined PRB differently and that EPA underestimated PRB levels, which results in health risk reductions associated with more stringent standards being overestimated; and (4) that health risks are overestimated based on specific methodological choices made by EPA including, for example, selection of inappropriate effect estimates from health effect studies, EPA's approach to addressing the shape of exposure-response relationships, and whether or not to incorporate thresholds into its models for the various health effects analyzed. EPA has responded to these comments both in section II.B.2.b above and in more detail in the Response to Comments document.

In summary, the Administrator concludes that the exposure assessment

suggests that exposures at and above the 0.080 ppm benchmark level, where several health effects have been shown to occur in healthy individuals, are essentially eliminated for standards in the range of 0.070 to 0.075 ppm. He also concludes that at the 0.070 ppm benchmark level, the exposures are substantially reduced and eliminated for the vast majority of people in at-risk groups, and that the very low estimates of such exposures are not appreciably different, from a public health perspective, between those exposures associated with just meeting a standard set at 0.070 ppm or 0.075 ppm. Further, the Administrator places relatively little weight on the exposures using the 0.060 ppm benchmark level given the very limited scientific evidence supporting a conclusion that O₃ is causally related to health outcomes at this exposure level. Considering the uncertainties associated with the exposure assessment, the Administrator concludes that the exposure estimates associated with each of the benchmark levels are not appreciably different, between a 0.070 or 0.075 ppm standard, and therefore, the exposure assessment does not provide a basis for choosing a level within the proposed range.

While the Administrator places less weight on the results of the risk assessment, he notes that the results indicate that a standard set within the proposed range would likely reduce risks to at-risk groups from the O₃-related health effects considered in the assessment, and by inference across the much broader array of O₃-related health effects that can only be considered qualitatively, relative to the level of protection afforded by the current standard. Moreover, he notes that the results of the assessment suggest a gradual reduction in risks with no clear breakpoint as increasingly lower standard levels are considered. In light of this continuum and the important uncertainties inherent in the assessment discussed above and in the proposal, the Administrator concludes that the risk assessment does not provide a basis for choosing a level within the proposed range.

c. Conclusions on Level

Having carefully considered the public comments on the appropriate level of the O₃ standard, as discussed above, the Administrator believes the fundamental scientific conclusions on the effects of O₃ reached in the Criteria Document and Staff Paper, briefly summarized above in section II.A.2 and discussed more fully in section II.A of the proposal, remain valid. In considering the level at which the

primary O₃ standard should be set, the Administrator continues to place primary consideration on the body of scientific evidence available in this review on the health effects associated with O₃ exposure, as summarized above in section II.C.4.a, while viewing the results of exposure and risk assessment, discussed above in section II.C.4.b, as providing information in support of his decision. In considering the available scientific evidence he judges that, as at the proposal, a focus on the proposed range of 0.070 to 0.075 ppm is appropriate in light of the large body of controlled human exposure and epidemiological and other scientific evidence. As discussed above, this body of evidence does not support retaining the current standard, as suggested by some commenters. Nor does it support setting a level just below 0.080 ppm because, based on the entire body of evidence, such a level would not provide a significant increase in protection compared to the current standard. Further, such a level would not be appreciably below the level in controlled human exposure studies at which adverse effects have been demonstrated (i.e., 0.080 ppm). This body of evidence also does not support setting a level of 0.060 ppm or below, as suggested by other commenters. The Administrator has also evaluated the information from the exposure assessment and the risk assessment, and judges that this evidence does not provide a clear enough basis for choosing a specific level within the range of 0.075 to 0.070 ppm. In making a final judgment about the level of the O₃ standard, the Administrator notes that the level of 0.075 ppm is above the range recommended by the CASAC (i.e., 0.070 to 0.060 ppm). Placing great weight on the views of CASAC, the Administrator has carefully considered its stated views and the scientific basis and policy views for the range it recommended. In so doing, the Administrator notes that he fully agrees that the scientific evidence supports the conclusion that the current standard is not adequate and must be revised.

With respect to CASAC's recommended range of standard levels, the Administrator observes that the basis for its recommendation appears to be a mixture of scientific and policy considerations. The Administrator notes that he is in general agreement with CASAC's views concerning the interpretation of the scientific evidence. The Administrator also notes that there is no bright line clearly directing the choice of level, and the choice of what is appropriate is clearly a public health

policy judgment entrusted to the Administrator. This judgment must include consideration of the strengths and limitations of the evidence and the appropriate inferences to be drawn from the evidence and the exposure and risk assessments. In reviewing the basis for the CASAC Panel's recommendations for the range of the O₃ standard, the Administrator observes that he reaches a different policy judgment than the CASAC Panel based on apparently placing different weight in two areas: the role of the evidence from the Adams studies and the relative weight placed on the results from the exposure and risk assessments. While he found the evidence reporting effects at the 0.060 ppm level from the Adams studies to be too limited to support a primary focus at this level, the Administrator observes that the CASAC Panel appears to place greater weight on this evidence, as indicated by its recommendation of a range down to 0.060 ppm. The Administrator also observes that while the CASAC Panel supported a level of 0.060 ppm, they also supported a level above 0.060, indicating that they do not believe that the results of Adams studies mean that the level of the standard has to be set at 0.060 ppm. The Administrator also observes that the CASAC Panel appeared to place greater weight on the results of the risk assessment as a basis for its recommended range. In referring to the results of the risk assessment results for lung function, respiratory symptoms, hospital admissions and mortality, the CASAC Panel concluded that: "beneficial effects in terms of reduction of adverse health effects were calculated to occur at the lowest concentration considered (i.e., 0.064 ppm)" (Henderson, 2006c, p. 4). However, the Administrator more heavily weighs the implications of the uncertainties associated with the Agency's quantitative human exposure and health risk assessments, as discussed above in section II.A.3. Given these uncertainties, the Administrator does not agree that these assessment results appropriately serve as a primary basis for concluding that levels at or below 0.070 ppm are required for the 8-hour O₃ standard.

After carefully taking the above comments and considerations into account, and fully considering the scientific and policy views of the CASAC, the Administrator has decided to revise the level of the primary 8-hour O₃ standard to 0.075 ppm. In the Administrator's judgment, based on the currently available evidence, a standard set at this level would be requisite to protect public health with an adequate

margin of safety, including the health of sensitive subpopulations, from serious health effects including respiratory morbidity, that is judged to be causally associated with short-term and prolonged exposures to O₃, and premature mortality. A standard set at this level provides a significant increase in protection compared to the current standard, and is appreciably below 0.080 ppm, the level in controlled human exposure studies at which adverse effects have been demonstrated. At a level of 0.075, exposures at and above the benchmark of 0.080 ppm are essentially eliminated, and exposures at and above the benchmark of 0.070 are substantially reduced or eliminated for the vast majority of people in at-risk groups. A standard set at a level lower than 0.075 would only result in significant further public health protection if, in fact, there is a continuum of health risks in areas with 8-hour average O₃ concentrations that are well below the concentrations observed in the key controlled human exposure studies and if the reported associations observed in epidemiological studies are, in fact, causally related to O₃ at those lower levels. Based on the available evidence, the Administrator is not prepared to make these assumptions. Taking into account the uncertainties that remain in interpreting the evidence from available controlled human exposure and epidemiological studies at very low levels, the Administrator notes that the likelihood of obtaining benefits to public health with a standard set below 0.075 ppm O₃ decreases, while the likelihood of requiring reductions in ambient concentrations that go beyond those that are needed to protect public health increases. The Administrator judges that the appropriate balance to be drawn, based on the entire body of evidence and information available in this review, is a standard set at 0.075. The Administrator believes that a standard set at 0.075 ppm would be sufficient to protect public health with an adequate margin of safety, and does not believe that a lower standard is needed to provide this degree of protection. This judgment by the Administrator appropriately considers the requirement for a standard that is neither more nor less stringent than necessary for this purpose and recognizes that the CAA does not require that primary standards be set at a zero-risk level, but rather at a level that reduces risk sufficiently so as to protect public health with an adequate margin of safety.

D. Final Decision on the Primary O₃ Standard

For the reasons discussed above, and taking into account information and assessments presented in the Criteria Document and Staff Paper, the advice and recommendations of the CASAC Panel, and the public comments to date, the Administrator has decided to revise the existing 8-hour primary O₃ standard. Specifically, the Administrator is revising (1) the level of the primary O₃ standard to 0.075 ppm and (2) the degree of precision to which the level of the standard is specified to the thousandth ppm. The revised 8-hour primary standard, with a level of 0.075 ppm, would be met at an ambient air monitoring site when the 3-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentration is less than or equal to 0.075 ppm. Data handling conventions are specified in the new Appendix P that is adopted, as discussed in section V below.

At this time, EPA is also promulgating revisions to the Air Quality Index for O₃ to be consistent with the revisions to the primary O₃ standard. These revisions are discussed below in section III. Issues related to the monitoring requirements for the revised O₃ primary standard are discussed below in section VI.

III. Communication of Public Health Information

Information on the public health implications of ambient concentrations of criteria pollutants is currently made available primarily through EPA's Air Quality Index (AQI) program (40 CFR 58.50). The current Air Quality Index has been in use since its inception in 1999 (64 FR 42530). It provides accurate, timely, and easily understandable information about daily levels of pollution. The AQI establishes a nationally uniform system of indexing pollution levels for O₃, CO, NO₂, PM and SO₂. The AQI converts pollutant concentrations in a community's air to a number on a scale from 0 to 500. Reported AQI values enable the public to know whether air pollution levels in a particular location are characterized as good (0–50), moderate (51–100), unhealthy for sensitive groups (101–150), unhealthy (151–200), very unhealthy (201–300), or hazardous (301–500). The AQI index value of 100 typically corresponds to the level of the short-term NAAQS for each pollutant. For the 1997 O₃ NAAQS, an 8-hour average concentration of 0.084 ppm corresponds to an AQI value of 100. An AQI value greater than 100 means that a pollutant is in one of the unhealthy

categories (i.e., unhealthy for sensitive groups, unhealthy, very unhealthy, or hazardous) on a given day; an AQI value at or below 100 means that a pollutant concentration is in one of the satisfactory categories (i.e., good or moderate). Decisions about the pollutant concentrations at which to set the various AQI breakpoints, that delineate the various AQI categories, draw directly from the underlying health information that supports the NAAQS review.

The Agency recognized the importance of revising the AQI in a timely manner to be consistent with any revisions to the NAAQS. Therefore, EPA proposed to finalize conforming changes to the AQI, in connection with the Agency's final decision on the O₃ NAAQS if revisions to the primary standard were promulgated. These conforming changes would include setting the 100 level of the AQI at the same level as the revised primary O₃ NAAQS, and also making proportional adjustments to AQI breakpoints at the lower end of the range (i.e., AQI values of 50, 150 and 200). EPA did not propose to change breakpoints at the higher end of the range (from 301 to 500), which would apply to State contingency plans or the Significant Harm Level (40 CFR 51.16), because the information from this review does not inform decisions about breakpoints at those higher levels.

EPA received relatively few comments on the proposed changes to the AQI. Three major issues came up in the comments, including: (1) Whether the AQI should be revised at all, even if the primary standard is revised; (2) whether the AQI should be revised in conjunction with this rulemaking, or in a separate rulemaking; and, (3) whether an AQI value of 100 should be set equal to or lower than the level of the short-term primary O₃ standard, and the other breakpoints adjusted accordingly. UARG asserted that EPA should not revise the AQI at all, even if EPA does revise the primary O₃ standard. In support of this view, UARG noted that there is no requirement for EPA to set an AQI value of 100 equal to the level of the short-term standard, and cited the 1999 decision to set an AQI value of 100 for PM_{2.5} equal to 40 µg/m³, when the level of the short-term standard was then 65 µg/m³. UARG also expressed the view that lowering the ambient concentrations associated with different AQI values would confuse and mislead the public about actual trends in air quality, which UARG asserted are improving. ALA and other environmental groups in a joint set of comments did not support revising the

AQI in conjunction with this rulemaking. ALA *et al.* expressed the view that since EPA did not propose specific breakpoints in its proposed revisions to the AQI, EPA should conduct a separate rulemaking, specifying the proposed breakpoints to allow the public an opportunity to comment on them. Several State agencies, including agencies from Pennsylvania, Wisconsin and Oklahoma, and State organizations, including NACAA and NESCAUM, supported revising the AQI at the same time that the standard is revised. NACAA expressed the view that: "The effectiveness of the AQI as a public health tool will be undermined if EPA undertakes regulatory changes to the ozone NAAQS without simultaneously revising the AQI." (NACAA, p. 5) The Wisconsin Department of Natural Resources (WI DNR) further noted that:

"* * * when the 24-hour PM_{2.5} standard was revised, EPA missed an opportunity to adopt conforming changes to the AQI. The Administrator signed the **Federal Register** notice promulgating a revised fine-particle standard in September 2006, but EPA still has not changed the AQI to reflect the revised standard. We recommend that the AQI be amended to be consistent with the revised ozone and PM_{2.5} standards." [WI DNR, p. 3]

Finally, ALA *et al.* and NESCAUM expressed the view that an AQI value of 100 should be set at an ambient concentration below the range for the proposed primary standard. These commenters cited the health evidence showing adverse health effects below the proposed range of the standard, the recommended range of CASAC, and also cited the 1999 decision to set an AQI value of 100 for PM_{2.5} equal to 40 µg/m³ when the level of the short-term standard was 65 µg/m³, as support for this view. Most other State commenters supported setting an AQI value of 100 equal to the level of the primary O₃ standard.

Recognizing the importance of the AQI as a communication tool that allows the public to take exposure reduction measures when air quality may pose health risks, EPA agrees with State agencies and organizations that favored revising the AQI at the same time as the primary standard. EPA agrees with State agency commenters that its historical approach of setting an AQI value of 100 equal to the level of the revised primary standard is appropriate, both from a public health and a communication perspective.

Both UARG and ALA *et al.* cite the 1999 AQI rulemaking, which set an AQI value of 100 for PM_{2.5} equal to 40 µg/m³, a lower level than the level of the short-term PM_{2.5} standard, as support

for their view that an AQI value of 100 does not need to be set at the level of the revised O₃ standard. However, the sub-index for PM_{2.5} was developed using an approach that was conceptually consistent with past practice for selecting the air quality concentrations associated with the AQI breakpoints. The Agency's historical approach to selecting index breakpoints had been to simply set the AQI value of 100 at the level of the short-term standard (e.g., 24 hours) for a pollutant. This method of structuring the index is appropriate in the case where a short-term standard is set to protect against the health effects associated with short-term exposures and/or an annual standard is set to protect against health effects associated with long-term exposures. In such cases, the short-term standard in effect defines a level of health protection provided against short-term risks and thus can be a useful benchmark against which to compare daily air quality concentrations.

In the case of the 1997 PM_{2.5} standards, EPA took a different approach to protecting against the health risks associated with short-term exposures. The intended level of protection against short-term risk was not defined by the 24-hour standard (set at a level of 65 µg/m³) but by the combination of the 24-hour and the annual standards working in concert. In fact, the annual standard (set at a level of 15 µg/m³) was intended to serve as the principal vehicle for protecting against both long-term and short-term PM_{2.5} exposures by lowering the entire day-by-day distribution of PM_{2.5} concentrations in an area throughout the year. See generally 62 FR at 38668–70 (July 18, 1997). Because the 24-hour standard served to provide additional protection against very high short-term concentrations, localized "hotspots," or risks arising from seasonal emissions that would not be well-controlled by a national annual standard, EPA consequently concluded that it would be appropriate to caution members of sensitive groups exposed to concentrations below the level of the 24-hour standard. EPA also concluded that it would be inappropriate to compare daily air quality concentrations directly with the level of the annual standard by setting an AQI value of 100 at that level. EPA wanted to set the AQI value of 100 to reflect the general level of health protection against short-term risks offered by the annual and 24-hour standards combined, consistent with the underlying logic of the historical approach to establishing AQI 100 levels. Therefore EPA set the AQI value of 100

at the midpoint of the range between the annual and the 24-hour PM_{2.5} standards (i.e., 40 µg/m³) in order to reflect the combined role of the 24-hour and the annual PM_{2.5} standards in protecting against short-term risks. Therefore, this approach for defining an AQI value of 100 is conceptually consistent with the proposed decision to set an AQI value of 100 equal to the level of the primary O₃ standard.

Therefore, EPA is revising the AQI for O₃ by setting an AQI value of 100 equal to 0.075 ppm, 8-hour average, the level of the revised primary O₃ standard. EPA is also revising the following breakpoints: An AQI value of 50 is set at 0.059 ppm, an AQI value of 150 is set at 0.095 ppm, and an AQI value of 200 is set at 0.115 ppm. All these levels are averaged over 8 hours. As indicated in the proposal, these levels were developed by making proportional adjustments to the other AQI breakpoints (i.e., AQI values of 50, 150 and 200). The proportional adjustments were modified slightly to allow for each category to span at least a 0.015 ppm range to allow for more accurate forecasting. So, for example, simply making a proportional adjustment to the level of an AQI value of 150 (0.104 ppm) would result in a level of about 0.092 ppm. Since most of these ranges are rounded to the nearest 5 thousandths of a ppm, that rounding would have resulted in a 0.014 ppm range (i.e., 0.076 to 0.090 ppm). So, the number was rounded upward to the nearest 5 thousandths of a ppm, to allow for at least a 0.015 ppm range for forecasting. The same principle applies to the calculation of an AQI value for 200 (0.115 ppm). EPA believes that the finalized breakpoints provide a balance between proportional adjustments to reflect the revised O₃ standard and providing category ranges that are large enough to be forecasted accurately, so that the new AQI for O₃ can be implemented more easily in the public forum for which the AQI ultimately exists.

IV. Rationale for Final Decision on Secondary O₃ Standard

A. Introduction

1. Overview

This section presents the rationale for the Administrator's final decisions regarding the need to revise the current secondary O₃ NAAQS, and the appropriate revisions to the standard. As discussed more fully below, the rationale for the final decisions on appropriate revisions to the secondary O₃ NAAQS is based on a thorough review of the latest scientific

information on vegetation effects associated with exposure to ambient levels of O₃, as assessed in the Criteria Document. This rationale also takes into account: (1) Staff assessments of the most policy-relevant information in the Criteria Document regarding the evidence of adverse effects of O₃ to vegetation and ecosystems, information on biologically-relevant exposure metrics, and staff analyses of air quality, vegetation exposure and risks, presented in the Staff Paper and described in greater detail in the associated Technical Report on Ozone Exposure, Risk, and Impact Assessments for Vegetation (Abt, 2007), upon which staff recommendations for revisions to the secondary O₃ standard were based; (2) CASAC Panel advice and recommendations as reflected in discussion of drafts of the Criteria Document and Staff Paper at public meetings, in separate written comments, and in CASAC's letters to the Administrator (Henderson, 2006a, b, c; 2007); (3) public comments received during development of these documents either in conjunction with CASAC meetings or separately and on the proposal notice; (4) consideration of the degree of protection to vegetation potentially afforded by the revised 8-hour primary standard; and (5) the limits of the available evidence.

In developing this rationale, EPA has again focused on direct O₃ effects on vegetation, specifically drawing upon an integrative synthesis of the entire body of evidence, published through early 2006, on the broad array of vegetation effects associated with exposure to ambient levels of O₃ (EPA, 2006a, chapter 9). In addition, because O₃ can also indirectly affect other ecosystem components such as soils, water, and wildlife, and their associated ecosystem goods and services, through its effects on vegetation, a qualitative discussion of these other indirect impacts is also included, though these effects are not quantifiable at this time. As was concluded in the 1997 review, and based on the body of scientific literature assessed in the current Criteria Document, the Administrator believes that it is reasonable to conclude that a secondary standard protecting the public welfare from known or anticipated adverse effects to trees, native vegetation and crops would also afford increased protection from adverse effects to other environmental components relevant to the public welfare, including ecosystem services and function. The peer-reviewed literature includes studies conducted in the U.S., Canada, Europe, and many

other countries around the world. In its assessment of the evidence judged to be most relevant to making decisions on the level of the O₃ secondary standard, however, EPA has placed greater weight on U.S. studies, due to the often species-, site- and climate-specific nature of O₃-related vegetation response.

As with virtually any policy-relevant vegetation effects research, there is uncertainty in the characterization of vegetation effects attributable to exposure to ambient O₃. As discussed below, however, research conducted since the last review provides important information coming from field-based exposure studies, including free air, gradient and biomonitoring surveys, in addition to the more traditional controlled open top chamber (OTC) studies. Moreover, the newly available studies evaluated in the Criteria Document have undergone intensive scrutiny through multiple layers of peer review and many opportunities for public review and comment. While important uncertainties remain, the review of the vegetation effects information has been extensive and deliberate. In the judgment of the Administrator, the intensive evaluation of the scientific evidence that has occurred in this review has provided an adequate basis for regulatory decision-making at this time. This review also provides important input to EPA's research plan for improving our future understanding of the effects of ambient O₃ at lower levels.

Information related to vegetation and ecosystem effects, biologically relevant exposure indices, and quantitative vegetation exposure and risk assessments were summarized in sections IV.A through IV.C of the proposal (72 FR at 37883–37895), respectively, and are only briefly outlined below in sections IV.A.2 through IV.A.4. Subsequent sections of this preamble provide a more complete discussion of the Administrator's rationale, in light of key issues raised in public comments, for concluding that the current standard is not requisite to protect public welfare from known or anticipated adverse effects, and it is appropriate to revise the current secondary O₃ standard to provide additional public welfare protection (section IV.B) by making the secondary standard identical to the revised primary standard (section IV.C). A summary of the final decisions on revisions to the secondary O₃ standard is presented in section IV.D.

2. Overview of Vegetation Effects Evidence

This section outlines the information presented in section IV.A of the proposal on known or potential effects on public welfare which may be expected from the presence of O₃ in ambient air. Exposures to O₃ have been associated quantitatively and qualitatively with a wide range of vegetation effects. The decision in the last review to set a more protective secondary standard primarily reflected consideration of the quantitative information on vegetation effects available at that time, particularly growth impairment (e.g., biomass loss) in sensitive forest tree species during the seedling growth stage and yield loss in important commercial crops. This information, derived mainly using the OTC exposure method, found cumulative, seasonal O₃ exposures were most strongly associated with observed vegetation response. The Criteria Document prepared for this review discussed a number of additional studies that support and strengthen key conclusions regarding O₃ effects on vegetation and ecosystems found in the previous Criteria Document (EPA, 1996a, 2006a), including further clarification of the underlying mechanistic and physiological processes at the subcellular, cellular, and whole system levels within the plant. More importantly, however, in the context of this review, new quantitative information is now available across a broader array of vegetation effects (e.g., growth impairment during seedlings, saplings and mature tree growth stages, visible foliar injury, and yield loss in annual crops) and across a more diverse set of exposure methods, including chamber, free air, gradient, model, and field-based observation. These non-chambered, field-based study results begin to address one of the key data gaps cited by the Administrator in the last review.

Section IV.A of the proposal provides a detailed summary of key information contained in the Criteria Document (EPA, 2006, chapter 9) and in the Staff Paper (EPA, 2007, chapter 7) on known or potential effects on public welfare which may be expected from the presence of O₃ in ambient air (72 FR 37883–37890). The information in that section summarized:

(1) New information available on potential mechanisms for vegetation

effects associated with exposure to O₃, including information on plant uptake of O₃, cellular to systemic responses, compensation and detoxification responses, changes to plant metabolism, and plant responses to chronic O₃ exposures;

(2) The nature of effects on vegetation that have been associated with exposure to O₃ including effects related to carbohydrate production and allocation, growth effects on trees and yield reductions in crops, visible foliar injury, and reduced plant vigor, as well as consequent potential impacts on ecosystems including potential alteration of ecosystem structure and function and effects on ecosystem services and carbon sequestration; and

(3) Considerations in characterizing what constitutes an adverse welfare impact of O₃, including an approach that expands the consideration of adversity beyond the species level by making explicit the linkages between stress-related effects such as O₃ exposure at the species level and at higher levels within an ecosystem hierarchy.

3. Overview of Biologically Relevant Exposure Indices

This section outlines the information presented in section IV.B of the proposal on biologically relevant exposure indices that relate known or potential effects on vegetation to exposure to O₃ in ambient air. The Criteria Document concluded that O₃ exposure indices that cumulate differentially weighted hourly concentrations are the best candidates for relating exposure to plant growth responses (EPA, 2006a). This conclusion followed from the extensive evaluation of the relevant studies in the 1996 Criteria Document (EPA, 1996a) and the recent evaluation of studies that have been published since that time (EPA, 2006a). The depth and strength of these conclusions are illustrated by the following observations that are drawn from the 1996 Criteria Document (EPA, 1996a, section 5.5):

(1) Specifically, with respect to the importance of taking into account exposure duration, “when O₃ effects are the primary cause of variation in plant response, plants from replicate studies of varying duration showed greater reductions in yield or growth when exposed for the longer duration” and “the mean exposure index of unspecified duration could not account

for the year-to-year variation in response” (EPA, 1996a, pg. 5–96).

(2) “[B]ecause the mean exposure index treats all concentrations equally and does not specifically include an exposure duration component, the use of a mean exposure index for characterizing plant exposures appears inappropriate for relating exposure with vegetation effects” (EPA, 1996a, pg. 5–88).

(3) Regarding the relative importance of higher concentrations than lower in determining plant response, “the ultimate impact of long-term exposures to O₃ on crops and seedling biomass response depends on the integration of repeated peak concentrations during the growth of the plant” (EPA, 1996a, pg. 5–104).

(4) “[A]t this time, exposure indices that weight the hourly O₃ concentrations differentially appear to be the best candidates for relating exposure with predicted plant response” (EPA, 1996a, pgs. 5–136).

At the conclusion of the last review, the biological basis for a cumulative, seasonal form was not in dispute. There was general agreement between the EPA staff, CASAC, and the Administrator, based on their review of the air quality criteria, that a cumulative, seasonal form was more biologically relevant than the previous 1-hour and new 8-hour average forms (61 FR 65716).

The Staff Paper prepared for this review evaluated the most appropriate choice of a cumulative, seasonal form for a secondary standard to protect the public welfare from known and anticipated adverse vegetation effects in light of the new information available in this review. Specifically, the Staff Paper considered: (1) The continued lack of evidence within the vegetation effects literature of a biological threshold for vegetation exposures of concern and (2) new estimates of PRB that are lower than in the last review. The form commonly called W126 was evaluated in the last review and was compared with the form called SUM06, which incorporates a threshold level above which exposures are summed, that was proposed in the last review. The concentration-weighted form commonly called W126 is defined as the sum of sigmoidally weighted hourly O₃ concentrations over a specified period, where the daily sigmoidal weighting function is defined in the Staff Paper (EPA, 2007a, p. 7–16.) as:

$$W126 = \sum_{i=8 \text{ AM}}^{i=8 \text{ PM}} w_{C_i} C_i, \text{ where } C_i = \text{hourly } O_3 \text{ at hour } i, \text{ and } w_{C_i} = \frac{1}{1 + 4403e^{-126C_i}}$$

Regarding the first consideration, the Staff Paper noted that the W126 form, by its incorporation of a continuous sigmoidal weighting scheme, does not create an artificially imposed concentration threshold, yet also gives proportionally more weight to the higher and typically more biologically potent concentrations, as supported by the scientific evidence. Second, the index value is not significantly influenced by O_3 concentrations within the range of estimated PRB, as the weights assigned to concentrations in this range are very small. Thus, the Staff Paper concluded that it would provide a more appropriate target for air quality management programs designed to reduce emissions from anthropogenic sources contributing to O_3 formation. On the basis of these considerations, the Staff Paper and the CASAC Panel concluded that the W126 form is the most biologically-relevant cumulative, seasonal form appropriate to consider in the context of the secondary standard review.

4. Overview of Vegetation Exposure and Risk Assessments

This section outlines the information presented in section IV.C of the proposal on the vegetation exposure and risk assessments conducted for this review, which improved and built upon similar analyses performed in the last review. The vegetation exposure assessment was performed using interpolation and included information from ambient monitoring networks and results from air quality modeling. The vegetation risk assessment included both tree and crop analyses. The tree risk analysis included three distinct lines of evidence: (1) Observations of visible foliar injury in the field linked to recent monitored O_3 air quality for the years 2001–2004; (2) estimates of seedling growth loss under current and alternative O_3 exposure conditions; and (3) simulated mature tree growth reductions using the TREGRO model to simulate the effect of meeting alternative air quality standards on the predicted annual growth of a single western species (ponderosa pine) and two eastern species (red maple and tulip poplar). The crop analysis includes estimates of the risks to crop yields from current and alternative O_3 exposure conditions and the associated change in economic benefits expected to accrue in the agriculture sector upon meeting the levels of various alternative standards.

Each element of the assessment is outlined below, together with key observations from this assessment.

a. Exposure Characterization

The exposure analyses examined O_3 air quality patterns in the U.S. relative to the location of O_3 sensitive species that have a known concentration-response in order to predict whether adverse effects are occurring at current levels of air quality, and whether they are likely to occur under alternative standard forms and levels. The most important information about exposure to vegetation comes from the O_3 monitoring data that are available from two national networks: (1) Air Quality System (AQS; <http://www.epa.gov/ttn/airs/airsaqs>) and (2) Clean Air Status and Trends Network (CASTNET; <http://www.epa.gov/castnet/>). In order to characterize exposures to vegetation at the national scale, however, the Staff Paper concluded that it could not rely solely on limited site-specific monitoring data, and that it was necessary to use an interpolation method to characterize O_3 air quality over broad geographic areas. The analyses used the O_3 outputs from the EPA/NOAA Community Multi-scale Air Quality (CMAQ)²² model system (<http://www.epa.gov/asmdnerl/CMAQ>, Byun and Ching, 1999; Arnold *et al.* 2003, Eder and Yu, 2005) to improve spatial interpolations based solely on existing monitoring networks.

Based on the significant difference in monitor network density between the eastern and western U.S., the Staff Paper concluded that it was appropriate to use separate interpolation techniques in these two regions: AQS and CASTNET monitoring data were solely used for the eastern interpolation, and in the western U.S., where rural monitoring is more sparse, O_3 values generated by the CMAQ model were used to develop scaling factors to augment the interpolation. In order to characterize

²² The CMAQ model is a multi-pollutant, multiscale air quality model that contains state-of-the-science techniques for simulating all atmospheric and land processes that affect the transport, transformation, and deposition of atmospheric pollutants and/or their precursors on both regional and urban scales. It is designed as a science-based modeling tool for handling many major pollutants (including photochemical oxidants/ O_3 , particulate matter, and nutrient deposition) holistically. The CMAQ model can generate estimates of hourly O_3 concentrations for the contiguous U.S., making it possible to express model outputs in terms of a variety of exposure indices (e.g., W126, 8-hour average).

uncertainty in the interpolation method, monitored O_3 concentrations were systematically compared to interpolated O_3 concentrations in areas where monitors were located. In general, the interpolation method used in the current review performed well in many areas in the U.S., although it under-predicted higher 12-hour W126 exposures in rural areas. Due to the important influence of higher exposures in determining risks to plants, this feature of the interpolated surface could result in an under-estimation of risks to vegetation in some areas. Taking these uncertainties into account, and given the absence of more complete rural monitoring data, this approach was used in developing national vegetation exposure and risk assessments that estimate relative changes in risk for the various alternative standards analyzed.

To evaluate changing vegetation exposures and risks under selected air quality scenarios, the Staff Paper utilized adjusted 2001 base year O_3 air quality distributions with a rollback method (Horst and Duff, 1995; Rizzo, 2005, 2006) to reflect meeting the current and alternative secondary standard options. The following key observations were drawn from comparing predicted changes in interpolated air quality under each alternative standard form and level scenario analyzed:

(1) The results of the exposure assessment indicate that current air quality levels could result in significant impacts to vegetation in some areas. For example, for the base year (2001), a large portion of California had 12-hr W126 O_3 levels above 31 ppm-hour, which has been associated with approximately up to 14 percent biomass loss in 50 percent of tree seedling cases studies. Broader multi-state regions in the east (NC, TN, KY, IN, OH, PA, NJ, NY, DE, MD, VA) and west (CA, NV, AZ, OK, TX) are predicted to have levels of air quality above the W126 level of 21 ppm-hour, which is approximately equal to the secondary standard proposed in 1996 and is associated with approximately up to 10 percent biomass loss in 50 percent of tree seedling cases studied. Much of the east and Arizona and California have 12-hour W126 O_3 levels above 13 ppm-hour which has been associated with approximately up to 10 percent biomass loss in 75 percent of tree seedling cases studied.

(2) When 2001 air quality is rolled back to meet the current 8-hour

secondary standard, the overall 3-month 12-hour W126 O₃ levels were somewhat improved, but not substantially. Under this scenario, there were still many areas in California with 12-hour W126 O₃ levels above 31 ppm-hour. A broad multi-state region in the east (NC, TN, KY, IN, OH, PA, MD) and west (CA, NV, AZ, OK, TX) were still predicted to have O₃ levels above the W126 level of 21 ppm-hour.

(3) Exposures generated for just meeting a 0.070 ppm, 4th-highest maximum 8-hour average alternative standard (the lower end of the proposed range for the primary O₃ standard) showed substantially improved O₃ air quality when compared to just meeting the current 0.08 ppm, 8-hour standard. Most areas were predicted to have O₃ levels below the W126 level of 21 ppm-hr, although some areas in the east (KY, TN, MI, AR, MO, IL) and west (CA, NV, AZ, UT, NM, CO, OK, TX) were still predicted to have O₃ levels above the W126 level of 13 ppm-hour.

(4) While these results suggest that meeting a proposed 0.070 ppm, 8-hour secondary standard would provide substantially improved protection in some areas, the Staff Paper recognized that other areas could continue to have elevated seasonal exposures, including forested park lands and other natural areas, and Class I areas which are federally mandated to preserve certain air quality related values. The proposal notes that this is especially important in the high elevation forests in the Western U.S. where there are few O₃ monitors and where air quality patterns can result in relatively low 8-hour averages while still experiencing relatively high cumulative exposures (72 FR 37892).

To further characterize O₃ air quality in terms of current and alternative secondary standard forms, an analysis was performed in the Staff Paper to evaluate the extent to which county-level O₃ air quality measured in terms of various levels of the current 8-hour average form overlapped with that measured in terms of various levels of the 12-hour W126 cumulative, seasonal form.²³ This analysis was limited by the lack of monitoring in rural areas where important vegetation and ecosystems are located, especially at higher elevation sites. This is because O₃ air quality distributions at high elevation sites often do not reflect the typical urban and near-urban pattern of low morning and evening O₃ concentrations with a

high mid-day peak, but instead maintain relatively flat patterns with many concentrations in the mid-range (e.g., 0.05–0.09 ppm) for extended periods. These conditions can lead to relatively low daily maximum 8-hour averages concurrently with high cumulative values so that there is potentially less overlap between an 8-hour average and a cumulative, seasonal form at these sites. The Staff Paper concluded that it is reasonable to anticipate that additional unmonitored rural high elevation areas important for vegetation may not be adequately protected even with a lower level of the 8-hour form.

The Staff Paper indicated that it further remains uncertain as to the extent to which air quality improvements designed to reduce 8-hour O₃ average concentrations would reduce O₃ exposures measured by a seasonal, cumulative W126 index. The Staff Paper indicated this to be an important consideration because: (1) The biological database stresses the importance of cumulative, seasonal exposures in determining plant response; (2) plants have not been specifically tested for the importance of daily maximum 8-hour O₃ concentrations in relation to plant response; and (3) the effects of attainment of a 8-hour standard in upwind urban areas on rural air quality distributions cannot be characterized with confidence due to the lack of monitoring data in rural and remote areas. These factors are important considerations in determining whether the current 8-hour form can appropriately provide requisite protection for vegetation.

b. Assessment of Risk to Vegetation

The Staff Paper presented results from quantitative and qualitative risk assessments of O₃ risks to vegetation. In the last review, crop yield and seedling biomass loss OTC data provided the basis for staff analyses, conclusions, and recommendations (EPA, 1996b). Since then, several additional lines of evidence have progressed sufficiently to provide a basis for a more complete and coherent picture of the scope of O₃-related vegetation risks, especially those currently faced by seedling, sapling and mature tree species growing in field settings, and indirectly, forested ecosystems. Specifically, new research reflects an increased emphasis on field-based exposure methods (e.g., free air exposure and ambient gradient), improved field survey biomonitoring techniques, and mechanistic tree process models. Key observations and insights from the vegetation risk assessment, together with important

caveats and limitations, were discussed in section IV.C of the proposal.

Highlights from the analyses that addressed visible foliar injury, seedling and mature tree biomass loss, and effects on crops are summarized below:

(1) Visible foliar injury. Recent systematic injury surveys continue to document visible foliar injury symptoms diagnostic of phytotoxic O₃ exposures on sensitive bioindicator plants. These surveys produced more expansive evidence than that available at the time of the last review that visible foliar injury is occurring in many areas of the U.S. under current ambient conditions. The Staff Paper presented an assessment combining recent U.S. Forest Service Forest Inventory and Analysis (FIA) biomonitoring site data with the county level air quality data for those counties containing the FIA biomonitoring sites. This assessment showed that incidence of visible foliar injury ranged from 21 to 39 percent of the counties during the four-year period (2001–2004) across all counties with air quality levels at or below that of the current 0.08 ppm 8-hour standard. Of the counties that met an 8-hour level of 0.07 ppm in those years, 11 to 30 percent of the counties still had incidence of visible foliar injury. The magnitude of these percentages suggests that phytotoxic exposures sufficient to induce visible foliar injury would still occur in many areas after meeting the level of the current secondary standard or alternative 0.07 ppm 8-hour standard. While the data show that visible foliar injury occurrence is geographically widespread and is occurring on a variety of plant species in forested and other natural systems, linking visible foliar injury to other plant effects is still problematic. However, its presence indicates that other O₃-related vegetation effects might also be present.

(2) Seedling and mature tree biomass loss. In the last review, analyses of the effects of O₃ on trees were limited to 11 tree species for which C-R functions for the seedling growth stage had been developed from OTC studies. Important tree species such as quaking aspen, ponderosa pine, black cherry, and tulip poplar were found to be sensitive to cumulative seasonal O₃ exposures. Work done since the last review at the AspenFACE site in Wisconsin on quaking aspen (Karnosky *et al.*, 2005) and a gradient study performed in the New York City area (Gregg *et al.*, 2003) have confirmed the detrimental effects of O₃ exposure on tree growth in field studies without chambers and beyond the seedling stage (King *et al.*, 2005). To update the seedling biomass loss analysis, C-R functions for biomass loss

²³ The Staff Paper presented this analysis using recent (2002–2004) county-level O₃ air quality data (using 3-year average data as well as data from each individual year) from AQS sites and the subset of CASTNET sites having the highest O₃ levels for the counties in which they are located.

for available seedling tree species taken from the Criteria Document and information on tree growing regions derived from the U.S. Department of Agriculture's Atlas of United States Trees were combined with projections of air quality based on 2001 interpolated exposures, to produce estimated biomass loss for each of the seedling tree species individually.²⁴ In summary, these analyses showed that biomass loss still occurred in many tree species when O₃ air quality was adjusted to meet the current 8-hour standard. For instance, black cherry, ponderosa pine, eastern white pine, and aspen had estimated median seedling biomass losses over portions of their growing range as high as 24, 11, 6, and 6 percent, respectively, when O₃ air quality was rolled back to just meet the current 8-hour standard. The Staff Paper noted that these results are for tree seedlings and that mature trees of the same species may have more or less of a response to O₃ exposure. Due to the potential for compounding effects over multiple years, a consensus workshop on O₃ effects reported that a biomass loss greater than 2 percent annually can be significant (Heck and Cowling, 1997). Decreased seedling root growth and survivability could affect overall stand health and composition in the long term.

Recent work has also enhanced our understanding of risks beyond the seedling stage. In order to better characterize the potential O₃ effects on mature tree growth, a tree growth model (TREGRO) was used to evaluate the effect of changing O₃ air quality scenarios from just meeting alternative O₃ standards on the growth of mature trees.²⁵ The model integrates interactions between O₃ exposure, precipitation and temperature as they affect vegetation, thus providing an internal consistency for comparing effects in trees under different exposure scenarios and climatic conditions. The TREGRO model was used to assess O₃-related impacts on the growth of Ponderosa pine in the San Bernardino Mountains of California (Crestline) and the growth of yellow poplar and red maple in the Appalachian mountains of Virginia and North Carolina, Shenandoah National Park (Big

Meadows) and Linville Gorge Wilderness Area (Cranberry), respectively. Ponderosa pine is one of the most widely distributed pines in western North America, a major source of timber, important as wildlife habitat, and valued for aesthetics (Burns and Honkala, 1990). Red maple is one of the most abundant species in the eastern U.S. and is important for its brilliant fall foliage and highly desirable wildlife browse food (Burns and Honkala, 1990). Yellow poplar is an abundant species in the southern Appalachian forest. It is 10 percent of the cove hardwood stands in southern Appalachians which are widely viewed as some of the country's most treasured forests because the protected, rich, moist set of conditions permit trees to grow the largest in the eastern U.S. The wood has high commercial value because of its versatility and as a substitute for increasingly scarce softwoods in furniture and framing construction. Yellow poplar is also valued as a honey tree, a source of wildlife food, and a shade tree for large areas (Burns and Honkala, 1990).

The Staff Paper analyses found that just meeting the current standard would likely continue to allow O₃-related reductions in annual net biomass gain in these species. This is based on model outputs that estimate that as O₃ levels are reduced below those of the current standard, significant improvements in growth would occur. Though there is uncertainty associated with the above analyses, it is important to note that new evidence from experimental studies that go beyond the seedling growth stage continues to show decreased growth under elevated O₃ (King *et al.*, 2005); some mature trees such as red oak have shown an even greater sensitivity of photosynthesis to O₃ than seedlings of the same species (Hanson *et al.*, 1994); and the potential for cumulative "carry over" effects as well as compounding must be considered since the accumulation of such "carry-over" effects over time may affect long-term survival and reproduction of individuals and ultimately the abundance of sensitive tree species in forest stands.

(3) Crops. Similar to the tree seedling analysis, an analysis that combined C-R information on crops, crop growing regions, and interpolated exposures during each crop growing season was conducted for commodity crops, fruits and vegetables. NCLAN crop functions developed in the 1980s were used for commodity crops, including 9 commodity crop species (i.e., cotton, field corn, grain sorghum, peanut, soybean, winter wheat, lettuce, kidney

bean, potato) that accounted for 69 percent of 2004 principal crop acreage planted in the U.S. in 2004. The C-R functions for six fruit and vegetable species (tomatoes-processing, grapes, onions, rice, cantaloupes, Valencia oranges) were identified from the California fruit and vegetable analysis from the last review (Abt, 1995). The risk assessment estimated that just meeting the current 8-hour standard would still allow O₃-related yield loss to occur in some commodity crop species and fruit and vegetable species currently grown in the U.S. For example, based on median C-R function response, in counties with the highest O₃ levels, potatoes and cotton had estimated yield losses of 9–15 percent and 5–10 percent, respectively, when O₃ air quality just met the level of the current standard. Estimated yield improved in these counties when the alternative W126 standard levels were met. The very important soybean crop had generally small yield losses throughout the country under just meeting the current standard (0–4 percent).

The Staff Paper also presented estimates of monetized benefits for crops associated with the current and alternative standards. The Agriculture Simulation Model (AGSIM) (Taylor, 1994; Taylor, 1993) was used to calculate annual average changes in total undiscounted economic surplus for commodity crops and fruits and vegetables when current and alternative standard levels were met. Meeting the various alternative standards did show some significant benefits beyond the current 8-hour standard. However, the Staff Paper recognized that the modeled economic benefits from AGSIM had many associated uncertainties which limited the usefulness of these estimates.

B. Need for Revision of the Current Secondary O₃ Standard

1. Introduction

The initial issue to be addressed in this review of the O₃ standard is whether, in view of the advances in scientific knowledge reflected in the Criteria Document and Staff Paper, the current standard should be revised. As discussed in section IV.D of the proposal, in evaluating whether it was appropriate to propose to retain or revise the current standard, the Administrator built upon the last review and reflected the broader body of evidence and information now available. In the proposal, EPA presented information, judgments, and conclusions from the last review, which revised the secondary O₃ standard by

²⁴ Maps of these biomass loss projections were presented in the Staff Paper (chapter 7).

²⁵ TREGRO is a process-based, individual tree growth simulation model (Weinstein *et al.* 1991) and has been used to evaluate the effects of a variety of O₃ scenarios and linked with concurrent climate data to account for O₃ and climate/meteorology interactions on several species of trees in different regions of the U.S. (Tingey *et al.*, 2001; Weinstein *et al.*, 1991; Retzlaff *et al.*, 2000; Laurence *et al.*, 1993; Laurence *et al.*, 2001; Weinstein *et al.*, 2005).

setting it identical to the revised primary O₃ standard, and from the current review's evaluation of the adequacy of the current secondary standard, including both evidence- and exposure/risk-based considerations in the Staff Paper, as well as from the CASAC Panel's advice and recommendations. The Staff Paper evaluation, the CASAC Panel's views, and the Administrator's proposed conclusions on the adequacy of the current secondary standard are presented below.

a. Staff Paper Evaluation

The Staff Paper considered the evidence presented in the Criteria Document as a basis for evaluating the adequacy of the current O₃ standard, recognizing that important uncertainties remain. The Staff Paper concluded that the new evidence available in this review as described in the Criteria Document continues to support and strengthen key policy-relevant conclusions drawn in the previous review. Based on this new evidence, the current Criteria Document once more concluded that: (1) A plant's response to O₃ depends upon the cumulative nature of ambient exposure as well as the temporal dynamics of those concentrations; (2) current ambient concentrations in many areas of the country are sufficient to impair growth of numerous common and economically valuable plant and tree species; (3) the entrance of O₃ into the leaf through the stomata is the critical step in O₃ effects; (4) effects can occur with only a few hourly concentrations above 0.08 ppm; (5) other environmental biotic and abiotic factors are also influential to the overall impact of O₃ on plants and trees; and (6) a high degree of uncertainty remains in our ability to assess the impact of O₃ on ecosystem services.

In light of the new evidence, as described in the Criteria Document, the Staff Paper evaluated the adequacy of the current standard based on assessments of both the most policy-relevant vegetation effects evidence and exposure and risk-based information, highlighted above in section IV.A and discussed in sections IV.A–C of the proposal. In evaluating the strength of this information, the Staff Paper took into account the uncertainties and limitations in the scientific evidence and analyses as well as the views of CASAC. The Staff Paper concluded that progress has been made since the last review and generally found support in the available effects- and exposure/risk-based information for consideration of an O₃ standard that is more protective than the current standard. The Staff

Paper further concluded that there is no support for consideration of an O₃ standard that is less protective than the current standard. This general conclusion is consistent with the advice and recommendations of CASAC.

i. Evidence-Based Considerations

In the last review, crop yield and tree seedling biomass loss data obtained in OTC studies provided the basis for the Administrator's judgment that the then current 1-hour, 0.12 ppm secondary standard was inadequate (EPA, 1996b). Since then, several additional lines of evidence have progressed sufficiently to provide a more complete and coherent picture of the scope of O₃-related vegetation risks, especially those currently faced by sensitive seedling, sapling and mature growth stage tree species growing in field settings, and their associated forested ecosystems. Specifically, new research reflects an increased emphasis on field-based exposure methods (e.g., free air, ambient gradient, and biomonitoring surveys). In reaching conclusions regarding the adequacy of the current standard, the Staff Paper considered the combined information from all these areas together, along with associated uncertainties, in an integrated, weight-of-evidence approach.

Regarding the O₃-induced effect of visible foliar injury, observations for the years 2001 to 2004 at USDA FIA biomonitoring sites showed widespread O₃-induced leaf injury occurring in the field, including in forested ecosystems, under current ambient O₃ conditions. For a few studied species, it has been shown that the presence of visible foliar injury is further linked to the presence of other vegetation effects (e.g., reduced plant growth and impaired below ground root development) (EPA, 2006), though for most species, this linkage has not been specifically studied or where studied, has not been found. Nevertheless, when visible foliar injury is present, the possibility that other O₃-induced vegetation effects could also be present for some species should be considered. Likewise, the absence of visible foliar injury should not be construed to demonstrate the absence of other O₃-induced vegetation effects. The Staff Paper concluded that it is not possible at this time to quantitatively assess the degree of visible foliar injury that should be judged adverse in all settings and across all species, and that other environmental factors can mitigate or exacerbate the degree of O₃-induced visible foliar injury expressed at any given concentration of O₃. However, the Staff Paper also concluded that the presence of visible foliar injury alone

can be adverse to the public welfare, especially when it occurs in protected areas such as national parks and wilderness areas. Thus, on the basis of the available information on the widespread distribution of O₃-sensitive species within the U.S. including in areas, such as national parks, which are afforded a higher degree of protection, the Staff Paper concluded that the current standard continues to allow levels of visible foliar injury in some locations that could reasonably be considered to be adverse from a public welfare perspective. Additional monitoring of both O₃ air quality and foliar injury levels are needed in these areas of national significance to more fully characterize the spatial extent of this public welfare impact.

With respect to O₃-induced biomass loss in trees, the Staff Paper concluded that the new body of field-based research on trees strengthens the conclusions drawn on tree seedling biomass loss from earlier OTC work by documenting similar seedling responses in the field. For example, recent empirical studies conducted on quaking aspen at the AspenFACE site in Wisconsin have confirmed the detrimental effects of O₃ exposure on tree growth in a field setting without chambers (Isebrands *et al.*, 2000, 2001). In addition, results from an ambient gradient study (Gregg *et al.*, 2003), which evaluated biomass loss in cottonwood along an urban-to-rural gradient at several locations, found that conditions in the field were sufficient to produce substantial biomass loss in cottonwood, with larger impacts observed in downwind rural areas due to the presence of higher O₃ concentrations. These gradients from low urban to higher rural O₃ concentrations occur when O₃ precursors generated in urban areas are transported to downwind sites and are transformed into O₃. In addition, O₃ concentrations typically fall to near 0 ppm at night in urban areas due to scavenging of O₃ by NO_x and other compounds. In contrast, rural areas, due to a lack of nighttime scavenging, tend to maintain elevated O₃ concentrations for longer periods. On the basis of such key studies, the Staff Paper concluded that the expanded body of field-based evidence, in combination with the substantial corroborating evidence from OTC data, provides stronger evidence than that available in the last review that ambient levels of O₃ are sufficient to produce visible foliar injury symptoms and biomass loss in sensitive vegetative species growing in natural environments. Further, the Staff Paper

judged that the consistency in response in studied species/genotypes to O₃ under a variety of exposure conditions and methodologies demonstrates that these sensitive genotypes and populations of plants are susceptible to adverse impacts from O₃ exposures at levels known to occur in the ambient air. Due to the potential for compounded risks from repeated insults over multiple years in perennial species, the Staff Paper concluded that these sensitive subpopulations are not afforded adequate protection under the current secondary O₃ standard. Despite the fact that only a relatively small portion of U.S. plant species have been studied with respect to O₃ sensitivity, those species/genotypes shown to have O₃ sensitivity span a broad range of vegetation types and public use categories, including direct-use categories like food production for human and domestic animal consumption; fiber, materials, and medicinal production; urban/private landscaping. Many of these species also contribute to the structure and functioning of natural ecosystems (e.g., the EEAs) and thus, to the goods and services those ecosystems provide (Young and Sanzone, 2002), including non-use categories such as relevance to public welfare based on their aesthetic, existence or wildlife habitat value.

The Staff Paper therefore concluded that the current secondary standard is inadequate to protect the public welfare against the occurrence of adverse levels of visible foliar injury and tree seedling biomass loss occurring in tree species (e.g., ponderosa pine, aspen, black cherry, cottonwood) that are sensitive and clearly important to the public welfare.

ii. Exposure- and Risk-Based Considerations

In evaluating the adequacy of the current standard, the Staff Paper also presented the results of exposure and risk assessments, which are highlighted above in section IV.A.3 and discussed in section IV.C of the proposal. Due to multiple sources of uncertainty, both known and unknown, that continue to be associated with these analyses, the Staff Paper put less weight on this information in drawing conclusions on the adequacy of the current standard. However, the Staff Paper also recognized that some progress has been made since the last review in better characterizing some of these associated uncertainties and, therefore concluded that the results of the exposure and risk assessments continue to provide information useful to informing judgments as to the relative changes in

risks predicted to occur under exposure scenarios associated with the different standard alternatives considered. Importantly, with respect to two key uncertainties, the uncertainty associated with continued reliance on C-R functions developed from OTC exposure systems to predict plant response in the field and the potential for changes in tree seedling and crop sensitivities in the intervening period since the C-R functions were developed, the Staff Paper concluded that recent research has provided information useful in judging how much weight to put on these concerns. Specifically, new field-based studies, conducted on a limited number of tree seedling and crop species to date, demonstrate plant growth and visible foliar injury responses in the field that are similar in nature and magnitude to those observed previously under OTC exposure conditions, lending qualitative support to the conclusion that OTC conditions do not fundamentally alter the nature of the O₃-plant response. Second, nothing in the recent literature suggests that the O₃ sensitivity of crop or tree species studied in the last review and for which C-R functions were developed has changed significantly in the intervening period. Indeed, in the few recent studies where this is examined, O₃ sensitivities were found to be as great as or greater than those observed in the last review.

The Staff Paper consideration of such exposure and risk analyses is discussed below and in section IV.D.2.b of the proposal, focusing on seedling and mature tree biomass loss, qualitative ecosystem risks, and crop yield loss.

(1) Seedling and mature tree biomass loss. Biomass loss in sensitive tree seedlings is predicted to occur under O₃ exposures that meet the level of the current secondary standard. For instance, black cherry, ponderosa pine, eastern white pine, and aspen had estimated median seedling biomass losses as high as 24, 11, 6, and 6 percent, respectively, over some portions of their growing ranges when air quality was rolled back to meet the current 8-hr standard with the 10 percent downward adjustment for the potential O₃ gradient between monitor height and short plant canopies applied. The Staff Paper noted that these results are for tree seedlings and that mature trees of the same species may have more or less of a response to O₃ exposure. Decreased root growth associated with biomass loss has the potential to indirectly affect the vigor and survivability of tree seedlings. If such effects occur on a sufficient number of seedlings within a stand, overall stand health and composition can be affected

in the long term. Thus, the Staff Paper concluded that these levels of estimated tree seedling growth reduction should be considered significant and potentially adverse, given that they are well above the 2 percent level of concern identified by the 1997 consensus workshop (Heck and Cowling, 1997).

Though there is significant uncertainty associated with this analysis, the Staff Paper recommended that this information should be given careful consideration in light of several other pieces of evidence. Specifically, limited evidence from experimental studies that go beyond the seedling growth stage continues to show decreased growth under elevated O₃ levels (King *et al.*, 2005). Some mature trees such as red oak have shown an even greater sensitivity of photosynthesis to O₃ than seedlings of the same species (Hanson *et al.*, 1994). The potential for effects to “carry over” to the following year or cumulate over multiple years, including the potential for compounding, must be considered (see 72 FR 37885; Andersen *et al.*, 1997; Hogsett *et al.*, 1989; Sasek *et al.*, 1991; Temple *et al.*, 1993; EPA, 1996). The accumulation of such “carry-over” effects over time may affect long-term survival and reproduction of individual trees and ultimately the abundance of sensitive tree species in forest stands.

(2) Qualitative Ecosystem Risks. In addition to the quantifiable risk categories discussed above, the Staff Paper presented qualitative discussions on a number of other public welfare effects categories. In so doing, the Staff Paper concluded that the quantified risks to vegetation estimated to be occurring under current air quality or upon meeting the current secondary standard likely represent only a portion of actual risks that may be occurring for a number of reasons.

First, as mentioned above, out of the over 43,000 plant species catalogued as growing within the U.S. (USDA PLANTS database, USDA, NRCS, 2006), only a small percentage have been studied with respect to O₃ sensitivity. Most of the studied species were selected because of their commercial importance or observed O₃-induced visible foliar injury in the field. Given that O₃ impacts to vegetation also include less obvious but often more significant impacts, such as reduced annual growth rates and below ground root loss, the paucity of information on other species means the number of O₃-sensitive species that exists within the U.S. is likely greater than what is now known. Since no state in the lower 48 states has less than seven known O₃-

sensitive plant species, with the majority of states having between 11 and 30 (see Appendix 7J–2 in Staff Paper), protecting O₃-sensitive vegetation is clearly important to the public welfare at the national scale.

Second, the Staff Paper also took into consideration the possibility that more subtle and hidden risks to ecosystems are potentially occurring in areas where vegetation is being significantly impacted. Given the importance of these qualitative and anticipated risks to important public welfare effects categories such as ecosystem impacts leading to potential losses or shifts in ecosystem goods and services (e.g., carbon sequestration, hydrology, and fire disturbance regimes), the Staff Paper concluded that any secondary standard set to protect against the known and quantifiable adverse effects to vegetation should also consider the anticipated, but currently unquantifiable, potential effects on natural ecosystems.

(3) Crop Yield Loss. Exposure and risk assessments in the Staff Paper estimated that meeting the current 8-hour standard would still allow O₃-related yield loss to occur in several fruit and vegetable and commodity crop species currently grown in the U.S. These estimates of crop yield loss are substantially lower than those estimated in the last review as a result of several factors, including adjusted exposure levels to reflect the presence of a variable O₃ gradient between monitor height and crop canopies, and use of a different econometric agricultural benefits model updated to reflect more recent agricultural policies (EPA, 2006b). Though these sources of uncertainty associated with the crop risk and benefits assessments were better documented in this review, the Staff Paper concluded that the presence of these uncertainties make the risk estimates suitable only as a basis for understanding potential trends in relative yield loss and economic benefits. The Staff Paper further recognized that actual conditions in the field and management practices vary from farm to farm, that agricultural systems are heavily managed, and that adverse impacts from a variety of other factors (e.g., weather, insects, disease) can be orders of magnitude greater than that of yield impacts predicted for a given O₃ exposure. Thus, the relevance of such estimated impacts on crop yields to the public welfare are considered highly uncertain and less useful as a basis for assessing the adequacy of the current standard. The Staff Paper noted, however, that in some experimental cases, exposure to O₃ has made plants more sensitive or

vulnerable to some of these other important stressors, including disease, insect pests, and harsh weather (EPA, 2006a). The Staff Paper therefore concluded that this remains an important area of uncertainty and that additional research to better characterize the nature and significance of these interactions between O₃ and other plant stressors would be useful.

iii. Summary of Staff Paper Considerations

In summary, the Staff Paper concluded that the current secondary O₃ standard is inadequate. This conclusion was based on the extensive vegetation effects evidence, in particular the recent empirical field-based evidence on biomass loss in seedlings, saplings and mature trees, and foliar injury incidence that has become available in this review, which demonstrates the occurrence of adverse vegetation effects at ambient levels of recent O₃ air quality, as well as evidence and exposure- and risk-based analyses indicating that adverse effects would be predicted to occur under air quality scenarios that meet the current standard.

b. CASAC Views

In a letter to the Administrator (Henderson, 2006c), the CASAC O₃ Panel, with full endorsement of the chartered CASAC, unanimously concluded that “despite limited recent research, it has become clear since the last review that adverse effects on a wide range of vegetation including visible foliar injury are to be expected and have been observed in areas that are below the level of the current 8-hour primary and secondary ozone standards.” Therefore, “based on the Ozone Panel’s review of Chapters 7 and 8 [of the Staff Paper], the CASAC unanimously agrees that it is not appropriate to try to protect vegetation from the substantial, known or anticipated, direct and/or indirect, adverse effects of ambient O₃ by continuing to promulgate identical primary and secondary standards for O₃. Moreover, the members of the Committee and a substantial majority of the Ozone Panel agree with EPA staff conclusions and encourage the Administrator to establish an alternative cumulative secondary standard for O₃ and related photochemical oxidants that is distinctly different in averaging time, form and level from the currently existing or potentially revised 8-hour primary standard” (Henderson, 2006c).²⁶

²⁶ One CASAC Panel member reached different conclusions from those of the broader Panel

c. Administrator’s Proposed Conclusions

At the time of proposal, in considering whether the current secondary standard should be revised, the Administrator carefully considered the conclusions contained in the Criteria Document, the rationale and recommendations contained in the Staff Paper, the advice and recommendations from CASAC, and public comments to date on this issue. In so doing, the Administrator recognized that the secondary standard is to protect against “adverse” O₃ effects, as discussed in section IV.A.3 of the proposal. In considering what constitutes a vegetation effect that is also adverse to the public welfare, the Administrator took into account the Staff Paper conclusions regarding the nature and strength of the vegetation effects evidence, the exposure and risk assessment results, the degree to which the associated uncertainties should be considered in interpreting the results, and the views of CASAC and members of the public. On these bases, the Administrator proposed that the current secondary standard is inadequate to protect the public welfare from known and anticipated adverse O₃-related effects on vegetation and ecosystems. Ozone levels that would be expected to remain after meeting the current secondary standard were judged to be sufficient to cause visible foliar injury, seedling and mature tree biomass loss, and crop yield reductions to degrees that could be considered adverse depending on the intended use of the plant and its significance to the public welfare, and the current secondary standard does not provide adequate protection from such effects. Other O₃-induced effects described in the literature, including an impaired ability of many sensitive species and genotypes within species to adapt to or withstand other environmental stresses, such as freezing temperatures, pest infestations and/or disease, and to compete for available resources, would also be anticipated to occur. In the long run, the result of these impairments (e.g., loss in vigor) could lead to premature plant death in O₃ sensitive species. Though effects on other ecosystem components

regarding certain aspects of the vegetation effects information and the appropriate degree of emphasis that should be placed on the associated uncertainties. These concerns related to how the results of O₃/vegetation exposure experiments carried out in OTC can be extrapolated to the ambient environment and how C–R functions developed in the 1980s can be used today given that he did not expect that current crop species/cultivars in use in 2002 would have the same O₃ sensitivity as those studied in NCLAN (Henderson, 2007, pg. C–18).

have only been examined in isolated cases, effects such as those described above could have significant implications for plant community and associated species biodiversity and the structure and function of whole ecosystems. These considerations also support the proposed conclusion that the current secondary standard is not adequate and that revision is needed to provide additional public welfare protection.

2. Comments on the Need for Revision

The above section outlines the vegetation and ecosystem effects evidence and assessments used by the Administrator to inform his proposed judgments about the adequacy of the current O₃ secondary standard. General comments received on the proposal that either supported or opposed the proposed decision to revise the current O₃ secondary standard are addressed in this section. Comments related to the vegetation and ecosystem effects evidence and information related to exposure indices are considered in section IV.B.2.a below, and comments on vegetation exposure and risk assessments are considered in section IV.B.2.b. Comments on specific issues, vegetation and ecosystem effects evidence, information on exposure indices, or the vegetation exposure and risk assessments that relate to consideration of the appropriate form, averaging time, or level of the O₃ standard are addressed below in section IV.C. General comments based on implementation-related factors that are not a permissible basis for considering the need to revise the current standard are noted in the Response to Comments document.

a. Evidence of Effects and Exposure Indices

Sections IV.A.2 and IV.A.3 above provide a summary overview of the information on vegetation and ecosystem effects and exposure indices used by the Administrator to inform his proposed judgments about the adequacy of the current O₃ secondary standard. As discussed more fully below, comments received on the proposal regarding the nature and strength of the vegetation and ecosystem effects information, information on exposure indices, and the conclusions that could appropriately be drawn from such information fell generally into two groups.

One group of commenters that included national and local environmental organizations (e.g., Environmental Defense, Appalachian Mountain Club, Rocky Mountain Clean Air Action), NESCAUM, NACAA,

individual States, Tribal Associations, and the National Park Service (NPS) argued that the available science clearly showed that O₃-induced vegetation and ecosystem effects are occurring at and below levels that meet the current 8-hour standard, and therefore provides a strong basis and support for the conclusion that the current secondary standard is inadequate. In support of their view, these commenters relied on the entire body of evidence available for consideration in this review, including evidence assessed previously in the last review. These commenters pointed to the information and analyses in the Staff Paper and the conclusions and recommendations of CASAC as providing a clear basis for concluding that the current standard does not adequately protect vegetation from an array of O₃-related effects. For example, the NPS noted that “[w]idespread foliar injury has been documented in areas meeting the current standard; field and chamber studies indicate that O₃-induced significant growth reductions are also occurring at levels below the current standard” (NPS, p. 3).

In addition to the body of information already considered by EPA in this review, these same commenters also presented new information for the Administrator’s consideration, including a number of “new” studies published after completion of the Criteria Document, as well as additional information on air quality and vegetation exposures and effects pertaining to local conditions within their State, Tribal or federal lands, as additional support for their views that the current standard is inadequate. For example, NESCAUM, NY, PA, and NPS all provided air quality information describing typical O₃ concentrations in areas that rarely, if ever, exceeded the level of the current 8-hour standard in areas that still showed O₃-related vegetation effects, particularly visible foliar injury.

Building on EPA’s qualitative discussions of the potential linkage between O₃ vegetation effects and effects on ecosystems, a number of these commenters expressed concern that the possible impact of O₃-related reductions in plant productivity could result in a reduced capacity of vegetation to serve as a carbon sink to mitigate the impacts of rising CO₂ in a changing climate, citing to a “new” study on that topic (Sitch *et al.*, 2007). Many of these same commenters also cited to “new” field-based studies in the Great Smoky Mountain National Park that find a relationship between O₃ exposure, tree stem growth loss, tree water use and stream flow as evidence that current

ambient O₃ levels can impact ecosystems and that ecosystems should be afforded protection from such potential effects. For example, some of these commenters note that “new” studies in the Great Smoky Mountain National Park (McLaughlin, *et al.*, 2007a, b) have found that (1) ambient O₃ caused substantial growth reductions in mature trees in a mixed deciduous forest, which was due in part to increased O₃-induced water loss and led to seasonal losses in stem growth of 30–50 percent for most species in a high-ozone year; (2) increasing ambient O₃ levels also resulted in depletion of soil moisture in the rooting zone and reduced late-season streamflow in the watershed; and (3) O₃ may amplify the adverse effects of increasing temperature on forest growth and forest hydrology and may exacerbate the effects of drought on forest growth and stream health. Other “new” research noted by these commenters as supporting EPA’s findings that current O₃ exposures cause significant biomass losses in sensitive seedlings of various tree species include a study that predicted up to 31 percent growth loss in aspen in certain areas of its North American range in 2001–2003 (Percy, *et al.*, 2007). These commenters encouraged the Administrator to consider these “new” studies in making his final decision.

This group of commenters strongly supported revising the current standard, not only because in their view the available evidence conclusively demonstrates that the current standard is inadequate to protect sensitive vegetation, but also because the Staff Paper provides abundant evidence that it is appropriate to establish an alternative cumulative, seasonal secondary standard that is distinctly different in form from the current or revised primary standard. For example, NESCAUM states that “[i]n light of the EPA Staff and CASAC recommendations, and the extensive body of historical and recent monitoring and research data upon which these recommendations were based, the option of equating the ozone secondary NAAQS with the 8-hour primary is inappropriate and clearly not supported by the weight of scientific evidence.”

EPA agrees with these commenters that when evaluated as a whole, the entire body of vegetation and ecosystem effects information available in this review supports the need to revise the current standard to provide increased protection from an array of O₃-related effects on sensitive vegetation and ecosystems. EPA also agrees that the available evidence indicates that a

cumulative, seasonal form better reflects the scientific information on biologically relevant exposures for vegetation. For reasons discussed below in sections IV.C, however, EPA disagrees with aspects of these commenters' views as to whether a standard defined in terms of a cumulative, seasonal form is requisite to protect public welfare based on the available scientific information.

To the extent that these and other commenters whose comments are discussed below included "new" scientific studies, studies that were published too late to be considered in the Criteria Document, in support of their arguments for revising or not revising the standards, EPA notes, as discussed in section I above, that as in past NAAQS reviews, it is basing the final decisions in this review on the studies and related information included in the O₃ air quality criteria that have undergone CASAC and public review and will consider newly published studies for purposes of decision making in the next O₃ NAAQS review. In provisionally evaluating commenters' arguments, as discussed in the Response to Comments document, EPA notes that its provisional consideration of "new" science found that such studies did not materially change the conclusions in the Criteria Document.

The other main group of commenters, which included Exxon-Mobil, UARG, API, other industry groups, The Annapolis Center for Science Based Public Policy, individual States and other organizations representing local energy, agriculture or business interests, expressed the contrasting view that the limited number of studies published since the last review and addressed in the Criteria Document provided insufficient evidence to support a conclusion different than what was reached in the last review. In particular, they asserted that the types of vegetation effects evaluated in the last review have not changed, and that the Criteria Document, Staff Paper, and CASAC have acknowledged that the information that has become available since the last review does not fundamentally change the conclusions reached in the last review. As a result, they argued that the currently available evidence fails to show that revision to the standard is requisite to provide additional protection from these effects. In particular, Exxon-Mobil stated that "EPA is incorrect in concluding vegetation impacts [occur] at or below the level of the current standard" * * * and that the "newer field-based evidence EPA cites for ozone impacts on

seedlings, saplings and mature trees indicates ozone impacts but at exposures that are likely in exceedence of the current secondary standard." This commenter concluded that while these studies provide additional support for O₃-related impacts on vegetation, including observing effects in field settings without chambers, they do not provide support for the conclusion that ambient levels in compliance with the current standard would result in significant O₃ impact. In addition, these commenters also generally asserted that the evidence that has become available since the last review does not materially reduce the uncertainties that were present and cited by the Administrator in the last review as important factors in her decision to set the secondary identical to the revised primary. Those aspects of these comments that include uncertainties associated with the exposure, risk and benefits assessments are addressed below in section IV.2.b and in the Response to Comments document.

EPA disagrees with the commenters' assertion that the currently available evidence has not materially reduced key uncertainties present in the last review that factored into the Administrator's decision. For example, there is an expansion of field-based evidence across a broad array of vegetation effects categories, as discussed in the Criteria Document, Staff Paper, and highlighted above in section IV.A.2. Though in some such studies (e.g., the FACE studies) the O₃ exposures are indeed at or above ambient levels, the observed vegetation response is similar to that observed in OTC studies at similar levels of exposure. Though these studies are still limited in scope, it is nevertheless EPA's view that such field-based evidence reduces the uncertainties associated with the C-R functions generated in OTC studies that were noted by the Administrator in the last review. Thus, the current body of evidence increases EPA's confidence in the results from the OTC studies which demonstrate O₃-related effects below the level of the current standard. EPA has also considered this evidence in conjunction with USDA FIA foliar injury survey data and the Gregg *et al.* (2003) tree seedling biomass loss gradient study showing effects on a sensitive tree species occurring in the field across a range of exposure levels including levels of air quality at or well below the level of the current secondary standard. Taken together, EPA concludes that these studies form a coherent body of evidence that significantly strengthens EPA's

confidence that such effects are currently occurring in the field and would continue to be anticipated at and below the level of the current secondary standard. A more detailed discussion of these issues can be found in the Response to Comments document.

b. Vegetation Exposure and Risk Assessments

Section IV.A.4 above provides a summary overview of the vegetation exposure and risk assessment information used by the Administrator to help inform judgments about vegetation exposure and risk estimates associated with attainment of the current and alternative standards. As an initial matter, EPA notes that at the time of proposal, the Administrator primarily based his conclusion on whether revision of the secondary standard was needed primarily on evidence-based considerations, while using the more uncertain exposure and risk assessments in a supportive role. As discussed more fully below, comments received on the proposal regarding these assessments and the conclusions that could appropriately be drawn from them fell generally into two groups. One group of commenters generally included those noted above who supported revising the current secondary standard, while the other group of commenters were those noted above who expressed the view that no revision was appropriate.

The first group of commenters primarily focused on evidence-based considerations in their support of a revised standard, while some also referenced EPA's findings from the exposure and risk assessments in supporting their view that the standard needed to be revised to provide increased protection for sensitive vegetation. A few of these commenters also provided additional exposure, risk and benefits information from localized assessments conducted by themselves or others in their behalf in support of their view that the standard needed to be revised. In so doing, these commenters have generally shown support for using such assessments to help inform a final decision on the need to revise.

The other group of commenters expressed a number of concerns with these assessments and generally asserted that these assessments do not support revision of the current standard. These commenters' concerns generally focused on (1) the method used by EPA to estimate PRB, (2) the lack of new information since the last review that would, in their judgment, materially reduce the uncertainties present in the assessments conducted for the last review, and (3) EPA's interpretation and

use of the results in making a judgment about the adequacy of the current standard. These comments are addressed below.

(1) Regarding concerns related to the method used by EPA to estimate PRB, EPA notes that this issue has been raised repeatedly throughout the review in the context of both the primary and secondary standards. Most generally, these commenters asserted that EPA used unrealistically low levels of PRB that resulted in an overestimate of risks and benefits associated with just meeting alternative standards. EPA disagrees with this view, for the reasons discussed above in section II.B.2.b, which addresses this and other comments related to EPA's approach to estimating PRB and its role in exposure and risk assessments related to the primary standard.

(2) Another concern posed by these commenters was the lack of any new information that, in their judgment, would materially reduce the uncertainties present in the exposure, risk and benefits assessments conducted for the last review. For example, the Annapolis Center asserted that "[s]ome of the most important caveats and uncertainties concerning the exposure and risk assessments for crop yield that were listed in the [1996] proposal included (1) extrapolating from exposure-response functions generated in open-top chambers to ambient conditions; (2) the lack of a performance evaluation of the national air quality extrapolation; (3) the methodology to adjust modeled air quality to reflect attainment of various alternative standard options; and (4) inherent uncertainties in models to estimate economic values associated with attainment of alternative standard.

* * * Because of the lack of new data or substantive improvements in the risk assessment, these same issues remain today, contributing a similar degree of uncertainty, as was the case in the prior review." EPA recognizes that important uncertainties remain in estimates of vegetation exposure and O₃-related risk to vegetation, especially with regard to O₃-related effects on crop yields. However, EPA disagrees with comments that assert that uncertainties have not been reduced since the last review, as discussed below.

With regard to the uncertainties associated with using the OTC C-R functions, the Annapolis Center further stated that "ten years have now elapsed, and the same concentration-response functions from the OTC studies of the 1980's are still the only viable data to use to estimate crop loss. * * * The 1996 CASAC Panel agreed that the

estimates of crop loss at that time were highly uncertain." While EPA agrees that important uncertainties continue to be associated with the use of the C-R functions generated many years ago using OTC studies for crop yield loss, EPA does not agree that the new information available in this review does nothing to reduce such uncertainties identified in the last review. As described above and in the Staff Paper and proposal, results from the new SoyFACE and AspenFACE studies provide qualitative support that the levels of vegetation response that have been observed in the field are of similar magnitude as those predicted at similar exposure levels using the OTC generated C-R functions. Therefore, EPA believes that the uncertainties cited in the last review regarding the appropriateness of using OTC generated C-R functions to predict vegetation response in the field have been reduced. Providing some further support in this regard is the limited information available in this review on some sensitive crop species (e.g., soybean) suggesting that O₃ sensitivity has not changed significantly in the intervening years. Taking all the above into account, EPA's level of confidence in the applicability of the OTC generated C-R functions to represent ambient conditions in the field has increased.

With regard to the lack of a performance evaluation of the national air quality extrapolation, EPA notes that there have been advancements in the tools and methods used for such extrapolations since the last review. With respect to the generation of interpolated O₃ exposure surfaces, EPA employed a different approach than that used in the last review and undertook a quantitative assessment of the uncertainties associated with the use of this method. This uncertainty assessment was accomplished by sequentially dropping out of the interpolation each monitoring site, and then recalculating the exposure surface using the remaining monitoring sites. As discussed in the Staff Paper, this method of evaluation may result in a slight overestimation of error and bias for the exposure surface, since dropping out monitors loses information that the interpolation uses in that local area. As another point of comparison, EPA also examined the subset of rural CASTNET sites to illustrate how the interpolation technique predicted air quality in that rural monitoring network. For this subset, the evaluation indicated that in general, the interpolation technique slightly overestimated W126 exposures at relatively low levels and

underestimated W126 exposure at relatively high levels. This aspect of the estimation method potentially resulted in an underestimation of the more important risks associated with higher cumulative exposures in some areas. Based on this evaluation, EPA reiterates the conclusion in the Staff Paper that "the calculation of error and bias metrics for the interpolation represents a notable improvement over the 1996 assessment which did not have such an evaluation." EPA further concludes that in general, the sources and likely direction of uncertainties associated with the exposure and risk assessments have been better accounted for and characterized than in the last review.

With regard to criticisms of the methodology used to adjust modeled air quality to reflect attainment of various alternative standard options, EPA notes that this issue has been raised in the context of both the primary and secondary standards. As noted above in section II.B.2.b, based on information in the Staff Paper (section 4.5.6) and in more detail in a staff memorandum (Rizzo, 2006), EPA concluded that the quadratic air quality adjustment approach used in this assessment generally best represented the pattern of reductions across the O₃ air quality distribution observed over the last decade in areas implementing control programs designed to attain the O₃ NAAQS. While EPA recognizes that future changes in air quality distributions are area-specific, and will be affected by whatever specific control strategies are implemented in the future to attain a revised NAAQS, there is no empirical evidence to suggest that future reductions in ambient O₃ will be significantly different from past reductions with respect to impacting the overall shape of the O₃ distribution.

With regard to comments that asserted that inherent uncertainties in models to estimate economic values of crop loss have not been reduced since the last review, EPA acknowledges that while an updated state of the art model, the AGSIM benefits model, was used in this review, substantial uncertainties remain in these estimates of economic crop loss. Further, EPA notes that these estimates were not relied on as a basis for reaching a decision on the need to revise the current standard.

(3) Some commenters also asserted that the estimated exposures and risks associated with air quality just meeting the current standard have not appreciably changed since the last review. These commenters used this conclusion as the basis for a claim that there is no reason to depart from the Administrator's 1997 decision that the

current secondary standard is requisite to protect public welfare. EPA believes that this claim is fundamentally flawed for three reasons. First, it is inappropriate to compare quantitative vegetation risks estimated in the last review with those estimated in the current review. The 1997 risk estimates, or any comparison of the 1997 risks estimates to the current estimates, are irrelevant for the purpose of judging the adequacy of the current standard, as the 1997 estimates reflect outdated analyses that have been updated in this review to reflect the current science and as there have been significant improvements to the modeling approaches and model inputs. Second, it is important to take into account EPA's increased confidence in some of the model inputs, as discussed above, since in judging the weight to place on quantitative risk estimates it is important to examine not only the magnitude of the estimated risks but also the degree of confidence in those estimates. Third, quantitative vegetation risk estimates were not the main basis for EPA's decision in setting a level for the secondary standard in 1997, and they do not set any quantified "benchmark" for the Agency's decision to revise the current standard at this time. The proposal notice made clear that decisions about the need to revise the current standard are mainly based on an integrated evaluation of evidence available across a broad array of vegetation effects, while the more uncertain exposure, risk and benefits estimates were used in a supportive role. Both the Staff Paper and proposal clearly distinguished the roles that these different types of information played in informing the Administrator's proposed decision. The proposal states that "due to multiple sources of uncertainty, both known and unknown, that continue to be associated with these analyses, the Staff Paper put less weight on this information in drawing conclusions on the adequacy of the current standard. However, the Staff Paper also recognizes that some progress has been made since the last review in better characterizing some of these associated uncertainties and, therefore, concluded that the results of the exposure and risk assessments continue to provide information useful to informing judgments as to the relative changes in risks predicted to occur under exposure scenarios associated with the different standard alternatives considered." In determining the requisite level of protection, the Staff Paper recognized that it is appropriate to weigh the importance of the predicted risks of these effects in the overall context of

public welfare protection, along with a determination as to the appropriate weight to place on the associated uncertainties and limitations of this information. Thus, while the Administrator is fully mindful of the uncertainties associated with the estimates of exposure, risk and benefits, as discussed above, he judges that these estimates are still useful in providing additional support for his judgment that the current 8-hour secondary standard does not adequately protect sensitive vegetation.

3. Conclusions Regarding the Need for Revision

Having carefully considered the public comments, discussed above, the Administrator believes the fundamental scientific conclusions on the effects of O₃ on vegetation and sensitive ecosystems reached in the Criteria Document and Staff Paper, as discussed above in section IV.A, remain valid. In considering whether the secondary O₃ standard should be revised, the Administrator finds that evidence that has become available in this review demonstrates the occurrence of adverse vegetation effects at ambient levels of recent O₃ air quality, and that evidence and exposure- and risk-based analyses indicate that adverse effects would be predicted to occur under air quality scenarios that meet the current standard, taking into consideration both the level and form of the current standard. Ozone exposures that would be expected to remain after meeting the current secondary standard are sufficient to cause visible foliar injury and seedling and mature tree biomass loss in O₃-sensitive vegetation. The Administrator believes that the degree to which such effects should be considered to be adverse depends on the intended use of the vegetation and its significance to the public welfare. Other O₃-induced effects described in the literature, including an impaired ability of many sensitive species and genotypes within species to adapt to or withstand other environmental stresses, such as freezing temperatures, pest infestations and/or disease, and to compete for available resources, would also be anticipated to occur. In the long run, the result of these impairments (e.g., loss in vigor) could lead to premature plant death in O₃ sensitive species. Though effects on other ecosystem components have only been examined in isolated cases, effects such as those described above could have significant implications for plant community and associated species biodiversity and the structure and function of whole ecosystems.

The Administrator recognizes that the secondary standard is not meant to protect against all known observed or anticipated O₃-related effects, but only those that can reasonably be judged to be adverse to the public welfare. In considering what constitutes a vegetation effect that is adverse from a public welfare perspective, the Administrator believes it is appropriate to continue to rely on the definition of "adverse," discussed in section IV.A.3 of the proposal, that imbeds the concept of "intended use" of the ecological receptors and resources that are affected, and applies that concept beyond the species level to the ecosystem level.²⁷ In so doing, the Administrator has taken note of a number of actions taken by Congress to establish public lands that are set aside for specific uses that are intended to provide benefits to the public welfare, including lands that are to be protected so as to conserve the scenic value and the natural vegetation and wildlife within such areas, and to leave them unimpaired for the enjoyment of future generations. Such public lands that are protected areas of national interest include national parks and forests, wildlife refuges, and wilderness areas. Because O₃-sensitive species are generally found in such areas, and because levels of O₃ allowed by the current secondary standard are sufficient to cause known or anticipated impairment that the Administrator judges to be adverse to sensitive vegetation and ecosystems in such areas, the Administrator concludes that it is appropriate to revise the secondary standard, in part, to provide increased protection against O₃-caused impairment to such protected vegetation and ecosystems.

The Administrator further recognizes that States, Tribes and public interest groups also set aside areas that are intended to provide similar benefits to the public welfare, for residents on State and Tribal lands, as well as for visitors to those areas. Given the clear public interest in and value of maintaining these areas in a condition that does not impair their intended use, and the fact that many of these areas contain O₃-sensitive vegetation, the Administrator further concludes that it is appropriate to revise the secondary standard in part to provide increased protection against O₃-caused impairment to vegetation and ecosystems in such specially designated areas.

²⁷ The Administrator also recognizes that other aspects of public welfare, as welfare is defined in the CAA, may rely on concepts other than "intended use."

The Administrator also recognizes that O₃-related effects on sensitive vegetation occur in areas that have not been afforded such special protections, ranging from vegetation used for residential or commercial ornamental purposes, such as urban/suburban landscaping, to land use categories that are heavily managed for commercial production of commodities such as agricultural crops, timber, and ornamental vegetation. For vegetation used for residential or commercial ornamental purposes, such as urban/suburban landscaping, there are indications that impairment to the intended use of such vegetation can occur from O₃ exposures allowed by the current standard. While the Administrator believes that there is not adequate information at this time to establish a secondary standard based specifically on impairment of urban/suburban landscaping and other uses of ornamental vegetation, he notes that a secondary standard revised to provide protection for sensitive natural vegetation and ecosystems may also provide some degree of protection for such ornamental vegetation.

With respect to commercial production of commodities, however, the Administrator notes that judgments about the extent to which O₃-related effects on commercially managed vegetation are adverse from a public welfare perspective are particularly difficult to reach, given that what is known about the relationship between O₃ exposures and agricultural crop yield response derives largely from data generated almost 20 years ago. The Administrator recognizes that there is substantial uncertainty at this time as to whether these data remain relevant to the majority of species and cultivars of crops being grown in the field today. In addition, the extensive management of such vegetation may to some degree mitigate potential O₃-related effects. The management practices used on these lands are highly variable and are designed to achieve optimal yields, taking into consideration various environmental conditions. Thus, while the Administrator believes that a secondary standard revised to provide protection for sensitive natural vegetation and ecosystems may also provide some degree of additional protection for heavily managed commercial vegetation, the need for such additional protection is uncertain.

Based on these considerations, and taking into consideration the advice and recommendations of CASAC, the Administrator concludes that the protection afforded by the current secondary O₃ standard is not sufficient

and that the standard needs to be revised to provide additional protection from known and anticipated adverse effects on sensitive natural vegetation and sensitive ecosystems, and that such a revised standard could also be expected to provide additional protection to sensitive ornamental vegetation. The Administrator also concludes that there is not adequate information to establish a separate secondary standard based on other effects of O₃ on public welfare. It is important to note that these conclusions, and the reasoning on which they are based, do not address the question of what specific revisions to the current secondary standard are appropriate. Addressing that question requires looking specifically at the two proposed options: establishing a new standard defined in terms of a cumulative, seasonal form, or revising the current secondary standard by making it identical to the revised primary standard. These alternative secondary standards are discussed in the following section.

As highlighted below, the discussion of public comments above indicates that deciding the appropriate secondary standard involves making a difficult choice between two possible alternatives, each with their strengths and weaknesses. EPA's decision, and the reasons for it, are described in detail above. In reaching this decision, there has been a robust discussion within the Administration of these same strengths and weaknesses. As part of that process EPA received a Memorandum on March 6, 2008 from Susan Dudley, Administrator, Office of Information and Regulatory Affairs, Office of Management and Budget, indicating various concerns over adopting a cumulative, seasonal secondary standard. Deputy Administrator Marcus Peacock responded with a Memorandum dated March 7, 2008 stating EPA's views supporting adoption of a cumulative, seasonal secondary standard. On March 11, 2008, the President "concluded that, consistent with Administration policy, added protection should be afforded to public welfare by strengthening the secondary ozone standard and setting it to be identical to the new primary standard, the approach adopted when ozone standards were last promulgated. This policy thus recognizes the Administrator's judgment that the secondary standard needs to be adjusted to provide increased protection to public welfare and avoids setting a standard lower or higher than is necessary." EPA's decision therefore

also reflects the view of the Administration as to the most appropriate secondary standard. While the Administrator fully considered the President's views, the Administrator's decision, and the reasons for it, are based on and supported by the record in this rulemaking.

C. Conclusions on the Secondary O₃ Standard

As an initial matter, EPA has considered the indicator for a secondary O₃ standard. As discussed above in section II.C.1 on the primary standard, in the last review, EPA focused on a standard for O₃ as the most appropriate surrogate for ambient photochemical oxidants. In this review, while the complex atmospheric chemistry in which O₃ plays a key role has been highlighted, no alternatives to O₃ have been advanced as being a more appropriate surrogate for ambient photochemical oxidants and their effects on vegetation. Thus, as is the case for the primary standard, the Administrator concludes that it is appropriate to continue to use O₃ as the indicator for a standard that is intended to address effects associated with exposure to O₃, alone and in combination with related photochemical oxidants. In so doing, the Administrator recognizes that measures leading to reductions in vegetation exposures to O₃ will also reduce exposures to other photochemical oxidants.

1. Staff Paper Evaluation

The current Criteria Document and Staff Paper concluded that the recent vegetation effects literature evaluated in this review strengthens and reaffirms conclusions made in the last review that the use of a cumulative exposure index that differentially weights ambient concentrations is best able to relate ambient exposures to vegetation response at this time (EPA, 2006a, b). The last review focused in particular on two of these cumulative forms, the SUM06 and W126 (EPA, 1996). Given that the data available at that time were unable to distinguish between these forms, the Administrator, based on the policy consideration of not including O₃ concentrations considered to be within the PRB, estimated to be between 0.03 and 0.05 ppm, concluded that the SUM06 form would be the more appropriate choice for a cumulative, exposure index for a secondary standard, though a cumulative form was not adopted at that time.

In this review, the Staff Paper evaluated the continued appropriateness of the SUM06 form in

light of two key pieces of information: new estimates of PRB that are lower than in the last review, and continued lack of evidence within the vegetation effects literature of a biological threshold for vegetation exposures of concern. On the basis of those policy and science-related considerations, the Staff Paper concluded that the W126 form was more appropriate in the context of this review. Specifically, the W126, by its incorporation of a sigmoidal weighting function, does not create an artificially imposed concentration threshold, gives proportionally more weight to the higher and typically more biologically potent concentrations, and is not significantly influenced by O₃ concentrations within the range of estimated PRB.

The Staff Paper also considered that in the 1997 final rule, the decision was made, on the basis of both science and policy considerations, to make the secondary standard identical to the primary standard (62 FR 38876). On the basis of that history, the current Staff Paper analyzed the degree of overlap expected between alternative 8-hour and cumulative seasonal secondary standards using recent air quality monitoring data. Based on the results, the Staff Paper concluded that the degree to which the current 8-hour standard form and level would overlap with areas of concern for vegetation expressed in terms of the 12-hour W126 standard is inconsistent from year to year and would depend greatly on the level of the 12-hour W126 and 8-hour standards selected and the distribution of hourly O₃ concentrations within the annual and/or 3-year average period.

Thus, though the Staff Paper recognized again that meeting the current or alternative levels of the 8-hour average standard could result in air quality improvements that would potentially benefit vegetation in some areas, it urged caution be used in evaluating the likely vegetation impacts associated with a given level of air quality expressed in terms of the 8-hour average form in the absence of parallel W126 information. This caution is due to the concern that the analysis in the Staff Paper may not be an accurate reflection of the true situation in non-monitored, rural counties due to the lack of more complete monitor coverage in many rural areas. Further, of the counties that did not show overlap between the two standard forms, most were located in rural/remote high elevation areas which have O₃ air quality patterns that are typically different from those associated with urban and near urban sites at lower

elevations. Because the majority of such areas are currently not monitored, it is believed there are likely to be additional areas that have similar air quality distributions that would lead to the same disconnect between forms. Thus, the Staff Paper concluded that it remains problematic to determine the appropriate level of protection for vegetation using an 8-hour average form.

2. CASAC Views

The CASAC, based on its assessment of the same vegetation effects science, agreed with the Criteria Document and Staff Paper and unanimously concluded that protection of vegetation from the known or anticipated adverse effects of ambient O₃ “requires a secondary standard that is substantially different from the primary standard in averaging time, level, and form,” i.e. not identical to the primary standard for O₃ (Henderson, 2007). Moreover, the members of CASAC and a substantial majority of the CASAC Panel agreed with Staff Paper conclusions and encouraged the Administrator to establish an alternative cumulative secondary standard for O₃ and related photochemical oxidants that is distinctly different in averaging time, form and level from the current or potentially revised 8-hour primary standard (Henderson, 2006c). The CASAC Panel also stated that “the recommended metric for the secondary ozone standard is the (sigmoidally weighted) W126 index” (Henderson, 2007).

3. Administrator’s Proposed Conclusions

In EPA’s proposal, the Administrator agreed with the conclusions drawn in the Criteria Document, Staff Paper and by CASAC that the scientific evidence available in the current review continues to demonstrate the cumulative nature of O₃-induced plant effects and the need to give greater weight to higher concentrations. Thus, the Administrator proposed that a cumulative exposure index that differentially weights O₃ concentrations could represent a reasonable policy choice for a seasonal secondary standard to protect against the effects of O₃ on vegetation. The Administrator further agreed with both the Staff Paper and CASAC that the most appropriate cumulative, concentration-weighted form to consider in this review is the sigmoidally weighted W126 form, due to his recognition that there is no evidence in the literature for an exposure threshold that would be appropriate across all O₃-sensitive vegetation and that this form is unlikely

to be significantly influenced by O₃ air quality within the range of PRB levels identified in this review. Thus, the Administrator proposed as one option to replace the current 8-hour average secondary standard form with the cumulative, seasonal W126 form.

The Administrator also proposed to revise the current secondary standard by making it identical to the proposed 8-hour primary standard, which was proposed to be within the range of 0.070 to 0.075 ppm. For this option, EPA also solicited comment on a wider range of 8-hour standard levels, including levels down to 0.060 ppm and up to the current standard (i.e., effectively 0.084 ppm with the current rounding convention). In putting forward such a proposal, the Administrator focused on the decision made in the last review, and the rationale for that decision that made the revised secondary standard identical to the revised primary standard.

4. Comments on the Secondary Standard Options

Comments received following proposal regarding revising the secondary standard either to reflect a new, cumulative form or by remaining equal to a revised primary standard generally fell into two groups. These comments were similar to those raised prior to the proposal during earlier phases of the NAAQS review, as summarized in the proposal notice and highlighted below.

One group of commenters, including the National Park Service, Environmental Defense, NESCAUM, NACAA, individual States, Tribal Associations, and local environmental organizations, asserted that the weight of scientific evidence was unambiguous with regard to the need for a cumulative form, and specifically supported the proposed W126 exposure index. For example, New York State DEC explained that “scientific research recognizes that exposure-based indices considering seasonal time period, exposure duration, diurnal dynamics, peak hourly ozone concentrations, and cumulative effects are important when assessing vegetation effects of ozone exposure (Musselman *et al.*, 2006). The W126 exposure index has long been recognized as a biologically meaningful and useful way to summarize hourly ozone data as a measure of ozone exposure to vegetation (Lefohn *et al.*, 1989)”. Similarly, Environmental Defense stated “[f]or reasons amply explained by CASAC and the Staff, neither the existing secondary standard for ozone nor the proposed primary standards are requisite to protect against

adverse welfare effects on vegetation and forested ecosystems. CASAC and Staff further amply justified the need for a separate cumulative seasonal welfare standard to protect against these effects, rather than relying solely on the primary standards to provide such protection.” The National Park Service (NPS) comment provided additional support to this view and more specifically stated that “the NPS supports both the conclusion that a seasonal, cumulative metric is needed to protect vegetation, and that the W126 is a more appropriate metric than the SUM06.” EPA agrees with these comments for the reasons discussed above in sections IV.A.3 and IV.B.2.a).

In addition to expressing strong support for the W126 cumulative seasonal form, commenters in this group also expressed serious concerns with EPA’s other proposed option of setting the secondary standard equal to a revised primary standard. For example, NPS agreed with CASAC that “retaining the current form of the 8-hour standard for the secondary NAAQS is inappropriate and inadequate for characterizing ozone exposures to vegetation.” NESCAUM stated “we also strongly encourage EPA to avoid the flawed rationale employed in the previous 1997 ozone NAAQS review, i.e., that many of the benefits of a secondary NAAQS would be achieved if the primary NAAQS were attained. This rationale is flawed in at least two ways: first, ozone damage to vegetation persists in areas that attain the primary NAAQS; and second, the relationship between short-term 8-hour peak concentrations and longer-term seasonal aggregations is not constant, but varies over space and time * * * as EPA notes at 72 FR 37904. * * * EPA should set a secondary NAAQS on its own independent merits based on adverse welfare effects. Real or perceived relationships between primary and secondary nonattainment areas are irrelevant to setting the appropriate form and level of the secondary NAAQS.” Environmental Defense made the argument that “[b]ecause there is no rational connection between the proposed primary standards and the level of protection needed to protect vegetation against adverse ozone-induced welfare effects, any EPA finding that the primary standards would be sufficient for secondary standards purposes would be arbitrary. * * * The mere fact that the primary might provide ancillary welfare benefits does not satisfy the statute and does not provide a rational basis for concluding that the primary standards

are also requisite to protect to [sic] any adverse welfare effects.”

The other set of commenters, including UARG, API, Exxon-Mobil, The Annapolis Center, ASL and Associates, and AAM, did not support adopting an alternative, cumulative form for the secondary standard. Some of these commenters, while agreeing that “directionally a cumulative form of the standard may better match the underlying data,” believe that further work is needed to determine whether a cumulative exposure index for the form of the secondary standard is requisite to protect public welfare. These commenters also restated concerns that have been described above in section IV.B.2 regarding the remaining uncertainties associated with the vegetation effects evidence and/or the exposure, risk and benefits assessments. They point to the uncertainties cited by the Administrator in the 1997 review as part of her rationale for deciding it was not appropriate to move forward with a seasonal secondary, and state that these same uncertainties have not been materially reduced in the current review. These commenters also asserted that EPA’s analysis of the impact of the nation’s O₃ control program for the 8-hour standard on W126 exposures is not scientifically sound due to the use of low estimates of PRB and an arbitrary rollback method that is uninformed by atmospheric chemistry from photochemical models. They argue that EPA must first realistically evaluate the total O₃ reductions that would occur by using a state-of-the-art photochemical model and perform an analysis of the exposure-response data to determine if effects are observed for exposures which do not exceed the 8-hour standard. These commenters also stated that without producing C-R functions for the 8-hour form of the standard, EPA has failed to show that the current 8-hour standard would provide less than requisite protection. These commenters asserted that substantial uncertainties remain in this review, and that the benefits of changing to a W126 form are too uncertain to warrant revising the form of the standard at this time.

This group of commenters also addressed limitations associated with selection of the W126 cumulative form. Commenters asserted that: (1) The W126 form lacks a biological basis, since it is merely a mathematical expression of exposure that has been fit to specific responses in OTC studies, such that its relevance for real world biological responses is unclear; (2) a flux-based model would be a better choice than a cumulative metric because it is an improvement over the many limitations

and simplifications associated with the cumulative form; however, there is insufficient data to apply such a model at present; (3) the European experience with cumulative O₃ metrics has been disappointing and now Europeans are working on their second level approach, which will be flux-based; and (4) the W126 form cannot provide nationally uniform protection, as the same value of an exposure index may relate to different vegetation responses; some commenters support adding a second index that reflects the accumulation of peaks at or above 0.10 ppm (called N100).

5. Administrator’s Final Conclusions

In considering the appropriateness of establishing a new standard defined in terms of a cumulative, seasonal form, or revising the current secondary standard by making it identical to the revised primary standard, the Administrator took into account the approach used by the Agency in the last review, the conclusions of the Staff Paper, CASAC advice, and the views of public commenters. In giving careful consideration to the approach taken in the last review, the Administrator first considered the Staff Paper analysis of the projected degree of overlap between counties with air quality expected to meet the revised 8-hour primary standard, set at a level of 0.075 ppm, and alternative levels of a W126 standard based on currently monitored air quality data. This analysis showed significant overlap between the revised 8-hour primary standard and selected levels of the W126 standard form being considered, with the degree of overlap between these alternative standards depending greatly on the W126 level selected and the distribution of hourly O₃ concentrations within the annual and/or 3-year average period.²⁸ On this basis, as an initial matter, the Administrator recognizes that a secondary standard set identical to the proposed primary standard would provide a significant degree of additional protection for vegetation as compared to that provided by the current secondary standard. In further considering the significant uncertainties that remain in the available body of evidence of O₃-related vegetation effects and in the exposure and risk analyses conducted for this review, and the difficulty in determining at what point various types of vegetation effects become adverse for sensitive vegetation and ecosystems, the Administrator focused his consideration on a level for

²⁸ EPA has done further analysis of the degree of overlap, and that analysis is in the docket.

an alternative W126 standard at the upper end of the proposed range (i.e., 21 ppm-hours). The Staff Paper analysis shows that at that W126 standard level, there would be essentially no counties with air quality that would be expected both to exceed such an alternative W126 standard and to meet the revised 8-hour primary standard—that is, based on this analysis of currently monitored counties, a W126 standard would be unlikely to provide additional protection in any areas beyond that likely to be provided by the revised primary standard.

The Administrator also recognizes that the general lack of rural monitoring data makes uncertain the degree to which the revised 8-hour standard or an alternative W126 standard would be protective, and that there would be the potential for not providing the appropriate degree of protection for vegetation in areas with air quality distributions that result in a high cumulative, seasonal exposure but do not result in high 8-hour average exposures. While this potential for under-protection is clear, the number and size of areas at issue and the degree of risk is hard to determine. However, such a standard would also tend to avoid the potential for providing more protection than is necessary, a risk that would arise from moving to a new form for the secondary standard despite significant uncertainty in determining the degree of risk for any exposure level and the appropriate level of protection, as well as uncertainty in predicting exposure and risk patterns.

The Administrator also considered the views and recommendations of CASAC, and agrees that a cumulative, seasonal standard is the most biologically relevant way to relate exposure to plant growth response. However, as reflected in the public comments, the Administrator also recognizes that there remain significant uncertainties in determining or quantifying the degree of risk attributable to varying levels of O₃ exposure, the degree of protection that any specific cumulative, seasonal standard would produce, and the associated potential for error in determining the standard that will provide a requisite degree of protection—i.e., sufficient but not more than what is necessary. Given these significant uncertainties, the Administrator concludes that establishing a new secondary standard with a cumulative, seasonal form at this time would result in uncertain benefits beyond those afforded by the revised primary standard and therefore may be

more than necessary to provide the requisite degree of protection.

Based on his consideration of the full range of views as described above, the Administrator judges that the appropriate balance to be drawn is to revise the secondary standard to be identical in every way to the revised primary standard. The Administrator believes that such a standard would be sufficient to protect public welfare from known or anticipated adverse effects, and does not believe that an alternative cumulative, seasonal standard is needed to provide this degree of protection. This judgment by the Administrator appropriately considers the requirement for a standard that is neither more nor less stringent than necessary for this purpose.

D. Final Decision on the Secondary O₃ Standard

For the reasons discussed above, and taking into account information and assessments presented in the Criteria Document and Staff Paper, the advice and recommendations of the CASAC Panel, and the public comments to date, the Administrator has decided to revise the existing 8-hour secondary standard. Specifically, the Administrator is revising the current standard by making it identical to the revised primary standard. Data handling conventions for the secondary standard are the same as for the primary standard, and are specified in the new Appendix P that is adopted, as discussed in section V below. Issues related to the monitoring requirements for the revised O₃ secondary standard are discussed below in section VI.

V. Creation of Appendix P— Interpretation of the NAAQS for O₃

This section presents EPA's final decisions regarding the addition of Appendix P to 40 CFR part 50 on interpreting the primary and secondary NAAQS for O₃. EPA did not propose to address revocation of the existing 8-hour standard in this rulemaking. Therefore, EPA is retaining Appendix I to 40 CFR part 50 in its current form. A new Appendix P explains the computations necessary for determining when the new 8-hour primary and secondary standards are met. More specifically, Appendix P addresses data completeness requirements, data reporting and handling conventions, and rounding conventions, and provides example calculations.

In the proposal, two alternative secondary standards were proposed: a 3-month secondary standard expressed as a cumulative peak-weighted index form; or a standard set to be identical to the

primary standard. For reasons stated above, the Administrator has decided to set the secondary standard to be identical in all respects to the primary standard. Therefore, the portions of the proposed Appendix P providing data handling procedures for a non-identical secondary standard are not included in the final rule.

Key elements of Appendix P are outlined below.

A. General

As proposed, EPA is adding several new definitions to section 1.0 and using these definitions throughout Appendix P.

B. Data Completeness

EPA proposed data completeness requirements for the new Appendix P for the revised 8-hour primary standard that would be the same as those in Appendix I applicable to the pre-existing standard. To satisfy the data completeness requirement, Appendix P as proposed would require 90% data completeness, on average, for the 3-year period at a monitoring site, with no single year within the period having less than 75% data completeness. This data completeness requirement applies only during the required O₃ monitoring season and must be satisfied in order to determine that the standard has been met at a monitoring site. A site could be found to violate the standard with less than complete data. EPA concluded in adopting these same data completeness requirements in Appendix I in 1997 that these proposed requirements are reasonable based on its earlier analysis of available air quality data that showed that 90% of all monitoring sites that are operated on a continuous basis routinely meet this objective. EPA received no comments on these requirements, and the final Appendix P includes them as proposed.

Appendix I and the proposed Appendix P allow missing days to be counted for the purpose of meeting the data completeness requirements if meteorological conditions on these missing days were not conducive to concentrations above the level of the standard. Such determinations under Appendix I and the proposed Appendix P would be made on a case-by-case basis using available evidence. In the proposal, EPA specifically requested comment on whether meteorological data could provide an objective basis for determining, for a day for which there is missing data, that the meteorological conditions were not conducive to high O₃ concentrations, and therefore, that the day could be assumed to have an O₃ concentration less than the level of the

NAAQS. Further, the proposal requested comments on whether days assumed less than the level of the standard should be counted as non-missing when computing whether the data completeness requirements have been met at the site. The proposal pointed out that this could allow a determination of attainment which would otherwise be precluded by the 75% and/or 90% completeness tests. Most commenters supported the use of meteorological data to establish that missing days could be assumed to have low O₃ levels. However, no commenter suggested any particular objective criteria or formula for making such determinations. Based on these comments, EPA will continue to use the current case-by-case approach as proposed in Appendix P, as is the current approach in Appendix I, to count missing days when computing whether the data completeness requirement has been met for the primary standard.

As noted above, because the Administrator has decided to set the secondary standard identical in all respects to the primary standard, the final Appendix P provides that its data completeness requirements apply to both standards.

C. Data Reporting and Handling and Rounding Conventions

For reasons discussed above, the Administrator has set the level of the revised 8-hour primary and secondary standards at 0.075 ppm. As explained in the proposal, the level of the 8-hour standard is expressed to the third decimal place. Almost all State agencies now report hourly O₃ concentrations to three decimal places, in ppm, or in a format easily convertible to ppm, since the typical incremental sensitivity of currently used O₃ monitors is 0.001 ppm. Consistent with the current approach for computing 8-hour averages, in calculating 8-hour average O₃ concentrations from hourly data, any calculated digits beyond the third decimal place would be truncated, preserving the number of digits in the reported data. In calculating 3-year averages of the fourth highest maximum 8-hour average concentrations, digits to the right of the third decimal place would also be truncated, preserving the number of digits in the reported data. Analyses discussed in the Staff Paper demonstrated that taking into account the precision and bias in 1-hour O₃ measurements, the 8-hour design value has an uncertainty of approximately 0.001 ppm. Truncating both the individual 8-hour averages used to determine the annual fourth maximum

as well as the 3-year average of the fourth maxima to the third decimal place is consistent with the approach used in Appendix I for the previous 8-hour O₃ standard. In the proposal, EPA sought comment on the appropriateness of rounding rather than truncating to the third decimal place as well as the scientific validity of truncating the 3-year average and the policy reasons behind either truncating or rounding the 3-year average to the third decimal place. Many of the comments EPA received on the rounding/truncation issue in effect were comments that supported expressing the level of the NAAQS to either the second or third decimal place. These comments are addressed in the Response to Comment document. EPA continues to believe the conclusions from the Staff paper regarding monitor precision and error propagation when calculating 8-hour O₃ averages are appropriate. EPA has decided to continue to truncate, as done in Appendix I, and this approach is included in the final Appendix P.

As discussed above in section II.C.3, EPA is setting an 8-hour standard extending to three decimal places. Given that both the standard and the calculated value of the 3-year average of the fourth highest maximum 8-hour O₃ concentration are expressed to three decimal places, the two values can be compared directly.

As noted above, because the Administrator has decided to set the secondary standard identical in all respects to the primary standard, the same data reporting and handling and rounding conventions will apply to both.

VI. Ambient Monitoring Related to Revised O₃ Standards

As noted in the O₃ NAAQS proposal (see 72 FR 37906), EPA did not propose any specific changes to existing requirements for monitoring of O₃ in the ambient air. However, comment was invited on a number of specific issues which were expected to be of significance in the event that one or more of the O₃ NAAQS was revised. Comments were received from Federal agencies, State monitoring agencies, State organizations, environmental organizations, and industrial trade associations. As noted elsewhere in this rulemaking, EPA is finalizing changes to both the primary and secondary O₃ NAAQS. In light of these revisions, EPA intends to issue a monitoring rule to address the issues identified in the proposal, as well as other issues raised in the comments. EPA intends to issue a proposed monitoring rule in June 2008 and a final rule by March 2009. In

recognition of the comments received on the proposed O₃ standards and to provide EPA's initial thinking on O₃ specific monitoring rule amendments, we offer the following observations. The following paragraphs also point out one way in which some State/local monitoring agencies might need to make changes to their O₃ monitoring network as a result of the revision to the primary and secondary O₃ NAAQS, based on the existing minimum monitoring requirements including a factor based on the comparison of design value to the O₃ NAAQS (see 71 FR 61318). The following text explains why an amendment to the monitoring regulations is not required to trigger these increased O₃ monitoring requirements.

Presently, States (including the District of Columbia, Puerto Rico, and the Virgin Islands, and including local agencies when so delegated by the State) are required to operate minimum numbers of EPA-approved O₃ monitors based on the population of each of their Metropolitan Statistical Areas (MSA) and the most recently measured O₃ levels in each area. These requirements are contained in 40 CFR part 58 Appendix D, Network Design Criteria for Ambient Air Quality Monitoring, Table D-2. These requirements were last revised on October 17, 2006 as part of a comprehensive review of ambient monitoring requirements for all criteria pollutants. (See 71 FR 61236).

The minimum number of monitors required in an MSA ranges from zero (for an area with population under 350,000 and no recent history of an O₃ design value greater than 85 percent of the NAAQS) to four (for an area with population greater than 10 million and an O₃ design value greater than 85 percent of the NAAQS). Because these requirements apply at the MSA level, large urban areas consisting of multiple MSAs can require more than four monitors. In total, about 400 monitors are required in MSAs, but about 1100 are actually operating in MSAs because most States operate more than the minimum required number of monitors.

As noted above, the requirements listed in Table D-2 of 40 CFR part 58 Appendix D are based on the percentage of the O₃ NAAQS, with a design value breakpoint at 85 percent of the NAAQS. For an MSA of a given population size, there are a greater number of required monitors when the design value is greater than or equal to 85 percent of the O₃ NAAQS compared with MSAs that have a design value of less than 85 percent of the O₃ NAAQS. At the pre-existing level of 0.084 ppm for the 8-hour primary and secondary standards,

an 8-hour O₃ design value of 0.068 ppm would trigger such increased minimum monitoring requirements for an MSA.²⁹ With the decision to revise the 8-hour primary and secondary standards to a level of 0.075 ppm, the 8-hour O₃ design value that will trigger increased minimum monitoring requirements for an MSA has decreased from 0.068 ppm to 0.064 ppm. Therefore, MSAs with 8-hour design values between 0.064 ppm and 0.067 ppm are now required to increase the number of monitors operating to meet minimum requirements based on existing monitoring requirements.³⁰ In practice, however, virtually all of these areas already are operating at least as many monitors as required based on the revised primary standard, so the number of new monitors that are needed (or needed to be moved from a location of excess monitors) is negligible to meet the existing minimum requirements.

About 100 MSAs with populations less than 350,000 presently are without any O₃ monitors, and hence they do not have an O₃ design value for use with Table D-2. These unmonitored MSAs are not required to add monitors. Commenters from State monitoring agencies and State organizations expressed concern that these current requirements ignore the needs that States and localities will have for additional monitors to measure O₃ levels in currently under-monitored areas and, in particular, in unmonitored areas with populations under 350,000. They stated that unless this deficiency is corrected, the health benefits of EPA's O₃ NAAQS revision would likely be limited to those living in Metropolitan Statistical Areas (MSAs) having populations of more than 350,000. Other commenters noted the difficulty in defining the boundaries of new attainment/non-attainment areas without additional monitoring in the MSAs below 350,000.

EPA recognizes that the issues raised by the commenters are important. EPA intends to address these issues as part of its proposed monitoring rule.

In relation to the proposed secondary standard options, EPA invited comment on whether, where, and how monitoring in rural areas specifically focused on the secondary NAAQS should be required. As noted in the O₃ NAAQS proposal and described earlier in this section, existing O₃ monitoring requirements

and current State monitoring practices are primarily oriented towards protecting against health effects in people and therefore the primary NAAQS. This accounts for the current focus of the monitoring requirements on urban areas, where large populations reside, in which significant emissions of O₃-forming precursors are found, and where O₃ concentrations of concern are likely to occur.

There are no EPA requirements for O₃ monitoring in less populated areas outside of MSA boundaries or in rural areas. However, at present there are about 250 O₃ monitors in counties that are not part of MSAs. These monitors are operated by State, local, and tribal monitoring agencies for a variety of objectives including the assessment of O₃ transport and the support of research programs including studies of atmospheric chemistry and ecosystem impacts. Additionally, EPA operates a network of about 56 O₃ monitors as part of its Clean Air Status and Trends Network (CASTNET). The National Park Service (NPS) operates about 27 monitors at other CASTNET sites. On an overall basis, the spatial density of non-urban O₃ monitors is relatively high in the eastern one-third of the U.S. and in California, with significant gaps in coverage elsewhere across the country.

Some commenters expressed concern about the quality assurance practices at CASTNET sites with regard to certain aspects of O₃ monitoring. They recommended that EPA upgrade such practices to meet the 40 CFR part 58 Appendix A quality assurance requirements already followed by the States so that the resulting data could be used in assessing compliance with the revised secondary standard. EPA notes that such upgrades have been completed at some of the CASTNET sites, and that such upgrades will be completed at all CASTNET sites by 2009. EPA notes that the resulting O₃ ambient data from the upgraded sites will meet Appendix A requirements as is presently the case for O₃ data from State operated monitors and NPS monitors. These data will be deemed acceptable for NAAQS-comparison objectives and available in the AQS database beginning in 2008.

Most commenters noted the relative lack of rural O₃ monitors, stating that EPA should consider adding monitoring requirements that support a revised secondary O₃ standard by requiring O₃ monitors in locations that contain O₃-sensitive plants or ecosystems. These commenters also noted that the placement of current O₃ monitors may not be appropriate for evaluating vegetation exposure since many of these

monitors were likely located to meet other objectives.

In light of the Administrator's decision to revise the 8-hour secondary standard, EPA believes that it is appropriate to consider whether the existing urban-based monitoring requirements described elsewhere in this section are adequate and appropriate to characterize the exposure in more rural areas where O₃-sensitive plant species and more sensitive ecosystems exist and where resulting vegetation damage would adversely affect land usage. Such areas would likely include public lands that are protected areas of national interest (e.g., national parks, wilderness areas).

In consideration of the spatial gaps that currently exist in the rural ozone monitoring network, and to the extent that the existence of such gaps has contributed to the overall uncertainty that exists in the level of protection that would be provided by the revised secondary standard, EPA believes that there is merit in considering whether additional monitoring requirements in certain rural areas would help support ongoing ecosystem research studies as well as future reviews of the O₃ NAAQS by providing a more robust data set with which to assess the relationship of vegetation damage to O₃ concentrations.

Accordingly, as part of its separate monitoring rulemaking, EPA intends to consider specific requirements for a minimum number of rural monitors per State, with detailed rule language to ensure that States locate such monitors in appropriate areas. For example, these areas could include Federal, State, or Tribal lands characterized by areas of sensitive vegetation species subject to visible foliar injury, seedling and mature tree biomass loss, and other adverse impacts to a degree that could be considered adverse depending on the intended use of the plant and its significance to the public welfare. EPA is also considering recommending that States and Tribes employ other quantitative tools, such as photochemical modeling and/or the spatial interpolation of ambient data from existing O₃ monitors, to determine the adequacy of existing locations of rural monitors and to inform the locations of new or relocated monitors that might be required to meet revised rural minimum monitoring requirements.

Finally, EPA solicited comment on the issue of O₃ monitoring seasons. Unlike the year-round monitoring required for other criteria pollutants, the

²⁹ Calculated as 85 percent of 0.08 ppm, per the stated level of the pre-existing 8-hour primary and secondary standards.

³⁰ Approximately 16 MSAs that are subject to minimum monitoring requirements have 8-hour design values between 0.064 ppm and 0.067 ppm based on an analysis of 2004–2006 ambient O₃ data.

required O₃ monitoring seasons³¹ vary in length due to the inter-relationship of O₃-forming photochemical activity with ambient temperature, strength of solar insolation, and length of day. For example, in States with colder climates such as Montana and South Dakota, the O₃ season has a length of 4 months. In States with warmer climates such as California, Nevada, and Arizona, the O₃ season has a length of 12 months.

With the decision to revise the 8-hour primary standard to a level of 0.075 ppm, and to set the secondary standard identical in all respects to the primary standard, the issue arises of whether in some areas the required O₃ monitoring season should be made longer. EPA notes that under the existing regulations, the Regional Administrator may approve State-requested deviations from the established O₃ monitoring season, but EPA may not increase the length of the season for an area at EPA's own initiative other than by notice and comment rulemaking.

EPA has done a preliminary analysis of 2004–2006 ambient data to address the issue of whether extensions of currently required O₃ monitoring seasons are appropriate in light of the revised level for the primary and secondary O₃ standards and the revised breakpoints for the AQI. The results of the analysis demonstrated that out-of-season exceedances of the revised level occurred in eight States during the study period. Additionally, the frequency of days with O₃ concentrations that reached the revised Moderate AQI category (based on a breakpoint of 0.060 ppm) was much greater compared with the frequency of days with concentrations that reached the pre-existing Moderate AQI category (based on a breakpoint of 0.065 ppm). This increased frequency of days with Moderate AQI levels was noted to occur during periods before and after the currently required O₃ seasons.

Based on these preliminary analyses, EPA intends to consider changes to the length of the required O₃ season for the coming monitoring rulemaking. Such changes could be based solely on the frequency of exceedances of the revised primary and secondary standards, or could also consider the frequency of concentrations in the Moderate category of the AQI.

VII. Implementation and Related Control Requirements

A. Future Implementation Steps

In today's rule, EPA is replacing the existing (1997) standards with revised

primary and secondary O₃ standards. However, the 1997 standards—and the implementation rules for those standards—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 O₃ standards to the 2008 O₃ standards. States are required to continue to develop and implement their State Implementation Plans (SIPs) for the 1997 standards as they begin the process of recommending designations for the 2008 standards.

1. Designations

After EPA establishes or revises a NAAQS, the CAA requires EPA and States to begin taking steps to ensure that the new or revised standards are met. The first step is to identify areas of the country that do not attain the new or revised standards, or that contribute to violations of the new or revised standards. Section 107(d)(1) provides “By such date as the Administrator may reasonably require, but not later than 1 year after promulgation of a new or revised national ambient air quality standard for any pollutant under section 109, the Governor of each State shall * * * submit to the Administrator a list of all areas (or portions thereof) in the State” that designates those areas as non-attainment, attainment, or unclassifiable. Section 107(d)(1)(B)(i) further provides, “Upon promulgation or revision of a national ambient air quality standard, the Administrator shall promulgate the designations of all areas (or portions thereof) * * * as expeditiously as practicable, but in no case later than 2 years from the date of promulgation. Such period may be extended for up to one year in the event the Administrator has insufficient information to promulgate the designations.”

The term “promulgation” has been interpreted by the courts to be signature and dissemination of a rule.³² As noted above, the CAA requires EPA to establish a deadline for the States' submission of the designation recommendations, but under the CAA, it can be no later than March 12, 2009, one year after the promulgation of this rule. Therefore, Governors of States should submit their designation recommendations to EPA no later than March 12, 2009. EPA's promulgation of designations must occur no later than March 12, 2010, although that date may be extended by up to one year under the CAA (no later than March 12, 2011) if EPA has insufficient information to promulgate the designations.

EPA intends to provide additional guidance to the States concerning the technical considerations for establishing boundaries for designated areas. For the revised primary and secondary standards, we anticipate relying on past O₃ designation guidance issued by EPA prior to the designations for the 1997 O₃ standards.³³ We anticipate working closely with State air agencies and Tribes on establishing new guidance on designations, if needed.

2. State Implementation Plans

CAA section 110 provides the general requirements for SIPs. Within 3 years after the promulgation of new or revised NAAQS (or such shorter period as the Administrator may prescribe) each State must adopt and submit “infrastructure” SIPs to EPA to address the requirements of section 110(a)(1). Thus, States should submit these SIPs no later than March 12, 2011. These “infrastructure SIPs” provide assurances of State resources and authorities, and establish the basic State programs, to implement, maintain, and enforce new or revised standards.

In addition to the infrastructure SIPs, which apply to all States, CAA title I, part D outlines the State requirements for achieving clean air in designated nonattainment areas. These requirements include timelines for when designated nonattainment areas must attain the standards, deadlines for developing SIPs that demonstrate how the State will ensure attainment of the standards, and specific emissions control requirements. EPA plans to address how these requirements, such as attainment demonstrations and attainment dates, reasonable further progress, new source review, conformity, and other implementation requirements, apply to the revised O₃ NAAQS in a proposed rulemaking in Fall 2008. Also in that rulemaking EPA will establish deadlines for submission of nonattainment area SIPs but anticipates that the deadlines will be no later than 3 years after final designation. Depending on the classification of an area, the SIP must provide for attainment within 3 years (for areas classified marginal) to 20 years (for areas classified extreme) after final designations.

3. Trans-boundary Emissions

Cross border O₃ contributions from within North America (Canada and Mexico) entering the U.S. are generally thought to be small. Section 179B of the

³¹ See 40 CFR Part 58 Appendix D, section 2.5 for a table of required O₃ seasons.

³² *American Petroleum Institute v. Costle*, 609 F.2d 20 (D.C. Cir. 1979).

³³ Memorandum of March 28, 2000 from John Seitz, “Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards (NAAQS or Standard).”

Clean Air Act allows designated nonattainment areas to petition EPA to consider whether such a locality might have met a clean air standard "but for" cross border contributions. To date, few areas have petitioned EPA under this authority. The impact of foreign emissions on domestic air quality in the United States is a challenging and complex problem to assess. EPA is engaged in a number of activities to improve our understanding of international transport. As work progresses on these activities, EPA will be able to better address the uncertainties associated with trans-boundary flows of air pollution and their impacts.

4. Monitoring Requirements

As discussed more fully in section VI, EPA intends, in light of the revisions of the O₃ standards, to issue a monitoring rule to address a variety of monitoring-related issues identified in the preamble to the proposed rule or in comments received by the Agency on the proposal. EPA intends to issue a proposed monitoring rule in June 2008 and a final rule by March 2009.

B. Related Control Requirements

The man-made oxides of nitrogen (NO_x) and volatile organic carbon (VOC) emissions that contribute to O₃ formation in the United States come from a variety of source categories, including mobile sources, industrial processes, area-wide sources (which include consumer and commercial products), and the electric power industry.³⁴ Emissions from natural sources, such as trees and wildfires can also constitute a significant portion of total VOC emissions in certain regions of the country, especially during the O₃ season. Natural sources such as wildfires, lightning, and soils also emit NO_x. Emissions of VOCs and NO_x from these sources are considered natural background emissions.³⁵

³⁴ National Emission Inventory posted at the following Web site: <http://www.epa.gov/ttn/chief/trends/index.html>.

³⁵ In some cases natural emissions may cause or significantly contribute to violations of the ozone standard. EPA has issued rules that address how these "exceptional events" can be discounted in regulatory determinations. The Exceptional Events Rule (72 FR 13560 (March 22, 2007)) implements CAA section 319(b)(3)(B) and section 107(d)(3) authority to exclude air quality monitoring data from regulatory determinations related to exceedances or violations of the National Ambient Air Quality Standards (NAAQS). If an event is determined by EPA to be a qualifying exceptional event, the affected area may avoid being designated as nonattainment, being redesignated as nonattainment, or being reclassified to a higher classification. The requirements for demonstrating that elevated ozone levels are the result of a

EPA has developed new emissions standards for many types of stationary sources and for nearly every class of mobile sources in the last decade to reduce O₃ by decreasing emissions of NO_x and VOC. These programs complement State and local efforts to improve air quality and to meet the national O₃ standards. Under the Federal Motor Vehicle Control Program (FMVCP, see title II of the CAA, 42 U.S.C. 7521-7574), EPA has established new emissions standards for nearly every type of automobile, truck, bus, motorcycle, earth mover, and aircraft engine, and for the fuels used to power these engines. Also, EPA established new standards for the smaller engines used in small watercraft, lawn and garden equipment. Recently, EPA proposed new standards for locomotive and marine diesel engines. Vehicles and engines are replaced over time with newer, cleaner models. In time, these programs will yield substantial emissions reductions. Emissions reductions associated with fuel programs generally begin as soon as a new fuel is available.

The reduction of VOC emissions from industrial processes and consumer and commercial product categories has been achieved either directly or indirectly through implementation of control technology standards, including reasonably available control technology, best available control technology, and maximum achievable control technology standards; or is anticipated due to proposed or upcoming proposals based on generally available control technology or best available controls under provisions related to consumer and commercial products. These standards have resulted in VOC emissions reductions of almost a million tons per year accumulated starting in 1997 from a variety of sources including combustion sources, coating categories, and chemical manufacturing. In 2006 and 2007, EPA issued national rules and control techniques guidelines for control of VOC emissions from 10 categories of consumer and commercial products. EPA is currently working to finalize new Federal rules, or amendments to existing rules, intended to establish new nationwide VOC content limits for several categories of consumer and commercial products, including aerosol coatings, architectural and industrial maintenance coatings, and household and institutional commercial products. EPA anticipates that final rules addressing emissions

qualifying exceptional event are provided in the Exceptional Events Rule.

from these sources will take effect in 2009.

Fuel combustion is one of the largest anthropogenic sources of emissions of NO_x in the United States. Power industry emission sources include large electric generating units and some large industrial boilers and turbines. The EPA's landmark Clean Air Interstate Rule (CAIR), issued on March 10, 2005, permanently caps power industry emissions of NO_x in the eastern United States. The first phase of the cap begins in 2009, and a lower second phase cap begins in 2015. By 2015, EPA projects that the CAIR and other programs in the Eastern U.S. will reduce power industry annual NO_x emissions in that region by about 60 percent from 2003 levels.

With respect to agricultural sources, the U.S. Department of Agriculture (USDA) has recommended conservation systems and activities that can reduce agricultural emissions of NO_x and VOC. Current practices that may reduce emissions of NO_x and VOC include engine replacement programs, management of pesticide applications, and manure management techniques. The EPA recognizes that USDA has been working with the agricultural community to plan conservation systems and activities to manage emissions of O₃ precursors.

These conservation systems and activities can be voluntarily adopted in areas where mitigation of O₃ precursors have been identified as an air quality concern through the use of incentives provided to the agricultural producer. In cases where the States need these measures to attain the O₃ standards, agricultural producers could choose to adopt these measures. The EPA will continue to work with USDA on planning the implementation of these conservation systems and activities in order to identify and/or improve mitigation efficiencies, prioritize their adoption, and ensure that appropriate criteria are used for identifying the most effective application of conservation systems and activities.

The EPA will work together with USDA and with States to identify appropriate measures to meet the primary and secondary standards, including site-specific conservation systems and activities. Based on prior experience identifying conservation measures and practices to meet the PM NAAQS requirements, the EPA will use a similar process to identify measures that could meet the O₃ requirements. The EPA anticipates that certain USDA-approved conservation systems and activities that reduce agricultural emissions of NO_x and VOC may be able to satisfy the requirements for

applicable sources to implement reasonably available control measures for purposes of attaining the primary and secondary O₃ NAAQS.

VIII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under section 3(f)(1) of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is an “economically significant regulatory action” because it is likely to have an annual effect on the economy of \$100 million or more. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under EO 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action. In addition, EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis is contained in the *Final Ozone NAAQS Regulatory Impact Analysis, March 2008* (henceforth, “RIA”). A copy of the analysis is available in the RIA docket (EPA–HQ–OAR–2007–0225) and the analysis is briefly summarized here. The RIA estimates the costs and monetized human health and welfare benefits of attaining three alternative O₃ NAAQS nationwide. Specifically, the RIA examines the alternatives of 0.079 ppm, 0.075 ppm, 0.070 ppm, and 0.065 ppm. The RIA contains illustrative analyses that consider a limited number of emissions control scenarios that States and Regional Planning Organizations might implement to achieve these alternative O₃ NAAQS. However, the CAA and judicial decisions make clear that the economic and technical feasibility of attaining ambient standards are not to be considered in setting or revising NAAQS, although such factors may be considered in the development of State plans to implement the standards. Accordingly, although a RIA has been prepared, the results of the RIA have not been considered in issuing this final rule.

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* There are no information collection requirements directly associated with the establishment of a NAAQS under section 109 of the CAA.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a

Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA’s regulations in 40 CFR are listed in 40 CFR part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this rule on small entities, small entity is defined as: (1) A small business that is a small industrial entity as defined by the Small Business Administration’s (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This final rule will not impose any requirements on small entities. Rather, this rule establishes national standards for allowable concentrations of O₃ in ambient air as required by section 109 of the CAA. *American Trucking Ass’n v. EPA*, 175 F. 3d 1027, 1044–45 (D.C. cir. 1999) (NAAQS do not have significant impacts upon small entities because NAAQS themselves impose no regulations upon small entities).

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and to adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

This final rule contains no Federal mandates (under the regulatory provisions of Title II of the UMRA) for State, local, or Tribal governments or the private sector. The rule imposes no new expenditure or enforceable duty on any State, local or Tribal governments or the private sector, and EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. Furthermore, as indicated previously, in setting a NAAQS EPA cannot consider the economic or technological feasibility of attaining ambient air quality standards, although such factors may be considered to a degree in the development of State

plans to implement the standards. *See also American Trucking Ass'n v. EPA*, 175 F. 3d at 1043 (noting that because EPA is precluded from considering costs of implementation in establishing NAAQS, preparation of a Regulatory Impact Analysis pursuant to the Unfunded Mandates Reform Act would not furnish any information which the court could consider in reviewing the NAAQS). Thus, this rule is not subject to the requirements of sections 202 and 205 of the UMRA. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. The rule does not alter the relationship between the Federal government and the States regarding the establishment and implementation of air quality improvement programs as codified in the CAA. Under section 109 of the CAA, EPA is mandated to establish NAAQS; however, CAA section 116 preserves the rights of States to establish more stringent requirements if deemed necessary by a State. Furthermore, this rule does not impact CAA section 107 which establishes that the States have primary responsibility for implementation of the NAAQS. Finally, as noted in section E (above) on UMRA, this rule does not impose significant costs on State, local, or Tribal governments or the private sector. Thus, Executive Order 13132 does not apply to this rule.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." This final rule does not have Tribal implications, as specified in Executive Order 13175. It does not have a substantial direct effect on one or more Indian Tribes, since Tribes are not obligated to adopt or implement any NAAQS. Thus, Executive Order 13175 does not apply to this rule.

Although Executive Order 13175 does not apply to this rule, EPA contacted Tribal environmental professionals during the development of this rule. EPA staff participated in the regularly scheduled Tribal Air call sponsored by the National Tribal Air Association during the spring of 2007 as the proposal was under development. EPA specifically solicited additional comment on the proposed rule from Tribal officials. Comments from Tribal officials on the proposed rule are summarized in the Response to Comments document.

G. Executive Order 13045: Protection of Children From Environmental Health & Safety Risks

Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This final rule is subject to Executive Order 13045 because it is an economically significant regulatory action as defined by Executive Order 12866, and we believe that the environmental health risk addressed by this action may have a disproportionate effect on children. Accordingly, we have evaluated the environmental health or safety effects of exposure to O₃ pollution among children. These effects and the size of the population affected are

summarized in section 8.7 of the Criteria Document and section 3.6 of the Staff Paper, and the results of our evaluation of the effects of O₃ pollution on children are discussed in sections II.A–C of this preamble.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution or Use

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355 (May 22, 2001)), requires EPA to prepare and submit a Statement of Energy Effects to the Administrator of the Office of Information and Regulatory Affairs, Office of Management and Budget, for certain actions identified as "significant energy actions." Section 4(b) of Executive Order 13211 defines "significant energy actions" as "any action by an agency (normally published in the **Federal Register**) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking: (1)(i) That is a significant regulatory action under Executive Order 12866 or any successor order, and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action." The U.S. Office of Management and Budget has designated this rulemaking as a significant energy action. Accordingly, EPA has prepared a Statement of Energy Effects for this action which appears in Chapter 9 of the RIA conducted for this rulemaking. A copy of the RIA is available in the RIA docket (EPA–HQ–OAR–2007–0225) and the energy analysis is briefly summarized here. The analysis estimates potential impacts of an illustrative control strategy for the 0.070 ppm primary standard alternative on the production of coal, crude oil, natural gas, and electricity; on energy prices; on control technologies adopted by the electricity generating sector; and on the mix of electricity generation. EPA believes that the energy impacts estimated for this illustrative control strategy for the 0.070 ppm primary standard alternative are higher than those that would be estimated for an illustrative control strategy for the primary standard level of 0.075 ppm which was selected by the Administrator. However, due to modeling limitations, EPA did not generate separate estimates of the energy impacts associated specifically with an

illustrative control strategy designed for a primary standard of 0.075 ppm. It is important to note that the CAA make clear that the economic impacts associated with attaining ambient standards are not to be considered in setting or revising the NAAQS. Accordingly, although the Statement of Energy Effects has been prepared, the results of EPA's energy analysis have not been considered in issuing this final rule.

I. National Technology Transfer and Advancement Act

As noted in the proposed rule, section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104-113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This action does not involve technical standards. Therefore, EPA did not consider the use of any voluntary consensus standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629; Feb. 16, 1994) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This final rule

will establish uniform national standards for O₃ air pollution.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA submitted a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective May 27, 2008.

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List of Subjects

40 CFR Part 50

Environmental protection, Air pollution control, Carbon monoxide, Lead, Nitrogen dioxide, Ozone, Particulate matter, Sulfur oxides.

40 CFR Part 58

Environmental protection, Air pollution control, Reporting and recordkeeping requirements.

Dated: March 12, 2008.

Stephen L. Johnson,
Administrator.

■ For the reasons stated in the preamble, title 40, chapter I of the code of Federal regulations is to be amended as follows:

PART 50—NATIONAL PRIMARY AND SECONDARY AMBIENT AIR QUALITY STANDARDS

■ 1. The authority citation for part 50 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

■ 2. Section 50.15 is added to read as follows:

§ 50.15 National primary and secondary ambient air quality standards for ozone.

(a) The level of the national 8-hour primary and secondary ambient air quality standards for ozone (O₃) is 0.075 parts per million (ppm), daily maximum 8-hour average, measured by a reference method based on Appendix D to this part and designated in accordance with part 53 of this chapter or an equivalent method designated in accordance with part 53 of this chapter.

(b) The 8-hour primary and secondary O₃ ambient air quality standards are met at an ambient air quality monitoring site when the 3-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentration is less than or equal to 0.075 ppm, as determined in accordance with Appendix P to this part.

■ 3. Appendix P is added to read as follows:

Appendix P to Part 50—Interpretation of the Primary and Secondary National Ambient Air Quality Standards for Ozone

1. General

(a) This appendix explains the data handling conventions and computations necessary for determining whether the national 8-hour primary and secondary ambient air quality standards for ozone (O₃) specified in § 50.15 are met at an ambient O₃ air quality monitoring site. Ozone is measured in the ambient air by a reference method based on Appendix D of this part, as applicable, and designated in accordance with part 53 of this chapter, or by an equivalent method designated in accordance with part 53 of this chapter. Data reporting, data handling, and computation procedures to be used in making comparisons between reported O₃ concentrations and the levels of the O₃ standards are specified in the following sections. Whether to exclude, retain, or make adjustments to the data affected by exceptional events, including stratospheric O₃ intrusion and other natural events, is determined by the requirements under §§ 50.1, 50.14 and 51.930.

(b) The terms used in this appendix are defined as follows:

8-hour average is the rolling average of eight hourly O₃ concentrations as explained in section 2 of this appendix.

Annual fourth-highest daily maximum refers to the fourth highest value measured at a monitoring site during a particular year.

Daily maximum 8-hour average concentration refers to the maximum calculated 8-hour average for a particular day as explained in section 2 of this appendix.

Design values are the metrics (i.e., statistics) that are compared to the NAAQS levels to determine compliance, calculated as shown in section 3 of this appendix.

O₃ monitoring season refers to the span of time within a calendar year when individual States are required to measure ambient O₃ concentrations as listed in part 58 Appendix D to this chapter.

Year refers to calendar year.

2. Primary and Secondary Ambient Air Quality Standards for Ozone

2.1 Data Reporting and Handling Conventions

Computing 8-hour averages. Hourly average concentrations shall be reported in parts per million (ppm) to the third decimal place, with additional digits to the right of the third decimal place truncated. Running 8-hour averages shall be computed from the hourly O₃ concentration data for each hour of the year and shall be stored in the first, or start, hour of the 8-hour period. An 8-hour average shall be considered valid if at least 75% of the hourly averages for the 8-hour period are available. In the event that only 6 or 7 hourly averages are available, the 8-hour average shall be computed on the basis of the hours available using 6 or 7 as the divisor. 8-hour periods with three or more missing hours shall be considered valid also, if, after substituting one-half the minimum detectable limit for the missing hourly concentrations, the 8-hour average concentration is greater

than the level of the standard. The computed 8-hour average O₃ concentrations shall be reported to three decimal places (the digits to the right of the third decimal place are truncated, consistent with the data handling procedures for the reported data).

Daily maximum 8-hour average concentrations. (a) There are 24 possible running 8-hour average O₃ concentrations for each calendar day during the O₃ monitoring season. The daily maximum 8-hour concentration for a given calendar day is the highest of the 24 possible 8-hour average concentrations computed for that day. This process is repeated, yielding a daily maximum 8-hour average O₃ concentration for each calendar day with ambient O₃ monitoring data. Because the 8-hour averages are recorded in the start hour, the daily maximum 8-hour concentrations from two consecutive days may have some hourly concentrations in common. Generally, overlapping daily maximum 8-hour averages are not likely, except in those non-urban monitoring locations with less pronounced diurnal variation in hourly concentrations.

(b) An O₃ monitoring day shall be counted as a valid day if valid 8-hour averages are available for at least 75% of possible hours in the day (i.e., at least 18 of the 24 averages). In the event that less than 75% of the 8-hour averages are available, a day shall also be

counted as a valid day if the daily maximum 8-hour average concentration for that day is greater than the level of the standard.

2.2 Primary and Secondary Standard-related Summary Statistic

The standard-related summary statistic is the annual fourth-highest daily maximum 8-hour O₃ concentration, expressed in parts per million, averaged over three years. The 3-year average shall be computed using the three most recent, consecutive calendar years of monitoring data meeting the data completeness requirements described in this appendix. The computed 3-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentrations shall be reported to three decimal places (the digits to the right of the third decimal place are truncated, consistent with the data handling procedures for the reported data).

2.3 Comparisons with the Primary and Secondary Ozone Standards

(a) The primary and secondary O₃ ambient air quality standards are met at an ambient air quality monitoring site when the 3-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentration is less than or equal to 0.075 ppm.

(b) This comparison shall be based on three consecutive, complete calendar years of air quality monitoring data. This requirement is

met for the 3-year period at a monitoring site if daily maximum 8-hour average concentrations are available for at least 90% of the days within the O₃ monitoring season, on average, for the 3-year period, with a minimum data completeness requirement in any one year of at least 75% of the days within the O₃ monitoring season. When computing whether the minimum data completeness requirements have been met, meteorological or ambient data may be sufficient to demonstrate that meteorological conditions on missing days were not conducive to concentrations above the level of the standard. Missing days assumed less than the level of the standard are counted for the purpose of meeting the data completeness requirement, subject to the approval of the appropriate Regional Administrator.

(c) Years with concentrations greater than the level of the standard shall be included even if they have less than complete data. Thus, in computing the 3-year average fourth maximum concentration, calendar years with less than 75% data completeness shall be included in the computation if the 3-year average fourth-highest 8-hour concentration is greater than the level of the standard.

(d) Comparisons with the primary and secondary O₃ standards are demonstrated by examples 1 and 2 in paragraphs (d)(1) and (d)(2) respectively as follows:

EXAMPLE 1.—AMBIENT MONITORING SITE ATTAINING THE PRIMARY AND SECONDARY O₃ STANDARDS

Year	Percent valid days (within the required monitoring season)	1st Highest daily max 8-hour Conc. (ppm)	2nd Highest daily max 8-hour Conc. (ppm)	3rd Highest daily max 8-hour Conc. (ppm)	4th Highest daily max 8-hour Conc. (ppm)	5th Highest daily max 8-hour Conc. (ppm)
2004	100	0.092	0.090	0.085	0.079	0.078
2005	96	0.084	0.083	0.075	0.072	0.070
2006	98	0.080	0.079	0.077	0.076	0.060
Average	98	.....	.....	.....	0.075	.....

(1) As shown in Example 1, this monitoring site meets the primary and secondary O₃ standards because the 3-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentrations (i.e., 0.075666 * * * ppm, truncated to 0.075

ppm) is less than or equal to 0.075 ppm. The data completeness requirement is also met because the average percent of days within the required monitoring season with valid ambient monitoring data is greater than 90%, and no single year has less than 75% data

completeness. In Example 1, the individual 8-hour averages used to determine the annual fourth maximum have also been truncated to the third decimal place.

EXAMPLE 2.—AMBIENT MONITORING SITE FAILING TO MEET THE PRIMARY AND SECONDARY O₃ STANDARDS

Year	Percent valid days (within the required monitoring season)	1st Highest daily max 8-hour Conc. (ppm)	2nd Highest daily max 8-hour Conc. (ppm)	3rd Highest daily max 8-hour Conc. (ppm)	4th Highest daily max 8-hour Conc. (ppm)	5th Highest daily max 8-hour Conc. (ppm)
2004	96	0.105	0.103	0.103	0.103	0.102
2005	74	0.104	0.103	0.092	0.091	0.088
2006	98	0.103	0.101	0.101	0.095	0.094
Average	89	.....	.....	.....	0.096	.....

As shown in Example 2, the primary and secondary O₃ standards are not met for this monitoring site because the 3-year average of the fourth-highest daily maximum 8-hour average O₃ concentrations (i.e., 0.096333

* * * ppm, truncated to 0.096 ppm) is greater than 0.075 ppm, even though the data capture is less than 75% and the average data capture for the 3 years is less than 90% within the required monitoring season. In

Example 2, the individual 8-hour averages used to determine the annual fourth maximum have also been truncated to the third decimal place.

3. Design Values for Primary and Secondary Ambient Air Quality Standards for Ozone

The air quality design value at a monitoring site is defined as that concentration that when reduced to the level of the standard ensures that the site meets the standard. For a concentration-based standard, the air quality design value is simply the standard-related test statistic. Thus, for the primary and secondary standards, the 3-year average annual fourth-highest daily maximum 8-hour average O₃ concentration is also the air quality design value for the site.

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

■ 4. The authority citation of part 58 continues to read as follows:

Authority: 42 U.S.C. 7403, 7410, 7601(a), 7611, and 7619.

■ 5. Appendix G to Part 58 is amended as follows:

- a. By revising section 9.
- b. By revising section 10.
- c. By revising section 12.
- d. By revising section 13.

Appendix G to Part 58—Uniform Air Quality Index (AQI) and Daily Reporting

* * * * *

9. How Does the AQI Relate to Air Pollution Levels?

For each pollutant, the AQI transforms ambient concentrations to a scale from 0 to 500. The AQI is keyed as appropriate to the national ambient air quality standards (NAAQS) for each pollutant. In most cases, the index value of 100 is associated with the numerical level of the short-term standard (i.e., averaging time of 24-hours or less) for each pollutant. A different approach is taken for NO₂, for which no short-term standard has been established. The index value of 50 is associated with the numerical level of the annual standard for a pollutant, if there is one, at one-half the level of the short-term standard for the pollutant, or at the level at which it is appropriate to begin to provide guidance on cautionary language. Higher categories of the index are based on increasingly serious health effects and increasing proportions of the population that are likely to be affected. The index is related to other air pollution concentrations through linear interpolation based on these levels. The AQI is equal to the highest of the numbers corresponding to each pollutant. For the purposes of reporting the AQI, the sub-indexes for PM₁₀ and PM_{2.5} are to be considered separately. The pollutant responsible for the highest index value (the reported AQI) is called the "critical" pollutant.

10. What Monitors Should I Use To Get the Pollutant Concentrations for Calculating the AQI?

You must use concentration data from population-oriented State/Local Air Monitoring Station (SLAMS) or parts of the SLAMS required by 40 CFR 58.10 for each pollutant except PM. For PM, calculate and report the AQI on days for which you have measured air quality data (e.g., from continuous PM_{2.5} monitors required in Appendix D to this part). You may use PM measurements from monitors that are not reference or equivalent methods (for example, continuous PM₁₀ or PM_{2.5} monitors). Detailed guidance for relating non-approved measurements to approved methods by statistical linear regression is referenced in section 13 below.

* * * * *

12. How Do I Calculate the AQI?

- i. The AQI is the highest value calculated for each pollutant as follows:
 - a. Identify the highest concentration among all of the monitors within each reporting area and truncate the pollutant concentration to one more than the significant digits used to express the level of the NAAQS for that pollutant. This is equivalent to the rounding conventions used in the NAAQS.
 - b. Using Table 2, find the two breakpoints that contain the concentration.
 - c. Using Equation 1, calculate the index.
 - d. Round the index to the nearest integer.

TABLE 2.—BREAKPOINTS FOR THE AQI

These breakpoints							Equal these AQI's	
O ₃ (ppm) 8-hour	O ₃ (ppm) 1-hour ¹	PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)	CO (ppm)	SO ₂ (ppm)	NO ₂ (ppm)	AQI	Category
0.000–0.059 ....	.....	0.0–15.4	0–54	0.0–4.4	0.000–0.034	(³)	0–50	Good.
0.060–0.075 ....	.....	15.5–40.4	55–154	4.5–9.4	0.035–0.144	(³)	51–100	Moderate.
0.076–0.095	0.125–0.164	40.5–65.4	155–254	9.5–12.4	0.145–0.224	(³)	101–150	Unhealthy for Sensitive Groups.
0.096–0.115	0.165–0.204	⁴ 65.5–150.4	255–354	12.5–15.4	0.225–0.304	(³)	151–200	Unhealthy.
0.116–0.374	0.205–0.404	⁴ 150.5–250.4	355–424	15.5–30.4	0.305–0.604	0.65–1.24	201–300	Very Unhealthy.
(²)	0.405–0.504	⁴ 250.5–350.4	425–504	30.5–40.4	0.605–0.804	1.25–1.64	301–400	
(²)	0.505–0.604	⁴ 350.5–500.4	505–604	40.5–50.4	0.805–1.004	1.65–2.04	401–500	Hazardous.

¹ Areas are generally required to report the AQI based on 8-hour ozone values. However, there are a small number of areas where an AQI based on 1-hour ozone values would be more precautionary. In these cases, in addition to calculating the 8-hour ozone index value, the 1-hour ozone index value may be calculated, and the maximum of the two values reported.

² 8-hour O₃ values do not define higher AQI values (≥ 301). AQI values of 301 or greater are calculated with 1-hour O₃ concentrations.

³ NO₂ has no short-term NAAQS, and can generate an AQI only above the value of 200.

⁴ If a different SHL for PM_{2.5} is promulgated, these numbers will change accordingly.

ii. If the concentration is equal to a breakpoint, then the index is equal to the corresponding index value in Table 2. However, Equation 1 can still be used. The results will be equal. If the concentration is

between two breakpoints, then calculate the index of that pollutant with Equation 1. You must also note that in some areas, the AQI based on 1-hour O₃ will be more precautionary than using 8-hour values (see

footnote 1 to Table 2). In these cases, you may use 1-hour values as well as 8-hour values to calculate index values and then use the maximum index value as the AQI for O₃.

$$I_p = \frac{I_{Hi} - I_{Lo}}{BP_{Hi} - BP_{Lo}} (C_p - BP_{Lo}) + I_{Lo} \quad (\text{Equation 1})$$

Where:

I_p = the index value for pollutant_p

C_p = the truncated concentration of pollutant_p

BP_{Hi} = the breakpoint that is greater than or equal to C_p

BP_{Lo} = the breakpoint that is less than or equal to C_p

I_{Hi} = the AQI value corresponding to BP_{Hi}

I_{Lo} = the AQI value corresponding to BP_{Lo}

iii. If the concentration is larger than the highest breakpoint in Table 2 then you may use the last two breakpoints in Table 2 when you apply Equation 1.

Example

iv. Using Table 2 and Equation 1, calculate the index value for each of the pollutants measured and select the one that produces the highest index value for the AQI. For example, if you observe a PM_{10} value of $210 \mu\text{g}/\text{m}^3$, a 1-hour O_3 value of 0.156 ppm, and an 8-hour O_3 value of 0.130 ppm, then do this:

a. Find the breakpoints for PM_{10} at $210 \mu\text{g}/\text{m}^3$ as $155 \mu\text{g}/\text{m}^3$ and $254 \mu\text{g}/\text{m}^3$, corresponding to index values 101 and 150;

b. Find the breakpoints for 1-hour O_3 at 0.156 ppm as 0.125 ppm and 0.164 ppm, corresponding to index values 101 and 150;

c. Find the breakpoints for 8-hour O_3 at 0.130 ppm as 0.116 ppm and 0.374 ppm, corresponding to index values 201 and 300;

d. Apply Equation 1 for $210 \mu\text{g}/\text{m}^3$, PM_{10} :

$$\frac{150 - 101}{254 - 155} (210 - 155) + 101 = 128$$

e. Apply Equation 1 for 0.156 ppm, 1-hour O_3 :

$$\frac{150 - 101}{0.164 - 0.125} (0.156 - 0.125) + 101 = 140$$

f. Apply Equation 1 for 0.130 ppm, 8-hour O_3 :

$$\frac{300 - 201}{0.374 - 0.116} (0.130 - 0.116) + 201 = 206$$

g. Find the maximum, 206. This is the AQI. The minimal AQI report would read:

v. Today, the AQI for my city is 206 which is Very Unhealthy, due to ozone. Children and people with asthma are the groups most at risk.

13. What Additional Information Should I Know?

The EPA has developed a computer program to calculate the AQI for you. The program prompts for inputs, and it displays all the pertinent information for the AQI (the index value, color, category, sensitive group, health effects, and cautionary language). The

EPA has also prepared a brochure on the AQI that explains the index in detail (The Air Quality Index), Reporting Guidance (Guideline for Public Reporting of Daily Air Quality) that provides associated health effects and cautionary statements, and Forecasting Guidance (Guideline for Developing an Ozone Forecasting Program) that explains the steps necessary to start an air pollution forecasting program. You can download the program and the guidance documents at www.airnow.gov. Reference for relating non-approved PM measurements to approved methods (Eberly, S., T. Fitz-Simons, T. Hanley, L. Weinstock., T.

Tamanini, G. Denniston, B. Lambeth, E. Michel, S. Bortnick. Data Quality Objectives (DQOs) For Relating Federal Reference Method (FRM) and Continuous $PM_{2.5}$ Measurements to Report an Air Quality Index (AQI). U.S. Environmental Protection Agency, research Triangle Park, NC. EPA-454/B-02-002, November 2002) can be found on the Ambient Monitoring Technology Information Center (AMTIC) Web site, <http://www.epa.gov/ttnamti1/>.

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Revisions to the Ozone NAAQS





Ozone NAAQS

- 1997 Ozone NAAQS:
 - 8-Hour Ozone: 0.08 ppm
- 2008 Revisions to the Ozone NAAQS:
 - 8-Hour Ozone: 0.075 ppm



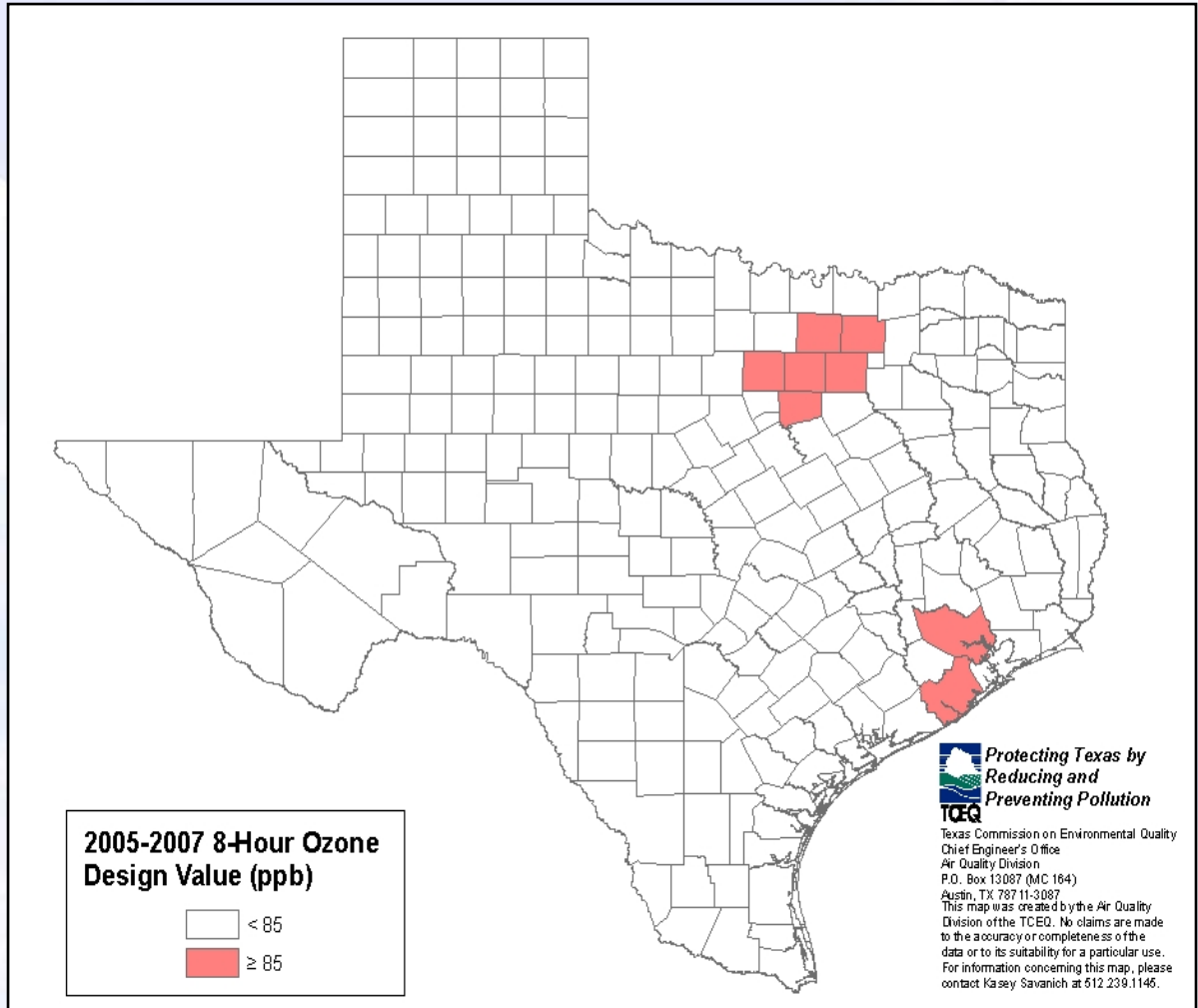
New Rounding Conventions

- Note that the 1997 8-hour ozone standard was reported to two decimal places.
 - 0.084 ppm → 0.08 ppm → **ATTAINMENT**
 - 0.085 ppm → 0.09 ppm → **NONATTAINMENT**
- The 2008 standard is reported to three decimal places so rounding is no longer necessary. (Anything past three decimal places is still truncated)
- Example - For the 2008 standard of 0.075 ppm:
 - 0.075 ppm → **ATTAINMENT**
 - 0.076 ppm → **NONATTAINMENT**



Counties Monitoring Over the 1997 Ozone Standard of 0.08 ppm

Region	County	2007 8-Hr Ozone DV (ppb)*
HGB	HARRIS	96
HGB	BRAZORIA	91
DFW	TARRANT	95
DFW	DENTON	94
DFW	PARKER	91
DFW	COLLIN	88
DFW	DALLAS	86
DFW	JOHNSON	85

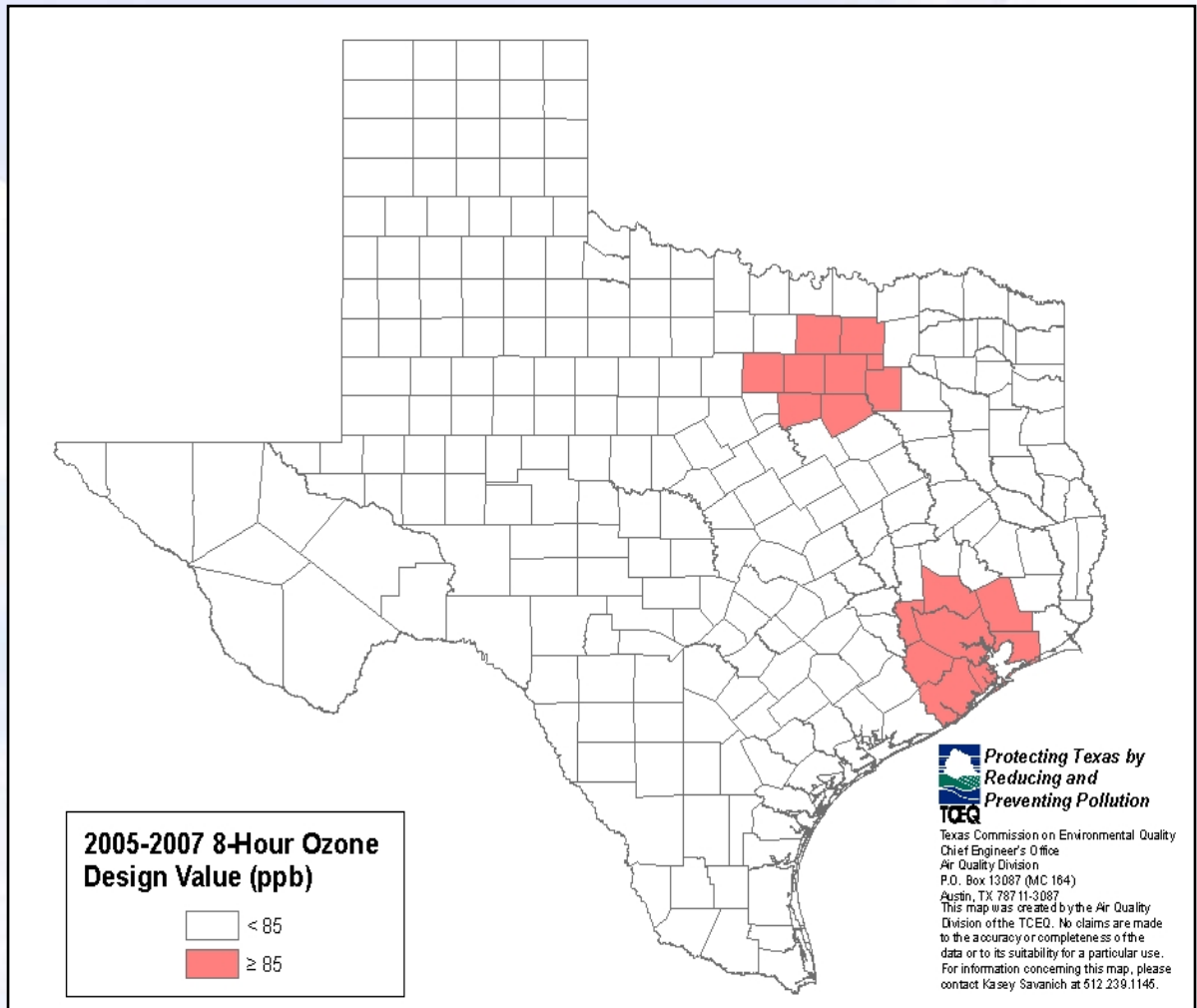


*2007 design values based on average of 2005 to 2007 data. To exceed the old ozone standard the design value must be greater than or equal to 85 ppb.



Areas Monitoring Over the 1997 Ozone Standard of 0.08 ppm

Region	2007 8-Hr Ozone DV (ppb)*
HGB	96
DFW	95

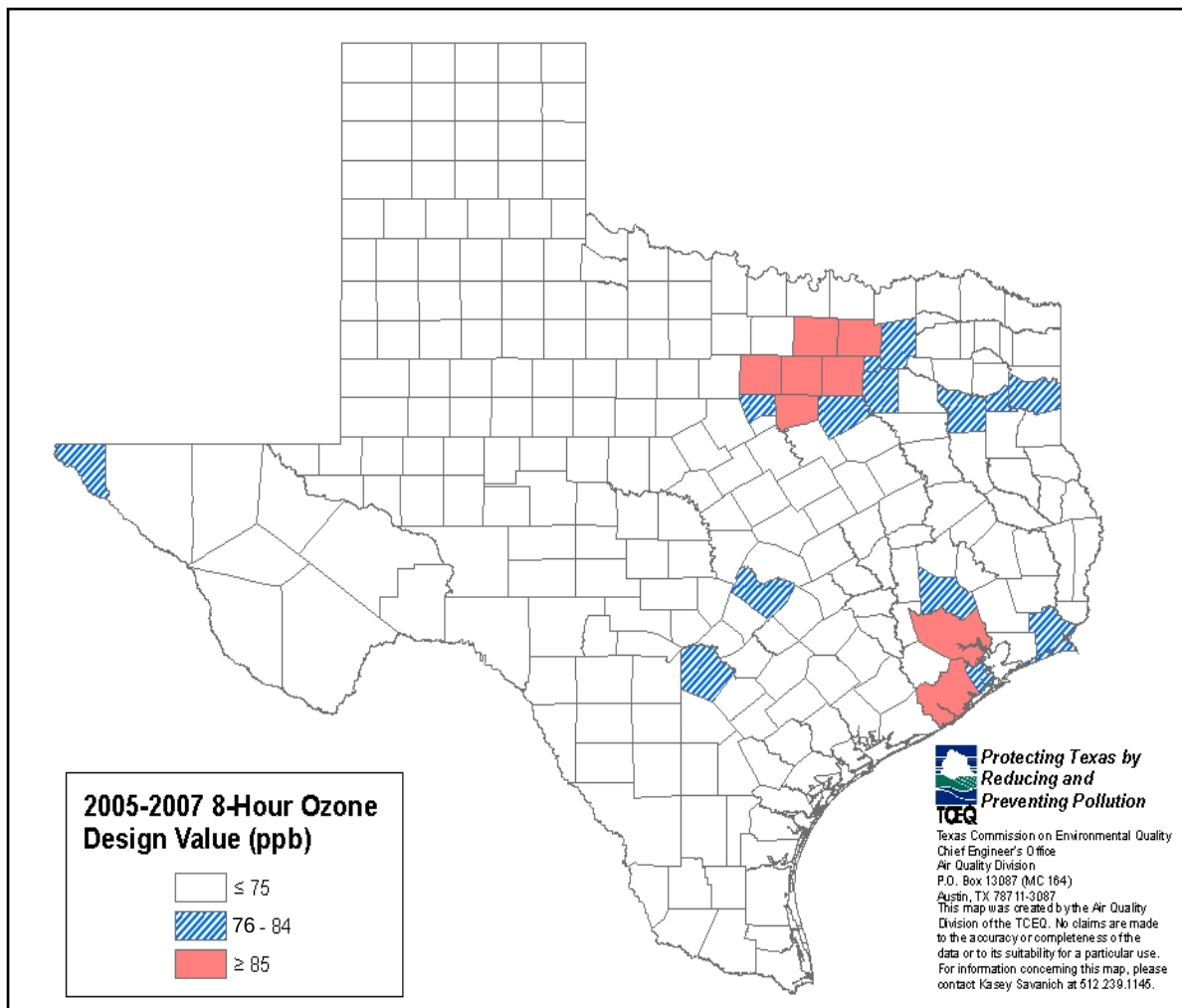


*2007 design values based on average of 2005 to 2007 data. To exceed the old ozone standard the design value must be greater than or equal to 85 ppb.



Counties Monitoring Over 2008 Ozone Standard of 0.075 ppm

Region	County	2007 8-Hr Ozone DV (ppb)*
HGB	HARRIS	96
HGB	BRAZORIA	91
HGB	GALVESTON	84
HGB	MONTGOMERY	84
DFW	TARRANT	95
DFW	DENTON	94
DFW	PARKER	91
DFW	COLLIN	88
DFW	DALLAS	86
DFW	JOHNSON	85
DFW	HOOD	84
DFW	ROCKWALL	78
DFW	ELLIS	78
DFW	HUNT	76
DFW	KAUFMAN	76
TLM	GREGG	84
TLM	SMITH	80
TLM	HARRISON	77
BPA	JEFFERSON	83
SAN	BEXAR	82
AUS	TRAVIS	80
ELP	EL PASO	79

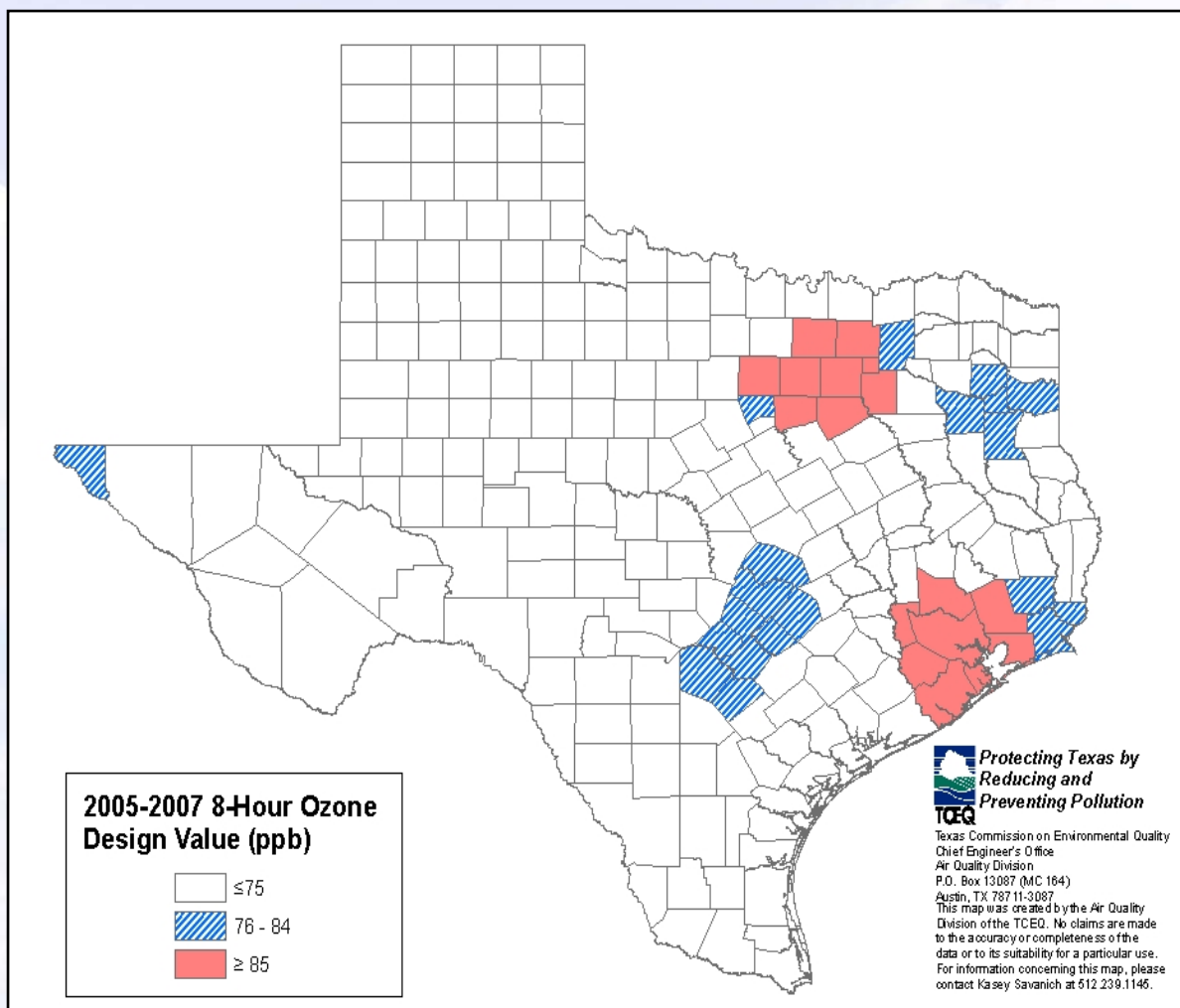


*2007 design values based on average of 2005 to 2007 data. To exceed the revised standard the design value must be greater than or equal to 76 ppb.



Areas Monitoring Over 2008 Ozone Standard of 0.075 ppm

Region	2007 8-Hr Ozone DV (ppb)*
HGB	96
DFW	95
DFW (Hood County)	84
DFW (Hunt County)	76
TLM	84
BPA	83
SAN	82
AUS	80
ELP	79



*2007 design values based on average of 2005 to 2007 data. To exceed the revised standard the design value must be greater than or equal to 76 ppb.

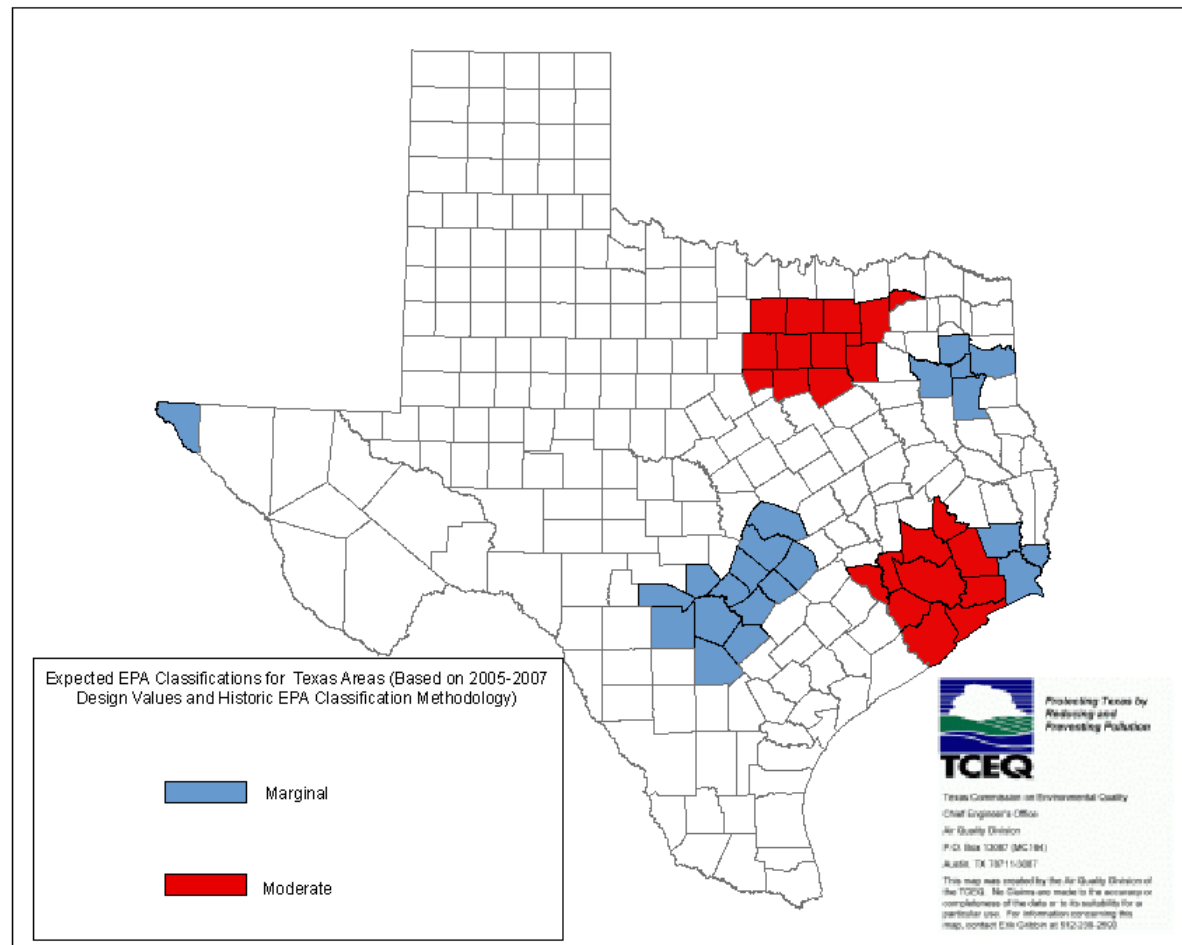


Projected Classification Ranges For The 2008 O₃ Standard

Classification	From	Up To (But Not Including)
Marginal	0.076	0.086
Moderate	0.086	0.100
Serious	0.100	0.113
Severe – 15	0.113	0.119
Severe – 17	0.119	0.175
Extreme	0.175	And Above



Possible Nonattainment Classifications Based on 2005-2007 Design Values (Using Current MSAs)





Conclusion – Counties Over the Standard

- At 0.08 ppm (1997 Standard):
 - 8 counties had design values over the 1997 standard:
 - Harris, Brazoria, Tarrant, Denton, Parker, Collin, Dallas, and Johnson
- At 0.075 ppm (2008 Standard):
 - 14 additional counties have design values over the new standard:
 - Galveston, Montgomery, Hood, Rockwall, Ellis, Hunt, Kaufman, Gregg, Smith, Harrison, Jefferson, Bexar, Travis, and El Paso
- A total of 22 counties monitor over the standard of 0.075 ppm



Conclusion – Areas Over the Standard

- At 0.08 ppm (1997 Standard):
 - 2 areas have design values over the 1997 standard.
 - HGB
 - DFW
- At 0.075 ppm:
 - 5 additional areas have design values over the new standard.
 - TLM
 - BPA
 - SAN
 - AUS
 - ELP
- A total of 7 areas monitor over the standard of 0.075 ppm



Conclusion – Expected Classifications

For the 2008 Ozone Standard:

- Nonattainment Areas ***may*** include larger MSA's than previously used.
- Moderate
 - 2 areas are expected to be classified as moderate.
 - HGB
 - DFW
- Marginal
 - 5 areas are expected to be classified as marginal.
 - TLM
 - BPA
 - SAN
 - AUS
 - ELP



Eleven Factors

1. Emissions and air quality in adjacent areas
2. Population density and degree of urbanizations
3. Monitoring data
4. Location of emission sources
5. Traffic and commuting patterns
6. Expected Growth
7. Meteorology
8. Geography/Topography
9. Jurisdictional boundaries
10. Level of emissions control
11. Regional emissions reductions



2008 Ozone Standard Key Dates

March 12, 2008	EPA Administrator signed a revision to the eight-hour ozone standard
March 27, 2008	Standard published in the Federal Register
May 27, 2008	Effective date of the 2008 standard
July 2008	TCEQ hosts public meetings in applicable areas
September 5, 2008	Comments due to TCEQ staff*
October 31, 2008	Tentative date for Commissioner Work Session (October 22 backup available to the public)
March 12, 2009	State recommendation due to EPA on boundaries and designations
March 12, 2010	EPA makes final designations and classification
Approximately 2013	Attainment demonstration SIPs due to EPA
2013 - 2030	Attainment dates, depending on severity of problem

*Send comments by close-of-business September 5, 2008 to:

Margie McAllister
Air Quality Division
Texas Commission on Environmental Quality
Post Office Box 13087, MC-164
Austin, Texas 78711-3087
mmcallis@tceq.state.tx.us

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

Attachment

8-HOUR OZONE NAAQS GUIDANCE ON NONATTAINMENT DESIGNATIONS

1. Why is EPA issuing this guidance on 8-hour ozone NAAQS nonattainment designations?

States have requested that EPA provide guidance on the appropriate boundaries for areas that will be designated nonattainment for the 8-hour standard. The EPA provided initial guidance on designations in a June 1999 memorandum.¹ That memorandum noted that EPA would provide additional information on designations at a future date. This guidance on how to determine the appropriate boundaries for areas that will be designated nonattainment for the current 8-hour ozone NAAQS is intended to meet that commitment. In addition, in light of the court decision remanding the 8-hour standard to EPA, States have asked what the implications are if EPA issues a revised ozone standard in response to the court's remand.

On July 18, 1997, EPA issued the revised NAAQS for ozone (62 FR 38856). The new standard is 0.08 parts per million (ppm) averaged over 8-hours; this compares to the pre-existing NAAQS of 0.12 ppm averaged over 1 hour. This action triggered the requirement under §107 of the Act and §6103 of TEA-21 for EPA to designate areas as attainment/unclassifiable or nonattainment for the revised NAAQS. Under these statutory provisions, EPA is required to designate areas for the revised standard by July 2000.

On May 14, 1999, the U.S. Court of Appeals for the District of Columbia Circuit issued a decision remanding, but not vacating, the 8-hour ozone standard. The court noted that EPA is required to designate areas for any new or revised NAAQS in accordance with §107(d)(1) of the Act. American Trucking Assoc. v. EPA, 175 F.3d 1027, 1047-48, on rehearing 195 F.3d 4 (D.C. Cir. 1999).

As provided in this guidance, EPA is planning to designate areas for the 8-hour ozone NAAQS promulgated in July 1997. If EPA promulgates a revised ozone NAAQS in response to a final unappealable court decision regarding the validity of the 8-hour standard, EPA would then be required to begin the designation process under §107 of the CAA for that revised ozone NAAQS. In such a case, EPA would issue guidance regarding designations for that revised NAAQS. At the time of promulgation of that revised NAAQS, EPA would establish, after an opportunity for public review, an appropriate transition scheme from the current 8-hour NAAQS to any revised NAAQS promulgated in response to the court's decision. Although this memorandum is not establishing the transition scheme, EPA does not anticipate requiring States or Tribes to comply with the statutory redesignation requirements to modify the designations for the replaced NAAQS.

2. What are the underlying requirements for designating areas for the 8-hour ozone NAAQS?

¹Memorandum of June 25, 1999, from John S. Seitz, "Designations for the 8-Hour Ozone National Ambient Air Quality Standard."

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

There are two relevant statutory provisions governing designations for the 8-hour ozone NAAQS. Section 107(d)(1) of the Act establishes the requirements for making designations for areas when a NAAQS is promulgated or revised. These are designations of nonattainment or attainment/unclassifiable. The provision provides an opportunity for each State to make a recommendation to EPA concerning the designation of areas in the State within 1 year after promulgation of a new or revised NAAQS. The EPA is required to designate areas across the country no later than 2 years following the promulgation of the NAAQS. The TEA-21 §6103 essentially extends by 1 year the 2-year designation process. Thus, States were provided 2 years to make their recommendations and EPA is required to designate areas 1 year after the State designation recommendations are due.

As authorized by the Tribal Authority Rule (TAR), Tribes may request an opportunity to submit designation recommendations to EPA. In cases where Tribes do not make their own recommendations, then EPA, in consultation with the Tribes, will promulgate the designation it deems appropriate on their behalf.²

In issuing the final designations, EPA is authorized to make such modifications it deems necessary to the recommended designations of the areas or portions thereof including the

²The CAA, §301(d), authorizes EPA to treat eligible Indian Tribes in the same manner as States. Pursuant to §301(d)(2), EPA promulgated regulations known as the “Tribal Authority Rule” on February 12, 1999 that specifies those provisions of the Act for which it is appropriate to treat Tribes as States. 63 FR 7254, codified at 40 Code of Federal Regulations (CFR) §49 (1999). Under the TAR, Tribes may choose to develop and implement their own CAA programs, but are not required to do so. The TAR also establishes procedures and criteria by which Tribes may request from EPA a determination of eligibility for such treatment. The designations process contained in §107(d)(1) of the Act is included among those provisions determined appropriate by EPA for treatment of Tribes in the same manner as States. Therefore, EPA Regional Offices will work with the Tribes in their Regions that request an opportunity to submit designation recommendations. Eligible Tribes may choose to submit their own recommendations and supporting documentation. Since, currently, there is a lack of air quality monitoring data nationally throughout Indian country, the factors identified in this guidance should be considered in recommending designations for the 8-hour ozone standard. The EPA will review the recommendations made by Tribes and may, in consultation with the Tribes, make modifications as deemed necessary. Under the TAR, Tribes generally are not subject to the same submission schedules imposed by the CAA on States. Therefore, EPA Regional Offices will work with their Tribes in scheduling interim activities and final designation actions, insofar as practicable, within the time frames outlined in this memorandum.

Finally, certain aspects of this guidance may not be particularly suited for application to Tribes due to circumstances that presently exist throughout Indian country. Consequently, EPA intends to issue additional guidance in the near future to further address designation issues pertaining to Tribes.

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

boundaries of the areas or portions thereof. If EPA modifies a designation or boundary, it must notify the State or Tribe at least 120 days in advance of such action in order to give the State or Tribe an opportunity to demonstrate why the proposed modification is inappropriate. The EPA's designation of areas for the 8-hour ozone NAAQS will be based on the most recent 3 consecutive years of air quality data from Federal reference or equivalent method monitors.³

Tribes are not required to recommend designations; however, they may choose to make recommended designations for land under their jurisdiction. The EPA will review the Tribe's recommendation, and may, in consultation with the Tribe, make modifications to the Tribe's recommendation. In cases where Tribes do not make their own recommendations, then EPA, upon consultation with the respective Tribe(s), will make designations for them.

3. How should boundaries of nonattainment areas be drawn and what process must be followed?

Section 107(d)(1) of the CAA addresses the determination of whether an area is to be designated nonattainment. With respect to a specific NAAQS, such as the 8-hour ozone NAAQS, this provision requires all areas to be designated nonattainment if they do not meet the standard or contribute to ambient air quality in a nearby area that does not meet the standard.

The EPA believes that any county with an ozone monitor showing a violation of the NAAQS and any nearby contributing area needs to be designated as nonattainment. In reducing ozone concentrations above the NAAQS, EPA believes it is best to consider controls on sources over a larger area due to the pervasive nature of ground level ozone and transport of ozone and its precursors. Thus, EPA recommends that the Metropolitan Statistical Area or the Consolidated Metropolitan Statistical Area (C/MSA) serve as the presumptive boundary for 8-hour NAAQS nonattainment areas.⁴ We believe this approach will best ensure public health protection from the adverse effects of ozone pollution caused by population density, traffic and commuting patterns, commercial development, and area growth. In the past, areas within C/MSAs have generally experienced higher levels of ozone concentrations and ozone precursor emissions than areas not in C/MSAs. In addition, the 1990 Amendments to the CAA established the C/MSA as the presumptive boundary for ozone nonattainment areas classified as serious, severe and extreme.

4. How should designation recommendations, including boundaries, be addressed when more than one State and/or Tribe might be affected?

³For the 8-hour ozone NAAQS, it is 3 consecutive years of data in accordance with 40 CFR part 50, Appendix I; data used will be quality-assured and meet 40 CFR part 58 requirements (e.g., for monitor siting). Designations should generally be made based on 1997-1999 air quality, considering data availability.

⁴C/MSAs are identified by the U.S. Bureau of the Census and can be found at the following website: <http://www.census.gov/population/www/estimates/aboutmetro.html>.

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

Where more than one State is involved with respect to an area, close coordination is needed among the affected States and Tribes prior to the time the recommendation is made. In addition, the EPA Regional Office should coordinate where an area may be located in States or tribal lands located in two or more regions. There is a strong presumption that interstate areas making up one C/MSA will be designated as one nonattainment area. The EPA believes that it is important that consistent and coordinated boundary recommendations be made for the area from each State and Tribe.

5. What factors should a State or Tribe consider in determining whether to recommend area boundaries that are larger or smaller than a C/MSA or tribal land?

In some cases, the most appropriate nonattainment area boundary may be larger than the C/MSA. For example, if sources located in a county or on Indian lands outside the C/MSA contribute to violations within the C/MSA, States or Tribes should consider whether it would be appropriate to expand the nonattainment area to include the area in which those sources are located. In other cases, a smaller nonattainment area may be more appropriate. For example, one C/MSA may cover multiple air basins, or include counties or portions of counties which are rural in nature.

A State or Tribe wishing to propose larger or smaller nonattainment area boundaries (including partial counties or portions of areas on tribal lands) than those matching the C/MSA or boundary of the tribal land should address how each of the following factors affect the drawing of nonattainment area boundaries and how the resulting recommendation is consistent with the definition of nonattainment in §107(d)(1) of the Act. Additional information is provided below under question number 12 on documentation.

- Emissions and air quality in adjacent areas (including adjacent C/MSAs)
- Population density and degree of urbanization including commercial development (significant difference from surrounding areas)
- Monitoring data representing ozone concentrations in local areas and larger areas (urban or regional scale)
- Location of emission sources (emission sources and nearby receptors should generally be included in the same nonattainment area)
- Traffic and commuting patterns
- Expected growth (including extent, pattern and rate of growth)
- Meteorology (weather/transport patterns)
- Geography/topography (mountain ranges or other air basin boundaries)
- Jurisdictional boundaries (e.g., counties, air districts, existing 1-hour nonattainment areas, Reservations, etc.)
- Level of control of emission sources
- Regional emission reductions (e.g., NO_x SIP call or other enforceable regional strategies)

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

A State or Tribe choosing to propose area boundaries smaller than a C/MSA or tribal land should consult with its EPA Regional Office. The EPA will consider alternative boundary recommendations on a case-by-case basis to assess whether the recommendation is consistent with §107(d)(1) of the Act.

The EPA will issue guidance on factors for Tribes to consider when submitting designation recommendations. Some of the factors, particularly for areas throughout Indian country that may not have adequate or any air quality ozone monitors, are geographic location of the land, proximity to the nearest C/MSA, prevailing meteorology, location of nearby ozone monitors, available ozone air quality data, and location of nearby emission sources both inside and outside of such areas.

6. What are the key timing activities for and implications of designation as nonattainment under the 8-hour ozone standard particularly for States?

The designation process has several steps. On June 25, 1999, EPA issued a guidance memorandum requesting that States submit the most recent, complete, quality-assured ozone monitoring data identifying the monitors where exceedances of the 8-hour standard have occurred. The EPA, with this memorandum, is providing guidance describing the criteria for drawing boundaries for nonattainment areas and setting deadlines for the steps in the designation process. States will then have several months to work with local governments and other stakeholders and submit their recommendations and supporting documentation to EPA for area designations and boundaries by June 30, 2000. The EPA will then review and respond to the State designations including boundaries by late summer. The EPA will not make final designations prior to late December because it cannot make them until at least 4 months (120 days) after responding to the States, pursuant to a CAA requirement. Given this process, designations could not become effective prior to early 2001 at the earliest, nor would conformity or other requirements. Conformity and other planning requirements would be triggered on the effective date of designations. The EPA Regional Offices should immediately begin to work with their States and Tribes on boundary recommendations to ensure that they have maximum input prior to the June 30, 2000 recommendation date and encourage States to coordinate with appropriate transportation planning agencies.

After EPA makes the final designations, it will publish them in the Federal Register and set a date on which they become effective. Historically, the effective date of a rule is usually 30 to 60 days after publication, but can be later. In the process of determining when to finalize the proposed designations and make them effective, EPA will carefully consider the time needed to prepare for any applicable requirements, as well as the status of ongoing litigation and administrative proceedings. The EPA is committed to ensuring that all State and local officials have ample time to comply with requirements that are applicable when designations become effective.

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

The EPA believes that the Court decision affirms the serious health risk posed by ozone. Thus, notwithstanding the schedule described above, EPA believes that it is important to issue a final action on designations to provide the public with information regarding the air quality in areas in which they live and work. In addition, areas can continue to take certain actions with respect to the 8-hour standard, such as operating monitoring sites, analyzing monitoring data, implementing public education and communications efforts regarding health impacts and potential solutions, collecting emissions inventory data, examining potential control measures such as major source Reasonably Available Control Technology and other Reasonably Available Control Measures, considering voluntary emission reduction measures and considering the integration of strategies for the attainment and maintenance of all NAAQS.

7. How should long-range transport be addressed in the boundary recommendation?

In addition to nearby areas with sources contributing to nonattainment, ozone concentrations are affected by long-range transport of ozone and its precursors (notably NO_x). Thus, in certain parts of the country, such as the eastern U.S., ozone is a widespread problem. Where this is the case, the Act does not require that all contributing areas be designated nonattainment, only the nearby areas. Regional strategies, such as those employed in the Ozone Transport Region in the Northeast U.S., and in the EPA NO_x SIP call, are needed to address the long-range transport component of ozone nonattainment, while the local component must be addressed through more local planning in and around the designated nonattainment area. Tribal areas may also be affected by transport.⁵

8. How should designation recommendations be handled for 8-hour ozone nonattainment areas that cover some of the same area as 1-hour ozone nonattainment areas?

In areas where the 1-hour NAAQS still applies, EPA's presumption is that the designated 8-hour nonattainment area boundary will be the C/MSA or the 1-hour nonattainment area boundary, whichever is larger.

9. What will happen if EPA does not receive a designation recommendation from a State or Tribe?

In the absence of a Governor's recommendation by June 30, 2000, EPA will determine the designation. The EPA plans to follow this guidance in designating areas. In cases where Tribes do not make their own recommendations, then EPA, upon consultation with the respective Tribe(s), will promulgate the designation it deems appropriate.

10. Must States recommend a classification for, or will EPA classify, nonattainment areas under the 8-hour ozone NAAQS?

⁵The prohibitions and authority contained in sections 110(a)(2)(D)(i) and 126 of the Act apply to Tribes in the same manner as States.

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

The EPA will not classify nonattainment areas at this time; thus, States and Tribes should not submit recommendations for classifications. If EPA determines to classify areas in the future, it will provide an opportunity for State and Tribal involvement.

11. What technical information should a State consider in its designation recommendations?

To assist States and Tribes with their recommendations, the EPA is providing technical reports and maps showing locations where air quality was violating the 8-hour NAAQS based on 1997-1999 monitored data that States and Tribes may find useful in defining the boundaries of nonattainment areas. The information will be posted on EPA's web site in the immediate future.

12. What documentation should a State or Tribal government submit concerning the nonattainment area recommendations?

In addition to technical information documenting the recommendation for area boundaries noted in question number 5 above, the EPA is requesting that each State or Tribe in its submission provide certain air quality data and geographic information to support its nonattainment area recommendation. The EPA is asking for the following information:

For nonattainment areas:

- a. Design value⁶ for the area.
- b. Period of time represented by the design value, e.g., 1997-1999.
- c. Design value monitoring site location and identification number.

For attainment/unclassifiable and nonattainment areas:

- d. Names of counties and tribal lands included, and
- e. If partial counties or portions of tribal lands are included, the boundary definition/description as outlined below.

If the recommended nonattainment area boundary is less than a C/MSA, the State or Tribe should document its rationale for selecting the nonattainment area boundary. The documentation should address how the items in question number 5 affect the drawing of boundaries for each county or Reservation not included in the recommended nonattainment area such as population, traffic and commuting patterns, commercial development, projected growth, prevailing meteorology, nearby sources and air quality, and any other relevant or technical justification factors. In particular, where the recommended area boundary consists of parts of counties, C/MSAs, or Reservations, the State or Tribe must provide a technical analysis for its recommendation, explaining how the boundary is consistent with §107 (d)(1) of the Act.

If there is less than a full county or Reservation, the EPA is requesting a legal definition of the area, a detailed hard copy map, and, because EPA plans to map the definition, a digitized

⁶The ozone air quality design value for a site is defined as the 3-year average annual fourth-highest daily maximum 8-hour average ozone concentration.

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

latitude and longitude description for mapping purposes if available. Regional Offices and States should include the names of contacts from their respective offices for this information. The EPA requests that each State and Tribe submit its attainment/unclassifiable and nonattainment area designation recommendation and boundary information to EPA in both a detailed written form and in electronic form in a format consistent with how designations are identified in Part 81 of the CFR. In addition to the formal letter making the recommendation, EPA requests the States provide an electronic record in a usable file which will be merged with all other States' and Tribes' recommendations for a final complete product. An example is shown below.

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

Format of Recommendations for Designations

State Name

Nonattainment Areas:

Area Name

County or Tribal Land Names

Area Name

County or Tribal Land Names

Attainment/Unclassifiable Areas:

Rest of State or County or Tribal Land Names

This is how it would appear in the Code of Federal Regulations:

81.xxx [STATE NAME] .

* * * * *

[STATE NAME] - OZONE (8-HOUR STANDARD)

Designated Area	Designation	Classification
	Type	Type
[NAME] Area: [NAME] County.....	Nonattainment Nonattainment	LEAVE BLANK
[NAME] Area: [NAME] County.....		
[NAME] County.....		
[NAME] County.....		
[NAME] County.....		
[Name] Tribal Land [Name] County.....	Attainment/ Unclassifiable	
Rest of State.....		
Rest of Tribal Land.....	Attainment/ Unclassifiable	

* * * * *

13. When should the recommendations be submitted?

The Governor should submit all recommendations and supporting documentation for designations for nonattainment and attainment/unclassifiable areas, boundaries, and boundary descriptions described above to the EPA Regional Office by June 30, 2000. The eligible Tribal governing body, with the assistance of the appropriate EPA Regional Office, should submit all recommendations and supporting documentation consistent with the statements in question

8-Hour Ozone NAAQS - US EPA Guidance on Non-Attainment Designation

number 2 of this memorandum. The EPA will notify the State or Tribe no later than 120 days prior to the designation action where EPA plans to modify a recommendation.

14. Is there any special process for attainment/unclassifiable areas?

The EPA will not distinguish between attainment and unclassifiable areas. The State or Tribe should indicate if its preference is that EPA list each attainment/unclassifiable area individually (e.g., by county); otherwise, EPA will indicate that the “rest of State” or “rest of tribal land” is attainment/unclassifiable.

EPA Memorandum - John S. Seitz, Director of Office of Air Quality
Planning and Standards - March 28, 2000

March 28, 2000

MEMORANDUM

SUBJECT: Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards (NAAQS or Standard)

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

TO: Air Directors, Regions I-X

The purpose of this memorandum is to provide guidance to State and local air pollution control agencies and Tribes (States and Tribes) on designating areas as attainment/unclassifiable¹ or nonattainment and the Environmental Protection Agency's (EPA's) views on the boundaries for nonattainment areas for the 8-hour ground-level ozone NAAQS.

Area designations to attainment/unclassifiable or nonattainment are required after promulgation of a new or revised NAAQS. The EPA promulgated a new 8-hour ozone NAAQS in July 1997 and is, therefore, obligated to designate all areas by July 2000 as established by the Clean Air Act (CAA or Act) and the Transportation Equity Act for the 21 Century (TEA-21).² On May 14, 1999, the U.S. Court of Appeals for the District of Columbia Circuit issued a decision remanding, but not vacating, the 8-hour ozone standard. The court noted that EPA is required to designate areas for any new or revised NAAQS in accordance with §107(d)(1) of the Act. American Trucking Assoc. v. EPA, 175 F.3d 1027, 1047-48, on rehearing 195 F.3d 4 (D.C. Cir. 1999).

The process for designations following promulgation of a NAAQS is contained in §107(d)(1) of the Act. This section provides each State Governor an opportunity to recommend attainment/unclassifiable or nonattainment designations including appropriate boundaries to EPA and for EPA to make modifications to these designations and boundaries as it deems necessary. In June 1999, EPA requested that each State forward (or complete entering into the Aerometric Information Retrieval System data base) air quality data through 1998 and identify which

monitors were exceeding the 8-hour standard during the 1996-1998 time frame. The EPA is now requesting that each State Governor submit their designation recommendations and supporting

¹A designation to attainment/unclassifiable means that the area has sufficient data to determine that the area is meeting the 8-hour ozone NAAQS or that due to no data or insufficient data, EPA cannot make a determination.

²CAA §107(d)(1); TEA-21§6103(a).

EPA Memorandum - John S. Seitz, Director of Office of Air Quality
Planning and Standards - March 28, 2000

documentation to the appropriate EPA Regional Office, to the attention of the Regional Administrator, by June 30, 2000. These recommendations should generally be based on States' 1997-1999 quality-assured, Federal reference or equivalent air quality monitoring data.

In accordance with the CAA, EPA will review the recommended designations and may make modifications as deemed necessary to a State's recommendation. If EPA determines that a modification to the recommendation is necessary, EPA will notify the State no later than 120 days prior to promulgating a designation, which will provide an opportunity for the State to demonstrate why EPA's modification is not appropriate. In the case where a State does not submit recommendations, EPA will promulgate the designation it deems appropriate. As described in the attachment, Tribal designation activities are covered under a different legal authority.

This memorandum provides EPA's current views on how boundaries should be determined for designations. This guidance is not binding on States, Tribes, the public, or EPA. Issues concerning nonattainment area boundaries will be addressed in actions to designate nonattainment and attainment/unclassifiable areas under §107 of the CAA. When EPA promulgates designations, those determinations will be binding on States, Tribes, the public, and EPA as a matter of law.

The attachment contains the guidance on determining boundaries. Questions on this guidance may be directed to Sharon Reinders at 919-541-5284. The Regional Offices should make this guidance available to their States and Tribes and, where appropriate, work closely with them to ensure they submit their area recommendations by June 30, 2000.

Attachment

cc: Deputy Regional Administrators, Regions I-X
Margo Oge, OTAQ

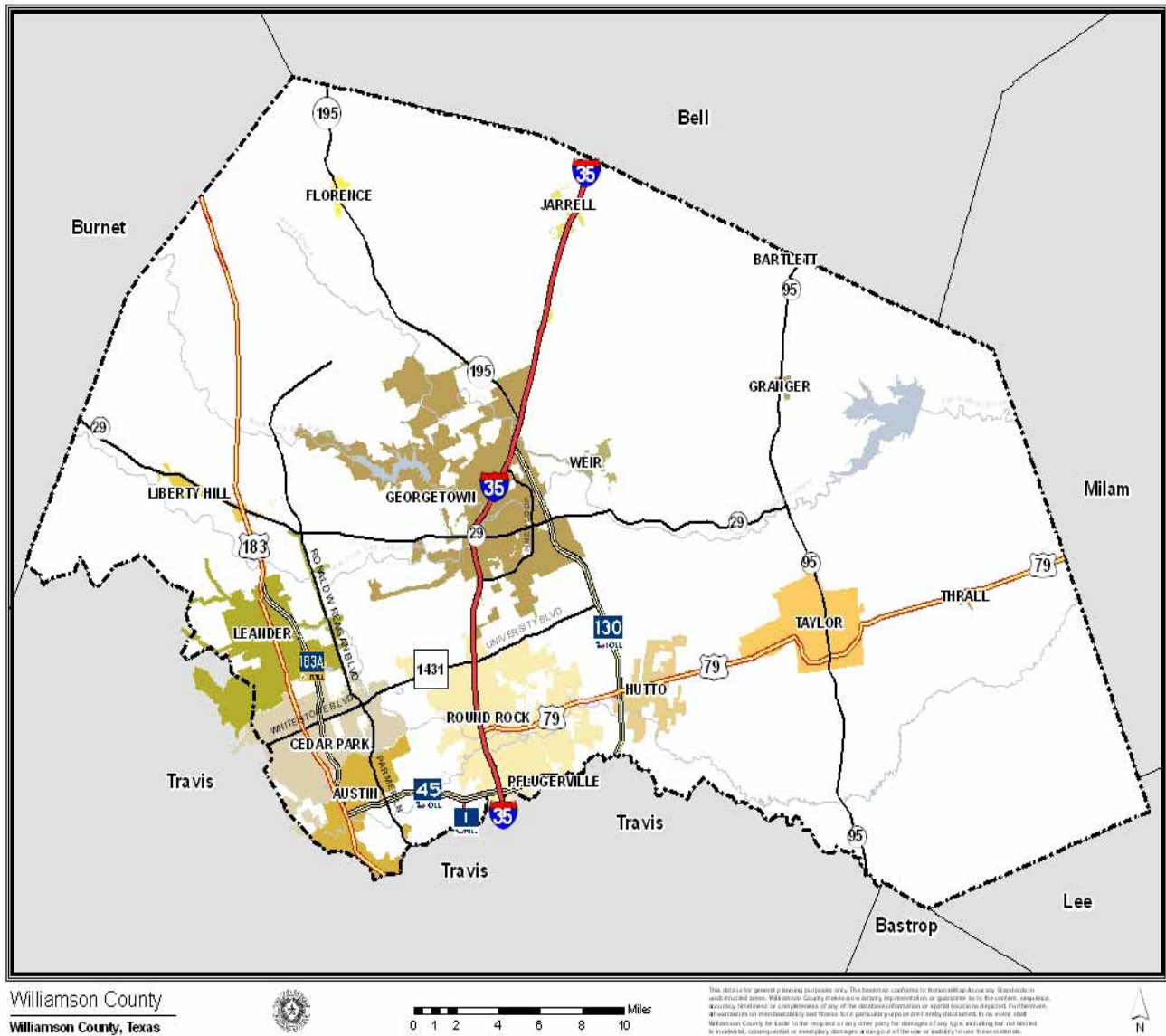


Exhibit F: General Layout and Transportation in Williamson County

Exhibit G: TCEQ List of Permitted Sources in Nine Central Texas Counties

RN	Company	Site	Region	SIC	County	YEAR	Latitude	Longitude	Type	PM10	SO2	CO	VOC	NOX
RN102038486	LOWER COLORADO RIVER AUTHORITY	LOWER COLORADO RIVER AUTHORITY	11	4911	BASTROP	2006	300740	971617	ANNUAL	32.43	2.69	23.99	30.59	575.48
RN101056851	BASTROP ENERGY PARTNERS LP	BASTROP ENERGY CENTER	11	4911	BASTROP	2006	300840	973258	ANNUAL	22.18	4.51	171.33	15.87	230.61
RN100723915	GEN TEX POWER CORP & CALPINE CORP	LOST PINES 1 POWER PLANT	11	4911	BASTROP	2006	300852	971613	ANNUAL	60.13	7.38	42.75	13.90	208.68
RN100225846	ACME BRICK COMPANY	ELGIN PLANT	11	3251	BASTROP	2006	301927	971742	ANNUAL	155.08	231.42	196.78	47.09	60.35
RN100212034	HANSON BRICK EAST LLC	HANSON BRICK ELGIN FACILITY	11	3251	BASTROP	2006	301950	972016	ANNUAL	41.84	154.51	52.84	4.60	15.72
RN102204427	LOWER COLORADO RIVER AUTHORITY	HILBIG GAS STORAGE FACILI	11	1311	BASTROP	2006	300021	972438	ANNUAL	0.05	0.00	0.82	23.33	0.64
RN101608644	UNIVERSITY OF TX MD ANDERSON CANCER	UNIV OF TX MD ANDERSON RESEARCH	11	8069	BASTROP	2006	300852	971817	ANNUAL	0.00	0.00	0.00	0.00	0.00
RN101608529	UNIVERSITY OF TX MD ANDERSON CANCER	UNIV OF TX MD ANDERSON SCIENCE PA	11	8069	BASTROP	2006	300438	971050	ANNUAL	0.00	0.00	0.00	0.00	0.00
RN101612083	FT HOOD ARMY BASE	FORT HOOD	9	9711	BELL	2006	310731	974703	ANNUAL	28.46	0.88	36.62	150.42	53.49
RN100215631	WILSONART INTERNATIONAL INC	LAMINATE FACILITY	9	3089	BELL	2006	310830	972112	ANNUAL	8.55	2.08	60.43	45.85	47.91
RN100215243	AMERROCK PRODUCTS LP	NOLANVILLE PLANT	9	3296	BELL	2006	310444	973423	ANNUAL	55.42	269.81	3,676.18	59.31	32.68
RN102195096	TEXAS HYDRAULICS INC	SPRAY BOOTH	9	3365	BELL	2006	310747	972053	ANNUAL	4.81	0.04	2.14	74.13	8.55
RN100211242	ER CARPENTER	CUSHIONING MANUFACTURING	9	3086	BELL	2006	310723	972036	ANNUAL	1.06	0.02	2.98	13.65	3.56
RN100228196	PACTIV CORPORATION	TEMPLE PLANT	9	3086	BELL	2006	310743	972024	ANNUAL	18.67	0.06	1.63	314.03	3.47
RN100215524	BELCO MANUFACTURING CO	BELCO MANUFACTURING COMPA	9	2221	BELL	2006	310304	972613	ANNUAL	0.00	0.00	0.00	77.04	0.00
RN100611524	MACCO ADHESIVES GLIDDEN CO	MACCO ADHESIVES GLIDDEN	9	2891	BELL	2006	310804	972109	ANNUAL	0.00	0.00	0.00	0.00	0.00
RN100215862	WILSONART INTERNATIONAL INC	TEMPLE SOUTH PLANT	9	3089	BELL	2006	310544	972201	ANNUAL	0.00	0.00	0.00	0.00	0.00
RN100223254	VIRON INTERNATIONAL CORPORATION	VIRON INTERNATIONAL CORP.	9	5075	BELL	2006	310758	972112	ANNUAL	0.00	0.00	0.00	12.94	0.00
RN100220177	OASIS PIPELINE CO TEXAS LP	PRAIRIE LEA COMPRESSOR STATION	11	4922	CALDWELL	2006	295102	973644	ANNUAL	14.66	0.22	199.77	44.70	900.13
RN100212018	J.L. DAVIS GAS PROCESSING, INC.	LULING GAS PLANT	11	1321	CALDWELL	2006	294354	974341	ANNUAL	0.87	708.02	35.00	23.15	163.37
RN100226844	LOWER COLORADO RIVER AUTHORITY	FAYETTE POWER PROJECT	11	4911	FAYETTE	2006	295502	964502	ANNUAL	1,213.50	27,441.57	1,527.05	197.03	5,814.17
RN100213776	DCP MIDSTREAM LP	GIDDINGS PLANT	11	1321	FAYETTE	2006	300203	965924	ANNUAL	10.32	35.21	329.47	87.42	430.01
RN100215136	ETC TEXAS PIPELINE LTD	LAGRANGE PLANT	11	1321	FAYETTE	2006	300014	965318	ANNUAL	4.60	37.09	131.83	19.53	204.78
RN102597846	TEXAS LEHIGH CEMENT CO	TEXAS LEHIGH CEMENT CO.	11	3241	HAYS	2006	300318	975123	ANNUAL	391.49	1,210.00	3,400.40	182.70	2,280.00
RN100221480	SOUTHWEST TEXAS STATE UNIVERSITY	CENTRAL HEATING & UTILITI	11	8221	HAYS	2006	295322	975638	ANNUAL	2.52	6.81	99.48	32.37	247.43
RN100211689	HAYS ENERGY PROJECT	HAYS ENERGY PROJECT	11	4911	HAYS	2006	294650	975922	ANNUAL	131.47	9.16	293.67	17.33	200.47
RN100211945	PARKVIEW METAL PRODUCTS INC	PARKVIEW METAL PRODUCTS	11	3469	HAYS	2006	302115	974230	ANNUAL	0.00	0.00	0.00	8.73	0.00
RN102606449	LF MANUFACTURING	QFRP	11	3089	LEE	2006	301107	965856	ANNUAL	6.49	0.00	0.00	47.74	0.00
RN100214642	LF MANUFACTURING INC	LF MANUFACTURING INC	11	3089	LEE	2006	301010	965204	ANNUAL	6.30	0.00	0.00	54.48	0.00
RN100221472	ALCOA INC	ALCOA SANDOW PLANT	9	3334	MILAM	2006	303357	970411	ANNUAL	723.09	56,468.52	29,794.85	841.72	8,066.70
RN102147881	LUMINANT GENERATION COMPANY LLC	SANDOW STEAM ELECTRIC	9	4911	MILAM	2006	303354	970346	ANNUAL	835.94	23,749.73	16,479.93	72.98	4,315.48
RN100219872	AUSTIN ENERGY	DECKER CREEK POWER PLANT	11	4911	TRAVIS	2006	301811	973648	ANNUAL	58.80	4.47	324.14	50.64	758.85
RN102533510	UNIVERSITY OF TEXAS AT AUSTIN	HAL C. WEAVER POWER PLANT	11	4911	TRAVIS	2006	301713	974408	ANNUAL	42.75	0.73	199.07	20.03	685.21
RN100214337	AUSTIN WHITE LIME CO	AUSTIN WHITE LIME COMPANY	11	3274	TRAVIS	2006	302733	974258	ANNUAL	354.69	395.25	207.23	8.25	670.91
RN100220045	AUSTIN ENERGY	HOLLY POWER PLANT	11	4911	TRAVIS	2006	301501	974311	ANNUAL	20.22	1.92	15.74	0.43	299.18
RN100215052	AUSTIN ENERGY	SAND HILL ENERGY CENTER	11	4911	TRAVIS	2006	301225	973647	ANNUAL	52.08	3.60	124.13	1.72	146.41
RN100218692	MINNESOTA MINING & MFG 3M CO	3M AUSTIN CENTER	11	8731	TRAVIS	2006	303742	972160	ANNUAL	3.18	7.98	149.83	12.65	40.55
RN101992246	GAS RECOVERY SYSTEMS LLC	SUNSET FARMS ELECTRIC	11	4911	TRAVIS	2006	302019	973713	ANNUAL	2.43	2.23	110.40	5.58	36.60
RN100215938	WASTE MANAGEMENT OF TEXAS, INC.	AUSTIN COMMUNITY RECYCLING AND D	11	4953	TRAVIS	2006	302009	973717	ANNUAL	39.17	2.75	83.34	8.11	16.52
RN100843747	FREESCALE SEMICONDUCTOR INC	ED BLUESTEIN SITE	11	3674	TRAVIS	2006	301613	973949	ANNUAL	25.26	0.58	10.32	21.90	15.38
RN102752763	FREESCALE SEMICONDUCTOR INC	INTEGRATED CIRCUIT MFG	11	3674	TRAVIS	2006	301424	975204	ANNUAL	3.97	0.80	11.24	12.63	14.67
RN100518026	SAMSUNG ELECTRONICS	AUSTIN FABRICATION FACILI	11	3674	TRAVIS	2006	302229	973816	ANNUAL	0.50	1.24	11.33	50.25	11.03
RN100723741	SPANSION INC	SPANSION	11	3674	TRAVIS	2006	301259	974323	ANNUAL	6.80	0.06	8.76	19.67	10.89
RN100542752	BFI WASTE SYSTEMS OF NORTH AMERICA	SUNSET FARMS LANDFILL	11	4953	TRAVIS	2006	302011	973744	ANNUAL	27.20	1.92	29.70	15.07	5.71
RN101059673	FLINT HILLS RESOURCES LP	AUSTIN TERMINAL	11	5171	TRAVIS	2006	301930	973742	ANNUAL	0.00	0.00	9.50	51.52	3.80
RN102776994	IRONHORSE ASPHALT INC	AUSTIN HOT MIX	11	2951	TRAVIS	2006	301455	974102	ANNUAL	0.09	0.01	0.38	0.49	0.07
RN101957769	AUSTIN AMERICAN STATESMAN THE	AUSTIN AMERICAN STATESMAN	11	2711	TRAVIS	2006	301530	974445	ANNUAL	0.00	0.00	0.00	1.10	0.00
RN100216746	AUSTIN COUNTER TOPS INC	AUSTIN COUNTER TOPS	11	3089	TRAVIS	2006	302223	974025	ANNUAL	0.06	0.00	0.00	28.35	0.00
RN100725712	SEMINOLE PIPELINE CO	SEMINOLE PIPELINE COUPLAN	11	4619	WILLIAMSON	2006	302850	972357	ANNUAL	1.12	0.58	26.01	2.75	33.29
RN100728179	DURCON LABORATORY TOPS INCORPORATED	DURCON LABORATORY TOPS INCORPORATED	11	3821	WILLIAMSON	2006	303414	972314	ANNUAL	5.49	0.02	1.99	20.05	2.37
RN104321021	BURROWS MFG LP	BURROWS MFG LP	11	2449	WILLIAMSON	2006	303240	973319	ANNUAL	0.00	0.00	0.00	0.00	0.00
RN100225754	WILLIAMSON COUNTY LANDFILL	WILLIAMSON COUNTY LANDFILL	11	4953	WILLIAMSON	2006	303052	974908	ANNUAL	0.00	0.00	0.00	0.00	0.00
RN100215193	AQUATIC INDUSTRIES INC	AQUATIC INDUSTRIES INC	11	3088	WILLIAMSON	2006	303452	975208	ANNUAL	0.00	0.00	0.00	18.10	0.00



Figure 1: Map of NO_x Emissions in Central Texas Counties

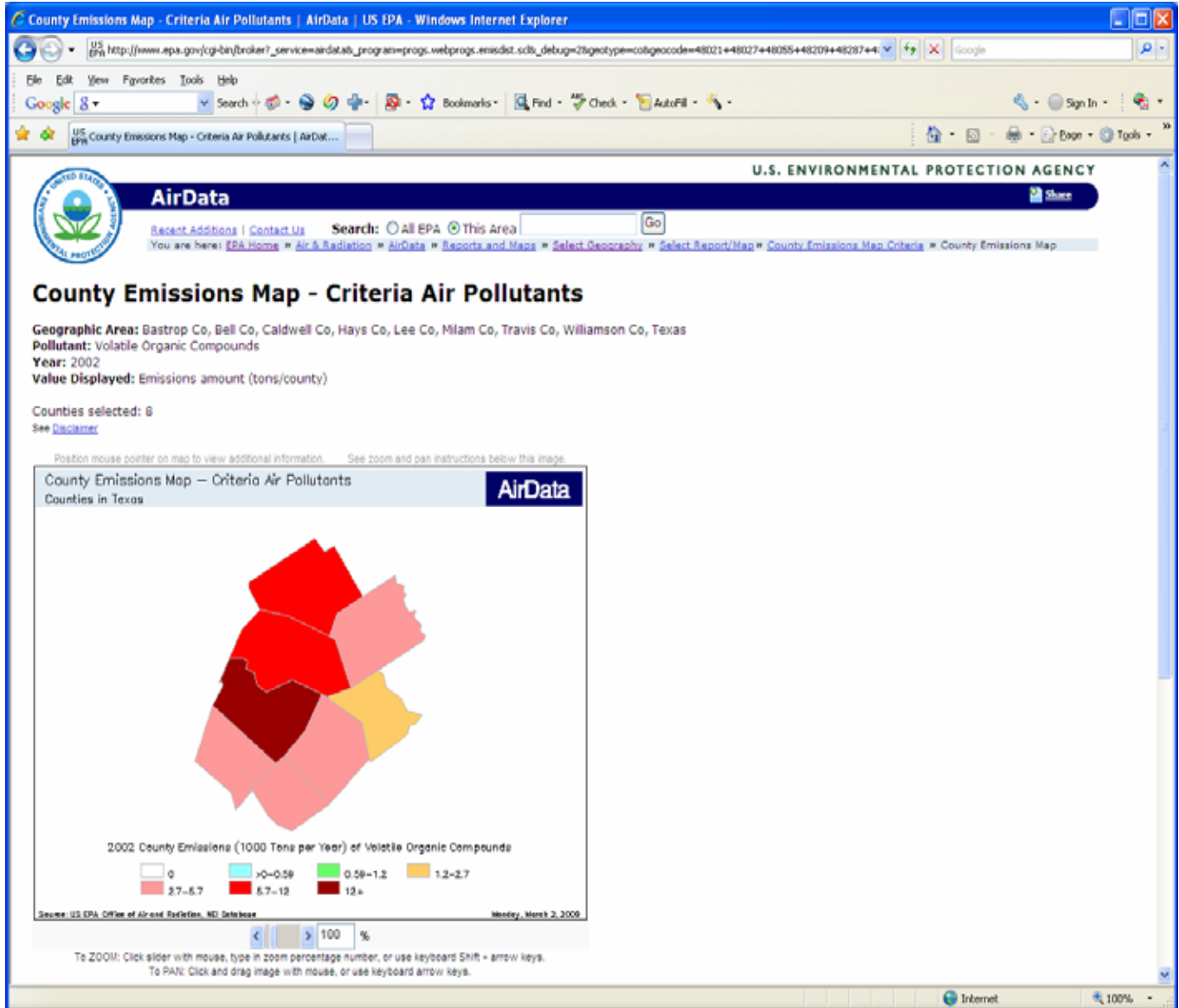


Figure 2: Map of VOC Emissions in Central Texas Counties

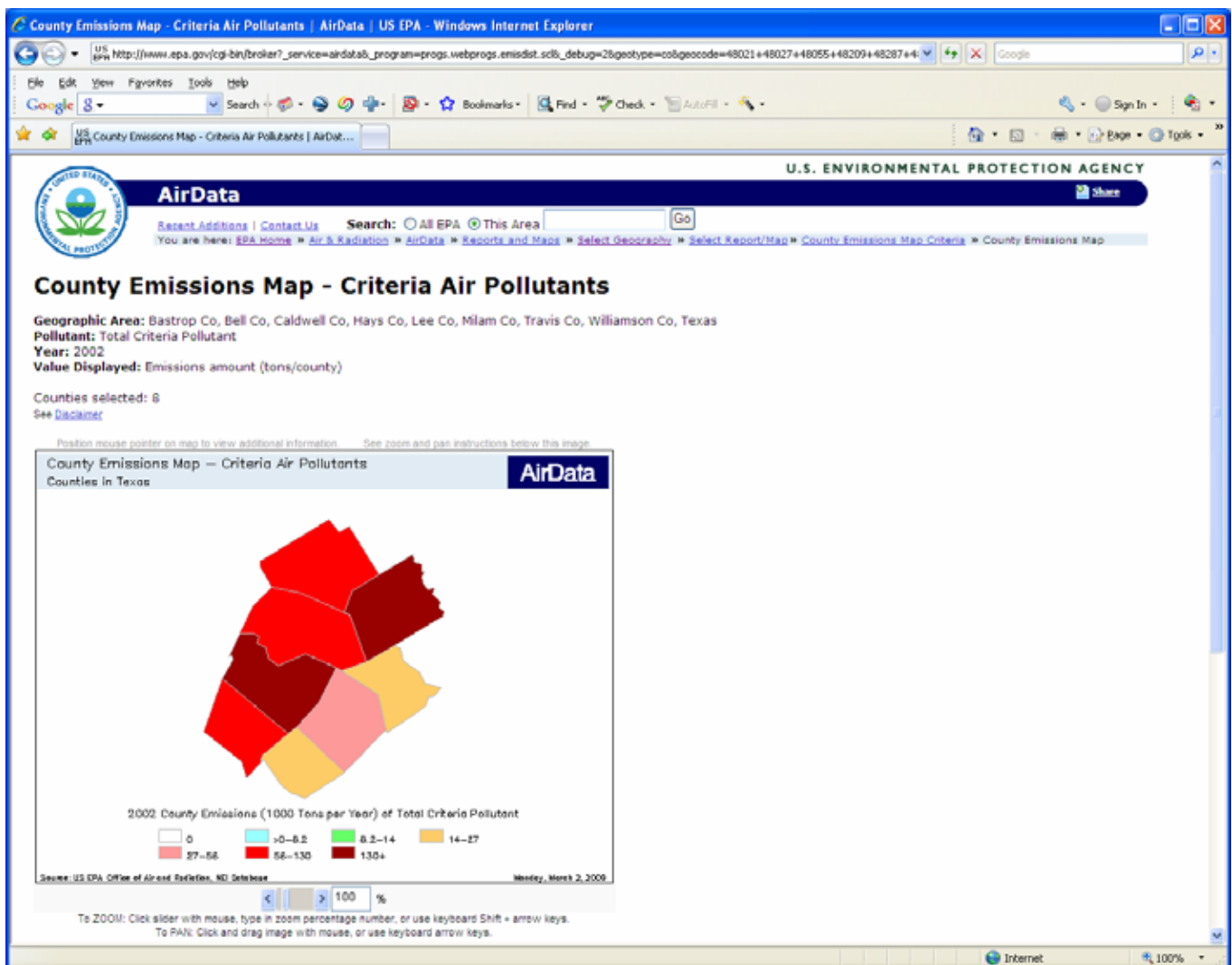
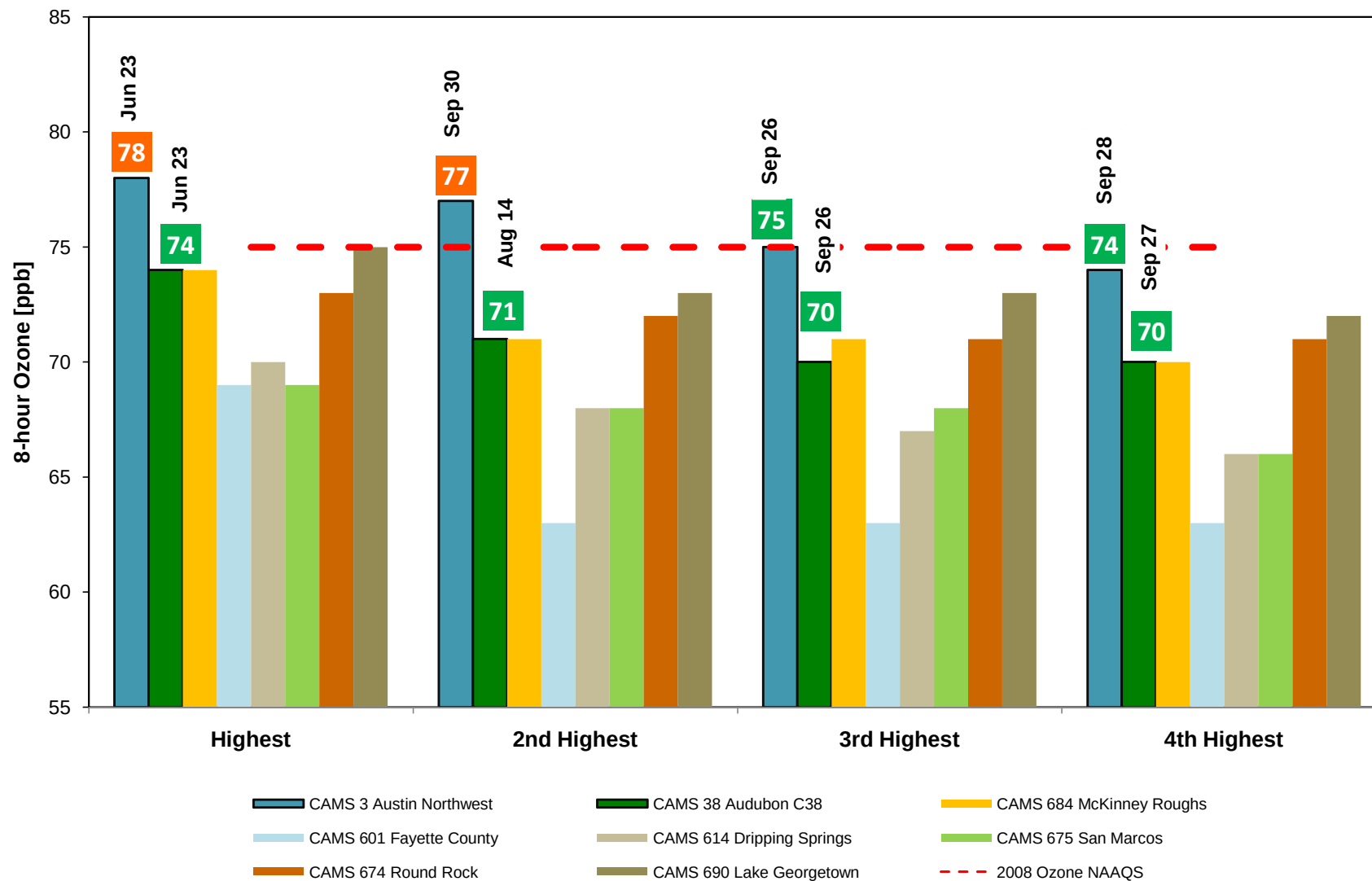


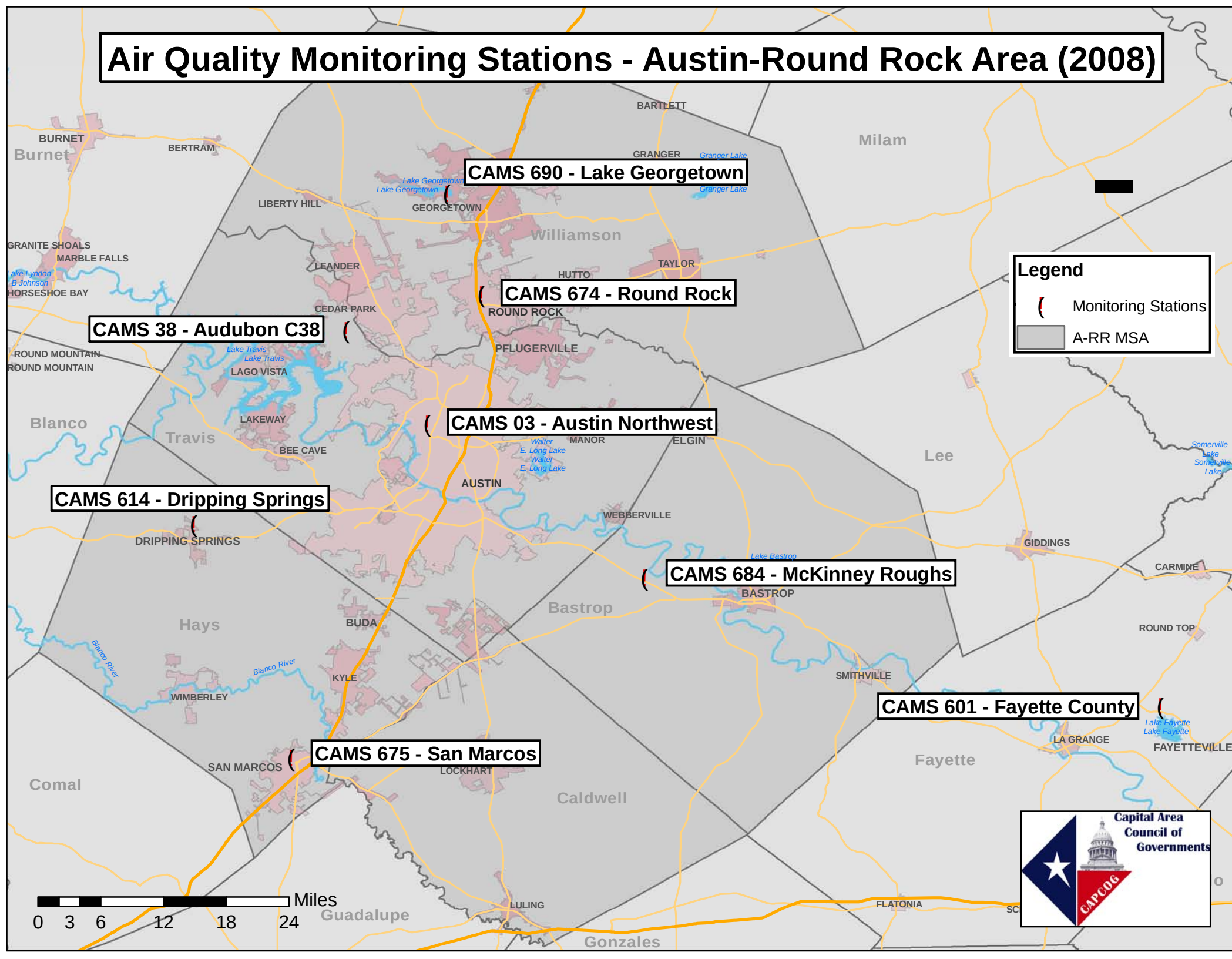
Figure 3: Map of Total Criteria Air Pollutant Emissions in Central Texas Counties



2008 Season Highest 8-hr Ozone Values Austin-Round Rock MSA



Air Quality Monitoring Stations - Austin-Round Rock Area (2008)



Bell County Profile

Compiled by
The County Information Project

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POPULATION (Census Bureau)	
County Population	«History»
Estimate 2007:	276,975
Estimate 2006:	265,694
Estimate 2005:	261,894
Estimate 2004:	255,658
Estimate 2003:	254,006
Estimate 2002:	248,080
Estimate 2001:	242,603
Census 2000:	237,974
Census 1990:	191,088
Census 1950:	73,824
Population of the County Seat (Belton)	
Census 2000:	14,623
Census 1990:	12,463
POPULATION ESTIMATES - 2007 (Census Bureau)	
Bell County:	276,975
Bartlett:	805
Belton:	17,330
Copperas Cove:	83
Harker Heights:	24,546
Holland:	1,129
Killeen:	112,434
Little River-Academy:	1,630
Morgan's Point Resort:	4,331

Nolanville:	2,743
Rogers:	1,134
Sal:	2,046
Temple:	58,330
Troy:	1,409
Balance of Bell County:	49,025
GENERAL INFORMATION	
County Size in Square Miles (Census Bureau and EPA)	
Land Area:	1,059
Water Area:	28
Total Area:	1,087
Population Density Per Square Mile	
2000:	224.7
DEMOGRAPHICS	
Ethnicity - 2007 (Census Bureau)	
Percent Hispanic:	19.0%
Race - 2007 (Census Bureau)	
Percent White Alone:	70.5%
Percent African American Alone:	21.6%
Percent American Indian and Alaska Native Alone:	1.0%
Percent Asian Alone:	3.0%
Percent Native Hawaiian and Other Pacific Islander Alone:	0.5%
Percent Multi-Racial:	3.5%
Age - 2007 (Census Bureau)	
17 and Under:	31.3%
65 and Older:	9.0%
85 and Older:	1.4%
Median Age:	30.5
Income	
Per Capita Income - 2005 (BEA):	\$33,222
Total Personal Income - 2005 (BEA):	\$8,826,958,000
Median Household Income - 2006 (Census Bureau):	\$41,386
Poverty - 2006 (Census Bureau)	
Percent of Population in Poverty:	13.5%
Percent of Population under 18 in Poverty:	19.0%

Wages (BEA)	
Average Wage Per Job - 2006:	\$39,568
Average Wage Per Job - 2005:	\$36,872
Average Wage Per Job - 2004:	\$33,929
Average Wage Per Job - 2003:	\$32,411
Average Wage Per Job - 2002:	\$30,680
Average Wage Per Job - 2001:	\$28,922
Average Wage Per Job - 2000:	\$27,423
Average Wage Per Job - 1990:	\$19,487
Annual Unemployment Rate, Not Adjusted (TWC)	
Unemployment Rate - 2007:	4.5%
Unemployment Rate - 2006:	5.0%
Unemployment Rate - 2005:	5.0%
Unemployment Rate - 2004:	5.3%
Unemployment Rate - 2003:	6.3%
Unemployment Rate - 2002:	5.9%
Unemployment Rate - 2001:	4.9%
Unemployment Rate - 2000:	4.2%
COUNTY FINANCES (Comptroller)	
Property Taxes - 2007	
Total County Tax Rate: « Historic Tax Rate » « Detailed Tax Rates »	\$0.409000
Total Market Value: « Values and Levies »	\$12,993,104,423
Total Appraised Value Available for County Taxation:	\$11,684,952,708
Total Actual Levy:	\$47,791,456
Sales Tax Allocation History	
CY 2007:	\$12,987,542.41
CY 2006:	\$12,053,003.70
CY 2005:	\$11,423,700.97
CY 2004:	\$10,194,003.06
CY 2003:	\$9,264,750.24
CY 2002:	\$9,076,887.53
CY 2001:	\$8,662,445.30
INFRASTRUCTURE EXPENDITURES (Comptroller)	
Road and Bridge - 2007	
County Roads, Construction:	\$0

County Roads, Maintenance:	\$0
County Roads, Rehabilitation:	\$0
County Bridges, Construction:	\$0
County Bridges, Maintenance:	\$0
County Bridges, Rehabilitation:	\$0
Right of Way Acquisition:	\$0
Utility Construction:	\$0
Other Road Expenditures:	\$8,981,751
Total Road and Bridge Expenditures:	\$8,981,751
COUNTY ROAD MILES (TXDOT)	
Centerline Miles - 2004	
Unpaved (Earth and All-weather):	365
Paved (bituminous surface, treated, less than 1):	548
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	0
Concrete:	0
Total Centerline Miles:	914
Lane Miles - 2004	
Unpaved (Earth and All-weather):	731
Paved (bituminous surface, treated, less than 1):	1,095
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	1
Concrete:	0
Total Lane Miles:	1,827

Hays County Profile

Compiled by
The County Information Project

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POPULATION (Census Bureau)	
County Population	«History»
Estimate 2007:	141,480
Estimate 2006:	133,151
Estimate 2005:	126,498
Estimate 2004:	120,378
Estimate 2003:	116,376
Estimate 2002:	111,928
Estimate 2001:	104,879
Census 2000:	97,589
Census 1990:	65,614
Census 1950:	17,840
Population of the County Seat (San Marcos)	
Census 2000:	34,733
Census 1990:	28,738
POPULATION ESTIMATES - 2007 (Census Bureau)	
Hays County:	141,480
Austin:	324
Bear Cr:	389
Buda:	5,595
Dripping Springs:	1,772
Hays:	250
Kyle:	23,905
Mountain City:	724

Niederwald:	396
San Marcos:	49,627
Uhland:	284
Wimberley:	2,808
Woodcreek:	1,565
Balance of Hays County:	53,841
GENERAL INFORMATION	
County Size in Square Miles (Census Bureau and EPA)	
Land Area:	678
Water Area:	2
Total Area:	680
Population Density Per Square Mile	
2000:	143.9
DEMOGRAPHICS	
Ethnicity - 2007 (Census Bureau)	
Percent Hispanic:	32.0%
Race - 2007 (Census Bureau)	
Percent White Alone:	92.3%
Percent African American Alone:	4.5%
Percent American Indian and Alaska Native Alone:	0.7%
Percent Asian Alone:	1.2%
Percent Native Hawaiian and Other Pacific Islander Alone:	0.1%
Percent Multi-Racial:	1.2%
Age - 2007 (Census Bureau)	
17 and Under:	24.2%
65 and Older:	7.5%
85 and Older:	0.9%
Median Age:	28.3
Income	
Per Capita Income - 2005 (BEA):	\$27,860
Total Personal Income - 2005 (BEA):	\$3,709,570,000
Median Household Income - 2006 (Census Bureau):	\$45,060
Poverty - 2006 (Census Bureau)	
Percent of Population in Poverty:	13.1%
Percent of Population under 18 in Poverty:	12.9%

Wages (BEA)	
Average Wage Per Job - 2006:	\$28,869
Average Wage Per Job - 2005:	\$27,666
Average Wage Per Job - 2004:	\$26,570
Average Wage Per Job - 2003:	\$25,848
Average Wage Per Job - 2002:	\$25,199
Average Wage Per Job - 2001:	\$24,763
Average Wage Per Job - 2000:	\$23,602
Average Wage Per Job - 1990:	\$15,971
Annual Unemployment Rate, Not Adjusted (TWC)	
Unemployment Rate - 2007:	3.7%
Unemployment Rate - 2006:	4.2%
Unemployment Rate - 2005:	4.5%
Unemployment Rate - 2004:	5.2%
Unemployment Rate - 2003:	5.8%
Unemployment Rate - 2002:	5.5%
Unemployment Rate - 2001:	3.9%
Unemployment Rate - 2000:	3.3%
COUNTY FINANCES (Comptroller)	
Property Taxes - 2007	
Total County Tax Rate: « Historic Tax Rate » « Detailed Tax Rates »	\$0.457400
Total Market Value: « Values and Levies »	\$11,289,521,793
Total Appraised Value Available for County Taxation:	\$9,170,618,766
Total Actual Levy:	\$41,895,968
Sales Tax Allocation History	
CY 2007:	\$9,308,223.29
CY 2006:	\$8,740,641.58
CY 2005:	\$7,253,606.26
CY 2004:	\$6,376,934.31
CY 2003:	\$5,876,899.53
CY 2002:	\$5,717,939.92
CY 2001:	\$5,961,882.99
INFRASTRUCTURE EXPENDITURES (Comptroller)	
Road and Bridge - 2007	
County Roads, Construction:	\$0

County Roads, Maintenance:	\$1,284,752
County Roads, Rehabilitation:	\$6,744,951
County Bridges, Construction:	\$0
County Bridges, Maintenance:	\$0
County Bridges, Rehabilitation:	\$0
Right of Way Acquisition:	\$74,739
Utility Construction:	\$0
Other Road Expenditures:	\$0
Total Road and Bridge Expenditures:	\$8,104,442
COUNTY ROAD MILES (TXDOT)	
Centerline Miles - 2004	
Unpaved (Earth and All-weather):	94
Paved (bituminous surface, treated, less than 1):	655
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	0
Concrete:	1
Total Centerline Miles:	750
Lane Miles - 2004	
Unpaved (Earth and All-weather):	188
Paved (bituminous surface, treated, less than 1):	1,309
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	0
Concrete:	2
Total Lane Miles:	1,499

[Special Districts](#) in Hays County.
[School Districts](#) in Hays County.
[History of City Tax Rates](#) in Hays County

Williamson County Profile

Compiled by
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POPULATION (Census Bureau)	
County Population	«History»
Estimate 2007:	373,363
Estimate 2006:	350,879
Estimate 2005:	332,159
Estimate 2004:	316,508
Estimate 2003:	302,716
Estimate 2002:	289,969
Estimate 2001:	276,661
Census 2000:	249,967
Census 1990:	139,551
Census 1950:	38,853
Population of the County Seat (Georgetown)	
Census 2000:	28,339
Census 1990:	14,842
POPULATION ESTIMATES - 2007 (Census Bureau)	
Williamson County:	373,363
Austin:	15,555
Bartlett:	913
Cedar Park:	56,724
Florence:	1,117
Georgetown:	46,867
Granger:	1,350
Hutto:	11,889
Jarrell:	1,425

Leander:	22,880
Liberty Hill:	1,511
Pflugerville:	23
Round Rock:	95,444
Taylor:	15,755
Thorndale:	1
Thrall:	875
Weir:	638
Balance of Williamson County:	100,396
GENERAL INFORMATION	
County Size in Square Miles (Census Bureau and EPA)	
Land Area:	1,124
Water Area:	12
Total Area:	1,136
Population Density Per Square Mile	
2000:	222.4
DEMOGRAPHICS	
Ethnicity - 2007 (Census Bureau)	
Percent Hispanic:	20.8%
Race - 2007 (Census Bureau)	
Percent White Alone:	87.3%
Percent African American Alone:	6.5%
Percent American Indian and Alaska Native Alone:	0.6%
Percent Asian Alone:	4.1%
Percent Native Hawaiian and Other Pacific Islander Alone:	0.1%
Percent Multi-Racial:	1.5%
Age - 2007 (Census Bureau)	
17 and Under:	28.6%
65 and Older:	8.5%
85 and Older:	1.1%
Median Age:	33.0
Income	
Per Capita Income - 2005 (BEA):	\$33,691
Total Personal Income - 2005 (BEA):	\$11,821,315,000
Median Household Income - 2006 (Census Bureau):	\$63,397

Poverty - 2006 (Census Bureau)	
Percent of Population in Poverty:	6.0%
Percent of Population under 18 in Poverty:	8.2%
Wages (BEA)	
Average Wage Per Job - 2006:	\$40,911
Average Wage Per Job - 2005:	\$40,782
Average Wage Per Job - 2004:	\$40,561
Average Wage Per Job - 2003:	\$39,083
Average Wage Per Job - 2002:	\$37,459
Average Wage Per Job - 2001:	\$44,871
Average Wage Per Job - 2000:	\$49,185
Average Wage Per Job - 1990:	\$16,985
Annual Unemployment Rate, Not Adjusted (TWC)	
Unemployment Rate - 2007:	3.7%
Unemployment Rate - 2006:	4.2%
Unemployment Rate - 2005:	4.6%
Unemployment Rate - 2004:	4.7%
Unemployment Rate - 2003:	5.7%
Unemployment Rate - 2002:	5.6%
Unemployment Rate - 2001:	4.1%
Unemployment Rate - 2000:	2.8%
COUNTY FINANCES (Comptroller)	
Property Taxes - 2007	
Total County Tax Rate: « Historic Tax Rate » « Detailed Tax Rates »	\$0.489100
Total Market Value: « Values and Levies »	\$33,664,763,647
Total Appraised Value Available for County Taxation:	\$29,359,274,210
Total Actual Levy:	\$143,642,020
Sales Tax Allocation History	
CY 2007:	N/A
CY 2006:	N/A
CY 2005:	N/A
CY 2004:	N/A
CY 2003:	N/A
CY 2002:	N/A
CY 2001:	N/A

INFRASTRUCTURE EXPENDITURES (Comptroller)	
Road and Bridge - 2007	
County Roads, Construction:	\$0
County Roads, Maintenance:	\$12,965,787
County Roads, Rehabilitation:	\$0
County Bridges, Construction:	\$0
County Bridges, Maintenance:	\$9,075
County Bridges, Rehabilitation:	\$0
Right of Way Acquisition:	\$131,532
Utility Construction:	\$0
Other Road Expenditures:	\$0
Total Road and Bridge Expenditures:	\$13,106,395
COUNTY ROAD MILES (TXDOT)	
Centerline Miles - 2004	
Unpaved (Earth and All-weather):	122
Paved (bituminous surface, treated, less than 1):	1,345
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	0
Concrete:	0
Total Centerline Miles:	1,467
Lane Miles - 2004	
Unpaved (Earth and All-weather):	244
Paved (bituminous surface, treated, less than 1):	2,693
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	0
Concrete:	0
Total Lane Miles:	2,938

[Special Districts](#) in Williamson County.
[School Districts](#) in Williamson County.
[History of City Tax Rates](#) in Williamson County.

**Exhibit L: Capitol Area Metropolitan Planning Organization Commuting
Data for Central Texas**

Number of workers commuting from "live in" to "work in" county

	Work In						
Live In	Bastrop	Caldwell	Hays	Travis	Williamson	Outside CAMPO	Live In Total
Bastrop	6,350	131	385	11,648	972	9,805	29,291
Caldwell	210	2,476	1,832	4,878	408	6,344	16,148
Hays	-	262	16,973	19,014	968	25,394	62,611
Travis	1,259	332	6,050	329,709	21,067	58,584	417,001
Williamson	493	100	1,148	90,001	44,321	28,669	164,732
Outside CAMPO area	1,464	1,049	10,662	83,869	11,026	-	108,070
Work In Total	9,776	4,350	37,050	539,119	78,762	128,796	797,853

Workers as a percentage of the "live in" county total

	Work In						
Live In	Bastrop	Caldwell	Hays	Travis	Williamson	Outside CAMPO	Live In Total
Bastrop	21.68%	0.45%	1.31%	39.77%	3.32%	33.47%	100.00%
Caldwell	1.30%	15.33%	11.35%	30.21%	2.53%	39.29%	100.00%
Hays	0.00%	0.42%	27.11%	30.37%	1.55%	40.56%	100.00%
Travis	0.30%	0.08%	1.45%	79.07%	5.05%	14.05%	100.00%
Williamson	0.30%	0.06%	0.70%	54.63%	26.90%	17.40%	100.00%
Outside CAMPO area	1.35%	0.97%	9.87%	77.61%	10.20%	0.00%	100.00%
Work In Total	1.23%	0.55%	4.64%	67.57%	9.87%	16.14%	100.00%

Workers as a percentage of the MSA total

	Work In						
Live In	Bastrop	Caldwell	Hays	Travis	Williamson	Outside CAMPO	Live In Total
Bastrop	0.80%	0.02%	0.05%	1.46%	0.12%	1.23%	3.67%
Caldwell	0.03%	0.31%	0.23%	0.61%	0.05%	0.80%	2.02%
Hays	0.00%	0.03%	2.13%	2.38%	0.12%	3.18%	7.85%
Travis	0.16%	0.04%	0.76%	41.32%	2.64%	7.34%	52.27%
Williamson	0.06%	0.01%	0.14%	11.28%	5.56%	3.59%	20.65%
Outside CAMPO area	0.18%	0.13%	1.34%	10.51%	1.38%	0.00%	13.55%
Work In Total	1.23%	0.55%	4.64%	67.57%	9.87%	16.14%	100.00%



Federal Register

**Wednesday,
December 27, 2000**

Part IX

**Office of
Management and
Budget**

**Standards for Defining Metropolitan and
Micropolitan Statistical Areas; Notice**

OFFICE OF MANAGEMENT AND BUDGET

Standards for Defining Metropolitan and Micropolitan Statistical Areas

AGENCY: Executive Office of the President, Office of Management and Budget (OMB), Office of Information and Regulatory Affairs.

ACTION: Notice of decision.

SUMMARY: This Notice announces OMB's adoption of Standards for Defining Metropolitan and Micropolitan Statistical Areas. These new standards replace and supersede the 1990 standards for defining Metropolitan Areas. In arriving at its decision, OMB accepted many of the recommendations of the interagency Metropolitan Area Standards Review Committee (the Review Committee) as published in the August 22, 2000 **Federal Register**. In response to public comment, and with the further advice of the Review Committee, OMB modified the recommended criteria for titling Combined Statistical Areas, identifying Principal Cities, and determining Metropolitan Divisions. The new standards appear at the end of this Notice in Section D.

The Supplementary Information in this Notice provides background information on the standards (Section A), a brief synopsis of the public comments OMB received in response to the August 22, 2000 **Federal Register** notice (Section B), and OMB's decisions on the final recommendations of the Review Committee (Section C).

The adoption of these new standards will not affect the availability of Federal data for geographic areas such as states, counties, county subdivisions, and municipalities. For the near term, the Census Bureau will tabulate and publish data from Census 2000 for all Metropolitan Areas in existence at the time of the census (that is, those areas defined as of April 1, 2000).

EFFECTIVE DATE: This Notice is effective immediately. OMB plans to announce definitions of areas based on the new standards and Census 2000 data in 2003. Federal agencies should begin to use the new area definitions to tabulate and publish statistics when the definitions are announced.

ADDRESSES: Please send correspondence about OMB's decision to Katherine K. Wallman, Chief Statistician, Office of Information and Regulatory Affairs, Office of Management and Budget, Room 10201 New Executive Office Building, 725 17th Street, NW., Washington, DC 20503; fax: (202) 395-7245.

Electronic Availability and Addresses: This **Federal Register** notice, and the three previous notices related to the review of the Metropolitan Area standards, are available electronically from the OMB web site: <http://www.whitehouse.gov/OMB/fedreg/index.html> and from the Census Bureau web site: <http://www.census.gov/population/www/estimates/masrp.html>. **Federal Register** notices also are available electronically from the U.S. Government Printing Office web site: http://www.access.gpo.gov/su_docs/aces/aces140.html.

FOR FURTHER INFORMATION CONTACT: Suzann Evinger, Office of Information and Regulatory Affairs, Office of Management and Budget, (202) 395-7315; or E-mail: pop.frquestion@census.gov.

SUPPLEMENTARY INFORMATION:

A. Background

The Metropolitan Area program has provided standard statistical area definitions for 50 years. In the 1940s, it became clear that the value of metropolitan data produced by Federal agencies would be greatly enhanced if agencies used a single set of geographic definitions for the Nation's largest centers of population and activity. Prior to that time, Federal agencies defined a variety of statistical geographic areas at the metropolitan level (including "metropolitan districts," "industrial areas," "labor market areas," and "metropolitan counties") using different criteria applied to different geographic units. Because of variations in methodologies and the resulting inconsistencies in area definitions, one agency's statistics were not directly comparable with another agency's statistics for any given area. OMB's predecessor, the Bureau of the Budget, led the effort to develop what were then called "Standard Metropolitan Areas" in time for their use in the 1950 census reports. Since then, comparable data products for Metropolitan Areas have been available. Because of the usefulness of the Metropolitan Area standards and data products, many have asked that the standards take into account more territory of the United States. Extending the standard to include the identification of Metropolitan Statistical Areas responds to those requests.

1. Concept and Uses

The general concept of a Metropolitan Statistical Area or a Micropolitan Statistical Area is that of an area containing a recognized population nucleus and adjacent communities that

have a high degree of integration with that nucleus. The purpose of the Standards for Defining Metropolitan and Micropolitan Statistical Areas is to provide nationally consistent definitions for collecting, tabulating, and publishing Federal statistics for a set of geographic areas. To this end, the Metropolitan Area concept has been successful as a statistical representation of the social and economic linkages between urban cores and outlying, integrated areas. This success is evident in the continued use and application of Metropolitan Area definitions across broad areas of data collection, presentation, and analysis. This success also is evident in the use of statistics for Metropolitan Areas to inform the debate and development of public policies and in the use of Metropolitan Area definitions to implement and administer a variety of nonstatistical Federal programs. These last uses, however, raise concerns about the distinction between appropriate uses—collecting, tabulating, and publishing statistics as well as informing policy—and inappropriate uses—implementing nonstatistical programs and determining program eligibility. OMB establishes and maintains these areas solely for statistical purposes.

In order to preserve the integrity of its decision making with respect to reviewing and revising the standards for designating areas, OMB believes that it should not attempt to take into account or anticipate any public or private sector nonstatistical uses that may be made of the definitions. It cautions that Metropolitan Statistical Area and Micropolitan Statistical Area definitions should not be used to develop and implement Federal, state, and local nonstatistical programs and policies without full consideration of the effects of using these definitions for such purposes.

Metropolitan and Micropolitan Statistical Areas—collectively called Core Based Statistical Areas (CBSAs)—should not serve as a general purpose geographic framework for nonstatistical activities and may or may not be suitable for use in program funding formulas. The Metropolitan and Micropolitan Statistical Area Standards do not equate to an urban-rural classification; all counties included in Metropolitan and Micropolitan Statistical Areas and many other counties contain both urban and rural territory and populations. Programs that base funding levels or eligibility on whether a county is included in a Metropolitan or Micropolitan Statistical Area may not accurately address issues or problems faced by local populations,

organizations, institutions, or governmental units. For instance, programs that seek to strengthen rural economies by focusing solely on counties located outside Metropolitan Statistical Areas could ignore a predominantly rural county that is included in a Metropolitan Statistical Area because a high percentage of the county's residents commute to urban centers for work. Although the inclusion of such a county in a Metropolitan Statistical Area indicates the existence of economic ties, as measured by commuting, with the central counties of that Metropolitan Statistical Area, it may also indicate a need to provide programs that would strengthen the county's rural economy so that workers are not compelled to leave the county in search of jobs.

Program designs that treat all parts of a CBSA as if they were as urban as the densely settled core ignore the rural conditions that may exist in some parts of the area. Under such programs, schools, hospitals, businesses, and communities that are separated from the urban core by large distances or difficult terrain may experience the same kinds of challenges as their counterparts in rural portions of counties that are outside CBSAs. Although some programs do permit large Metropolitan Area counties to be split into "urban" and "rural" portions, smaller Metropolitan Area counties also can contain isolated rural communities.

Geographic information systems technology has progressed significantly over the past 10 years, making it practical for government agencies and organizations to assess needs and implement appropriate programs at a local geographic scale when appropriate. OMB urges agencies, organizations, and policy makers to review carefully the goals of nonstatistical programs and policies to ensure that appropriate geographic entities are used to determine eligibility for and the allocation of Federal funds.

2. Evolution and Review of the Metropolitan Area Standards

From the beginning of the Metropolitan Area program, OMB has reviewed the Metropolitan Area standards and, if warranted, revised them in the years preceding their application to new decennial census data. Periodic review of the standards is necessary to ensure their continued usefulness and relevance. Our current review of the Metropolitan Area standards—the Metropolitan Area Standards Review Project—has been the fifth such review. It has addressed, as a first priority, user concerns with the

conceptual and operational complexity of the standards as they have evolved over the decades. Our three previous **Federal Register** notices have discussed this and other key concerns, as well as major milestones of the review.

In the fall of 1998, OMB chartered the Metropolitan Area Standards Review Committee (the Review Committee). We charged it with examining the 1990 Metropolitan Area standards in view of work completed earlier in the decade and providing recommendations for possible changes to those standards. The Review Committee included representatives from the Bureau of the Census (Chair), Bureau of Economic Analysis, Bureau of Labor Statistics, Bureau of Transportation Statistics, Economic Research Service (Agriculture), National Center for Health Statistics, and, *ex officio*, OMB. The Census Bureau provided research support to the Review Committee.

This is the fourth and final Notice pertaining to the Metropolitan Area Standards Review Project. OMB presented four alternative approaches to defining statistical areas in a December 21, 1998 **Federal Register** notice, "Alternative Approaches to Defining Metropolitan and Nonmetropolitan Areas" (63 FR 70526–70561). That Notice also included a discussion of the evolution of the standards for defining Metropolitan Areas as well as the standards that were used to define Metropolitan Areas during the 1990s.

OMB presented the Review Committee's initial recommendations in an October 20, 1999 **Federal Register** notice entitled, "Recommendations From the Metropolitan Area Standards Review Committee to the Office of Management and Budget Concerning Changes to the Standards for Defining Metropolitan Areas" (64 FR 56628–56644). OMB then published the Review Committee's final report and recommendations for revised standards in an August 22, 2000 **Federal Register** notice entitled "Final Report and Recommendations From the Metropolitan Area Standards Review Committee to the Office of Management and Budget Concerning Changes to the Standards for Defining Metropolitan Areas" (65 FR 51060–51077). The final recommendations presented in that Notice reflected some of the concerns raised in comments in response to the Review Committee's initial recommendations.

3. Future Directions

a. Statistical Area Research Projects

Our review of the Metropolitan Area standards over the past 10 years has

raised a number of issues and suggested alternative approaches that warrant continued research and consideration. Ongoing research projects will improve understanding of the Nation's patterns of settlement and activity and how best to portray them. For example, Census Bureau staff are investigating the feasibility of developing a census tract level classification to identify settlement and land use categories along an urban-rural continuum. The Economic Research Service, in conjunction with the Office of Rural Health Policy in the Department of Health and Human Services and the University of Washington, has developed a nationwide census tract level rural-urban commuting area classification. This classification is available from the Economic Research Service web site: <http://www.ers.usda.gov:80/briefing/rural/ruca/rucc.htm>. These research efforts may lead to pilot projects at the Census Bureau or other agencies in the future.

b. Review of the Relationship Between Statistical Geographic Classifications and Other Federal Programs

The review of the Metropolitan Area standards also prompted comments about the use of Metropolitan and Micropolitan Statistical Area definitions in the design and administration of nonstatistical Federal programs and funding formulas. Although this relationship was not a criterion in reviewing the standards, the Review Committee and OMB recognize the existence and importance of this relationship. Comments received throughout the review indicated a need to distinguish more clearly between using Metropolitan and Micropolitan Statistical Areas to collect, tabulate, and publish statistics that measure economic and social conditions to inform public policy, and the use of the area definitions as a framework to determine eligibility or allocate funds for nonstatistical programs. Further, the Review Committee and OMB, as well as many commenters, recognize the need to begin a collaborative, interagency process that could result in the development of geographic area definitions that are appropriate for the administration of nonstatistical programs. Such a process could result in the identification of existing geographic area definitions and modifications to them that are already in use by agencies (for instance, there are at least six definitions of "urban" or "urban place" currently in use by Federal agencies), and in the development of guidelines that explain appropriate use of specific area definitions in various

circumstances. A longer-term goal of such an effort could be the development of one or more geographic area classifications designed specifically for use in the administration of nonstatistical Federal programs or of guidance for agencies that need to define geographic areas appropriate for use with specific programs.

B. Summary of Comments Received in Response to the August 22, 2000 Federal Register Notice

The August 22, 2000 **Federal Register** notice requested comment on the Review Committee's final recommendations to OMB concerning revisions to the standards for defining Metropolitan Areas.

OMB received 1,672 comment letters from individuals (1,483), municipalities and counties (88), regional planning and nongovernmental organizations (62), Members of Congress (25), state governments (13), and Federal agencies (1). Of the 1,672 letters, 1,314 offered comments regarding the Fort Worth, Texas area; all of these letters dealt with the identification of Metropolitan Divisions within the Dallas-Fort Worth-Arlington area and with the criteria for titling Combined Areas. OMB also heard concerns about the identification of Metropolitan Divisions and Combined Area titles from 141 other commenters from around the country.

Thirty-two commenters expressed concern about the potential effects of the proposed changes to the Metropolitan Area standards on nonstatistical Federal programs. Eight commenters were concerned about the effect on programs oriented toward rural areas, particularly if Micropolitan Areas were not treated as "rural" for purposes of Federal programs. Nine commenters expressed concern about the impact of the recommended standards on health-related programs. Several commenters suggested that OMB undertake research on the programmatic impact of the recommended standards. Others suggested that OMB state more strongly that it does not define Metropolitan and Micropolitan Areas for use in administering and determining participation in Federal nonstatistical programs.

Eight commenters addressed the Review Committee's recommendations about the qualification requirements for areas and central counties. Three commenters supported the Review Committee's recommendation that areas should qualify for CBSA status if a core of sufficient size—a Census Bureau defined urban cluster of at least 10,000 population or an urbanized area of at least 50,000 population—was present.

Three commenters questioned the way in which the recommended standards would use urban clusters and urbanized areas as cores to qualify central counties, in particular when a core crosses county lines but the portion of the core in one county is not sufficient to qualify that county as central.

OMB received six comments about terminology in the proposed standards. Three commenters expressed support for the Review Committee's recommendation to retain the term "metropolitan" in reference to areas containing at least one core of 50,000 or more population. These commenters also expressed support for the use of the term "micropolitan" in reference to areas containing cores of at least 10,000 and less than 50,000 population. Several commenters expressed concern that the term "Core Based Statistical Area" would not be popular among users; only one commenter, however, supported dropping the term. One commenter favored using the terms "megapolitan" and "macropolitan" to distinguish between areas containing cores of at least one million and 50,000 population, respectively, as discussed in the October 20, 1999 **Federal Register** notice.

Twenty-six commenters remarked on the Review Committee's recommendations for identifying categories of CBSAs. Five commenters expressed support for the identification of two categories of CBSAs—metropolitan and micropolitan. Three commenters opposed identification of Micropolitan Areas because of the potential, but as yet unknown, impact such areas might have on the allocation of funds to Metropolitan Areas. One commenter expressed a similar concern without opposing the identification of Micropolitan Areas. Seven commenters favored the qualification of any county containing 100,000 or more population as a Metropolitan Area. Two commenters suggested that Combined Areas should be treated as CBSAs and that their component entities should be treated as Metropolitan Divisions.

Twelve commenters remarked on the Review Committee's recommendation to use the county as the geographic building block for CBSAs. Four commenters expressed support for the continued use of counties as building blocks. Three commenters expressed support for the use of minor civil divisions as building blocks for a primary set of statistical areas in New England. Five commenters expressed concern about the use of counties as building blocks, noting that some geographically large counties may contain populations that are not integrated with the CBSA to which the

county qualifies. Several of these comments referred specifically to Douglas County, NV, which has commuting ties with the South Lake Tahoe area in the eastern end of El Dorado County, CA. Populations in the western end of El Dorado County, however, are more closely aligned with the Sacramento, CA area. When the recommended standards were applied to 1990 census data as a demonstration of the standards, the South Lake Tahoe area (El Dorado County, CA and Douglas County, NV) qualified to merge with the Sacramento area.

Forty-three commenters responded regarding the recommended criteria for qualifying outlying counties. Nearly all commenters supported the use of commuting data in determining the qualification of outlying counties. Thirteen of the commenters suggested that other measures should be used in addition to commuting. Six of these commenters suggested including a county in a Metropolitan Area if it is part of that area's metropolitan planning organization for transportation planning purposes. One commenter noted that commuting to work is a less relevant measure of interaction in areas that have high percentages of retirees. Three commenters suggested that commuting is too simplistic and is an insufficient measure of all social and economic interactions between areas. One commenter took issue with the specific wording of the decennial census questionnaire's place of work question, which was the basis of commuting data used to define Metropolitan and Micropolitan Areas under the standards recommended by the Review Committee. Nineteen commenters specifically responded regarding the commuting threshold used in qualifying outlying counties. Three commenters supported a 25 percent commuting threshold for outlying county qualification, as the Review Committee recommended; one commenter suggested reducing the threshold to less than 25 percent, and another specifically proposed a 20 percent threshold. Eleven commenters favored a 15 percent commuting threshold for outlying county qualification; these commenters generally drew attention to a particular county that did not qualify at the 25 percent level. Three commenters expressed general support for the Review Committee's recommendations but did not mention a specific commuting threshold.

OMB received 157 comments about the recommendations for merging and combining adjacent CBSAs. Nearly all commenters supported the recommendation to merge or combine

adjacent CBSAs when social and economic interaction between adjacent areas is evident. Two commenters suggested eliminating the identification of Combined Areas, arguing that the optional combination recommended by the Review Committee results in an inconsistent application of the Metropolitan and Micropolitan Area standards. Three commenters expressed concern that the criteria for combining adjacent CBSAs were too simplistic and by only measuring interactions between pairs of CBSAs did not account for more complex ties within large regions. One commenter suggested that OMB clarify the relationship between areas defined using the recommended standards (CBSAs, Combined Areas, and Metropolitan Divisions) and areas defined using the 1990 Metropolitan Area standards (Metropolitan Statistical Areas, Consolidated Metropolitan Statistical Areas, and Primary Metropolitan Statistical Areas). Two commenters suggested that Combined Areas should be treated as official Metropolitan or Micropolitan Areas. Eighty-nine commenters supported merging the Brownsville and McAllen areas to form a single Metropolitan Area, although these areas lacked sufficient commuting interchange to merge when the recommended standards were applied with 1990 census data. Twelve commenters expressed opposition to the potential combination of the Sarasota-Bradenton and Port Charlotte areas in Florida (which, according to the Review Committee's recommended standards applied to 1990 data, would combine only if local opinion in both areas favored doing so). Several of these commenters also noted that ties between the Port Charlotte area and the northern (Bradenton) portion of the Sarasota-Bradenton area were minimal. Eighteen commenters responded regarding the delineation of Combined Areas in North Carolina for Raleigh and Durham as well as for Greensboro-High Point, Burlington, and Eden-Redsville. Of these, one commenter supported the Review Committee's recommendations based on the results of applying the recommended standards with 1990 census data; however, 17 expressed a preference to eliminate the five individual CBSAs that combine and instead recognize only the resultant combined entities.

Forty-seven commenters responded about the recommendations for identification of Principal Cities and the use of those cities in titling Metropolitan and Micropolitan Areas. Eighteen commenters expressed concern

about the identification of census designated places as Principal Cities and the use of those places in titling Metropolitan and Micropolitan Areas. Seventeen of these commenters responded regarding the identification of specific census designated places as Principal Cities and the titling of their respective Metropolitan Areas. Eight commenters responded regarding aspects of the Principal City criteria that prevented some locally important cities from qualifying as Principal Cities and being included in their respective areas' titles. These commenters were concerned primarily with the requirement that Principal Cities with less than 250,000 population have a population at least one-third that of the largest place. One commenter suggested modifying the Principal City criteria to designate a larger number of places; this commenter also noted that doing so would reduce the need to use county names in the titles of Metropolitan Divisions. Eleven commenters responded regarding the titles of specific CBSAs in North Carolina; their comments on CBSA titles were related to their comments about the recommendations for merging and combining adjacent CBSAs. One commenter suggested that all cities of 500,000 or more population should be included in area titles.

OMB received 1,352 comments regarding the Review Committee's recommended criteria for identifying Metropolitan Divisions. Of these, 1,332 commenters expressed opposition to the Review Committee's recommendation, suggesting that the criteria were too strict and did not adequately identify all counties that could be considered "main counties." Most of these commenters expressed support for recognizing a specific county or set of counties as a Metropolitan Division within a larger Metropolitan Area; however, some did note that the maximum outcommuting threshold was too low and should be either raised or eliminated. Five commenters supported the Review Committee's recommendation. Three commenters from New Jersey opposed the recommendation, noting that, in their opinion, it resulted in too many Metropolitan Divisions in that state. These commenters suggested lowering the outcommuting threshold so as to reduce the number of counties that qualified as main counties. Two commenters suggested that the boundaries of current Primary Metropolitan Statistical Areas (PMSAs) should be maintained as Metropolitan Division boundaries or the criteria for defining Metropolitan Divisions should

result in areas that are consistent with current PMSA boundaries. Four commenters expressed a desire for smaller groupings of counties than those represented by the Metropolitan Divisions that resulted from the application of the recommended standards with 1990 census data. One commenter expressed opposition to the identification of Metropolitan Divisions when doing so would split the component urban core between two or more divisions. In effect, the commenter opposed the Review Committee's recommendation to identify Metropolitan Divisions, since the reason for doing so was to recognize the complexity of social and economic interactions within large Metropolitan Areas that contain individual urban cores that extend across multiple counties.

OMB received 1,394 comments about the Review Committee's recommended criteria for titling Combined Areas. Most of these comments pertained to the recommendation to include in the title the name of the largest Principal City from each of up to three CBSAs that combine. These commenters generally expressed support for titling Combined Areas using the largest Principal Cities within the combination regardless of their CBSA locations. Some commenters expressed concern about the Review Committee's recommendation that the Combined Area title include an additional place name only if the CBSA in which that place is located has a population at least one-third the size of the largest CBSA in the combination. Regardless of the specific circumstances, nearly all commenters noted that a result of the Review Committee's recommendation was to exclude some socially and economically prominent Principal Cities from the titles of their Combined Areas.

Seven commenters responded regarding the Review Committee's recommendations for defining New England City and Town Areas (NECTAs), NECTA Divisions, and NECTA Combined Areas. All seven commenters supported the identification of areas in New England that used cities and towns as building blocks. Three commenters specifically supported the Review Committee's recommendations regarding the identification of NECTAs. Two commenters suggested that cities and towns should be the building blocks for a primary set of areas in New England and that counties should be used to define an alternative set of areas. One commenter expressed support for the designation of NECTAs as either metropolitan or micropolitan. Two

commenters suggested that NECTAs should be defined using criteria that are different from criteria used to define CBSAs in the rest of the country; one of these commenters suggested that other measures should be used in addition to commuting to determine the extent of areas in New England.

OMB has taken all of these comments into account, giving them careful consideration. As outlined below, we have adopted some of the suggested changes and modified criteria recommended by the Review Committee in August 2000. In a number of other cases, however, we have concluded that we could not adopt the suggestions made by commenters without undermining efforts to achieve a consistent, national approach designed to enhance the value of data produced by Federal agencies.

C. OMB's Decisions Regarding Recommendations From the Metropolitan Area Standards Review Committee Concerning Changes to the Standards for Defining Metropolitan Areas

This section of the Notice provides information on the decisions OMB has made on the Review Committee's recommendations. In arriving at these decisions, we took into account not only the public comment on the Review Committee's recommendations published in the **Federal Register** on August 22, 2000, but also the considerable amount of information provided during the 10 years of this review process, including public comments gathered from two conferences, a Congressional hearing, discussions attendant to numerous presentations to interested groups, and responses to two earlier OMB Notices (on December 21, 1998, and October 20, 1999). Our decisions benefitted greatly from the public participation that served as a reminder that, although identified for purposes of collecting, tabulating, and publishing Federal statistics, the Metropolitan and Micropolitan Statistical Areas defined through these standards represent areas in which people reside, work, and spend their lives and to which they attach a considerable amount of pride. Finally, in reaching our decisions, OMB benefitted substantially from the continuing deliberations of the Review Committee in response to the public comment as well as the research support provided by Census Bureau staff. We have relied upon and very much appreciate the expertise, insight, and dedication of Review Committee members and Census Bureau staff.

OMB presents below our decisions on the Review Committee's specific recommendations:

1. OMB accepted the Review Committee's recommendation to define Metropolitan Areas and Micropolitan Areas within a Core Based Statistical Area (CBSA) classification, but modified the title of the standards and the names of the categories to include the word "statistical," as indicated in Section 6 of the standards.

We considered two primary issues regarding the basis for categorizing CBSAs as either Metropolitan Statistical Areas or Micropolitan Statistical Areas. The first issue was whether to base categorization on the total CBSA population or on core population. OMB agrees with the Review Committee that since cores are the organizing entities of CBSAs, categorization should be based on the population in cores, reasoning that the range of services and functions provided within an area largely derive from the size of the core.

The second issue was whether to categorize areas based on the population of the most populous (or "dominant") core or on the total population of all (or "multiple") cores within a CBSA. OMB agrees with the Review Committee's recommendation that a single core of 50,000 or more population provides a wider variety of functions and services than does a group of smaller cores, even when such a group may have a collective population greater than 50,000. OMB was concerned that CBSAs categorized as Metropolitan Statistical Areas on the basis of the population in all cores would not bear the same kinds of characteristics as CBSAs categorized as Metropolitan Statistical Areas on the basis of a single core of 50,000 or more population. This decision also retains the current conceptual approach to defining Metropolitan Areas as based around concentrations of 50,000 or more population. The retention of this concept and the 50,000 population threshold will facilitate comparison of data for Metropolitan Statistical Areas over time.

OMB inserted the word "statistical" into the terms for categories of CBSAs and the title of the standards to make clearer the statistical purpose of these areas.

2. OMB accepted the Review Committee's recommendation to use counties and equivalent entities as the geographic building blocks for defining CBSAs throughout the United States and Puerto Rico, and to use cities and towns as the geographic building blocks for defining New England City and Town Areas (NECTAs).

Using counties and equivalent entities throughout the United States and Puerto Rico continues current practice, except in New England, where historically Metropolitan Areas have been defined using minor civil divisions. The choice of a geographic unit to serve as the building block can affect the geographic extent of a statistical area and its relevance or usefulness in describing economic and demographic patterns. The choice also has implications for the ability of Federal agencies to provide data for statistical areas and their components.

We believe it advantageous to use counties and their equivalents because they are available nationwide, have stable boundaries, and are familiar geographic entities. In addition, more Federal statistical programs produce data at the county level than at any subcounty level. OMB agrees with the Review Committee that the well-known disadvantages of using counties as building blocks for statistical areas—the large geographic size of some counties and resultant lack of geographic precision that follows from their use—are outweighed by the advantages offered by using counties.

We have reached our decision to use the county as the building block for CBSAs in New England, because we attach priority to the use of a consistent geographic unit nationwide. Use of a consistent geographic building block offers improved usability to producers and users of data; data for CBSAs in all parts of the country would be directly comparable. Some statistical programs, such as those providing nationwide economic data and population estimates, also have regarded the Metropolitan Area program's use of minor civil divisions in New England as a hindrance. They have sometimes used the currently available alternative county based areas for New England, known as the New England County Metropolitan Areas, or have minimized the number of data releases for Metropolitan Areas. Under the current Metropolitan Area program, data producers and users typically choose between (1) adhering to the preferred Metropolitan Statistical Areas, Consolidated Metropolitan Statistical Areas, and Primary Metropolitan Statistical Areas throughout the country and having data that limit comparisons between some areas, and (2) using alternative areas in New England and having more comparable data. OMB's decision eliminates the need for this choice.

Demographic and economic data for minor civil divisions in New England are more plentiful than similar data for

subcounty entities in the rest of the Nation. In recognition of the importance of minor civil divisions in New England, the wide availability of data for them, and their long-term use in the Metropolitan Area program, OMB also will use the minor civil division as the building block for a set of areas for the six New England states. These NECTAs are intended for use in the collection, tabulation, publication, and analysis of statistical data, whenever feasible and appropriate, for New England. Data providers and users desiring areas defined using a nationally consistent geographic building block should use the county based CBSAs in New England; however, counties are less well-known in New England than cities and towns.

3. OMB accepted the Review Committee's recommendation to use Census Bureau defined urbanized areas of 50,000 or more population and Census Bureau defined urban clusters of 10,000—49,999 population as the cores of CBSAs and to use the locations of these cores as the basis for identifying central counties of CBSAs. OMB also accepted the Review Committee's recommendation to identify central counties as those counties that (a) have at least 50 percent of their population in urban areas (urbanized areas or urban clusters) of at least 10,000 population or (b) have within their boundaries a population of at least 5,000 located in a single urban area (urbanized area or urban cluster) of at least 10,000 population.

In accepting the Review Committee's recommendation to use Census Bureau defined urbanized areas and urban clusters as the cores of Metropolitan Statistical Areas and Micropolitan Statistical Areas, OMB recognizes that urbanized areas and urban clusters are the organizing entities of CBSAs. The use of urbanized areas as cores is consistent with current practice. To extend the classification to areas based on cores of 10,000 to 49,999 population, OMB will use urban clusters as cores for Micropolitan Statistical Areas. Urban clusters will be identified by the Census Bureau following Census 2000 and will be conceptually similar to urbanized areas.

OMB agreed with the Review Committee that the location of these cores should be used to identify the central county or counties of each CBSA. The identification of central counties facilitates the use of county-to-county commuting data when determining whether additional counties qualify for inclusion in the CBSA.

4. OMB accepted the Review Committee's recommendation to use data on journey to work, or commuting, as the basis for grouping counties together to form CBSAs (i.e., to qualify "outlying counties"). OMB accepted the Review Committee's recommendation to qualify a county as an outlying county if (a) at least 25 percent of the employed residents of the county work in the CBSA's central county or counties, or (b) at least 25 percent of the jobs in the potential outlying county are accounted for by workers who reside in the CBSA's central county or counties. OMB also accepted the Review Committee's recommendation not to use measures of settlement structure, such as population density, to qualify outlying counties for inclusion in CBSAs.

Three priorities guided OMB in reaching this decision. We believe the data used to measure connections among counties should describe those connections in a straightforward and intuitive manner, be collected using consistent procedures nationwide, and be readily available to the public. These priorities steered us to the use of data gathered by Federal agencies and, more particularly, to commuting data from the Census Bureau. Commuting to work is an easily understood measure that reflects the social and economic integration of geographic areas. OMB agrees with the Review Committee that changes in settlement, commuting patterns, and communications technologies have made settlement structure unreliable as an indicator of metropolitan character. We agree that the percentage of a county's employed residents who commute to the central county or counties is an unambiguous, clear measure of whether a potential outlying county should qualify for inclusion. The percentage of employment in the potential outlying county accounted for by workers who reside in the central county or counties is similarly a straightforward measure of ties. Including both criteria addresses the conventional and the less common reverse commuting flows.

There have been changes in daily mobility patterns and increased interaction between communities as indicated by increases in inter-county commuting over the past 40 years. The percentage of workers in the United States who commute to places of work outside their counties of residence has increased from approximately 15 percent in 1960 (when nationwide commuting data first became available from the decennial census) to nearly 25 percent in 1990. OMB agrees with the Review Committee that raising the commuting percentage required for

qualification of outlying counties from the 15 percent minimum of the 1990 standards to 25 percent is appropriate against this background of increased overall inter-county commuting coupled with the removal of all settlement structure requirements from the outlying county criteria. In other words, since out-of-county commuting has become more commonplace, a higher percentage of commuting is necessary to demonstrate ties comparable to those indicated by a lower commuting rate in 1960. Further, both the Review Committee and OMB considered the "multiplier effect" (a standard method used in economic analysis to determine the impact of new jobs on a local economy) that each commuter would have on the economy of the county in which he or she lives. The size of the multiplier effect varies depending on the size of a region's economy and employment base, but a multiplier of two or three generally is accepted by regional economists, regional scientists, and economic development analysts for most areas. Applying such a measure in the case of a county with the minimum 25 percent commuting requirement means that the incomes of at least half of the workers residing in the outlying county are connected either directly (through commuting to jobs located in the central county) or indirectly (by providing services to local residents whose jobs are in the central county) to the economy of the central county or counties of the CBSA within which the county at issue qualifies for inclusion.

5. OMB accepted the Review Committee's recommendation to merge contiguous CBSAs to form a single CBSA when the central county or counties of one area qualify as outlying to the central county or counties of another. OMB accepted the Review Committee's recommendation to use the same minimum commuting threshold—25 percent—as is used to qualify outlying counties.

In accepting the Review Committee's recommendation to merge contiguous CBSAs, OMB recognized that patterns of population distribution and commuting sometimes are complex and, as a result, close social and economic ties, as measured by commuting, exist between some contiguous CBSAs. OMB agreed with the Review Committee that strong ties between the central counties of two contiguous CBSAs, similar to the ties between an outlying county and a central county or counties, should be recognized by merging the two areas to form a single CBSA.

6. OMB accepted the Review Committee's recommendations to identify Principal Cities and to use them

to title areas, but modified the recommendation concerning the criteria used to identify Principal Cities as indicated in Section 5 of the standards.

OMB's modifications address two concerns: (1) ensuring that at least one incorporated place of 10,000 or more population (if one is present) is recognized as a Principal City, and (2) allowing a fuller identification of places that represent the more important social and economic centers within a Metropolitan or Micropolitan Statistical Area. In the first instance, we were concerned that an unincorporated place with a large population, but relatively small employment base, would qualify as the only Principal City of its CBSA. OMB noted some instances in which an incorporated place of at least 10,000 population accounted for a larger amount of employment than the most populous place, but lacked sufficient population to qualify as a Principal City. OMB's modification to recognize the largest incorporated place of at least 10,000 population as a Principal City will affect only a small number of areas nationwide in which the most populous incorporated place has less population than a larger unincorporated community.

We also were concerned that the recommended criteria were too restrictive and that many smaller, but locally important, cities would not be recognized as Principal Cities of their respective CBSAs. This was especially the case when the CBSA included one city that was significantly larger in population size than all other cities within the CBSA. OMB's modification will permit a fuller identification of places with at least 50,000 population as Principal Cities. This modification likely will result in the identification of approximately 100 additional Principal Cities, many of which currently are recognized as central cities of Metropolitan Areas.

7. OMB accepted the Review Committee's recommendation to identify Metropolitan Divisions and NECTA Divisions that function as distinct areas within Metropolitan Statistical Areas and NECTAs that contain at least one core of 2.5 million or more population. OMB modified the criteria used to define Metropolitan Divisions within Metropolitan Statistical Areas as well as NECTA Divisions within NECTAs, as indicated in Section 7 of the standards.

OMB's modifications to the Metropolitan Division criteria reflect two concerns. First, OMB was concerned that the Review Committee's recommended criteria for identifying the main counties of Metropolitan

Divisions were too strict, particularly with regard to the requirement that a county have less than 15 percent commuting to any other county within the Metropolitan Statistical Area. The purpose of the main county criteria is to identify those counties within a Metropolitan Statistical Area that are self-contained economic centers. Such counties, because of the strength of their employment base, can form the basis for a separate division within the larger Metropolitan Statistical Area. The first two criteria for main counties recommended by the Review Committee—percent of resident workers employed within a particular county and the ratio of jobs to employed residents—provide indicators of the economic strength and relative independence of the county. OMB determined, however, after considering public comment and further discussion by the Review Committee, that the (third) outcommuting requirement was not a direct indicator of a county's economic strength or its identity as an organizing entity around which to form a Metropolitan Division. Therefore, we are eliminating the outcommuting criterion.

Second, upon further review of commuting patterns and related social and economic interactions within the ten Metropolitan Statistical Areas that contained cores of at least 2.5 million population in 1990, OMB discerned two kinds of counties. In the first category are those counties that are strongly self-contained. These are characterized by high percentages (65 percent or greater) of employed residents who remain in the county to work and by high ratios of jobs to resident workers (.75 or greater). These "main counties" stand alone as self-contained social and economic units within the larger Metropolitan Statistical Area or provide the social and economic center around which a group of counties is organized.

A second category of counties consists of those with high ratios of jobs to resident workers, but a lower percentage of employed residents working within the county (50 percent to 64.9 percent). These "secondary counties," while they can be identified as social and economic centers, also connect strongly with one or more adjacent counties through commuting ties. Such counties are only moderately self-contained and can provide the organizing basis for a Metropolitan Division only when paired with one or more counties of similar or greater economic strength. As such, they must combine with another secondary county or with a main county when forming the basis for a Metropolitan Division.

We also note that when combining secondary counties with other main or secondary counties and when qualifying additional outlying counties for inclusion in a Metropolitan Division, the employment interchange measure offers a more appropriate measure of interaction than determining ties based on the strength of commuting in one direction only. (The employment interchange measure is defined as the sum of the percentage of commuting from the entity with the smaller total population to the entity with the larger population and the percentage of employment in the entity with the smaller total population accounted for by workers residing in the entity with the larger total population.) Our decision to use the employment interchange measure is consistent with the reason for defining Metropolitan Divisions—that is, to recognize the complex social and economic interactions that occur within Metropolitan Statistical Areas that contain large urbanized areas. For the same reason, OMB modified the NECTA Division criteria to use the employment interchange measure, instead of the percentage of out-commuters, when qualifying additional outlying cities and towns for inclusion in a NECTA Division.

8. OMB accepted the Review Committee's recommendation to combine contiguous CBSAs when ties between those areas are less intense than those captured by mergers, but still significant. OMB accepted the Review Committee's recommendation to base combinations on the employment interchange measure between two CBSAs. OMB also accepted the Review Committee's recommendations that combinations of CBSAs, based on an employment interchange measure of at least 15 but less than 25, should occur only if local opinion (see Section C.10 below) in both areas is in favor and that combinations should occur automatically if the employment interchange measure between two CBSAs equals or exceeds 25. OMB added the word "statistical" to the term used to refer to areas resulting from the combination of CBSAs as indicated in Section 8 of the standards.

OMB agreed with the Review Committee that ties between contiguous CBSAs that are less intense than those captured by mergers (see Section C.5 above), but still significant, be recognized by combining those CBSAs. Because a combination thus defined represents a relationship of moderate strength between two CBSAs, OMB agrees with the Review Committee that the combining areas should retain their

identities as separate CBSAs within the combination.

OMB inserted the word "statistical" into the term used for combinations to make clearer the statistical purpose of these areas.

9. *OMB accepted the Review Committee's recommendations to title (1) Metropolitan Divisions using the names of up to three Principal Cities, or up to three county names if no Principal Cities are present, in order of descending population size; and (2) NECTA Divisions using the names of up to three Principal Cities in order of descending population size, or the name of the largest minor civil division if no principal city is present. OMB modified the Review Committee's recommendations concerning titles of CBSAs, NECTAs, and Combined Statistical Areas, as indicated in Section 9 of the standards.*

OMB's modification of the criteria for titling CBSAs addresses instances in which the largest Principal City is an unincorporated census designated place. Titles should provide a means of easily recognizing and locating CBSAs, and we are concerned that titles in which the first-named place is an unincorporated community might not be as recognizable nationally as those in which the first-named place is an incorporated place.

OMB's modification of the criteria for titling Combined Statistical Areas addresses three concerns: (1) The title of a Combined Statistical Area, to the extent possible, should reflect the geographic extent of the combination by including the names of Principal Cities contained within the areas that combine; (2) the title of a Combined Statistical Area, to the extent possible, should contain the names of the largest Principal Cities since these cities often are the social and economic centers for the broad region represented by the combination; and (3) the title of a Combined Statistical Area should not duplicate the title of any of the combining Metropolitan or Micropolitan Statistical Areas or Metropolitan Divisions.

10. *OMB accepted the Review Committee's recommendation to apply only statistical rules when defining Metropolitan and Micropolitan Statistical Areas. OMB accepted the Review Committee's recommendation to allow the use of local opinion when contiguous CBSAs qualify to combine with an employment interchange measure of 15 to 24.9, but added one provision (Section 11b of the standards) that would allow for local opinion in titling Combined Statistical Areas.*

Applying only statistical rules when defining areas minimizes ambiguity and maximizes the replicability and integrity of the process. Consideration of local opinion in specific circumstances, however, can provide room for accommodating some issues of local significance without impairing the integrity of the classification. OMB agrees with the Review Committee that when two contiguous CBSAs have an employment interchange measure of at least 15 and less than 25, the measured ties may be perceived as minimal by residents of the two areas. In these situations, local opinion is useful in determining whether to combine the two areas. OMB also agrees with the Review Committee that local opinion is useful in determining titles for Combined Statistical Areas that address the issues discussed in Section C.9 above.

11. *OMB accepted the Review Committee's recommendation not to define types of settlement structure, such as urban, suburban, rural, and so forth, within the CBSA classification.*

OMB recognizes that formal definitions of settlement types such as inner city, inner suburb, outer suburb, exurb, and rural would be of use to the Federal statistical system as well as to researchers, analysts, and other users of Federal data. Such settlement types, however, are not necessary for the delineation of statistical areas in this classification that describes the functional ties between geographic entities. These types would more appropriately fall within a separate classification that focuses exclusively on describing settlement patterns and land uses. We believe the Census Bureau and other interested Federal agencies should continue research on settlement patterns below the county level to describe further the distribution of population and economic activity throughout the Nation. In addition, OMB will consider initiating a collaborative, interagency process to foster improved understanding of geographic area classifications and to investigate the feasibility of developing alternative geographic area classifications that are appropriate for purposes such as the administration of nonstatistical programs.

12. *OMB accepted the Review Committee's recommendation that the definitions of current Metropolitan Areas should not be automatically retained (i.e., "grandfathered") in the implementation of the "Standards for Defining Metropolitan and Micropolitan Statistical Areas."*

In this context, "grandfathering" refers to the continued designation of an

area even though it does not meet the standards currently in effect. The 1990 standards permitted changes in the definitions, or extent, of individual Metropolitan Areas through the addition or deletion of counties on the basis of each decennial census, but those standards did not permit the disqualification of Metropolitan Areas that previously qualified on the basis of a Census Bureau population count. To maintain the integrity of the classification, OMB favors the objective application of the new standards rather than continuing to recognize areas that do not meet the standards. The current status of a county as being within or outside a Metropolitan Area will play no role in the application of the Standards for Defining Metropolitan and Micropolitan Statistical Areas.

13. *OMB accepted the Review Committee's recommendation to define new CBSAs between decennial censuses on the basis of Census Bureau population estimates or special census counts and to update the definitions of all existing CBSAs in 2008 using commuting data from the Census Bureau's American Community Survey.*

The frequency with which new CBSAs are designated and existing areas updated has been of considerable interest to data producers and users throughout the Metropolitan Area Standards Review Project. The first areas to be designated by OMB using the Metropolitan and Micropolitan Statistical Area Standards and Census 2000 data will be announced in 2003. The sources and future availability of data for updating these areas figured prominently in the Review Committee's discussions and OMB's decisions. The availability of population totals and commuting data affects the ability to identify new CBSAs, reclassify existing areas among categories, and update the extent of existing areas. OMB agreed with the Review Committee that existing CBSAs should be updated every five years, and agreed that the availability of commuting data for all counties from the Census Bureau's American Community Survey in 2008 offered the possibility of updating the definitions of all existing CBSAs at that time.

Our decisions as discussed above are reflected in the text of the official Standards for Defining Metropolitan and Micropolitan Statistical Areas that we are issuing today. The following section presents these standards.

D. Standards for Defining Metropolitan and Micropolitan Statistical Areas

The Office of Management and Budget will use these standards to define Core

Based Statistical Areas (CBSAs) beginning in 2003. A CBSA is a geographic entity associated with at least one core of 10,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. The standards designate and define two categories of CBSAs: Metropolitan Statistical Areas and Micropolitan Statistical Areas.

The purpose of the Metropolitan and Micropolitan Statistical Area Standards is to provide nationally consistent definitions for collecting, tabulating, and publishing Federal statistics for a set of geographic areas. The Office of Management and Budget establishes and maintains these areas solely for statistical purposes.

Metropolitan and Micropolitan Statistical Areas are not designed as a general purpose geographic framework for nonstatistical activities or for use in program funding formulas. The CBSA classification does not equate to an urban-rural classification; Metropolitan and Micropolitan Statistical Areas and many counties outside CBSAs contain both urban and rural populations.

CBSAs consist of counties and equivalent entities throughout the United States and Puerto Rico. In view of the importance of cities and towns in New England, a set of geographic areas similar in concept to the county based CBSAs also will be defined for that region using cities and towns. These New England City and Town Areas (NECTAs) are intended for use with statistical data, whenever feasible and appropriate, for New England. Data providers and users desiring areas defined using a nationally consistent geographic building block should use the county based CBSAs in New England.

The following criteria apply to both the nationwide county based CBSAs and to NECTAs, with the exceptions of Sections 6, 7, and 9, in which separate criteria are applied when identifying and titling divisions within NECTAs that contain at least one core of 2.5 million or more population. Wherever the word "county" or "counties" appears in the following criteria (except in Sections 6, 7, and 9), the words "city and town" or "cities and towns" should be substituted, as appropriate, when defining NECTAs.

Section 1. Population Size Requirements for Qualification of Core Based Statistical Areas

Each CBSA must have a Census Bureau defined urbanized area of at least 50,000 population or a Census

Bureau defined urban cluster of at least 10,000 population. (Urbanized areas and urban clusters are collectively referred to as "urban areas.")

Section 2. Central Counties

The central county or counties of a CBSA are those counties that:

(a) have at least 50 percent of their population in urban areas of at least 10,000 population; or

(b) have within their boundaries a population of at least 5,000 located in a single urban area of at least 10,000 population.

A central county is associated with the urbanized area or urban cluster that accounts for the largest portion of the county's population. The central counties associated with a particular urbanized area or urban cluster are grouped to form a single cluster of central counties for purposes of measuring commuting to and from potentially qualifying outlying counties.

Section 3. Outlying Counties

A county qualifies as an outlying county of a CBSA if it meets the following commuting requirements:

(a) at least 25 percent of the employed residents of the county work in the central county or counties of the CBSA; or

(b) at least 25 percent of the employment in the county is accounted for by workers who reside in the central county or counties of the CBSA.

A county may appear in only one CBSA. If a county qualifies as a central county of one CBSA and as outlying in another, it falls within the CBSA in which it is a central county. A county that qualifies as outlying to multiple CBSAs falls within the CBSA with which it has the strongest commuting tie, as measured by either (a) or (b) above. The counties included in a CBSA must be contiguous; if a county is not contiguous with other counties in the CBSA, it will not fall within the CBSA.

Section 4. Merging of Adjacent Core Based Statistical Areas

Two adjacent CBSAs will merge to form one CBSA if the central county or counties (as a group) of one CBSA qualify as outlying to the central county or counties (as a group) of the other CBSA using the measures and thresholds stated in 3(a) and 3(b) above.

Section 5. Identification of Principal Cities

The Principal City (or Cities) of a CBSA will include:

(a) the largest incorporated place with a Census 2000 population of at least 10,000 in the CBSA or, if no

incorporated place of at least 10,000 population is present in the CBSA, the largest incorporated place or census designated place in the CBSA; and

(b) any additional incorporated place or census designated place with a Census 2000 population of at least 250,000 or in which 100,000 or more persons work; and

(c) any additional incorporated place or census designated place with a Census 2000 population of at least 50,000, but less than 250,000, and in which the number of jobs meets or exceeds the number of employed residents; and

(d) any additional incorporated place or census designated place with a Census 2000 population of at least 10,000, but less than 50,000, and one-third the population size of the largest place, and in which the number of jobs meets or exceeds the number of employed residents.

Section 6. Categories and Terminology

A CBSA receives a category based on the population of the largest urban area (urbanized area or urban cluster) within the CBSA. Categories of CBSAs are: Metropolitan Statistical Areas, based on urbanized areas of 50,000 or more population, and Micropolitan Statistical Areas, based on urban clusters of at least 10,000 population but less than 50,000 population.

Counties that do not fall within CBSAs will represent "Outside Core Based Statistical Areas."

A NECTA receives a category in a manner similar to a CBSA and is referred to as a Metropolitan NECTA or a Micropolitan NECTA.

Section 7. Divisions of Metropolitan Statistical Areas and New England City and Town Areas

(a) A Metropolitan Statistical Area containing a single core with a population of at least 2.5 million may be subdivided to form smaller groupings of counties referred to as Metropolitan Divisions.

A county qualifies as a "main county" of a Metropolitan Division if 65 percent or more of its employed residents work within the county and the ratio of the number of jobs located in the county to the number of employed residents of the county is at least .75.

A county qualifies as a "secondary county" if 50 percent or more, but less than 65 percent, of its employed residents work within the county and the ratio of the number of jobs located in the county to the number of employed residents of the county is at least .75.

A main county automatically serves as the basis for a Metropolitan Division. For a secondary county to qualify as the basis for forming a Metropolitan Division, it must join with either a contiguous secondary county or a contiguous main county with which it has the highest employment interchange measure of 15 or more.

After all main counties and secondary counties are identified and grouped (if appropriate), each additional county that already has qualified for inclusion in the Metropolitan Statistical Area falls within the Metropolitan Division associated with the main/secondary county or counties with which the county at issue has the highest employment interchange measure. Counties in a Metropolitan Division must be contiguous.

(b) A NECTA containing a single core with a population of at least 2.5 million may be subdivided to form smaller groupings of cities and towns referred to as NECTA Divisions.

A city or town will be a "main city or town" of a NECTA Division if it has a population of 50,000 or more and its highest rate of out-commuting to any other city or town is less than 20 percent.

After all main cities and towns have been identified, each remaining city and town in the NECTA will fall within the NECTA Division associated with the city or town with which the one at issue has the highest employment interchange measure.

Each NECTA Division must contain a total population of 100,000 or more. Cities and towns first assigned to areas with populations less than 100,000 will be assigned to the qualifying NECTA Division associated with the city or town with which the one at issue has the highest employment interchange measure. Cities and towns within a NECTA Division must be contiguous.

Section 8. Combining Adjacent Core Based Statistical Areas

(a) Any two adjacent CBSAs will form a Combined Statistical Area if the employment interchange measure between the two areas is at least 25.

(b) Adjacent CBSAs that have an employment interchange measure of at least 15 and less than 25 will combine if local opinion, as reported by the congressional delegations in both areas, favors combination.

(c) The CBSAs that combine retain separate identities within the larger Combined Statistical Areas.

Section 9. Titles of Core Based Statistical Areas, Metropolitan Divisions, New England City and Town Divisions, and Combined Statistical Areas

(a) The title of a CBSA will include the name of its Principal City with the largest Census 2000 population. If there are multiple Principal Cities, the names of the second largest and third largest Principal Cities will appear in the title in order of descending population size. If the Principal City with the largest Census 2000 population is a census designated place, the name of the largest incorporated place of at least 10,000 population that also is a Principal City will appear first in the title followed by the name of the census designated place.

(b) The title of a Metropolitan Division will include the name of the Principal City with the largest Census 2000 population located in the Metropolitan Division. If there are multiple Principal Cities, the names of the second largest and third largest Principal Cities will appear in the title in order of descending population size. If there are no Principal Cities located in the Metropolitan Division, the title of the Metropolitan Division will use the names of up to three counties in order of descending population size.

(c) The title of a NECTA Division will include the name of the Principal City with the largest Census 2000 population located in the NECTA Division. If there are multiple Principal Cities, the names of the second largest and third largest Principal Cities will appear in the title in order of descending population size. If there are no Principal Cities located in the NECTA Division, the title of the NECTA Division will use the name of the city or town with the largest population.

(d) The title of a Combined Statistical Area will include the name of the largest Principal City in the combination, followed by the names of up to two additional Principal Cities in the combination in order of descending population size, or a suitable regional name, provided that the Combined Statistical Area title does not duplicate the title of a component Metropolitan or Micropolitan Statistical Area or Metropolitan Division. Local opinion will be considered when determining the titles of Combined Statistical Areas.

(e) Titles also will include the names of any state in which the area is located.

Section 10. Update Schedule

(a) The Office of Management and Budget will define CBSAs based on Census 2000 data in 2003.

(b) Each year thereafter, the Office of Management and Budget will designate new CBSAs as if:

(1) A city that is outside any existing CBSA has a Census Bureau special census count of 10,000 or more population, or Census Bureau population estimates of 10,000 or more population for two consecutive years, or

(2) A Census Bureau special census results in the delineation of a new urban area (urbanized area or urban cluster) of 10,000 or more population that is outside of any existing CBSA.

(c) In the years 2004 through 2007, outlying counties of intercensally designated CBSAs will qualify, according to the criteria in Section 3 above, on the basis of Census 2000 commuting data.

(d) The Office of Management and Budget will review the definitions of all existing CBSAs in 2008 using commuting data from the Census Bureau's American Community Survey. The central counties of CBSAs identified on the basis of a Census 2000 population count, or on the basis of population estimates or a special census count in the case of intercensally defined areas, will constitute the central counties for purposes of the 2008 area definitions. New CBSAs will be designated in 2008 and 2009 on the basis of Census Bureau special census counts or population estimates as described above; outlying county qualification in these years will be based on 2008 commuting data from the American Community Survey.

Section 11. Local Opinion

Local opinion, as used in these standards, is the reflection of the views of the public and is obtained through the appropriate congressional delegations. The Office of Management and Budget will seek local opinion in two circumstances:

(a) When two adjacent CBSAs qualify for combination based on an employment interchange measure of at least 15 but less than 25 (see Section 8). The two CBSAs will combine only if there is evidence that local opinion in both areas favors the combination.

(b) To determine the title of a Combined Statistical Area.

After decisions have been made regarding the combinations of CBSAs and the titles of Combined Statistical Areas, the Office of Management and Budget will not request local opinion again on these issues until the next redefinition of CBSAs.

Section 12. Definitions of Key Terms

Census designated place.—A statistical geographic entity that is

equivalent to an incorporated place, defined for the decennial census, consisting of a locally recognized, unincorporated concentration of population that is identified by name.

Central county.—The county or counties of a Core Based Statistical Area containing a substantial portion of an urbanized area or urban cluster or both, and to and from which commuting is measured to determine qualification of outlying counties.

Combined Statistical Area.—A geographic entity consisting of two or more adjacent Core Based Statistical Areas (CBSAs) with employment interchange measures of at least 15. Pairs of CBSAs with employment interchange measures of at least 25 combine automatically. Pairs of CBSAs with employment interchange measures of at least 15, but less than 25, may combine if local opinion in both areas favors combination.

Core.—A densely settled concentration of population, comprising either an urbanized area (of 50,000 or more population) or an urban cluster (of 10,000 to 49,999 population) defined by the Census Bureau, around which a Core Based Statistical Area is defined.

Core Based Statistical Area (CBSA).—A statistical geographic entity consisting of the county or counties associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties containing the core. Metropolitan and Micropolitan Statistical Areas are the two categories of Core Based Statistical Areas.

Employment interchange measure.—A measure of ties between two adjacent entities. The employment interchange measure is the sum of the percentage of employed residents of the smaller entity who work in the larger entity and the percentage of employment in the smaller entity that is accounted for by workers who reside in the larger entity.

Geographic building block.—The geographic unit, such as a county, that constitutes the basic geographic component of a statistical area.

Main city or town.—A city or town that acts as an employment center

within a New England City and Town Area that has a core with a population of at least 2.5 million. A main city or town serves as the basis for defining a New England City and Town Area Division.

Main county.—A county that acts as an employment center within a Core Based Statistical Area that has a core with a population of at least 2.5 million. A main county serves as the basis for defining a Metropolitan Division.

Metropolitan Division.—A county or group of counties within a Core Based Statistical Area that contains a core with a population of at least 2.5 million. A Metropolitan Division consists of one or more main/secondary counties that represent an employment center or centers, plus adjacent counties associated with the main county or counties through commuting ties.

Metropolitan Statistical Area.—A Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000. The Metropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

Micropolitan Statistical Area.—A Core Based Statistical Area associated with at least one urban cluster that has a population of at least 10,000, but less than 50,000. The Micropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

New England City and Town Area (NECTA).—A statistical geographic entity that is defined using cities and towns as building blocks and that is conceptually similar to the Core Based Statistical Areas in New England (which are defined using counties as building blocks).

New England City and Town Area (NECTA) Division.—A city or town or group of cities and towns within a NECTA that contains a core with a population of at least 2.5 million. A NECTA Division consists of a main city or town that represents an employment

center, plus adjacent cities and towns associated with the main city or town, or with other cities and towns that are in turn associated with the main city or town, through commuting ties.

Outlying county.—A county that qualifies for inclusion in a Core Based Statistical Area on the basis of commuting ties with the Core Based Statistical Area's central county or counties.

Outside Core Based Statistical Areas.—Counties that do not qualify for inclusion in a Core Based Statistical Area.

Principal City.—The largest city of a Core Based Statistical Area, plus additional cities that meet specified statistical criteria.

Secondary county.—A county that acts as an employment center in combination with a main county or another secondary county within a Core Based Statistical Area that has a core with a population of at least 2.5 million. A secondary county serves as the basis for defining a Metropolitan Division, but only when combined with a main county or another secondary county.

Urban area.—The generic term used by the Census Bureau to refer collectively to urbanized areas and urban clusters.

Urban cluster.—A statistical geographic entity to be defined by the Census Bureau for Census 2000, consisting of a central place(s) and adjacent densely settled territory that together contain at least 2,500 people, generally with an overall population density of at least 1,000 people per square mile. For purposes of defining Core Based Statistical Areas, only those urban clusters of 10,000 more population are considered.

Urbanized area.—A statistical geographic entity defined by the Census Bureau, consisting of a central place(s) and adjacent densely settled territory that together contain at least 50,000 people, generally with an overall population density of at least 1,000 people per square mile.

John T. Spotila,

Administrator, Office of Information and Regulatory Affairs.

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BILLING CODE 3110-01-P

Permitted Point Source Emissions and Air Quality Data in Central Texas								
Characteristic Data		Bastrop County	Caldwell County	Burnet County	Hays County	Travis County	Williamson County	Bell County
Permitted Sources	each	8	2	0	4	18	5	10
2006 NO _x Emissions	tons per year	953	1,152	No Data	2,508	2,564	31	159
2006 VOC Emissions	tons per year	131	55	No Data	264	325	47	841
Number of O ₃ Monitors	each	1	0	0	2	2	2	0
2005 Fourth Highest Average	ppb	No Data	No Data	No Data	72	82	No Data	No Data
2006 Fourth Highest Average	ppb	71	No Data	No Data	72	83	76	No Data
2007 Fourth Highest Average	ppb	72	No Data	No Data	66	76	71	No Data
2008 Fourth Highest Average	ppb	70	No Data	No Data	66	74	71	No Data

Source: TCEQ 2006 Statesum.xls (<http://www.tceq.state.tx.us/implementation/air/industei/psei/psei.html>)

Note 3.2.1: The monitors in Bastrop, Hays, and Williamson Counties were deactivated prior to the close of 2008.

2008 Daily 8-Hour Ozone Averages (ppb)

Date	CAMS 684 McKinney Roughs	CAMS 601 Fayette County	CAMS 614 Dripping Springs	CAMS 675 San Marcos	CAMS 3 Austin Northwest	CAMS 38 Audubon C38	CAMS 674 Round Rock	CAMS 690 Lake Georgetown	Area Average 8-hr Ozone	dev+	dev-	2008 Ozone Standard
1-Apr					33	34			34	1	1	75
2-Apr					25	22			24	2	2	75
3-Apr					22	23			23	1	1	75
4-Apr					46	39			43	5	5	75
5-Apr					62	58			60	3	3	75
6-Apr					62	57			60	4	4	75
7-Apr					47	45			46	1	1	75
8-Apr					42	42			42	0	0	75
9-Apr					33	29			31	3	3	75
10-Apr					56	51			54	4	4	75
11-Apr					57	51			54	4	4	75
12-Apr					54	48			51	4	4	75
13-Apr					58	51			55	5	5	75
14-Apr					62	58			60	3	3	75
15-Apr					71	66			69	4	4	75
16-Apr	49		49		52	49			50	2	2	75
17-Apr	44		44	41	45	44	42		43	2	2	75
18-Apr	56		53	52	58	52	53		54	2	2	75
19-Apr	65		70	63	72	68	68		68	3	3	75
20-Apr	37		42	36	44	39	42		40	3	3	75
21-Apr	30			24	34	35	33		31	4	4	75
22-Apr	34		37	30	41	42	41		38	5	5	75
23-Apr	29		27	24	31	30	30		29	3	3	75
24-Apr	39		31	33	39	34	36		35	3	3	75
25-Apr		39	36	32	42	43	42		39	4	4	75

26-Apr	45	44	45	44	56	50	53		48	5	5	75
27-Apr	48	41	46	45	51	45	48		46	3	3	75
28-Apr	59	52	52	51	61	52	52		54	4	4	75
29-Apr	63	61	61	57	64	60	58		61	3	3	75
30-Apr	59	57	56	54	61	58	54		57	3	3	75
1-May	39	34	40	36	41		37		38	3	3	75
2-May	58	44	60	53	71		59		58	9	9	75
3-May		50	48	50	57	51	47		51	4	4	75
4-May		56	53	50	59	56	51		54	3	3	75
5-May		39	29	36	41		35		36	5	5	75
6-May		32	30	29	33	33	30		31	2	2	75
7-May		35	52	50	51	51	44		47	7	7	75
8-May	59	52	57	57	71	60	63		60	6	6	75
9-May	57	43	55	46	67	68	70		58	11	11	75
10-May	45	36	43	49	54	56	54		48	7	7	75
11-May	63	52	56	58	62	56	58		58	4	4	75
12-May	62	57	51	49	53	52	56		54	4	4	75
13-May	38	32	26	27	32	32	30		31	4	4	75
14-May	42	30	32	35	38	38	38		36	4	4	75
15-May	49	33	38	41	47	40	44		42	5	5	75
16-May	64	50	58	57	63	60	61		59	5	5	75
17-May	71	56	55	59	64	55	64	57	60	6	6	75
18-May	63	55	49	50	55	49	52	50	53	5	5	75
19-May	70	53	55	62	66	57	62	58	60	6	6	75
20-May	55	48	56	49	64	63	66	75	60	9	9	75
21-May	47	35	39	40	45	45	45	49	43	5	5	75
22-May	51	38	38	41	46	45	46	48	44	5	5	75
23-May	54	40	42	45	54	53	52	55	49	6	6	75
24-May	43	28	36	38	43	44	43	45	40	6	6	75
25-May	31	20	27	28	29	29	28	29	28	3	3	75

26-May	32	19	25	26	29	29	31	33	28	5	5	75
27-May	45	33	36	30	41	40	42	73	43	13	13	75
28-May	48	44	42	36	51	54	49	52	47	6	6	75
29-May	53	53	43	41	50	51	50	54	49	5	5	75
30-May	49	43	44	39	47	46	49	57	47	5	5	75
31-May	41	33	33	31	37	36	38	43	37	4	4	75
1-Jun	43	35	37	35	40	39	40	44	39	3	3	75
2-Jun	38	28	31	31	35	37	37	42	35	5	5	75
3-Jun	34	25	32	29	34	36	34	40	33	5	5	75
4-Jun	30	20	21	22	26	26	26	29	25	4	4	75
5-Jun		21	17	22	23	24	24	26	22	3	3	75
6-Jun		21		23	27	29	27	29	26	3	3	75
7-Jun		21	18	21	26	26	27	28	24	4	4	75
8-Jun		19	19	21	25	24	26	27	23	3	3	75
9-Jun		23	19	22	25	25	26	30	24	3	3	75
10-Jun		28	25	26	31	32	33	35	30	4	4	75
11-Jun		27	28	29	32	33	33	38	31	4	4	75
12-Jun		24	27	27	32	32	32	36	30	4	4	75
13-Jun	28	24		25	30	30	33	36	29	4	4	75
14-Jun	33	29		30	33	32	34	35	32	2	2	75
15-Jun	33	29		30	37	37	39	39	35	4	4	75
16-Jun	34	29		27	35	36	38	41	34	5	5	75
17-Jun	39	35	37	28	46	48	46	47	41	7	7	75
18-Jun	38	39	42	36	57	55	66	69	50	13	13	75
19-Jun	45	43	41	40	47	53	49	49	46	4	4	75
20-Jun	60	47	46	42	54	57	56	61	53	7	7	75
21-Jun	63	56	54	57	62	63	69	72	62	6	6	75
22-Jun	67	58	61	65	71	64	65	66	65	4	4	75
23-Jun	68	58	63	63	78	74	73	73	69	7	7	75
24-Jun	30	25	28	27	32	34	34	39	31	5	5	75

25-Jun	26	21	25	26	29	30	30	34	28	4	4	75
26-Jun	33	24	32	33	37	37	37	40	34	5	5	75
27-Jun	36	29	32	34	38	37	38	38	35	3	3	75
28-Jun	35	28	29	32	36	35	38	37	34	4	4	75
29-Jun	27		25	25	34	31	37	28	30	5	5	75
30-Jun	43		25	25	50	46	54	52	42	12	12	75
1-Jul	69	61	42	39	65	63	69	66	59	12	12	75
2-Jul	34	29		25	35	31	34	35	32	4	4	75
3-Jul	28	27	26	26	34	34	32	33	30	4	4	75
4-Jul	28	24	27	29	35	34	35	36	31	5	5	75
5-Jul	30	23	25	27	32	31	34	34	30	4	4	75
6-Jul	30	22	26	28	32	29	30	30	28	3	3	75
7-Jul	26	23	22	22	26	27	26		25	2	2	75
8-Jul	23	21	17	16	27	24	24		22	4	4	75
9-Jul	32	26	26	23	35	35	34		30	5	5	75
10-Jul	32	25	25	28	34	32	35		30	4	4	75
11-Jul	32	26	27	29	33	33	34		31	3	3	75
12-Jul	37	28	33	34	39	37	39		35	4	4	75
13-Jul	40	29	33	45	43	35	44	40	39	6	6	75
14-Jul	42	34	36	40	47	37	40	31	38	5	5	75
15-Jul	36	30	39	33	42	47	43	38	39	6	6	75
16-Jul	38	31	26	24	37	37	39	36	34	6	6	75
17-Jul	39	36	31	27	43	45	45	44	39	7	7	75
18-Jul	32	35	28	24	35	36	38	38	33	5	5	75
19-Jul	37	43	26	28	37	35	39	37	35	6	6	75
20-Jul	27	28	28	26	36	35	39	38	32	5	5	75
21-Jul	42	44	35	32	46		47	43	41	6	6	75
22-Jul	47	43	49	45	54	53	52	53	50	4	4	75
23-Jul	32	30	29	29	34	36	37	34	33	3	3	75
24-Jul	20	16	16	11	21	21	26	24	19	5	5	75

25-Jul	26	20	21	21	30	30	30	31	26	5	5	75
26-Jul	28	26	26	25	36	31	38	30	30	5	5	75
27-Jul	28	22	30	29	33	31	34	32	30	4	4	75
28-Jul	39	31	43	38	48	49	49	52	44	7	7	75
29-Jul	34	28	33	33	39	39	39	43	36	5	5	75
30-Jul	32	29	35	31	42	41	43	42	37	6	6	75
31-Jul	36	32	37	36	49	46	50	48	42	7	7	75
1-Aug	34	31	32	31	40	41	43	45	37	6	6	75
2-Aug	30	28	31	31	42	39	43	42	36	6	6	75
3-Aug	45	36	38	35	48	46	50	49	43	6	6	75
4-Aug	68	60	59	58	72	67	69	64	65	5	5	75
5-Aug	58	43	50	49	63	56	54	52	53	6	6	75
6-Aug	33	30	31	29	38	38	39	40	35	4	4	75
7-Aug	30	27	29	26	34	35	37	39	32	5	5	75
8-Aug	29	32	33	30	44	44	44	40	37	7	7	75
9-Aug	31	27	31	28	36	36	38	37	33	4	4	75
10-Aug	29	25	30	30	35	33	37	35	32	4	4	75
11-Aug	28	25	28	28	36	37	42	39	33	6	6	75
12-Aug	34	29	32	32	44	40		27	34	6	6	75
13-Aug	56	56	51	62	62	57		53	57	4	4	75
14-Aug	57	44	55	50	69	71		60	58	10	10	75
15-Aug	38	28	39	41	59	49		43	42	10	10	75
16-Aug	41	31	36	41	53	53		52	44	9	9	75
17-Aug	46	37	40	41	57	55		52	47	8	8	75
18-Aug	15	17	17	15	20	21		24	18	3	3	75
19-Aug	24	18	27	26	31	31	31	31	27	5	5	75
20-Aug	52	36	39	41	50	48	50	44	45	6	6	75
21-Aug	30	12	31	26	39	35	43	44	33	10	10	75
22-Aug	27	20	22	18	28	27	31	32	26	5	5	75
23-Aug	33	24	26	21	33	34		31	29	5	5	75

24-Aug	47	45	35	45	51	42		50	45	5	5	75
25-Aug	49	45	42	44	52	43		52	47	4	4	75
26-Aug	49	45	49	46	60	61		61	53	7	7	75
27-Aug	28	23	29	22	34	36		43	31	7	7	75
28-Aug	27	24	24	20	30	31		34	27	5	5	75
29-Aug	43	47	28	24	42	42	39	42	38	8	8	75
30-Aug	52	49	48	50		55	56	51	52	3	3	75
31-Aug	52	46	51	52		53	50	48	50	2	2	75
1-Sep	44	38	46	54		49	47	45	46	5	5	75
2-Sep	41	35	32	36		36	34	34	35	3	3	75
3-Sep	38	34	34	35	36	33	31	31	34	2	2	75
4-Sep	40	36	36	39	43	38	40	36	39	3	3	75
5-Sep	53	48	57	52	58	57	52	49	53	4	4	75
6-Sep	64	50	57	59	71	70	67	62	63	7	7	75
7-Sep	61	57	55	51	62	59	58	56	57	4	4	75
8-Sep	34	27	27	25	33	32	35	36	31	4	4	75
9-Sep	29	32	29	26	35	39	36	33	32	4	4	75
10-Sep	44	40	37	34	45	45	48	44	42	5	5	75
11-Sep	50	48	39	34	45	43	42	36	42	6	6	75
12-Sep	31	26	32	36	34	34	30	32	32	3	3	75
13-Sep	29	26	28	31	28	26	24	24	27	2	2	75
14-Sep	48	39	46	51	53	49	50	47	48	4	4	75
15-Sep	34	31	38	36	41	40	40	40	38	4	4	75
16-Sep	46	44	43	48	49	46	48	44	46	2	2	75
17-Sep	48	37	56	52	53	52	50	48	50	6	6	75
18-Sep	49	43	54	50	53	50	47	46	49	4	4	75
19-Sep	57	51	59	59	65	60	59	56	58	4	4	75
20-Sep	59	50	63	57	66	61	61	56	59	5	5	75
21-Sep	49	43	52	46	55	51	51	48	49	4	4	75
22-Sep	50	53	47	39	49	49	46	44	47	4	4	75

23-Sep	50	47	50	38	51	51	51	47	48	4	4	75
24-Sep	45	40	42	34	48	45	44	42	43	4	4	75
25-Sep	59	53	60	57	64	63	64	61	60	4	4	75
26-Sep	71	63	68	68	75	70	71	65	69	4	4	75
27-Sep	68	63	67	65	74	70	71	65	68	4	4	75
28-Sep	67	60	65	66	74	67	68	63	66	4	4	75
29-Sep	67	62	62	68	71	63	66	59	65	4	4	75
30-Sep	74	69	64	69	77	68	72	67	70	4	4	75
1-Oct	56	52	66	61	67	65	61	58	61	5	5	75
2-Oct	55	58	57	47	60	61	63	62	58	5	5	75
3-Oct	58	44	61	50	62	66	60	65	58	8	8	75
4-Oct	50	50	41	39	51	50	52	51	48	5	5	75
5-Oct	39	37	37	36	45	40	41	38	39	3	3	75
6-Oct	35	33	28	28	34	33	29	32	32	3	3	75
7-Oct	42	40	37	38	40		39	37	39	2	2	75
8-Oct	54	46	49	43	39	49	51	44	47	5	5	75
9-Oct	61	61	59	49	55	62	61	56	58	4	4	75
10-Oct	52	50	52	48	51	57	55	55	53	3	3	75
11-Oct	51	54	39	42	51	53	55	58	50	7	7	75
12-Oct	48	44	41	42	46	49	48	46	46	3	3	75
13-Oct	40	41	26	23	38	39	44	38	36	7	7	75
14-Oct	28	29	27	22	25	27	27	27	27	2	2	75
15-Oct	20	20	18	16	18	18	17	15	18	2	2	75
16-Oct	26		25	26	24	23	22	21	24	2	2	75
17-Oct	34	28	33	31	31	38	36	34	33	3	3	75
18-Oct	53	50	49	54	53	51	54	46	51	3	3	75
19-Oct	56	58	57	56	57	59	61	58	58	2	2	75
20-Oct	59	57	58	50	57	63	59	59	58	4	4	75
21-Oct	44	47	44	37	40	49	46	46	44	4	4	75
22-Oct	36	38	35	37	36	36	33	32	35	2	2	75

23-Oct	39	36	40	33	35	39	39	36	37	2	2	75
24-Oct	47	43	50	39	44	47	47	44	45	3	3	75
25-Oct	57	51	54	50	53	56	57	53	54	3	3	75
26-Oct	40	41	40	37	43	44	45	40	41	3	3	75
27-Oct	35	34	38	38	37	38	38	34	37	2	2	75
28-Oct	41	40	37	33	35	38	42	37	38	3	3	75
29-Oct	54	57	52	43	46	53	47	49	50	5	5	75
30-Oct	47	44	45	39	42	48	45	45	44	3	3	75
31-Oct	46	43	44	38	43	46	42	46	44	3	3	75

Travis County Profile

Compiled by
The County Information Project

The information contained in this report was obtained from The County Information Project's on-line database. The data contained in the database are obtained from official sources and are not the product of the CIP. The CIP, therefore, does not expressly or impliedly warrant the accuracy of the data. Questions regarding the accuracy, methodology, etc. should be directed to the original source of the information. The sources may be obtained from the CIP by contacting the County Information Project, Texas Association of Counties at (512) 478-8753.

POPULATION (Census Bureau)	
County Population	«History»
Estimate 2007:	974,365
Estimate 2006:	941,577
Estimate 2005:	905,609
Estimate 2004:	882,559
Estimate 2003:	865,171
Estimate 2002:	854,832
Estimate 2001:	848,763
Census 2000:	812,280
Census 1990:	576,407
Census 1950:	160,980
Population of the County Seat (Austin)	
Census 2000:	656,562
Census 1990:	472,020
POPULATION ESTIMATES - 2007 (Census Bureau)	
Travis County:	974,365
Austin:	727,195
Bee C:	2,534
Briarcl:	888
Cedar Park:	1,375
Creedmoor:	207
Elgin:	306
Jonestown:	2,369
Lago Vista:	6,092

Lakeway:	10,627
Leander:	643
Manor:	3,263
Mustang Ridge:	475
Pflugerville:	34,419
Point Vent:	472
Rollingwood:	1,413
Round Rock:	1,548
San Lea:	502
Sunset Valley:	854
The Hi:	2,163
Vole:	394
Webbervi:	315
West Lake Hills:	3,143
Balance of Travis County:	173,168
GENERAL INFORMATION	
County Size in Square Miles (Census Bureau and EPA)	
Land Area:	989
Water Area:	33
Total Area:	1,022
Population Density Per Square Mile	
2000:	821.3
DEMOGRAPHICS	
Ethnicity - 2007 (Census Bureau)	
Percent Hispanic:	32.5%
Race - 2007 (Census Bureau)	
Percent White Alone:	83.1%
Percent African American Alone:	8.9%
Percent American Indian and Alaska Native Alone:	0.8%
Percent Asian Alone:	5.6%
Percent Native Hawaiian and Other Pacific Islander Alone:	0.1%
Percent Multi-Racial:	1.5%
Age - 2007 (Census Bureau)	
17 and Under:	25.0%
65 and Older:	6.6%
85 and Older:	0.9%

Median Age:	32.3
Income	
Per Capita Income - 2005 (BEA):	\$39,781
Total Personal Income - 2005 (BEA):	\$37,457,092,000
Median Household Income - 2006 (Census Bureau):	\$48,199
Poverty - 2006 (Census Bureau)	
Percent of Population in Poverty:	15.5%
Percent of Population under 18 in Poverty:	20.3%
Wages (BEA)	
Average Wage Per Job - 2006:	\$48,201
Average Wage Per Job - 2005:	\$45,381
Average Wage Per Job - 2004:	\$43,536
Average Wage Per Job - 2003:	\$41,995
Average Wage Per Job - 2002:	\$40,733
Average Wage Per Job - 2001:	\$41,180
Average Wage Per Job - 2000:	\$40,781
Average Wage Per Job - 1990:	\$22,683
Annual Unemployment Rate, Not Adjusted (TWC)	
Unemployment Rate - 2007:	3.6%
Unemployment Rate - 2006:	4.1%
Unemployment Rate - 2005:	4.5%
Unemployment Rate - 2004:	5.2%
Unemployment Rate - 2003:	6.0%
Unemployment Rate - 2002:	6.0%
Unemployment Rate - 2001:	4.4%
Unemployment Rate - 2000:	3.0%
COUNTY FINANCES (Comptroller)	
Property Taxes - 2007	
Total County Tax Rate: « Historic Tax Rate » « Detailed Tax Rates »	\$0.421600
Total Market Value: « Values and Levies »	\$103,391,293,537
Total Appraised Value Available for County Taxation:	\$85,783,321,499
Total Actual Levy:	\$361,662,483
Sales Tax Allocation History	
CY 2007:	N/A
CY 2006:	N/A
CY 2005:	N/A

CY 2004:	N/A
CY 2003:	N/A
CY 2002:	N/A
CY 2001:	N/A
INFRASTRUCTURE EXPENDITURES (Comptroller)	
Road and Bridge - 2007	
County Roads, Construction:	\$4,880,188
County Roads, Maintenance:	\$7,826,084
County Roads, Rehabilitation:	\$0
County Bridges, Construction:	\$0
County Bridges, Maintenance:	\$555,417
County Bridges, Rehabilitation:	\$0
Right of Way Acquisition:	\$7,856
Utility Construction:	\$0
Other Road Expenditures:	\$4,107,143
Total Road and Bridge Expenditures:	\$17,376,688
COUNTY ROAD MILES (TXDOT)	
Centerline Miles - 2004	
Unpaved (Earth and All-weather):	23
Paved (bituminous surface, treated, less than 1):	1,181
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	5
Concrete:	0
Total Centerline Miles:	1,209
Lane Miles - 2004	
Unpaved (Earth and All-weather):	47
Paved (bituminous surface, treated, less than 1):	2,366
Paved (mixed bituminous surface, base and surface depth 7):	0
Paved (mixed bituminous surface, base and surface depth 7 or more):	0
Asphalt:	23
Concrete:	1
Total Lane Miles:	2,436

Austin Annual 84-92

January 1

December 31

Midnight-11 PM

NOTE: Frequencies
indicate direction
from which the
wind is blowing.

CALM WINDS 5.69%

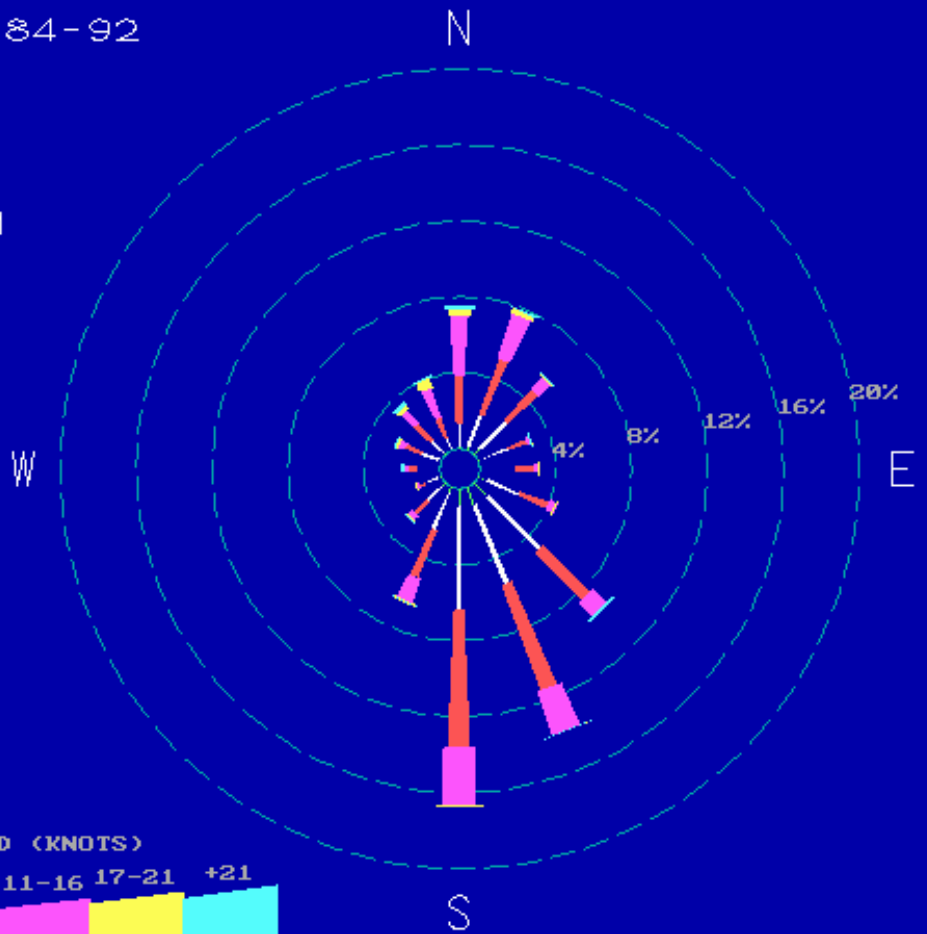
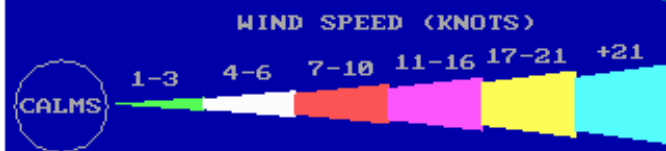


Figure 1: Austin Area Met Data

ACT All Months 1984-92

January 1

December 31

Midnight-11 PM

NOTE: Frequencies
indicate direction
from which the
wind is blowing.

CALM WINDS 2.81%

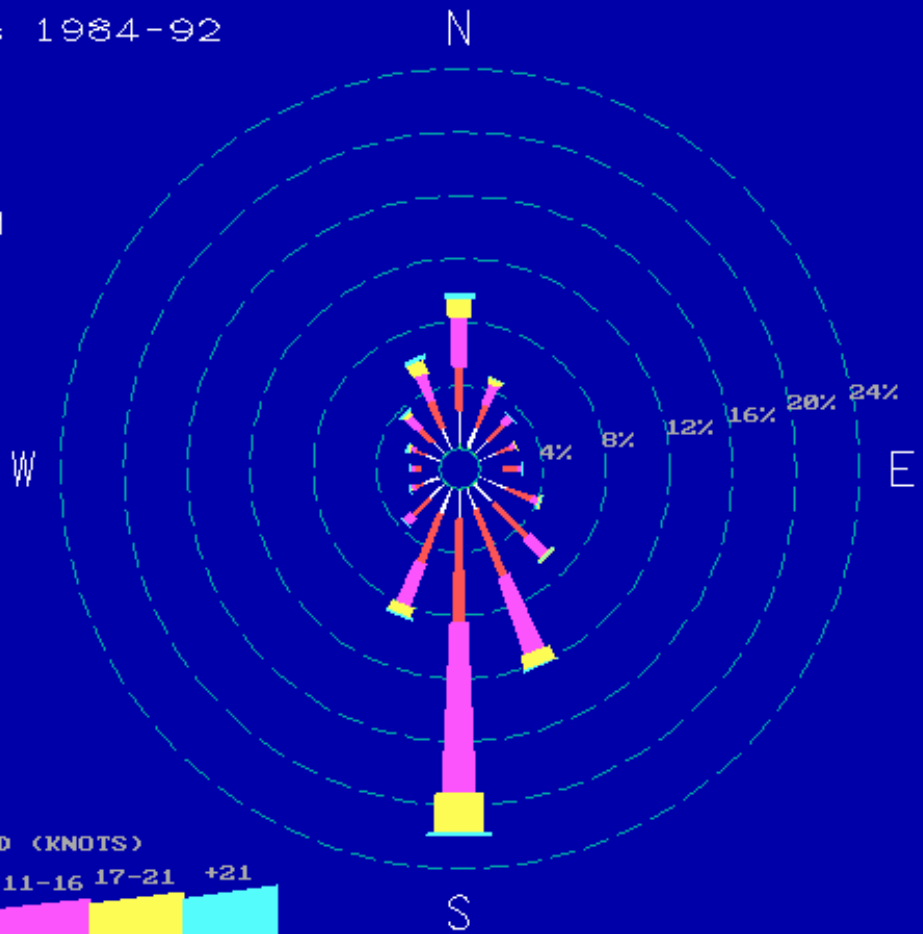
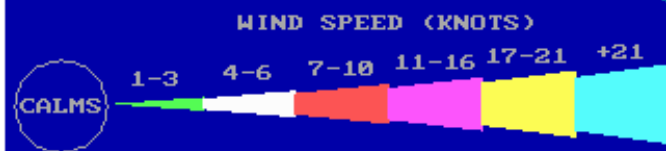
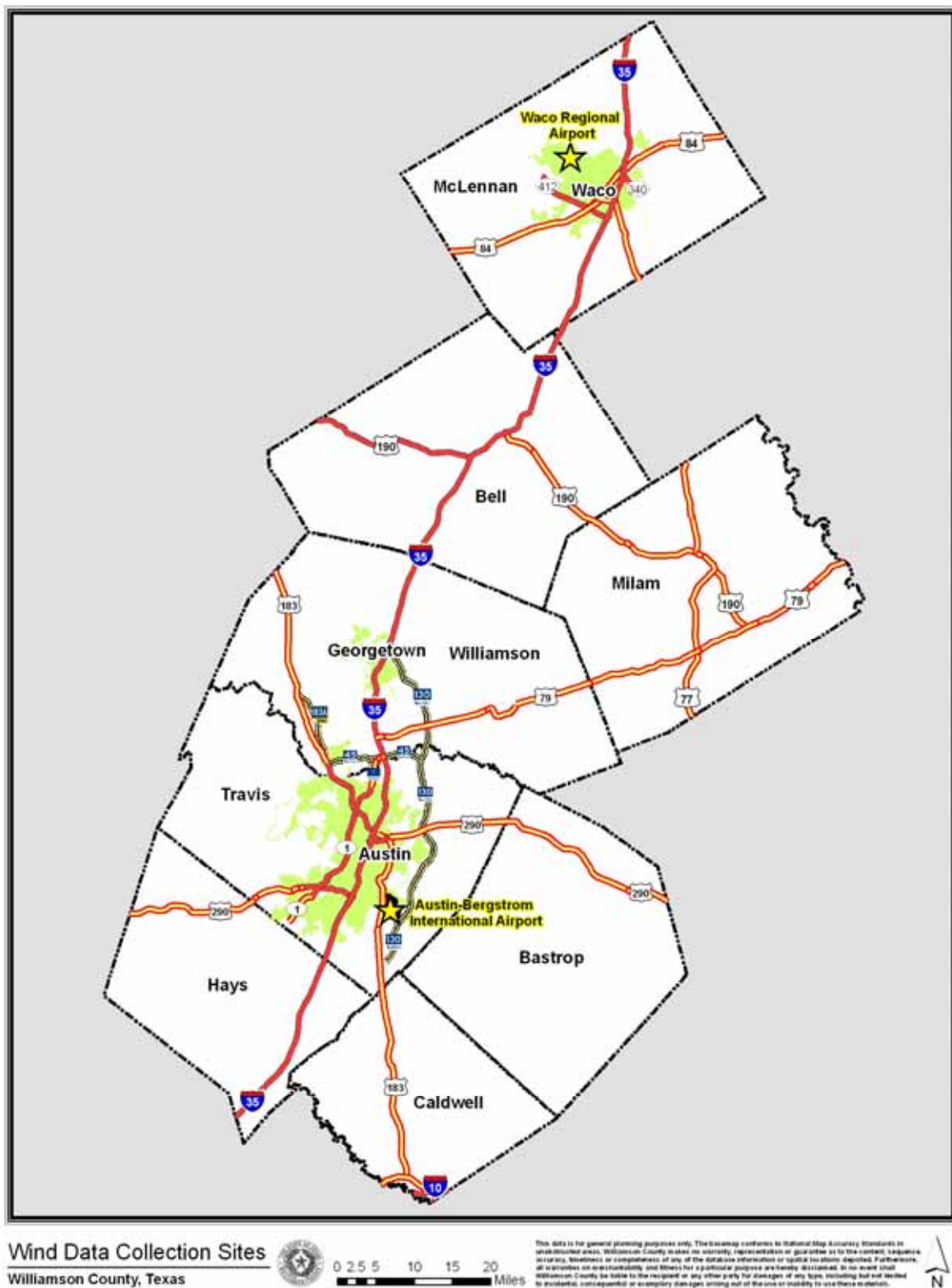


Figure 2: Waco Area Met Data



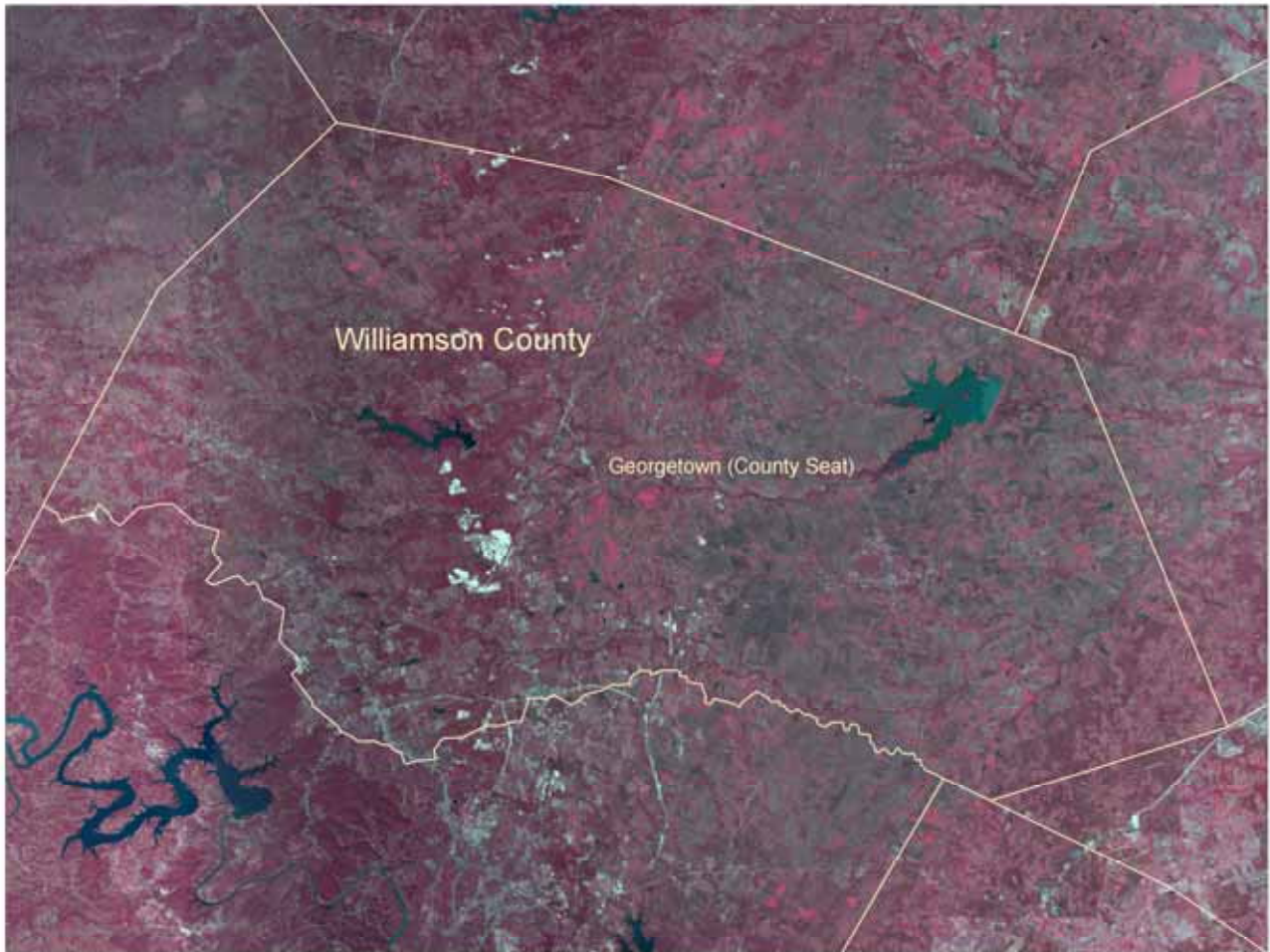


Figure 1: Aerial Photo of Williamson County

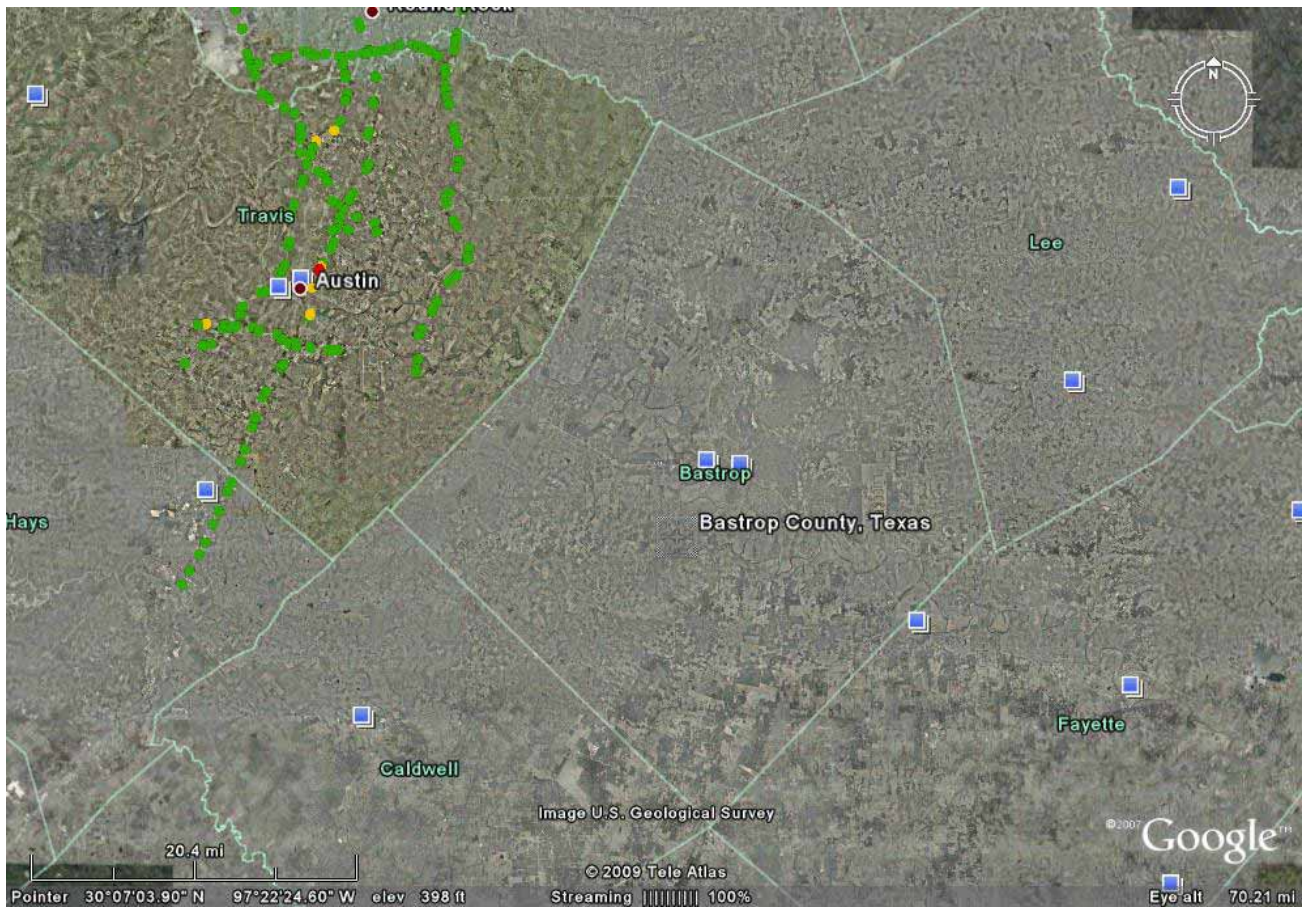


Figure 2: Aerial Photo of Bastrop County

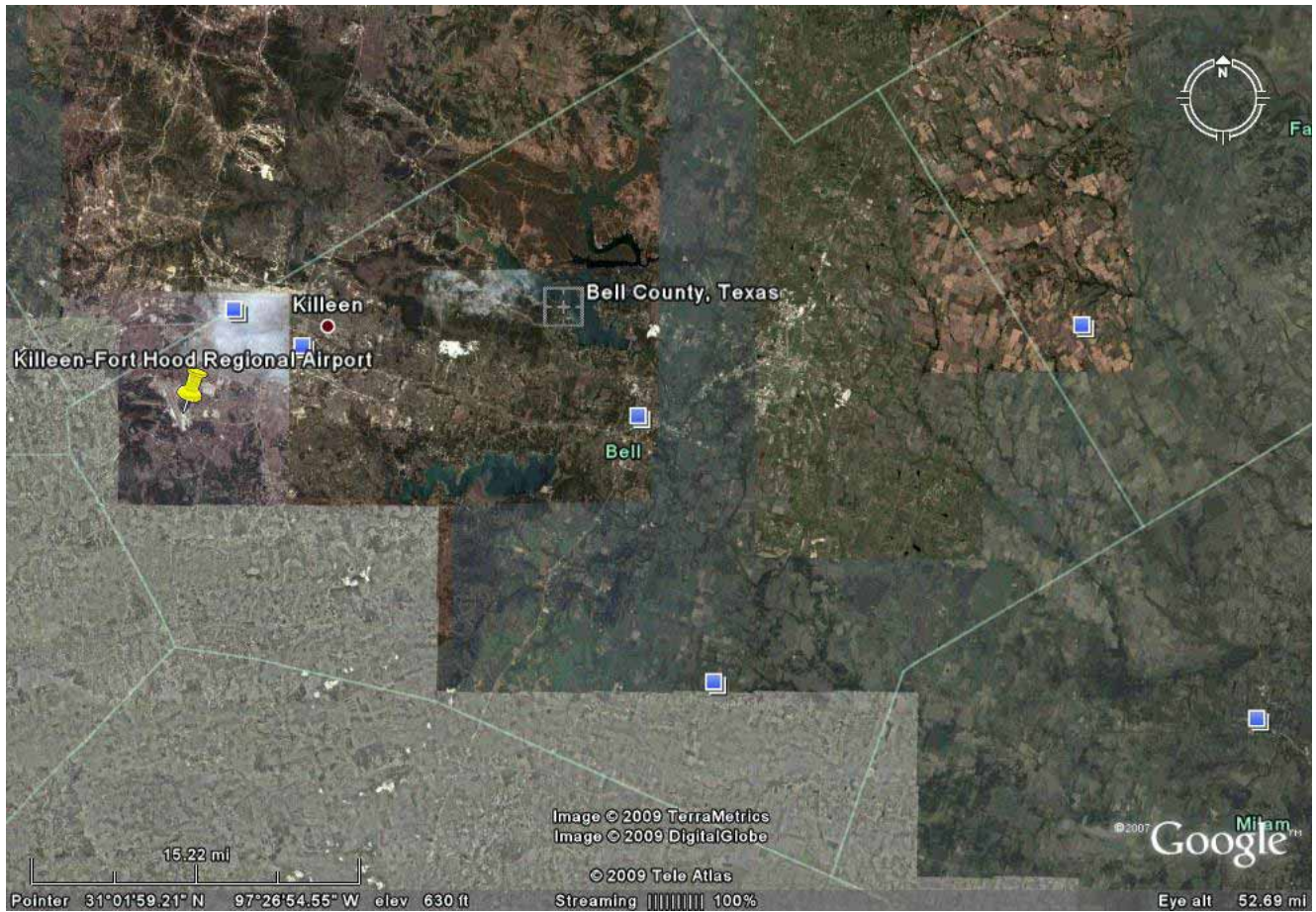


Figure 3: Aerial Photo of Bell County

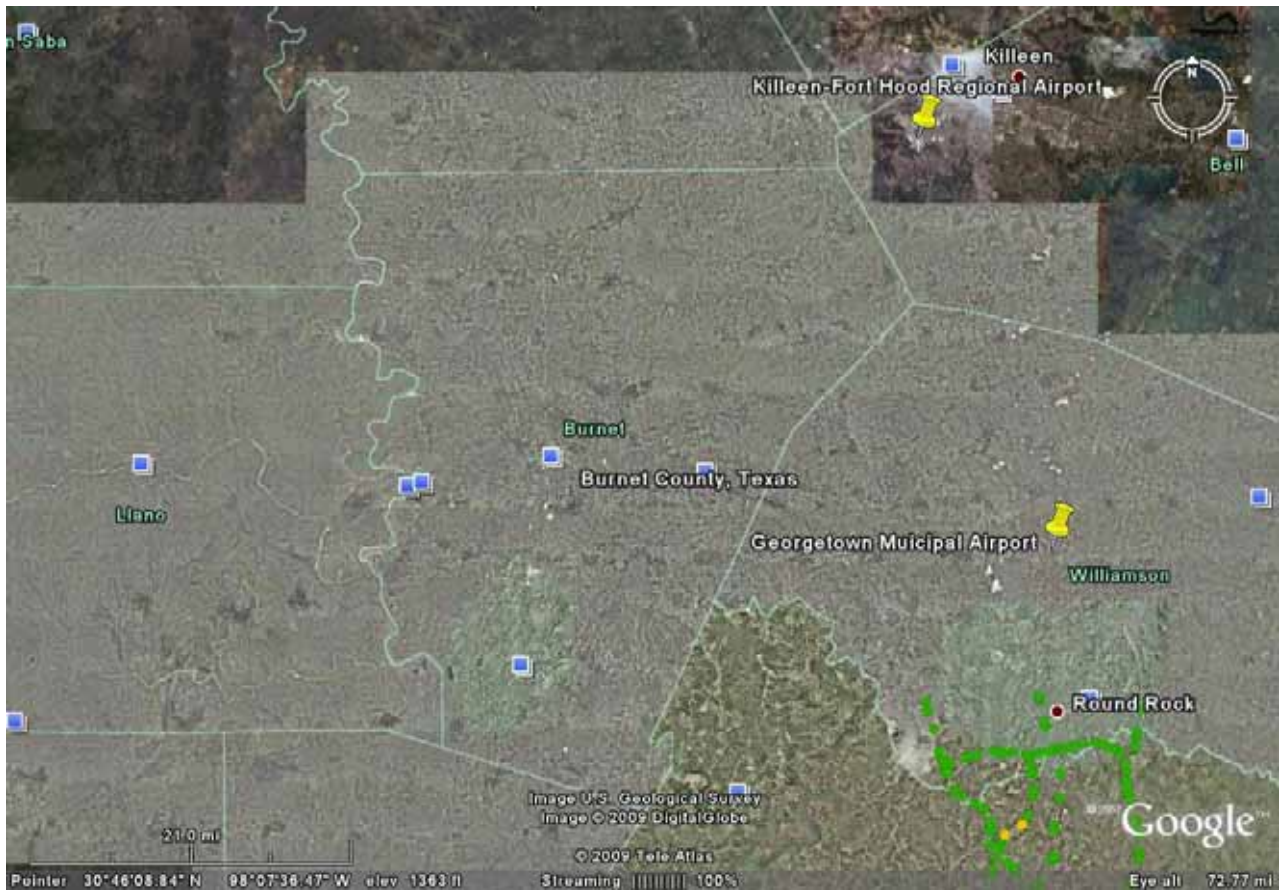


Figure 4: Aerial Photo of Burnet County



Figure 5: Aerial Photo of Hays County

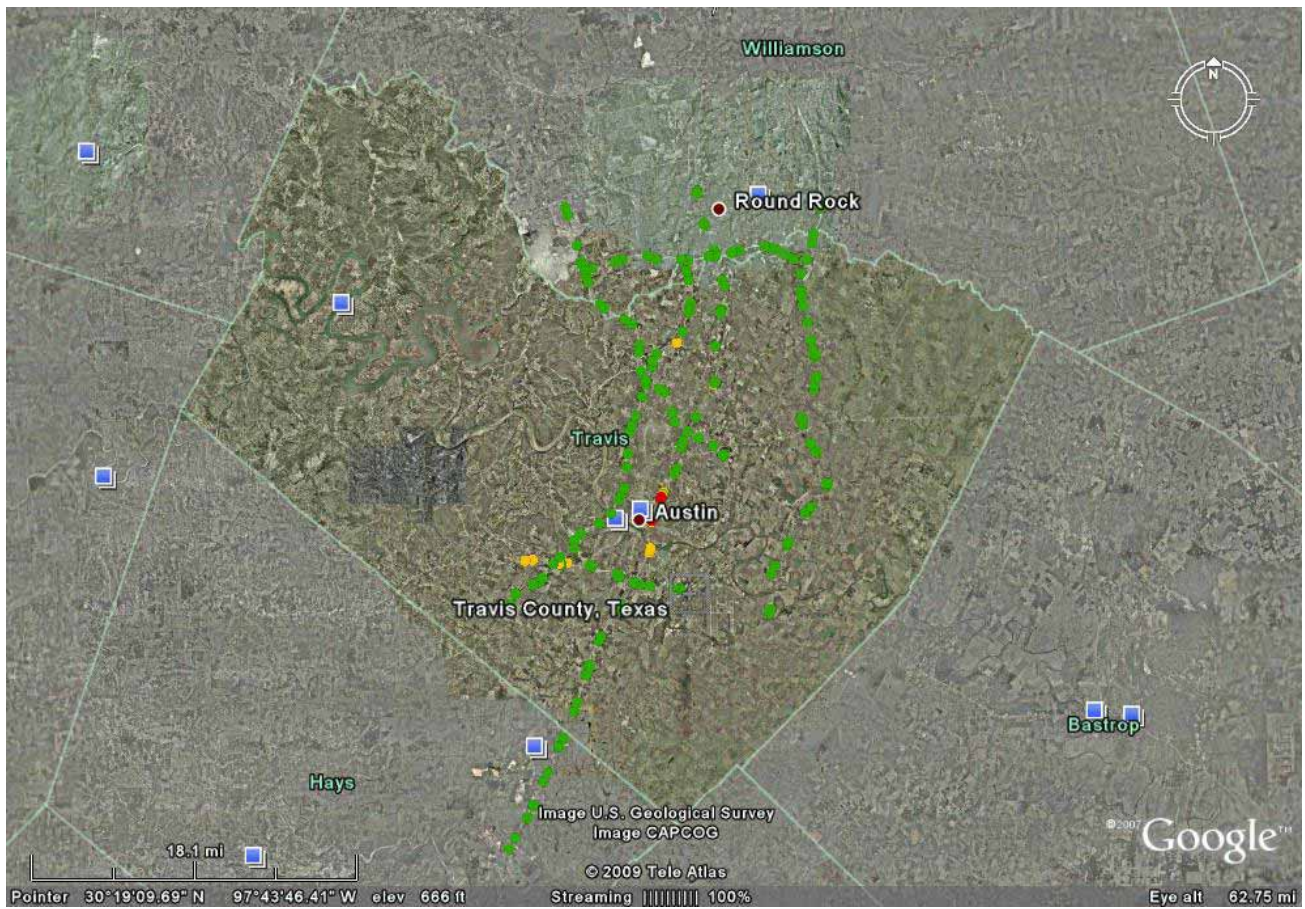


Figure 6: Aerial Photo of Travis County



Capital Area Council of Governments

PO Box 17848, Austin, TX 78760
512.916.6000 ~ Fax 512.916.6001
www.capcog.org

September 5, 2008

Texas Commission on Environmental Quality (TCEQ)

Buddy Garcia, Chairman

Larry R. Soward and Bryan W. Shaw, Ph.D., Commissioners

Executive Director Mark Vickery

P. O. Box 13087, (MC-100)

Austin, Texas 78711-3087

Re: Comments on Air Quality Boundary Designations for the 2008 8-hour
Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

Dear TCEQ Commissioners and Executive Director:

The Central Texas Clean Air Coalition (CAC) appreciates the opportunity to comment on the Texas Commission on Environmental Quality (TCEQ) designation recommendations to the U.S. Environmental Protection Agency (EPA) for the 2008 ground-level ozone NAAQS. The CAC is an association of elected officials representing 5 counties and 7 cities in the rapidly growing Austin-Round Rock Metropolitan Statistical Area (A-RR MSA). In addition to this comment period, the CAC recommends an additional comment opportunity be made available after the TCEQ develops draft boundary and designation recommendations.

The CAC would like to take this comment opportunity to supply the TCEQ with data needs suggested by the eleven factors detailed in Section 5 of the EPA's guidance memorandum (March 28, 2000, Boundary Guidance on Air Quality Designations for the 8-hour Ozone National Ambient Air Quality Standard) and the needs for regional strategies as noted in Section 7 of the same memo. Following are key issues for consideration by TCEQ in the process of determining nonattainment boundaries, attainment dates, and regional strategies (supporting documentation attached with this letter):

- Voluntary compliance efforts similar to the Early Action Compact, a proven success strategy, should be offered as a viable option to the traditional nonattainment process for areas such as Austin, which is already monitoring ozone levels close to the federal standard.
- We recommend that TCEQ keep intact discrete, well-established air quality planning areas when making boundary recommendations. We believe that effectiveness of planning efforts would be significantly diminished if the A-RRMSA was linked with San Antonio into a combined planning district.
- We ask TCEQ's assistance, though implementation of robust regional strategies and improved alignment of attainment dates, in mitigating the effects of ozone transport on our MSA counties. To reduce background contributions within the State, emission reductions for large combustion sources within the state ozone transport region should be considered.

Clean Air Coalition:

Chairman
Mayor Will Wynn
City of Austin

Vice-Chair
Judge Samuel
Biscoe
Travis County

Commissioner Clara
Beckett
Bastrop County

Mayor James
Bertram
City of Lockhart

Commissioner
Ron Morrison
Williamson County

Mayor Mike
Hendricks
City of Luling

Mayor Marc Holm
City of Elgin

Mayor Alan McGraw
City of Round Rock

Mayor
Susan Narvaiz
City of San Marcos

Commissioner
Karen Ford
Hays County

Mayor Terry Orr
City of Bastrop

Judge H. T. Wright
Caldwell County

- Air permitting policy for pre-construction review may need revisions to require a photochemical grid modeling evaluation for ozone impacts of emissions from significant new industrial plants, and to have regional ozone impacts addressed in the permit process.

The CAC appreciates your consideration of these comments and looks forward to an opportunity to review TCEQ's draft boundary and designation recommendation. Please feel free to contact Bill Gill or Cathy Stephens, Co-chairs of the Clean Air Coalition Advisory Committee (CACAC), with any questions concerning these comments.

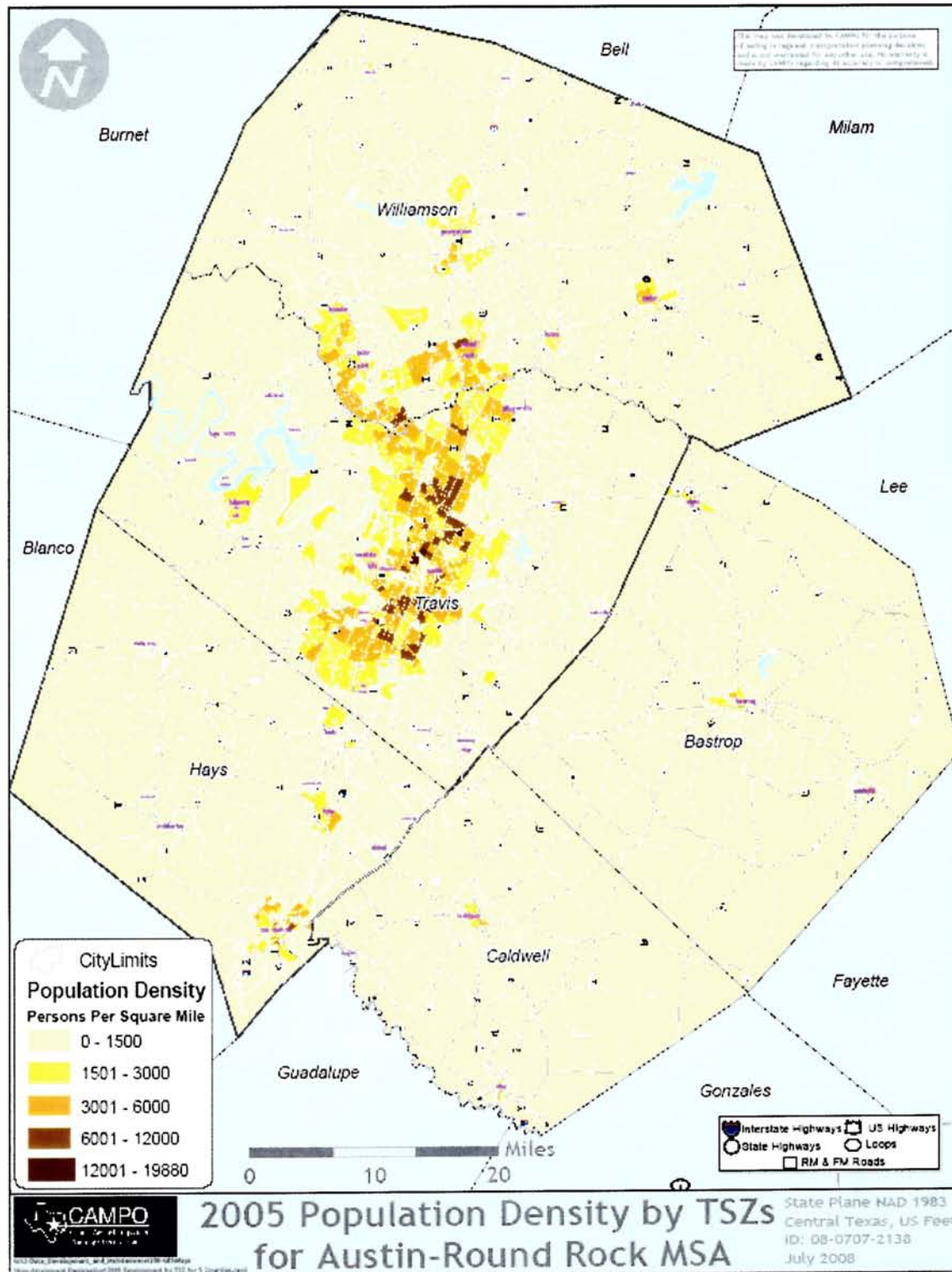
Regards,

A handwritten signature in black ink, appearing to read 'Will Wynn', with a stylized, cursive-like flourish at the end.

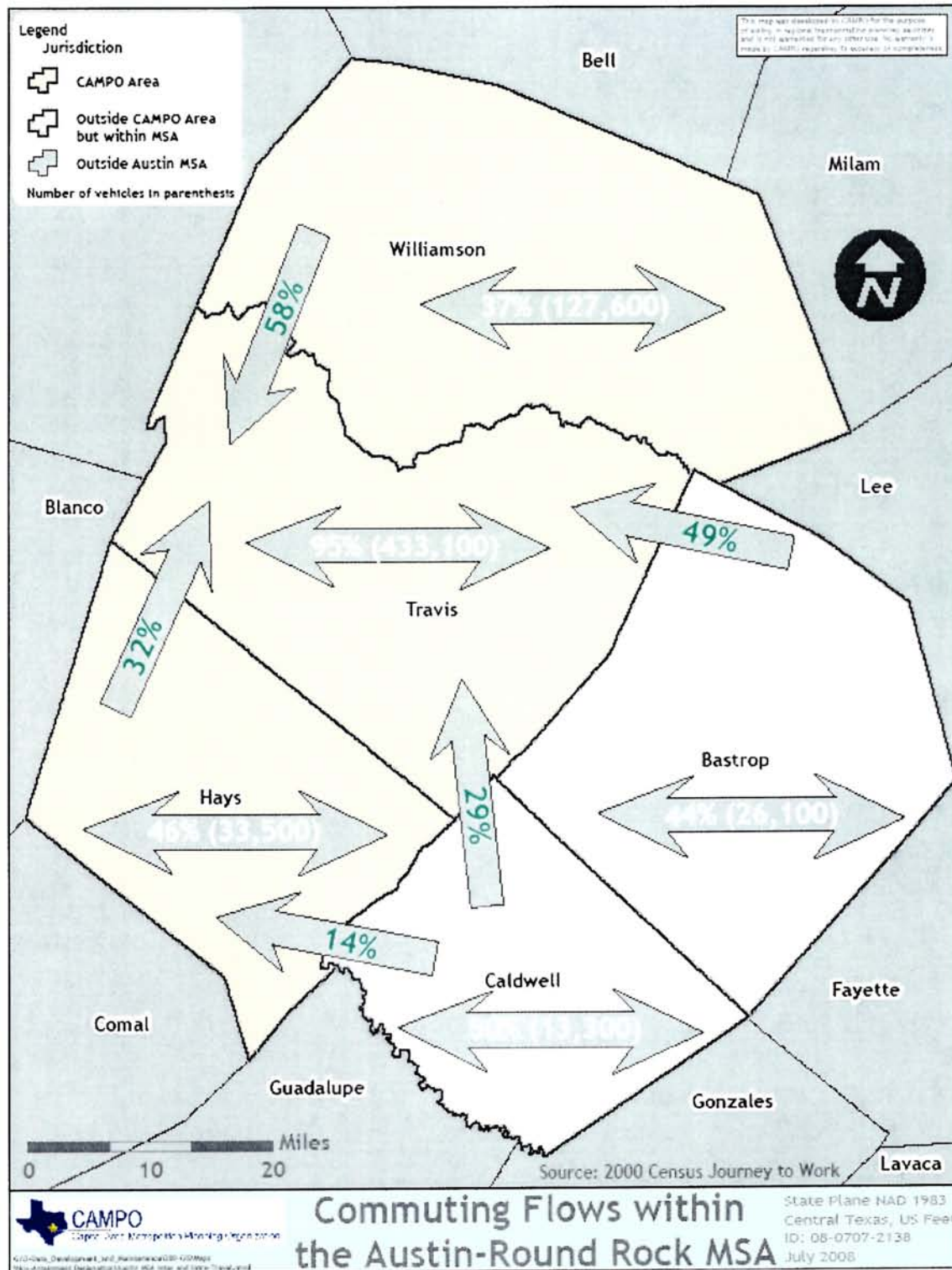
Will Wynn
Austin Mayor
Chairman, Central Texas Clean Air Coalition

Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

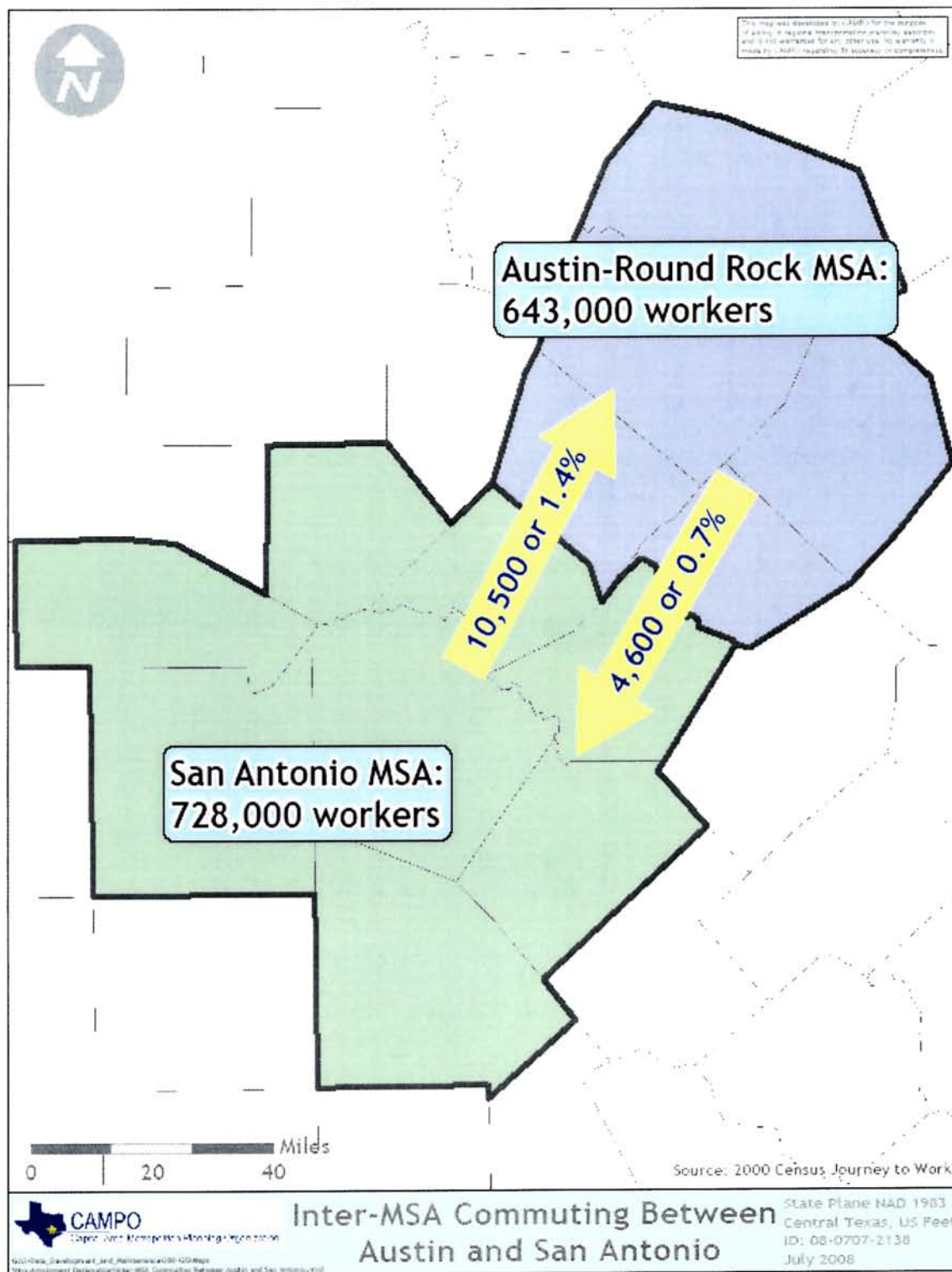
Additional Documentation Provided for Addressing Transportation Related Criteria Which may Affect Nonattainment Boundaries



Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)



Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)



Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

Voluntary compliance efforts

Central Texas has a history of successful collaboration with TCEQ and EPA in producing and implementing voluntary air quality plans. These plans, 1-hour Ozone Flex, Early Action Compact (EAC), and 8-hour Ozone Flex, have allowed the region to build an infrastructure of stakeholders, elected officials and staff members who are well prepared to develop a voluntary compliance plan should that option become available.

Through the Clean Air Coalition's (CAC's) leadership and support from the Texas Legislature, the TCEQ, and the EPA, the Austin-Round Rock MSA (A-RR MSA) has successfully developed and implemented two Memorandums of Agreement (MOA) to voluntarily implement measures sufficient to ensure continued attainment of the ozone NAAQS: the 1-hour Ozone Flex Plan and the EAC. Efforts undertaken by the CAC and its represented local governments as part of the EAC have been instrumental in achieving air quality improvements as indicated in the ozone design value decrease shown in Figure 1. Some of the measures implemented include a vehicle inspection and maintenance program, locally enforced heavy vehicle idling limits, power plant emission reductions and almost 200 measures selected and implemented by local governments. The CAC is currently working on a third MOA, the 8-hour Ozone Flex Plan which was recently approved by the TCEQ.

Voluntary compliance efforts such as the EAC have proven effective and should be an available option for areas that may violate the new ozone standard. These efforts result in emissions reductions sooner than would occur under the traditional nonattainment process. They also promote greater buy-in from elected officials and citizens in the local areas. Local areas can help tailor an emissions reduction plan that works for the areas' specific circumstances. Costly prescribed regulations that are not always suited to local needs can then be used only when appropriate. As in the EAC, the traditional nonattainment process could be required if the voluntary efforts are not successful, with no delays in the traditional nonattainment process.

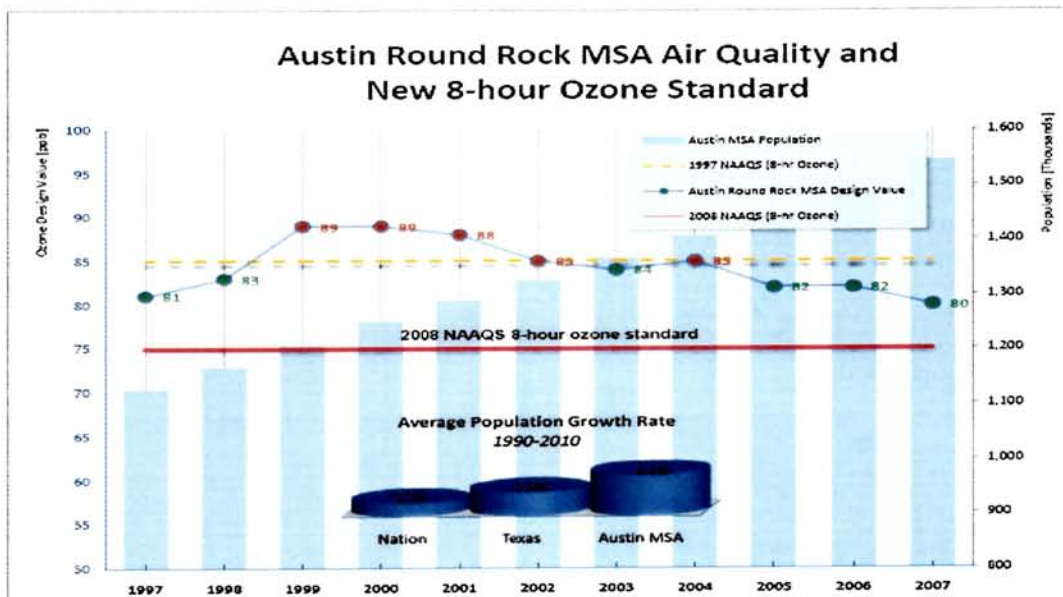


Figure 1 – Ozone design value trend

Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

Emissions Inventory Composition and Trends

Regional planning initiatives continue to focus on reducing NO_x and VOC emissions from A-RR MSA ozone contributing source categories. Figures 2 and 3 show anthropogenic NO_x and VOC emissions from the 2005 Emissions Inventory in tons per day for four major contributing source categories represented in each of the A-RR MSA counties. The predominant sources of anthropogenic VOC and NO_x in the A-RR MSA are on-road, non-road, and area.

Anthropogenic Sources of NO_x and VOC in the A-RR MSA (2005)

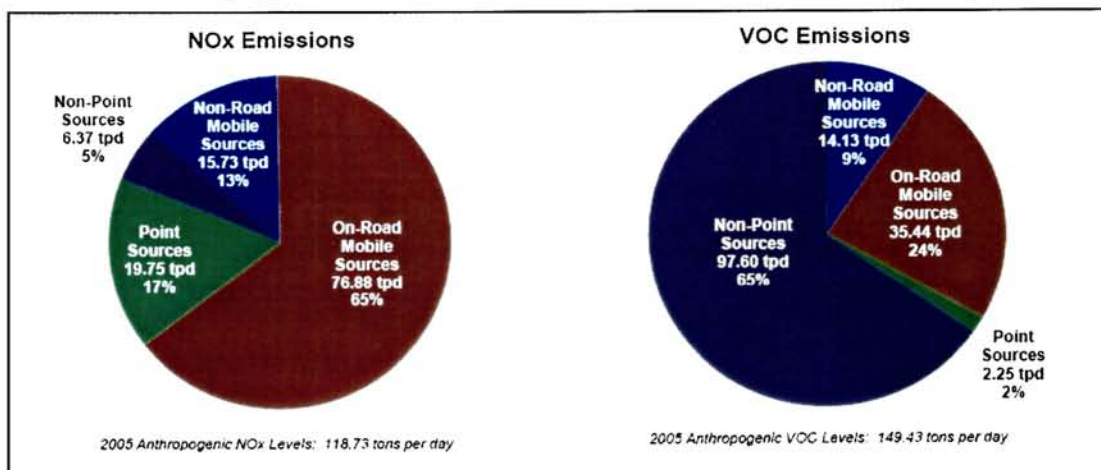


Figure 2 - Anthropogenic sources of NO_x and VOC from the TCEQ 2005 Emissions Inventory.

Anthropogenic Sources of NO_x and VOC in the A-RR MSA (2015)

Figure 3 - The 2015 emissions for the on-road mobile sources was obtained from Texas Transportation Institute (TTI) report: "Austin Early Action Compact Region On-Road Mobile Source Emissions Inventories: 2007, 2015, And 2030: Revised Emissions Results", TTI, February 2007; The non-road growth factors were developed by running the US EPA NONROAD model for years 2002, 2005, 2007, 2012 and 2015. Similarly, the area and point source emission trends were also developed by applying growth factors; however, the growth factors were obtained from the 2003 EAC document and applied to the 2005 TCEQ Emissions Inventory data. The represented 2015 emission projections were developed by using an interpolation method for both area and point source categories.

The change in emissions shown in Figure 2 and 3 suggests that the A-RR MSA will see significant reduction of NO_x and VOC from on-road and non-road mobile, with no significant change in point source emissions.

In 2007, the Texas Transportation Institute (TTI) performed and documented a regional emissions analysis for the A-RR MSA for 2007, 2015, and 2030. This analysis predicts that total Vehicle Miles Travelled (VMT) for the MSA will increase through 2030, while overall emissions from on-road mobile sources are expected to decrease (see Figure 4). The decrease in on-road mobile emissions can be attributed to technological improvements and refinements to emission standards over time.

Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

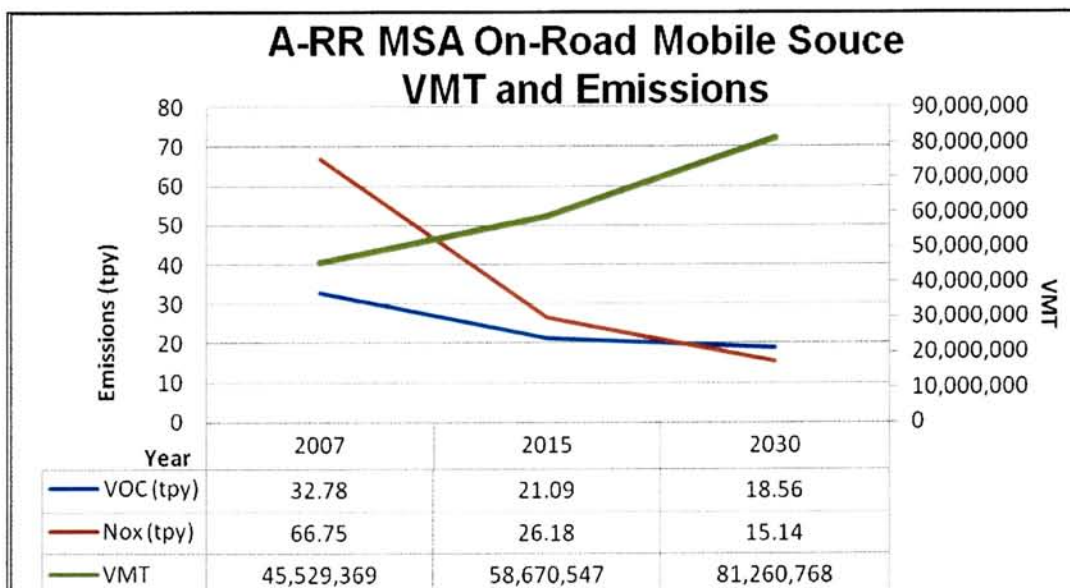


Figure 4 – VMT and emissions trends for onroad mobile sources in Austin-Round Rock MSA

As federally mandated reduction measures are implemented for mobile sources, it will become increasingly difficult to identify new areas within the A-RR MSA for emission reductions.

Transport and high background levels

As noted in EPA's 8-hour guidance memorandum on ozone nonattainment designations, regional strategies such as those employed in the Ozone Transport Region in the Northeast U.S. and in the EPA NOx SIP call are needed to address the long-range transport component of ozone nonattainment.

The HYSPLIT (Hybrid Single-Particle Lagrangian Integrated Trajectory) model was used to investigate the potential source regions of air entering the A-RR MSA. HYSPLIT uses meteorological model forecast data from the National Centers for Environmental Prediction (NCEP) archived by Air Resources Laboratory (ARL). Figures 5 and 6 present the residence time maps for the 20% highest ozone days for June and September based on the maximum ozone concentration at either the Murchison or Audubon monitoring station during the years 2001 through 2005. These back trajectories suggest long-range transport of continental air into the MSA from upwind areas located to the east and northeast of Texas. Multi-day high ozone episodes are often associated with a ridge of high pressure that extends southwestward into Texas. The transport pattern prior to high ozone days is consistent with the large-scale clockwise circulation around this high pressure ridge. This high pressure ridge is often associated with local meteorological conditions that are favorable for the formation and accumulation of ground-level ozone. In addition, the continental air mass transported into the MSA likely contains elevated concentrations of ozone and its precursor compounds associated with both biogenic and anthropogenic emissions from sources located in states and other areas of Texas upwind of the A-RR MSA (Austin Conceptual Model, UT Austin, 2007).

**Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality
Boundary Designations for the 2008 8-hour Ground-level Ozone National
Ambient Air Quality Standard (NAAQS)**

**Trajectory Residence Time In Percent for the Top 20% 8-Hour Ozone Days
Years 2001 - 2005: June; AUSTIN**

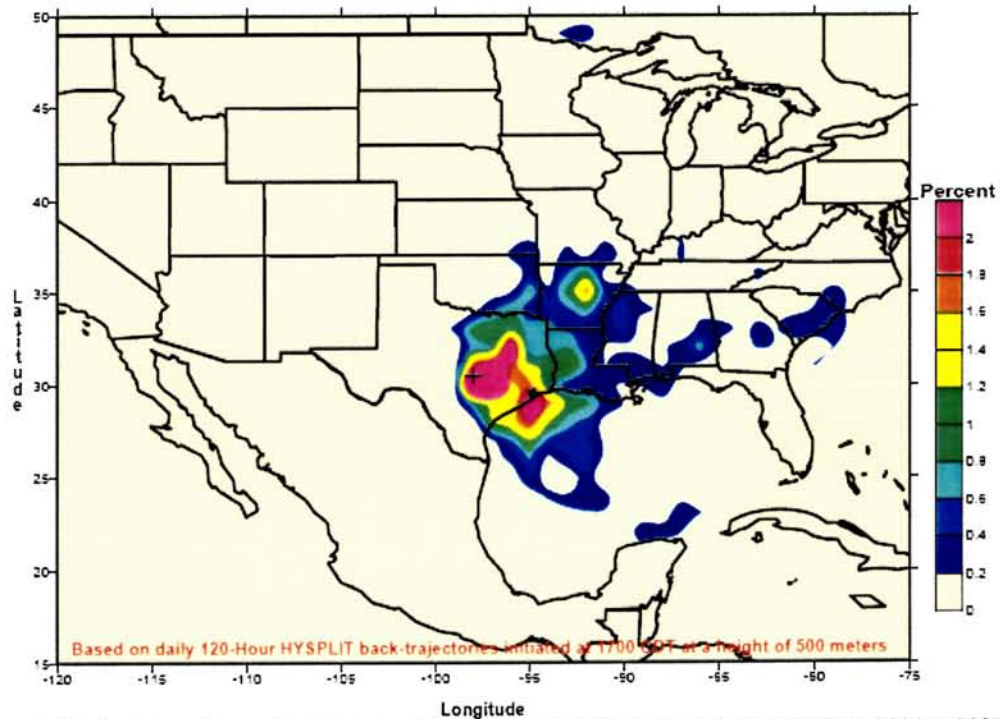


Figure 5 - Trajectory residence time in percent for the highest 20% ozone days in June from 2001 to 2005.

Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

**Trajectory Residence Time In Percent for the Top 20% 8-Hour Ozone Days
Years 2001 - 2005: September; AUSTIN**

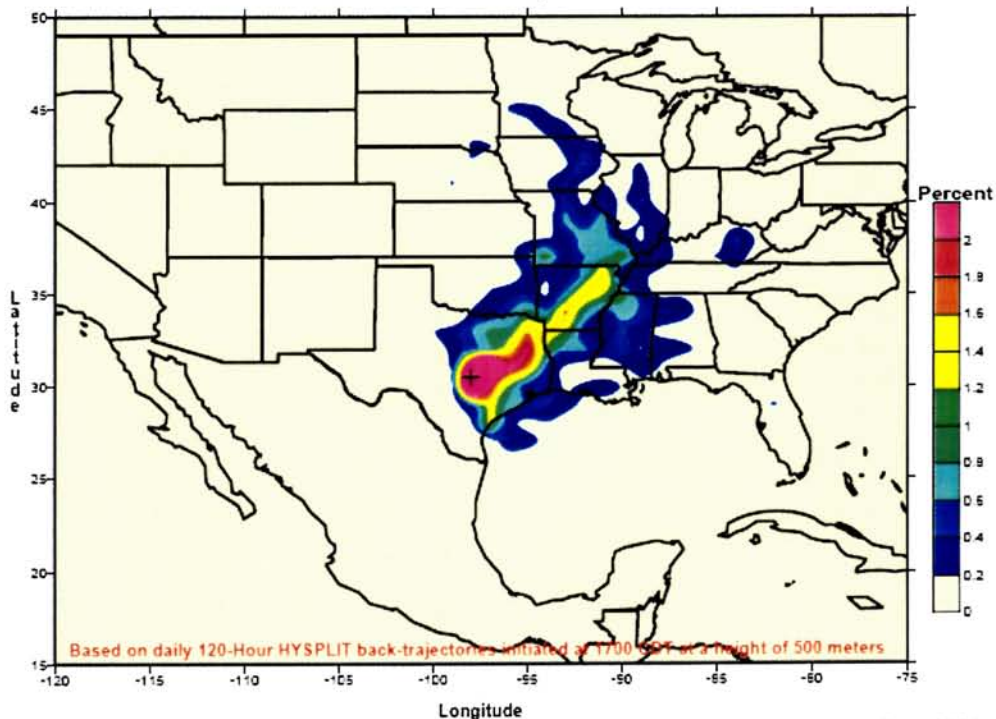


Figure 6 - Trajectory residence time in percent for the highest 20% ozone days in September from 2001 to 2005.

According to the Austin Ozone Conceptual Model (The University of Texas at Austin, July 26, 2007), from 1993 through 2006, one or more monitoring stations measured 75 ppb or greater on 228 days. The number of high ozone days varied from a minimum of 6 in 1996 to a maximum of 34 in 1999. The frequency of occurrence of high ozone days over the course of a typical ozone season is characterized by a bi-modal distribution, with a primary peak in the frequency of high ozone days during the August through early October period and a secondary peak during late May and June. In recent years (2001 through 2006) the average number of late summer high ozone days declined substantially. The frequency of occurrence of high ozone days was equally distributed between the May/June and August/September peaks.

The common meteorological condition occurring with high ozone is a clockwise circulation around a surface ridge of high pressure, often centered over the Central Plains or Ohio/Mississippi River Valleys. It generates northeasterly or easterly wind that transports continental air and haze into eastern Texas. This continental air mass is often characterized by reduced visibility, and likely contains elevated concentrations of ozone and its precursor compounds associated with both biogenic and anthropogenic emissions. High ozone concentrations are often measured at monitoring stations throughout the eastern half of Texas.

In the A-RR MSA, monitoring data collected during these episodes shows background ozone concentrations of typically 80-85% of the observed local maximum. Based on

Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

these analyses, the enhancement of ozone concentrations due to emissions from sources within the A-RR MSA generally ranged between 10 ppb and 20 ppb on individual high ozone days, with an average enhancement of 15 ppb. With background concentrations ranging from 65 ppb to 75 ppb, even relatively small contributions of ozone formed from local source emissions in the A-RR MSA would have resulted in an exceedance of the 8-hour ozone National Ambient Air Quality Standard (NAAQS).

The A-RR MSA and other areas are significantly impacted by interstate and intrastate transport from sources outside the MSA or presumed nonattainment area. Figure 7 demonstrates monitored background ozone levels above the new standard. Based on these monitor readings, the MSA would violate the standard due to transported emissions and high background levels that will not be reduced by implementing controls in the MSA area. Given this, EPA and the states must significantly reduce transported and background emissions if compliance to a lower standard is to be achieved.

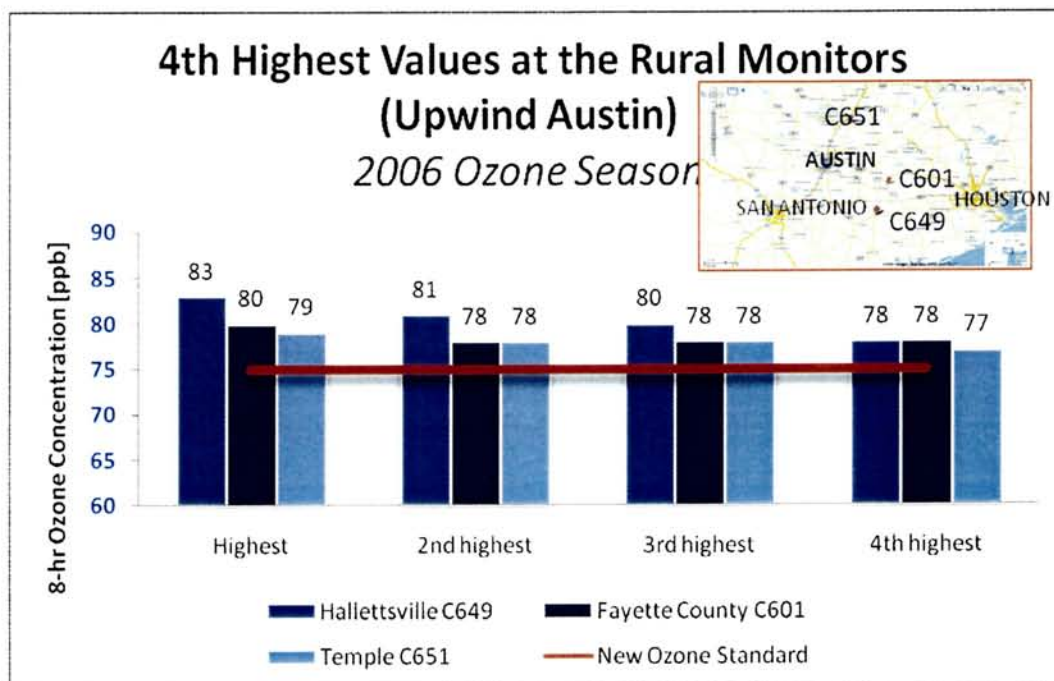


Figure 7 - Four highest ozone readings in 2006 at the Austin upwind monitors

Transported emissions often come from heavily polluted upwind areas, many of which are already ozone nonattainment areas. Recent airborne monitoring conducted by the Baylor Institute of Air Sciences (see Figure 8) demonstrates the extent to which an urban ozone plume emanating from a large nonattainment area can impact areas far downwind of the source region. The federal classification scheme for nonattainment areas allows heavily polluted areas more time to attain than those with lesser pollution problems. Given the prevalence of transport and high background emissions, attainment dates for all areas should be closely aligned, since areas with lesser pollution problems will not be able to attain until the more heavily polluted areas have significantly reduced emissions. It may be prudent and necessary to accelerate heavily polluted areas' attainment deadlines to adequately protect public health.

Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

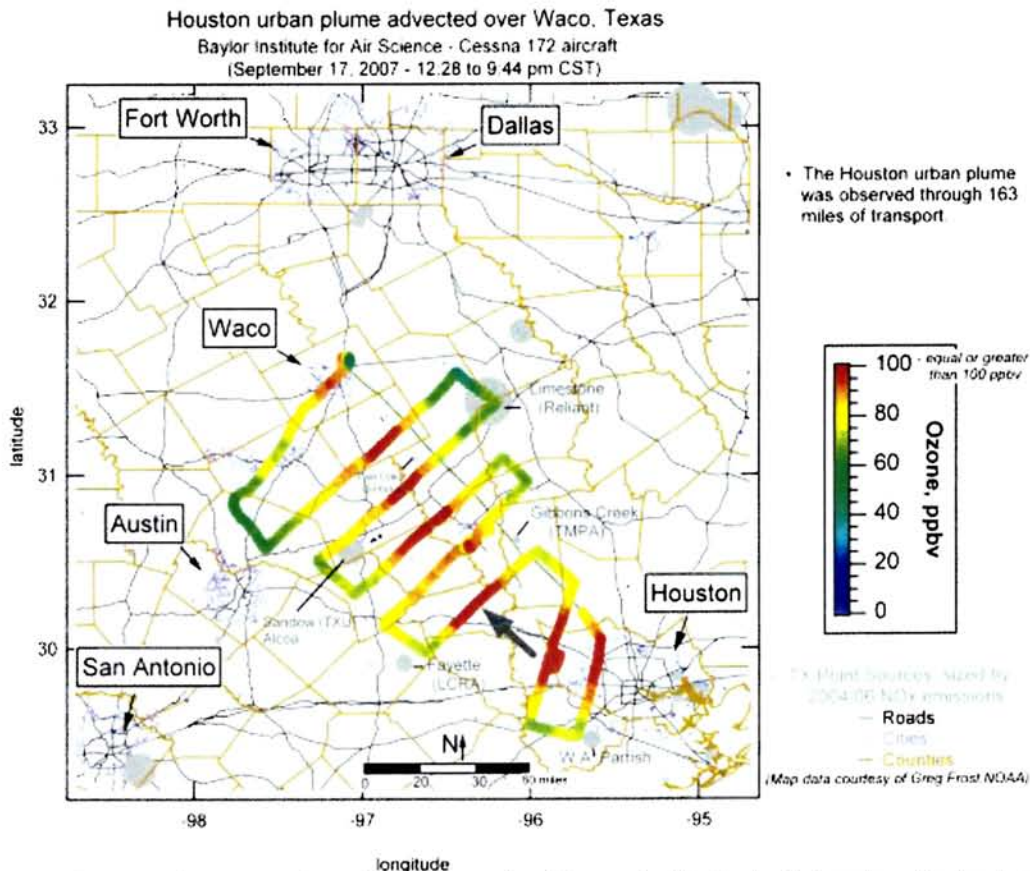


Figure 8 Houston urban ozone plume. Airborne sampling data acquired by Baylor University on September 17, 2007

State and Federal permitting rules and policies

Current interpretation of permitting rules and policies does not require evaluation or consideration of the effect of emissions from a proposed point source will have on regional ozone levels or downwind areas. Figure 9 demonstrates the impact a significant source outside of the immediate MSA can have on ozone readings. Figure 10 shows the amount of large point sources outside of the A-RR MSA that have the potential to impact air quality in the MSA. Both state and federal permitting rules and policies need to be revised or clarified to require an evaluation of the emissions impacts of a proposed point source on regional ozone and downwind areas. The rules and policies should also consider modification of the permit if impacts cannot be sufficiently minimized or mitigated to avoid adverse health impacts or violations of the NAAQS in the affected region or downwind area.

Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

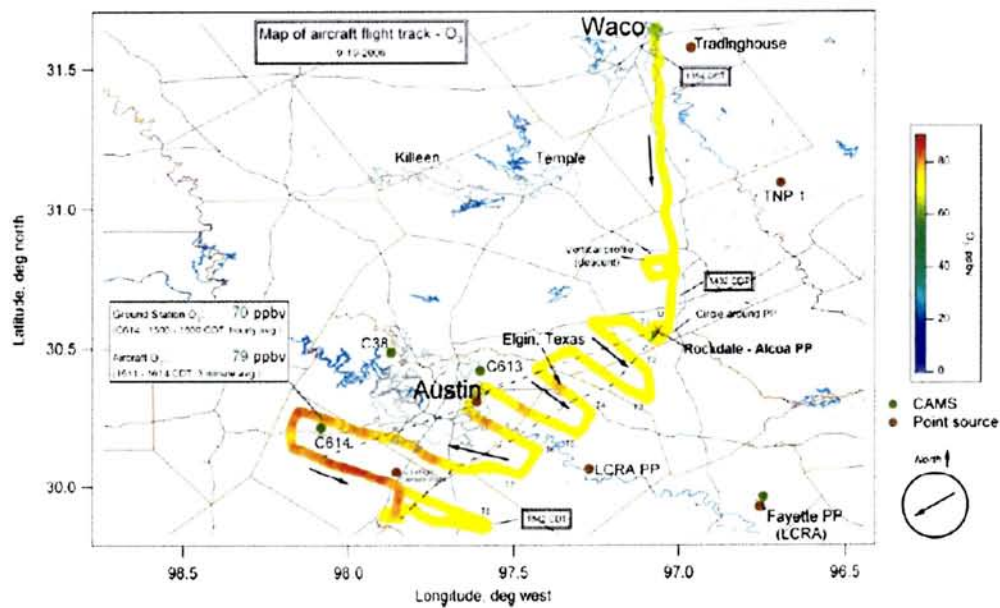


Figure 9 - Map of color-coded ozone concentrations along flight track showing an increase of ozone downwind of the Alcoa-Sandow facility and two transects downwind of Austin, Texas.

Attachment for Clean Air Coalition Comments to the TCEQ on Air Quality Boundary Designations for the 2008 8-hour Ground-level Ozone National Ambient Air Quality Standard (NAAQS)

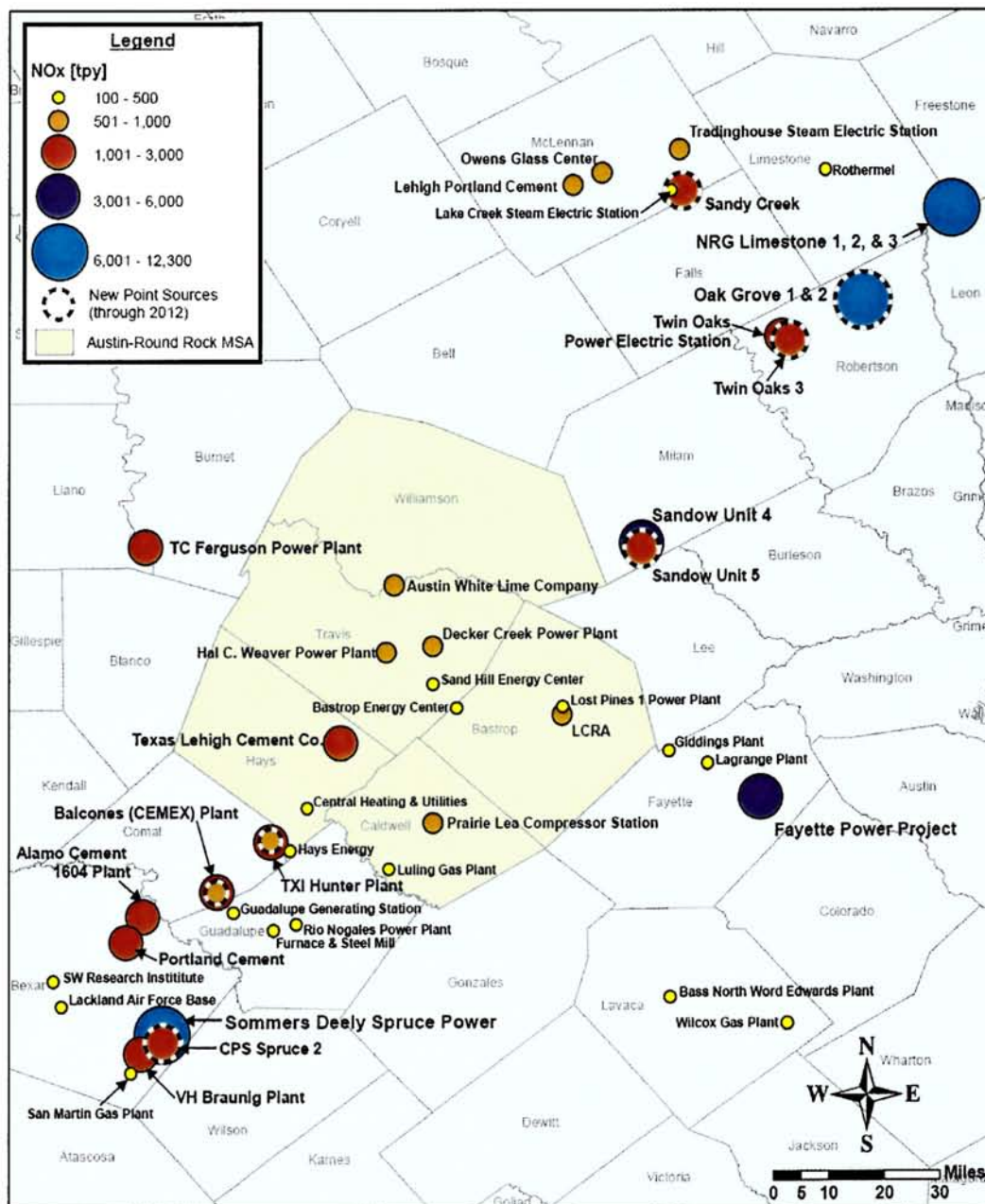


Figure 10 - Map of existing and new significant point sources in and around the Austin-Round Rock MSA.

**CAMPO***Capital Area Metropolitan Planning Organization***RECEIVED****AUG 29 2008****AIR QUALITY
DIVISION**

August 25, 2008

Texas Commission on Environmental Quality (TCEQ)
Buddy Garcia, Chairman
Larry R. Soward, Commissioner
Bryan W. Shaw, Ph.D., Commissioner
Post Office Box 13087, MC 100
Austin, Texas 78711-3087

Dear Chairman and Commissioners:

Thank you for the opportunity to comment on the state's boundary and designation recommendation in response to the U.S. Environmental Protection Agency's revised ozone standard. We look forward to working with TCEQ to help ensure clean air for all Texans.

On August 11, 2008, the Capital Area Metropolitan Planning Organization (CAMPO) Transportation Policy Board passed a resolution detailing CAMPO's comments. I have enclosed a copy.

I am always available to answer questions or to provide further information. Please do not hesitate to contact me at 512.974.6441 or by email at joe.cantalupo@campotexas.org.

Best regards,

Joseph Cantalupo, AICP
Executive Director
Capital Area Metropolitan Planning Organization

Cc: Margie McAllister



CAMPO *Capital Area Metropolitan Planning Organization*

RESOLUTION of the Capital Area Metropolitan Planning Organization Transportation Policy Board

WHEREAS, on March 12, 2008 the United States Environmental Protection Agency (EPA) lowered the 8-hour ozone standard to 0.075 ppm and the Austin area could be subject to a nonattainment designation under the revised standard; and

WHEREAS, the Governor, in consultation with the Texas Commission on Environmental Quality (TCEQ), recommends nonattainment boundaries for EPA's consideration; and

WHEREAS, TCEQ is taking comments on process and boundaries through September 5, 2008; and

WHEREAS, CAMPO works to improve regional air quality and to keep the region in attainment and CAMPO is responsible for transportation conformity determinations if the region becomes nonattainment and

WHEREAS, a transportation conformity lapse can result in delayed federal transportation funding; and

WHEREAS, it is in the best interest of CAMPO and of the region it serves to communicate comments to TCEQ;

NOW, THEREFORE, BE IT RESOLVED BY THE CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION that:

TCEQ should fully support inclusion of a voluntary compliance component in EPA's designation process for the revised 8-hour ozone standard.

Central Texas is proud of its successful voluntary air quality improvement plans and is eager for the opportunity to address the revised ozone standard through a voluntary program. In cooperation with EPA and TCEQ, the region has developed and implemented:

- The 1-hour Ozone Flex Plan to maintain the 1-hour standard;
- The Early Action Compact (EAC) to address the 0.08 ppm 8-hour standard; and
- The 8-hour Ozone Flex Program, which is expected to take effect in September and support continued compliance with the 0.08 ppm 8-hour standard.

The region's emissions inventory composition and trends are well suited to an EAC-style approach to compliance with the 0.075 ppm 8-hour standard. Analysis suggests that the region's on-road mobile source emissions, a major factor in our ozone production profile, will decrease significantly by 2015 in response to federally mandated fuel and fleet measures. The rapid implementation schedule of a voluntary plan offers the possibility of remaining under the previous attainment standards while allowing time for these measures to take effect.

TCEQ should keep intact discrete, well-established air quality planning groups and processes when making boundary recommendations.

We believe that the Austin-Round Rock Metropolitan Statistical Area (MSA) would suffer if linked with San Antonio into an unwieldy combined planning district. Please note that:

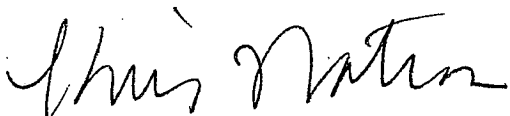
- Our MSA has an active, well-established air quality planning group that has enjoyed extraordinary success and should remain intact;
- A combined planning area would overly complicate transportation conformity issues by including multiple MPOs and TxDOT districts; and
- Analysis of commute, employment, and population data suggests that the two areas remain distinct.

TCEQ should assist, though implementation of robust regional strategies and improved alignment of attainment dates, in mitigating the effects of interstate and intrastate ozone transport.

Our MSA receives transported emissions from heavily polluted upwind areas, many of which are already in nonattainment. We will have to rely, in part, on regional strategies to insure our compliance with the 0.075 ppm standard.

The federal classification protocol for nonattainment areas allows heavily polluted areas more time to attain than those with lesser pollution problems. This puts Central Texas in the awkward position of trying to meet the revised standard well in advance of the attainment schedules of the upwind pollution sources. We suggest accelerated attainment deadlines for heavily polluted areas.

PASSED and APPROVED this day of August 11, 2008



Senator Kirk Watson
Chair, CAMPO Transportation Policy Board

7/11/08 PRELIMINARY DISCUSSION DRAFT of CACAC Comments for TCEQ
Public Meeting on Ozone NNA Designation

The Clean Air Coalition Advisory Committee (CACAC) appreciates this chance to provide information related to potential ozone nonattainment boundaries and designations for the Austin region. The CACAC is the regional staff level committee that provides support for the elected officials of the Clean Air Coalition (CAC) for the Austin-Round Rock MSA (A-RR MSA).

We suggest an additional comment opportunity after the Texas Commission on Environmental Quality (TCEQ) develops draft boundary and designation recommendations, and encourage TCEQ to actively engage regional air quality planning groups and local jurisdictions when developing draft and final recommendations.

This public meeting provides the CACAC with an opportunity to address data needs suggested by the eleven factors detailed in Section 5 of the U.S. Environmental Protection Agency's (EPA's) guidance memorandum (March 28, 2000, *Boundary Guidance on Air Quality Designations for the 8-hour Ozone National Ambient Air Quality Standard*) and the needs for regional strategies as noted in Section 7 of the same memo.

Central Texas has a history of successful collaboration with TCEQ and EPA in producing and implementing voluntary air quality plans. These plans, 1-hour Ozone Flex, Early Action Compact (EAC), and 8-hour Ozone Flex, have allowed the region to build an infrastructure of stakeholders, elected officials and staff members who are well prepared to develop a voluntary compliance plan should that option become available.

We urge TCEQ to keep distinct, well-established, planning groups and areas intact when making boundary decisions. Distinct planning areas should not be combined into larger areas; doing so would likely decrease the effectiveness of emission reduction efforts.

The following documentation is provided by CACAC representatives for consideration in the process of determining nonattainment boundaries, attainment dates and regional strategies:

- Voluntary compliance efforts, a proven success strategy, should be offered as a viable option to nonattainment.
- Future composition of emissions inventories for the A-RR MSA counties may indicate different strategies than for an urban area with significant point source emissions;
- Transport and background levels will have to be significantly reduced at the national and State levels; To reduce background contributions within the State emission reductions for large combustion source emissions within the state ozone transport region should be considered, as has been done for the Dallas SIP; Attainment dates for all nonattainment classifications should be more closely aligned;

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- Permitting rules may need to require an evaluation of ozone impacts using photochemical grid modeling and regional ozone impacts addressed in the permit process;
- Consideration may be given, as appropriate, to additional documentation provided for addressing criteria which may affect nonattainment boundaries. This includes maps of population and employment density in the MSA and commute patterns within the MSA Counties, as well as, between the Austin and San Antonio regions.

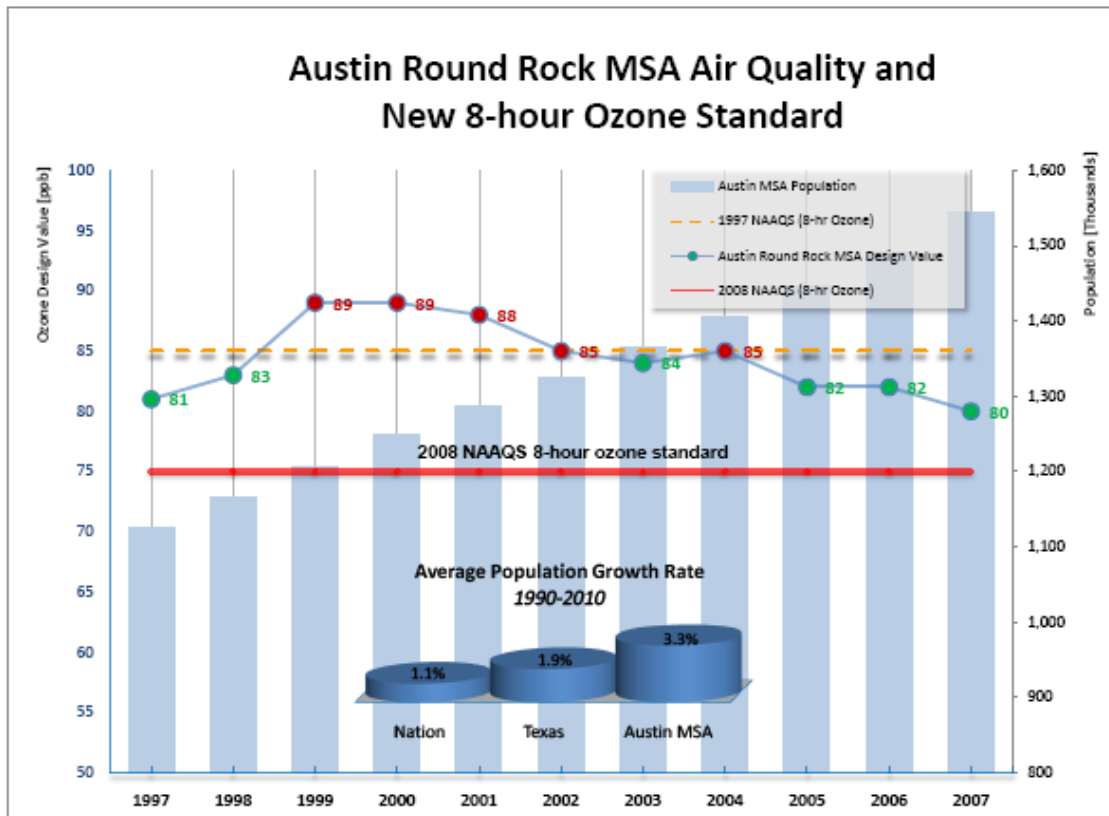


Figure 1 – Ozone design value trend

Voluntary compliance efforts

Through the CAC's leadership and support from the Texas Legislature, the TCEQ and the EPA, the MSA has successfully developed and implemented two Memorandums of Agreement (MOA) to voluntarily implement measures sufficient to ensure continued attainment of the ozone NAAQS: the 1-hour Ozone Flex Plan and the EAC. Efforts undertaken by the CAC and its represented local governments as part of the Early Action Compact have been instrumental in achieving air quality improvements as indicated in the ozone design value decrease shown in Figure 1. Some of the measures implemented include a vehicle inspection and maintenance program, locally enforced heavy vehicle idling limits, power plant emission reductions and almost 200 measures selected

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and implemented by local governments. The CAC is currently working on a third MOA, the 8-hour Ozone Flex Plan which was recently approved by the TCEQ.

Voluntary compliance efforts such as the EAC have proven effective and should be an available option for areas that may violate the new ozone standard. These efforts result in emissions reductions sooner than would occur under the traditional nonattainment process. They also promote greater buy-in from elected officials and citizens in the local areas. Local areas can help tailor an emissions reduction plan that works for the areas' specific circumstances. Costly prescribed regulations that are not always suited to local needs can then be used only when appropriate. As in the EAC, the traditional nonattainment process could be required if the voluntary efforts are not successful, with no delays in the traditional nonattainment process.

Emissions Inventory Composition and Trends

Regional planning initiatives continue to focus on reducing NO_x and VOC emissions from A-RR MSA ozone contributing source categories. Figures 2 and 3 show anthropogenic NO_x and VOC emissions from the 2005 Emissions Inventory in tons per day for four major contributing source categories represented in each of the A-RR MSA counties. The predominant sources of anthropogenic VOC and NO_x in the A-RR MSA are on-road, non-road, and area.

Anthropogenic Sources of NO_x and VOC in the A-RR MSA (2005)

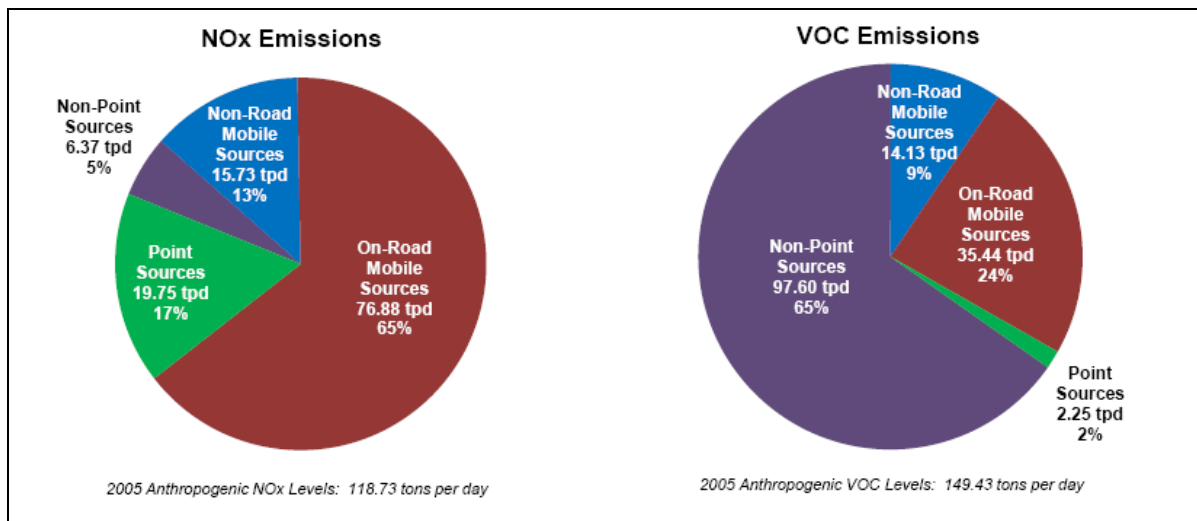


Figure 2 - Anthropogenic sources of NO_x and VOC from the TCEQ 2005 Emissions Inventory.

Anthropogenic Sources of NOx and VOC in the A-RR MSA (2015)

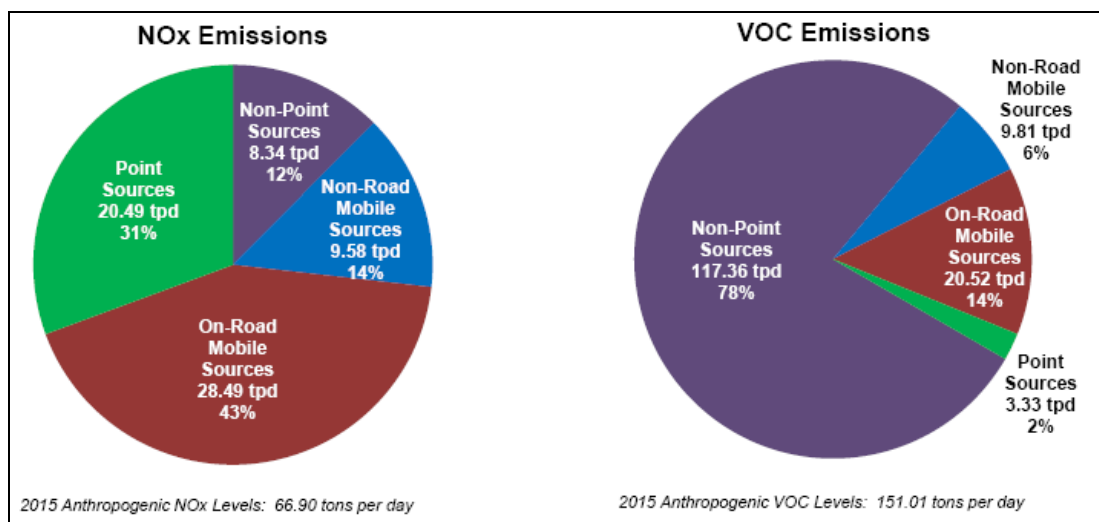


Figure 3 - The 2015 emissions for the on-road mobile sources was obtained from Texas Transportation Institute (TTI) report: "Austin Early Action Compact Region On-Road Mobile Source Emissions Inventories: 2007, 2015, And 2030: Revised Emissions Results", TTI, February 2007; The non-road growth factors were developed by running the US EPA NONROAD model for years 2002, 2005, 2007, 2012 and 2015. Similarly, the area and point source emission trends were also developed by applying growth factors; however, the growth factors were obtained from the 2003 EAC document and applied to the 2005 TCEQ Emissions Inventory data. The represented 2015 emission projections were developed by using an interpolation method for both area and point source categories.

The change in emissions shown in Figure 2 and 3 suggests that the A-RR MSA will see significant reduction of NOx and VOC from on-road and non-road mobile, with no significant change in point source emissions.

In 2007, the Texas Transportation Institute (TTI) performed and documented a regional emissions analysis for the A-RR MSA for 2007, 2015, and 2030. This analysis predicts that total Vehicle Miles Travelled (VMT) for the MSA will increase through 2030, while overall emissions from on-road mobile sources are expected to decrease (see Figure 4). The decrease in on-road mobile emissions can be attributed to technological improvements and refinements to emission standards over time.

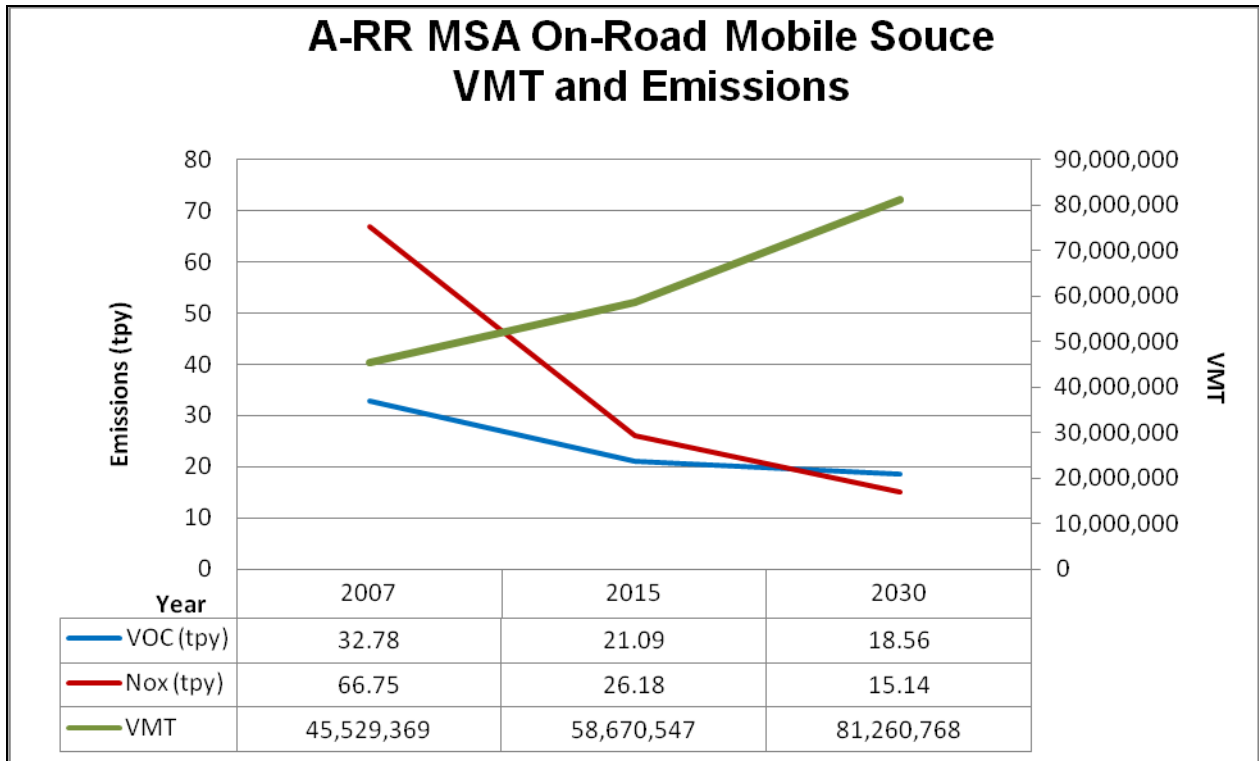


Figure 4 – VMT and emissions trends for onroad mobile sources in Austin-Round Rock MSA

As federally mandated reduction measures are implemented for mobile sources, it will become increasingly difficult to identify new areas within the A-RR MSA for emission reductions.

Transport and high background levels

As noted in EPA's 8-hour guidance on ozone nonattainment designations, regional strategies such as those employed in the Ozone Transport Region in the Northeast U.S. and in the EPA NO_x SIP call are needed to address the long-range transport component of ozone nonattainment. The HYSPLIT (Hybrid Single-Particle Lagrangian Integrated Trajectory) model was used to investigate the potential source regions of air entering the A-RR MSA. HYSPLIT uses meteorological model forecast data from the National Centers for Environmental Prediction (NCEP) archived by Air Resources Laboratory (ARL). Figures 5 and 6 present the residence time maps for the 20% highest ozone days for June and September based on the maximum ozone concentration at either the Murchison or Audubon monitoring station during the years 2001 through 2005. These back trajectories suggest long-range transport of continental air into the MSA from upwind areas located to the east and northeast of Texas. Multi-day high ozone episodes are often associated with a ridge of high pressure that extends southwestward into Texas. The transport pattern prior to high ozone days is consistent with the large-scale clockwise circulation around this high pressure ridge. This high pressure ridge is often associated with local meteorological

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7/11/08 PRELIMINARY DISCUSSION DRAFT of CACAC Comments for TCEQ
Public Meeting on Ozone NNA Designation

conditions that are favorable for the formation and accumulation of ground-level ozone. In addition, the continental air mass transported into the MSA likely contains elevated concentrations of ozone and its precursor compounds associated with both biogenic and anthropogenic emissions from sources located in states and other areas of Texas upwind of the A-RR MSA (Austin Conceptual Model, UT Austin, 2007).

Trajectory Residence Time In Percent for the Top 20% 8-Hour Ozone Days
Years 2001 - 2005: June; AUSTIN

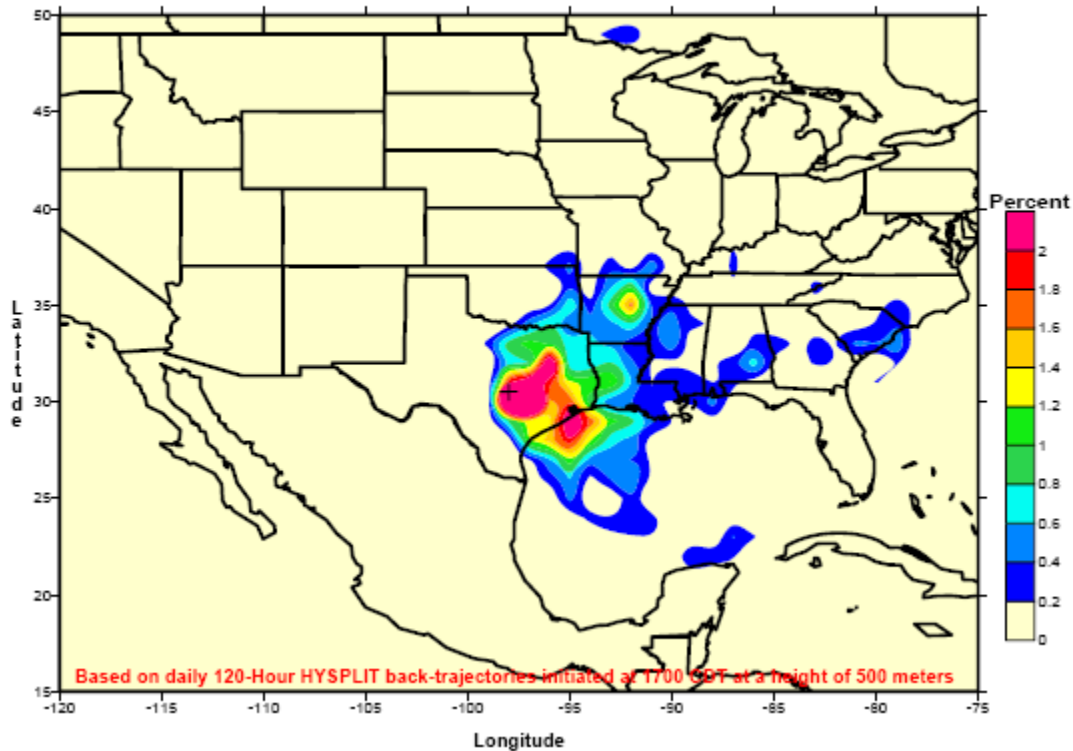


Figure 5 - Trajectory residence time in percent for the highest 20% ozone days in June from 2001 to 2005.

Trajectory Residence Time In Percent for the Top 20% 8-Hour Ozone Days
Years 2001 - 2005: September; AUSTIN

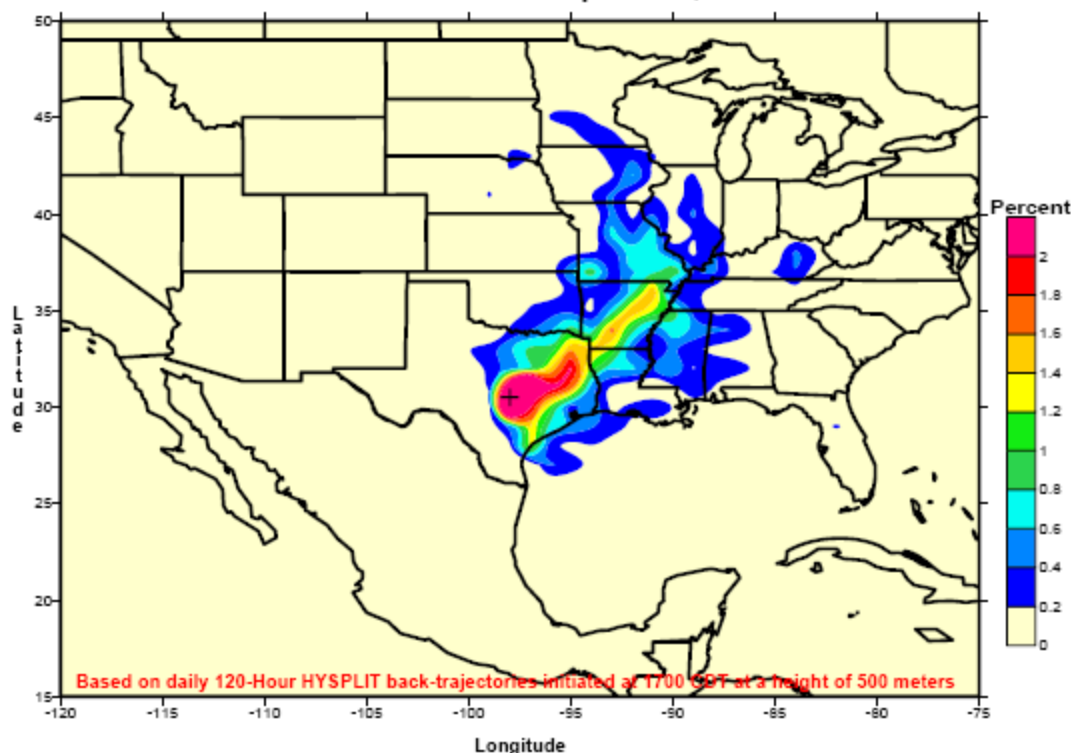


Figure 6 - Trajectory residence time in percent for the highest 20% ozone days in September from 2001 to 2005.

According to the Austin Ozone Conceptual Model (The University of Texas at Austin, July 26, 2007), from 1993 through 2006, one or more monitoring stations measured 75 ppb or greater on 228 days. The number of high ozone days varied from a minimum of 6 in 1996 to a maximum of 34 in 1999. The frequency of occurrence of high ozone days over the course of a typical ozone season is characterized by a bi-modal distribution, with a primary peak in the frequency of high ozone days during the August through early October period and a secondary peak during late May and June. In recent years (2001 through 2006) the average number of late summer high ozone days declined substantially. The frequency of occurrence of high ozone days was equally distributed between the May/June and August/September peaks.

The common meteorological condition occurring with high ozone is a clockwise circulation around a surface ridge of high pressure, often centered over the Central Plains or Ohio/Mississippi River Valleys. It generates northeasterly or easterly wind that transports continental air and haze into eastern Texas. This continental air mass is often characterized by reduced visibility, and likely contains elevated concentrations of ozone and its precursor compounds associated with both biogenic and anthropogenic emissions. High ozone concentrations are often measured at monitoring stations throughout the eastern half of Texas.

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In the A-RR MSA, monitoring data collected during these episodes shows background ozone concentrations of typically 80-85% of the observed local maximum. Based on these analyses, the enhancement of ozone concentrations due to emissions from sources within the A-RR MSA generally ranged between 10 ppb and 20 ppb on individual high ozone days, with an average enhancement of 15 ppb. With background concentrations ranging from 65 ppb to 75 ppb, even relatively small contributions of ozone formed from local source emissions in the A-RR MSA would have resulted in an exceedance of the 8-hour ozone National Ambient Air Quality Standard (NAAQS).

The A-RR MSA and other areas are significantly impacted by interstate and intrastate transport from sources outside the MSA or presumed nonattainment area. Figure 7 demonstrates monitored background ozone levels above the new standard. Based on these monitor readings, the MSA would violate the standard due to transported emissions and high background levels that will not be reduced by implementing controls in the MSA area. Given this, EPA and the states must significantly reduce transported and background emissions if compliance to a lower standard is to be achieved.

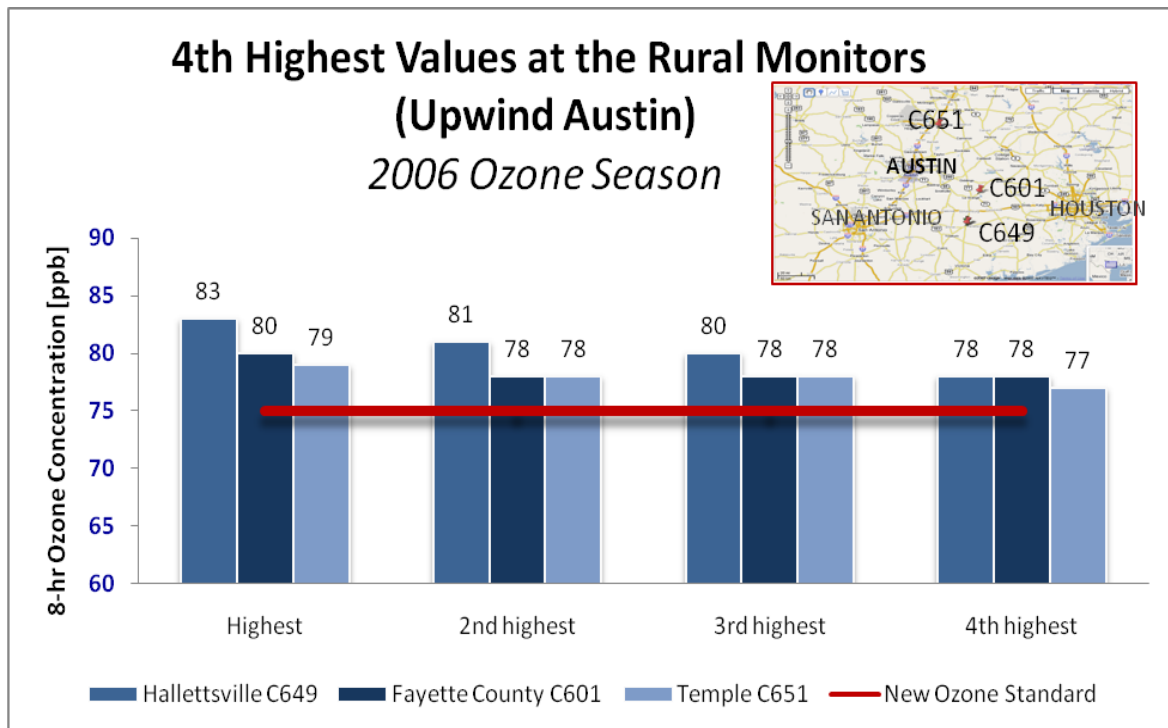


Figure 7 - Four highest ozone readings in 2006 at the Austin upwind monitors

Transported emissions often come from heavily polluted upwind areas, many of which are already ozone nonattainment areas. Recent airborne monitoring conducted by the Baylor Institute of Air Sciences (see Figure 8) demonstrates the extent to which an urban ozone plume emanating from a large nonattainment area can impact areas far downwind of the source region. The federal classification scheme for nonattainment areas allows heavily polluted areas more time to attain than those with lesser pollution problems. Given the prevalence of transport and high background emissions, attainment dates for all areas should be closely aligned, since areas with lesser pollution problems will not be able to attain until the more heavily polluted areas have significantly reduced emissions. It may be prudent and necessary to accelerate heavily polluted areas' attainment deadlines to adequately protect public health.

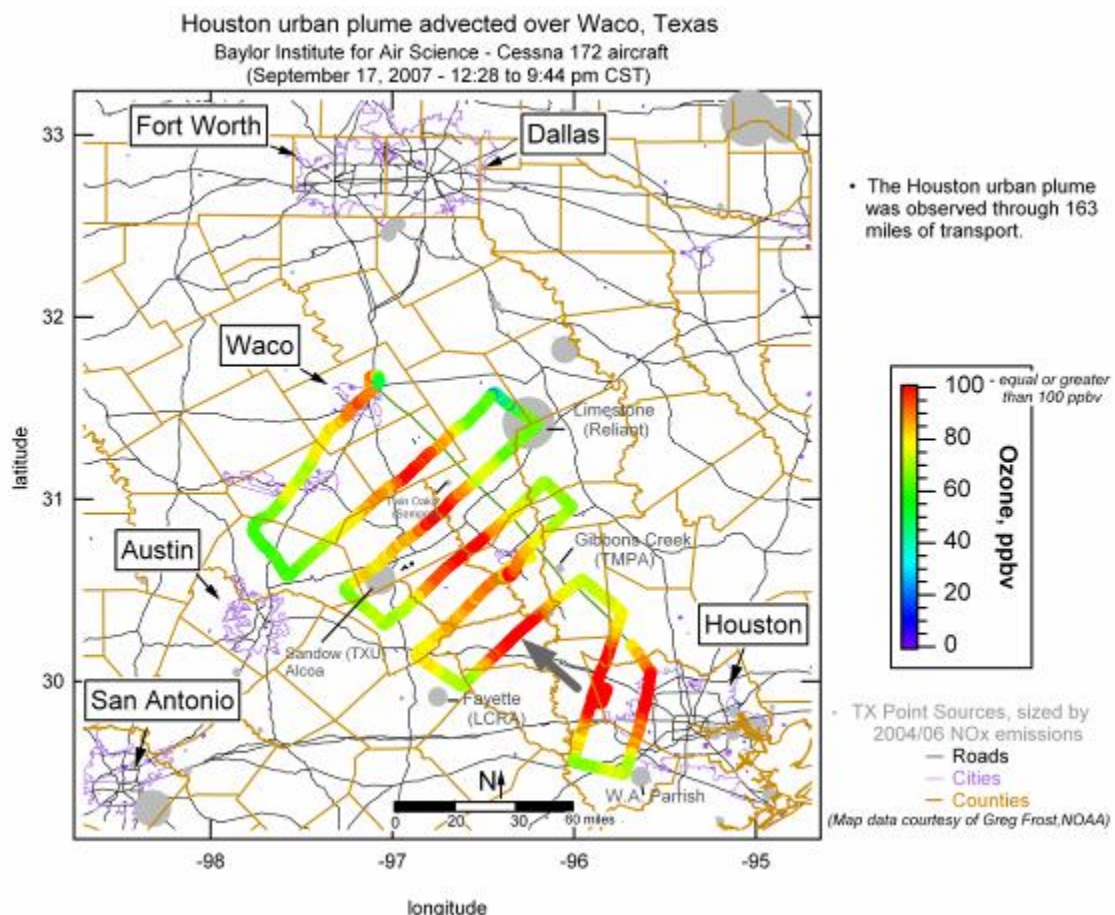


Figure 8 Houston urban ozone plume. Airborne sampling data acquired by Baylor University on September 17, 2007

State and Federal permitting rules and policies

Current interpretation of permitting rules and policies does not allow for evaluation or consideration of the effect of emissions from a proposed point source will have on regional ozone levels or downwind areas. Figure 9 demonstrates the impact a significant source outside of the immediate MSA can have on ozone readings. Both state and federal permitting rules and policies

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7/11/08 PRELIMINARY DISCUSSION DRAFT of CACAC Comments for TCEQ
Public Meeting on Ozone NNA Designation

need to be revised or clarified to require an evaluation of the emissions impacts of a proposed point source on regional ozone and downwind areas. The rules and policies should also consider modification of the permit if impacts cannot be sufficiently minimized or mitigated to avoid adverse health impacts or violations of the NAAQS in the affected region or downwind area.

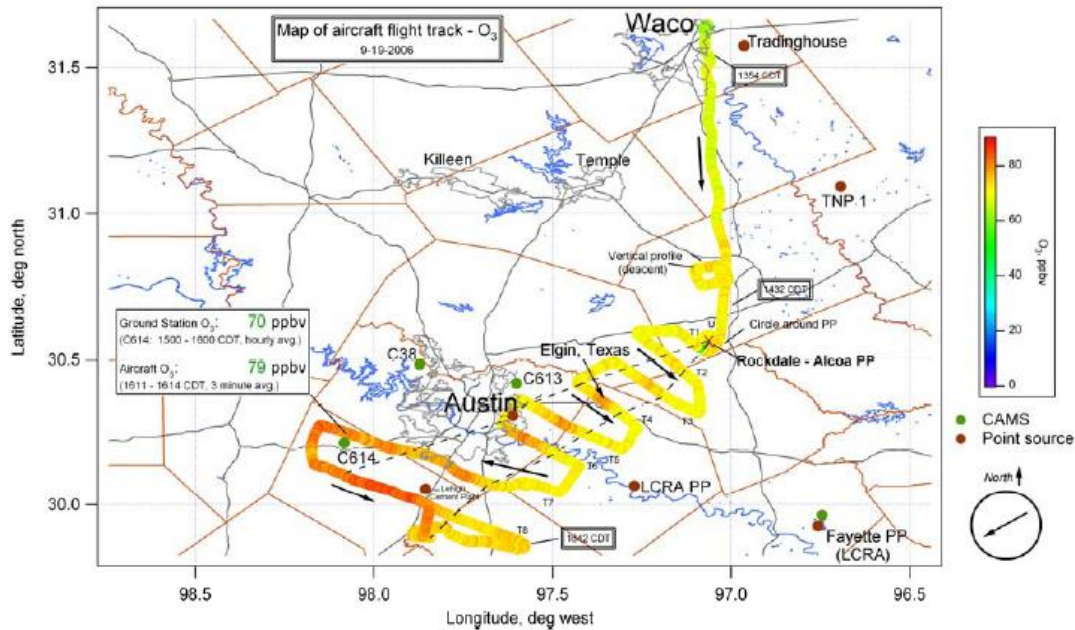


Figure 9 - Map of color-coded ozone concentrations along flight track showing an increase of ozone downwind of the Alcoa-Sandow facility and two transects downwind of Austin, Texas.

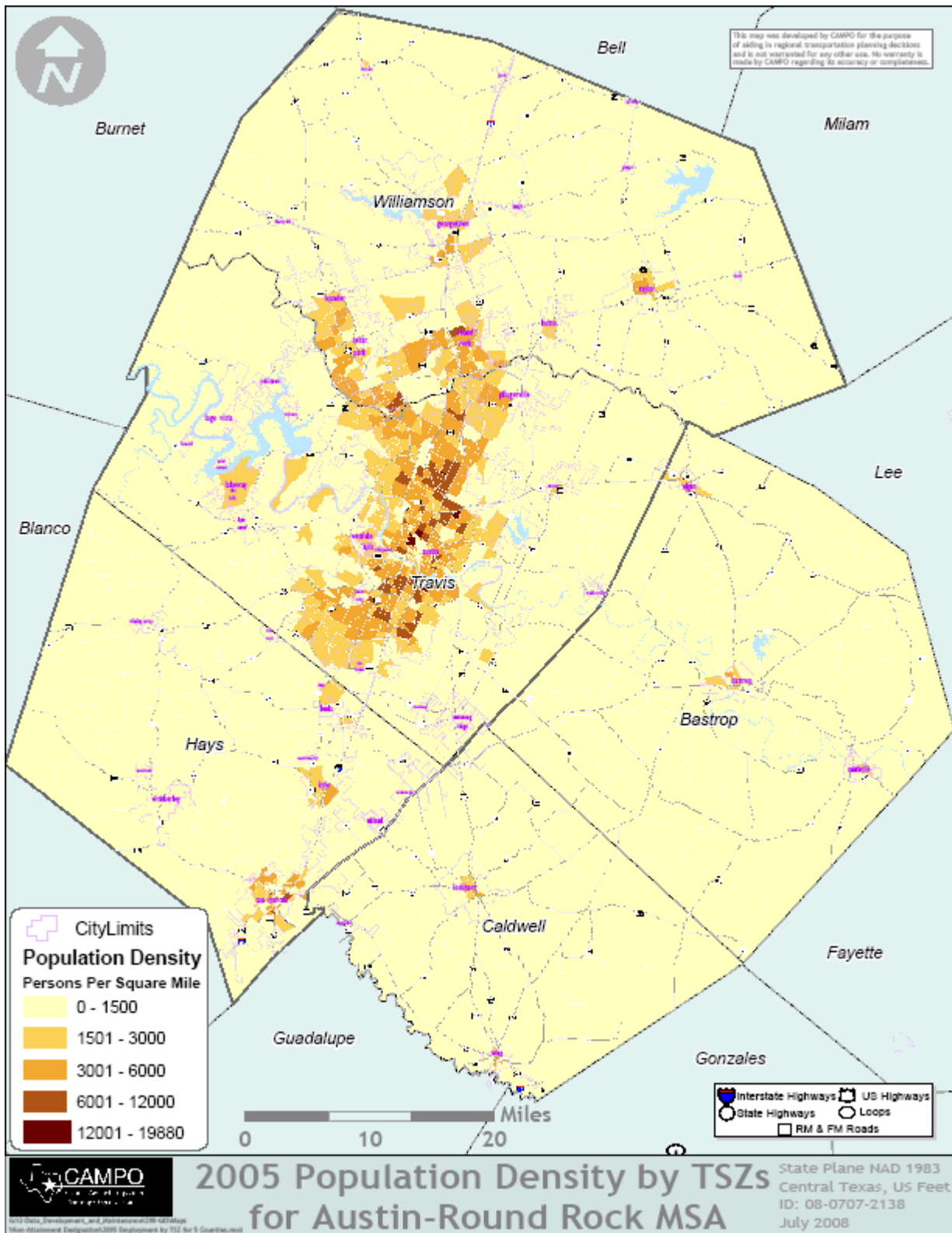
**Additional documentation provided for addressing criteria which may
affect nonattainment boundaries**

Table 1: Approved Population Forecasts for the CAMPO 2035 Plan				
	2005 SDC Est.	2015	2025	2035
Travis	896,800	1,105,000	1,318,000	1,555,300
Williamson	330,700	473,300	702,700	1,026,500
Hays	126,200	189,200	271,600	371,200
Bastrop	69,500	102,300	149,200	215,500
Caldwell	35,400	50,100	65,300	82,100
Total	1,458,600	1,919,900	2,506,800	3,250,600

Table 2: Approved Employment Forecasts for the CAMPO 2035 Plan				
	2005 Est.	2015	2025	2035
Travis	536,900	707,200	843,500	1,026,500
Williamson	101,500	165,700	253,000	400,300
Hays	41,000	66,200	97,800	137,300
Bastrop	12,000	20,500	34,300	58,200
Caldwell	7,000	10,500	15,000	20,500
Total	698,400	970,100	1,243,600	1,642,800

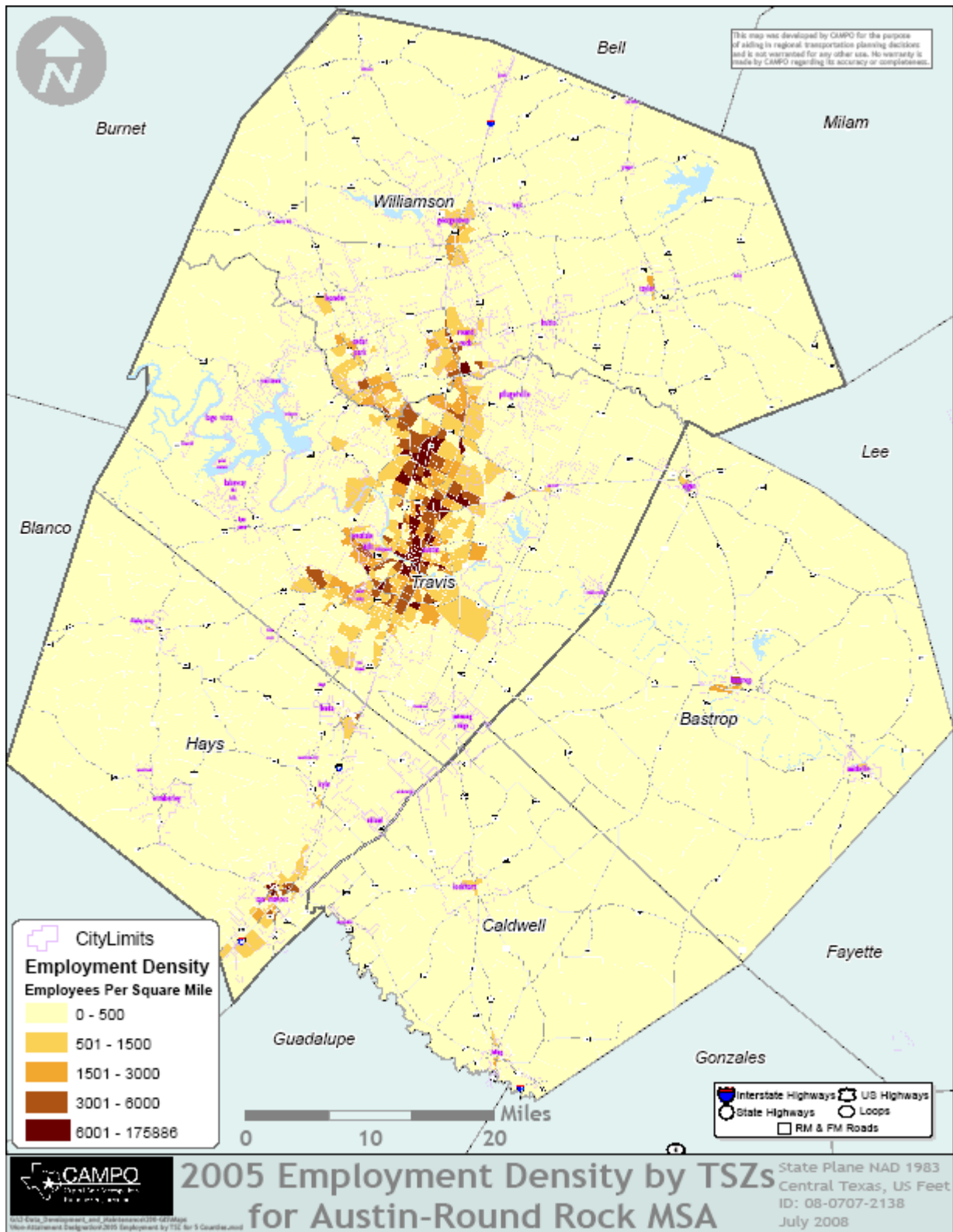
Note: Both population and employment forecasts were approved by the CAMPO Board at their April 2007 meeting.

7/11/08 PRELIMINARY DISCUSSION DRAFT of CACAC Comments for TCEQ
Public Meeting on Ozone NNA Designation



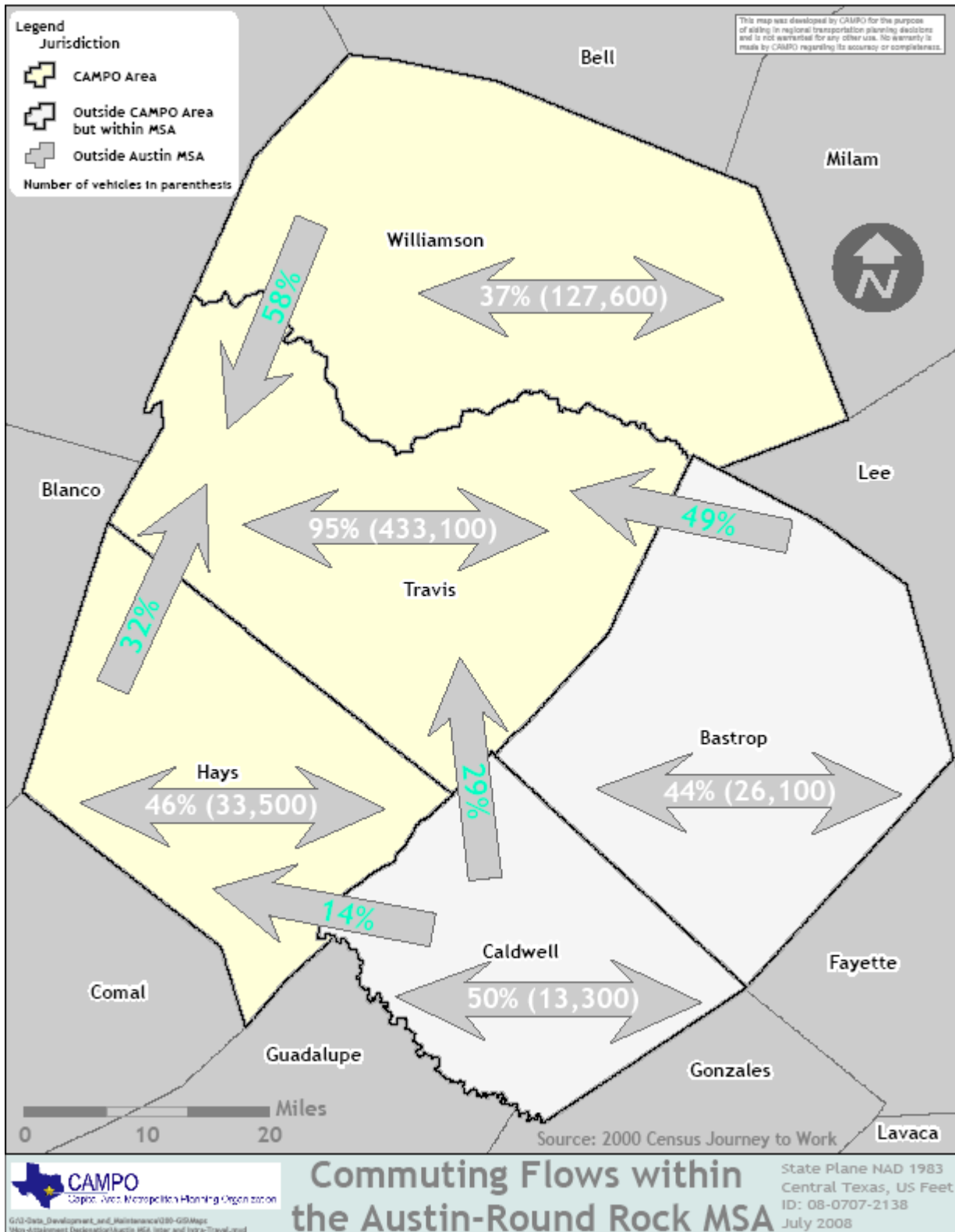
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Public Meeting on Ozone NNA Designation



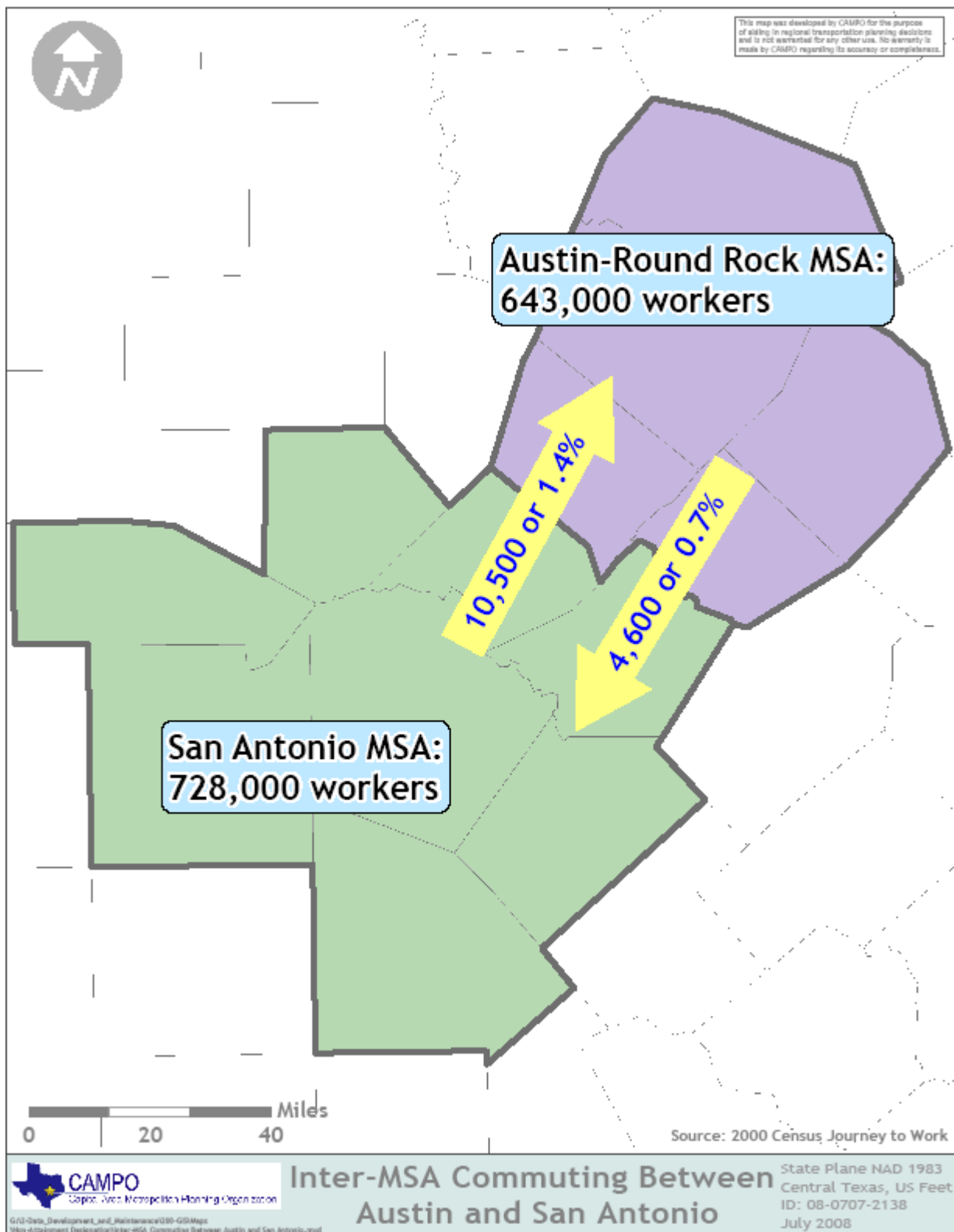
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***RESULTS OF FINDINGS REGARDING
Proposed Inclusion of Williamson County with Travis
County in Austin-Round Rock Non-attainment Area
TCEQ DOCKET NUMBER 2008-1615-MIS***

MARCH 3, 2009

For:

**Williamson County
Commissioners Court**

Prepared by:

GDS Associates, Inc.



GDS Associates, Inc.
Engineers and Consultants

Contact Person:

Dan J. Wittliff, P.E., DEE

Managing Director of Environmental Services, GDS Associates, Inc
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NSP

Commissioners Court - Regular Session

Date: 03/10/2009

Submitted By: Sally Bardwell, HUD Grants

Department: HUD Grants

Agenda Category: Regular Agenda Items

Information

Agenda Item

Discuss how Williamson County should proceed with the use of funds from the Neighborhood Stabilization Program allocated through the Texas Department of Housing and Community Affairs.

Background

Attached is the draft NOFA for the Neighborhood Stabilization Program distributed through the Texas Department of Housing and Community Affairs. The NOFA gives details of each type of eligible projects/programs as well as eligibility requirements and regulations. Below is a list of eligible program activities.

Financing Mechanisms

Activity Type: NSP Eligible Use (A) Establish finance mechanisms for purchase and redevelopment of foreclosed upon homes and residential properties.

Acquisition of Real Property (Purchase and Rehabilitation)

Activity Type: NSP Eligible Use (B) Purchase and rehabilitate homes and residential properties that have been abandoned or foreclosed upon, in order to sell, rent or redevelop such homes and properties.

Land Bank

Activity Type: NSP Eligible Use (C) Establish land banks for homes that have been foreclosed upon.

Clearance (Removal of Blight or Demolition)

Activity Type: NSP Eligible Use (D) Demolish Blighted Structures

Redevelopment

Activity Type: NSP eligible use (E) Redevelop Demolished or Vacant Properties

The County has been earmarked for \$1,066,554. Cities and non-profits can apply for these funds directly. Cities and non-profits within the County have been contacted and informed of this funding opportunity. Coordination among applicants is encouraged as to avoid a competitive process through TDHCA.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [NSP Draft NOFA](#)

Form Routing/Status

Form Started By: Sally
Bardwell

Started On: 03/05/2009 11:08
AM

Final Approval Date: 03/05/2009



Texas Department of Housing and Community Affairs

Texas Neighborhood Stabilization Program **Notice of Funding Availability (NOFA)**

1) Summary

- a) The Texas Department of Housing and Community Affairs ("TDHCA" or the "Department") announces the expected distribution and use of \$101,996,848 (amount includes all administrative funds, see Figure 1) through the newly-authorized Neighborhood Stabilization Program ("NSP"), which the U.S. Department of Housing and Urban Development ("HUD") is providing to the State of Texas. The NSP funds were authorized by the Housing and Economic Recovery Act of 2008 ("HERA") as an adjunct to the Community Development Block Grant (CDBG) Program for the redevelopment of abandoned and foreclosed homes and residential properties. A Substantial Amendment ("Amendment") to the Action Plan for FFY 2008 was submitted by the State of Texas to HUD in order to update the Consolidated Plan for FFY 2005 through 2009 for the Texas Neighborhood Stabilization Program requirements. The Amendment was approved by HUD on January 30, 2009.
- b) The availability and use of these funds is subject to the Community Development Block Grant regulations (24 CFR Part 570), as applicable, the federal HOME Investment Partnerships Program (HOME) regulations (24 CFR Part 92), as applicable, and Chapter 2306, Texas Government Code. Other federal regulations may also apply such as, but not limited to, 24 CFR Part 58 for environmental requirements, 24 CFR Parts 84 and 85, as applicable, for such issues as procurement and conflict of interest, and 24 CFR Parts 100-115 for fair housing. Applicants are encouraged to familiarize themselves with all of the applicable state and federal rules and program guidelines that govern the program.

2) Allocation of Texas NSP Funds

- a) These funds will be distributed in partnership with the Office of Rural Community Affairs ("ORCA") and the Texas State Affordable Housing Corporation ("TSAHC"). TDHCA will coordinate activities in accordance with NSP guidelines including the establishment of financing mechanisms for purchase and redevelopment of foreclosed homes and residential properties, purchase and rehabilitation of homes and residential properties that have been abandoned or foreclosed, establishment of land bank/trusts, removal of blight, and the redevelopment of demolished or vacant properties. Households directly assisted with NSP funds must income qualify and be at or below 120% of the Area Median Income (AMI), as defined by HUD.

- b) Texas NSP funding is available to eligible entities operating in counties meeting the threshold of greatest need, as defined by the State in the Amendment to the Action Plan. A multi-level approach will be used in the distribution of funds to communities. The first level, Direct Allocation, is a reservation of a specified amount available to eligible entities in 25 counties identified as having the highest order of significant need. The second level, Select Pool, is an initial competitive allocation of not less than \$500,000, available to entities in up to 76 additional counties which have also been identified as demonstrating significant need. In addition, a separate pool of Texas NSP funds is available for land banking activities; TDHCA will administer land bank activities in conjunction with the Texas State Affordable Housing Corporation (“TSAHC”). The following table summarizes the program distribution of Texas NSP funds:

Figure 1. Program Distribution of Texas NSP Funds

Direct Allocation	\$ 50,692,337
Select Pool	\$ 31,104,826
Land Banking	\$ 10,000,000
Administration (10% combines state and contracting entity)	\$ 10,199,685
Total Texas NSP Allocation	\$101,996,848

3) Definitions

As stipulated in the *Federal Register* Notice (Docket No. FR-5255-N-01) for the NSP, there are certain terms used in HERA that are not used in the regular CDBG program. Certain terms may be used differently in HERA and in the Housing and Community Development Act of 1974, as amended. When in conflict, definitions published in the *Federal Register* (Docket No. FR-5255-N-01) and any subsequent HUD Errata Notice are controlling for the Texas NSP.

4) Limitations on Funds

- a) In order to avoid allocating small amounts of funding that can have no meaningful impact on stabilizing of property values, the minimum award amount to an eligible entity cannot be less than \$500,000, excluding Administration costs.
- b) Before the effective date of the Texas NSP Contract, an eligible entity that ultimately receives an award of Texas NSP funds, (Contract Administrator) may incur and be reimbursed for travel costs, as provided for with Administration funds, related to implementation training required by the Department as a condition of receiving an NSP award and Contract.
- c) Department-authorized pre-award costs for predevelopment activities, including but not limited to legal, architectural, engineering, appraisal, surveying, environmental, and market study fees, may be reimbursed if incurred before the effective date of a Contract so long as the costs are in accordance with 24 CFR §§570.205 and 206 and 24 CFR Part 58 and at the sole discretion of the Department.

- d) Additional limitations as defined in HERA and HUD NSP Notices regarding purchases, rehabilitation, and sale of homes, will be strictly enforced.

5) Administrative and Activity Delivery/Soft Costs Limitations

- a) Each applicant that is awarded NSP funds may also be eligible to receive funding for administrative costs. The award amount for the Administration line item shall not exceed five percent (5%) of the contract amount for all activities except Land Bank activities. Administrative costs for Land Bank activities will be limited to a total of eight percent (8%), of which two percent (2%) will be reserved for long term oversight by the Department or its designee. These figures do not include Activity delivery costs described below. The administrator must use funds for all administrative costs in accordance with 24 CFR §§570.205 and 206, and Office of Management and Budget (OMB) Circulars A-87, A-122, A-102 and A-110, as applicable.
- b) Activity Delivery costs represent the administrative costs incurred in implementing specific activities but are separate from the general administrative costs, for which limits are set forth in the previous paragraph. The Texas NSP limits Activity Delivery costs according to activity as specifically described in program activity sections.
- c) Soft costs are a type of Activity Delivery costs that are directly related to and identified with a specific housing unit (property). Eligible project-related soft costs must be reasonable and consistent with industry norms. Specific eligible activities include:
 - i) preparation of work write-ups, work specifications, and cost estimates;
 - ii) architectural, engineering or professional services required to prepare plans, drawings or specifications directly attributable to a particular project;
 - iii) inspections for lead-based paint, asbestos, termites or septic systems;
 - iv) interim and final inspections by the construction inspector;
 - v) financing fees, credit reports, title binders and insurance;
 - vi) recordation fees, transaction taxes;
 - vii) legal and accounting fees;
 - viii) appraisal fees;
 - ix) architectural and engineering fees, including specifications and job progress inspections;
 - x) relocation costs;
 - xi) site specific environmental reviews; and
 - xii) lead hazard evaluation and reduction costs.
- d) For all activities, Activity Delivery costs must be reasonable and consistent with industry norms and will be restricted to a percentage of the non-administrative NSP costs per housing unit or property. The related Activity Delivery costs maximum will be based on the activity in a range from 5% to no more than 20% of the non-administrative NSP costs per housing unit or property.
- e) Activity Delivery costs may not exceed the forgoing limits without prior written approval by the Department. Upon prior approval of the Department, exceptions may be allowed

in the case of Rehabilitation activities for lead-based paint hazard reduction and/or relocation and cost categories not identified in the Texas NSP NOFA.

- f) Contract Administrators must certify that the amount being disbursed is for the actual amount of costs, including Administrative and Activity Delivery costs, and must provide documentation to support such costs.
- g) Eligible Costs are limited to those listed in §570, Subpart C, or as otherwise identified in the NSP *Federal Register* Notice. No duplicate disbursement of costs is allowed. Costs may only be disbursed as either a project Activity Delivery cost or Administration cost but not both. Additionally, costs may only be disbursed once per occurrence when providing both acquisition and construction assistance to the same Project or Activity.

6) Eligible and Prohibited Activities.

- a) The use of NSP grant funds must constitute an eligible use under HERA. Most of the activities eligible in NSP represent a subset of the eligible activities under 42 U.S.C. §5305(a). The NSP eligible uses must be correlated with CDBG-eligible activities. See Section 8 of the NOFA for a complete listing of eligible activities and uses.
- b) Prohibited activities include, but are not limited to:
 - i) The payment of delinquent taxes, fees, or charges on properties to be assisted with NSP funds;
 - ii) The payment of any cost that is not eligible under 24 CFR §§570.201- 570.206;
 - iii) Assistance to persons who owe payments identified by the Comptroller of Texas as relevant (including, but not limited to, child support, student loans, and delinquent taxes);
 - iv) Assistance to any household whose property has current tax liens against it and/or judgments liens in favor of the State of Texas against it; or
 - v) The provision of rehabilitation on a housing unit without prior written consent of all persons who have any lien or ownership interest in the property, whether of record or not, unless exempted by state law.

7) Eligible and Ineligible Applicants.

- a) Eligible applicants are Units of General Local Government and nonprofit organizations. Nonprofit organizations must secure a letter from an eligible city or county granting the nonprofit organization the authority to apply on their behalf.
- b) **Direct Pool** -- Based on the county need score, eligible entities within the following 25 counties may submit an application to receive allocations from the Direct Pool: Bell; Bexar; Brazoria; Cameron; Collin; Dallas; Denton; Ector; El Paso; Fort Bend; Galveston; Harris; Hidalgo; Jefferson; Lubbock; McLennan; Montgomery; Nueces; Potter; Tarrant; Taylor; Travis; Webb; Wichita; and Williamson.
- c) **Select Pool:** Based on the county need score, eligible entities within the following 76 counties may submit an application to receive allocations from the Select Pool: Anderson; Angelina; Aransas; Atascosa; Austin; Bastrop; Bowie; Brazos; Brown;

Burnet; Caldwell; Cherokee; Comal; Cooke; Coryell; Eastland; Ellis; Erath; Fannin; Gillespie; Gonzales; Grayson; Gregg; Grimes; Guadalupe; Hale; Harrison; Hays; Henderson; Hill; Hood; Hopkins; Howard; Hunt; Jackson Jasper; Jim Wells; Johnson; Kaufman; Kendall; Kerr; Kleberg; Lamar; Leon; Liberty; Llano; Matagorda; Maverick; Medina; Midland; Milam; Montague; Nacogdoches; Navarro; Orange; Palo Pinto; Parker; Polk; Randall; Rockwall; San Patricio; Smith; Starr; Tom Green; Upshur; Val Verde; Van Zandt; Victoria; Walker; Waller; Washington; Wharton; Willacy; Wilson; Wise; and Wood.

- d) The following violations will cause an Applicant and/or any Applications they have submitted to be ineligible:
- i) The Applicant is an Administrator of a previously funded Contract for which Department funds have been partially or fully deobligated due to failure to meet contractual obligations during the 12 months prior to application submission date; an exception may be made at the discretion of the Department if the deobligation was voluntary, part of project close-out or the remainder was completed on a subsequent Contract;
 - ii) The Applicant has failed, (within the reasonable time allotted for response), to submit a response to provide an explanation, evidence of corrective action or a payment of disallowed costs or fees as a result of a monitoring review;
 - iii) The Applicant has failed to make timely payment or is delinquent on any loans or fee commitments made with the Department on the date of the Application submission;
 - iv) The Applicant has been or is barred, suspended, or terminated from procurement in a state or federal program or listed in the List of Parties Excluded from Federal Procurement or Non-Procurement Programs or has otherwise been debarred by HUD or the Department;
 - v) The Applicant has violated the State laws regarding ethics, including revolving door policy;
 - vi) The Applicant has been convicted of a state or federal felony crime involving fraud, bribery, theft, misrepresentation of material fact, misappropriation of funds, or other similar criminal offenses within fifteen years preceding the Application deadline;
 - vii) The Applicant at the time of Application submission is subject to the following for which proceedings have become final:
 - (a) an enforcement or disciplinary action under state or federal securities law or by the NASD;
 - (b) a federal tax lien;
 - (c) or is the subject of an enforcement proceeding with any governmental entity.
 - viii) The submitted Application has excessive omissions of documentation from the Selection Criteria; or is so unclear, disjointed, or incomplete, as determined by the Department, that a thorough review cannot reasonably be performed. If an Application is determined ineligible pursuant to this section, the Application will be terminated without the opportunity for corrections of administrative deficiencies.
 - ix) The Applicant or anyone that has controlling (51%) ownership interest in the development owner or developer that is active in the ownership or control of one or more other rent restricted rental housing properties in the state of Texas administered

by the Department is in Material Noncompliance with the Land Use Restriction Agreement (LURA) (10 TAC §60.121); and

- x) Any Application that includes financial participation by a Person who, during the five-year period preceding the date of the bid or award, has been convicted of violating a federal law in connection with a contract awarded by the federal government for relief, recovery, or Reconstruction efforts as a result of Hurricanes Rita or Katrina or any other disaster occurring after September 25, 2005, or was assessed a federal civil or administrative penalty in relation to such a contract.

8) Program Activities

a) Financing Mechanisms

Activity Type: NSP Eligible Use (A) Establish finance mechanisms for purchase and redevelopment of foreclosed upon homes and residential properties.

CDBG Eligible Activities: 24 CFR §570.206 Activity delivery costs; Also, the eligible activities listed here to the extent financing mechanisms are used to carry them out: 24 CFR §570.201 (a) Acquisition, (b) Disposition, (n) Homeownership Assistance; 24 CFR §570.202 Rehabilitation.

- i) This activity will provide affordable ownership and rental opportunities by providing financing mechanisms to a subgrantee, developer or individual homebuyer to purchase or facilitate the purchase of foreclosed homes or residential property.
- ii) **Permanent Financing:** Households earning 50% or less AMI may obtain up to 100% Mortgage Financing directly from the Department to purchase a foreclosed single-family house or residential property. This property must be the primary residence within 30 days of closing the mortgage loan (or completion of rehabilitation to the extent that rehabilitation is combined with available financing mechanisms). Mortgage loans will be for 30 years with a 0% interest rate. Fully amortizing scheduled repayment will be as set forth in loan documents executed at loan closing. Closing costs may be financed with the loan proceeds up to a loan to value ratio of 100%. Mortgage documents (Promissory Note and Deed of Trust) will be utilized to provide security for the repayment of the loan with stated rights and remedies in the event of default. A down payment of \$1,000 will be required from all homebuyers receiving Permanent Financing through the Texas NSP.
- iii) **Homebuyer Assistance:** Homebuyers who qualify as 51-120% AMI will be eligible to access Texas NSP funds for down payment assistance, reasonable closing costs, principal reductions, and gap financing needed to qualify for private mortgage financing. Households earning 50% or less AMI will also be eligible for principal reductions and gap financing in an amount needed to qualify for 100% financing through the Texas NSP. Homebuyer Assistance will be in the form of a deferred forgivable loan contingent upon the total amount of assistance, creating a 2nd or 3rd lien with a term based on the federal affordability requirements as referenced in Section 9 of the NOFA.

- iv) **Subgrantee Financing:** The acquisition of foreclosed single-family and multifamily residential properties by subgrantees and developers will be funded through a loan with the Department. These loans will not be considered a “financing mechanism” for the purposes of the Texas NSP. The loan to the subgrantee or developer may be transferred to the qualifying homebuyer and converted to a 30-year amortizing loan through the Department with 0% interest for households earning 50% or less AMI. Homebuyer Assistance will also be available through the Department for qualifying households in the same manner as described in the above paragraph to facilitate private financing and repayment of the acquisition loan from the Department.
- v) **Rental (Single-family and Multifamily) Residential Property Financing:** The acquisition of foreclosed single-family and multifamily residential properties by subgrantees and developers for rental opportunities will be funded through a loan with the Department. The loan to the subgrantee or developer may be converted to a 30-year amortizing loan through the Department with 0% interest for the percentage of units designated for households earning 50% or less AMI; i.e. if 60% of the units of a foreclosed apartment complex to be acquired will be filled with households earning 50% or less AMI, then 60% of the acquisition loan may be converted to a 30-year amortizing loan through the Department with 0% interest. The remaining 40% of the acquisition loan must be repaid to the Department. Homebuyer Assistance is unavailable for rental properties. Further detail of loan requirements is discussed in Section 10 of the NOFA. Texas NSP continued affordability requirements as referenced in Section 9 of the NOFA will apply.
- vi) **Acquisition:** Appraisals that conform to the requirements of the URA at 49 CFR 24.103 will be required for the purposes of determining the statutory purchase discount. The appraisal must be completed within 60 days prior to the final offer made for the property by a subgrantee, developer or individual homebuyer. An individual property may be purchased at as little as a 5% discount; however the portfolio of properties acquired by each contract administrator must reflect an overall 15% discount from current appraised values.
- vii) **Eligible and Ineligible Property:** Eligible property types for assistance under this activity are limited to single-family homes and residential property (property intended for residential purposes, i.e. zoned residential or where there is no zoning, residential use is consistent with deed restrictions and any other limiting factors) including condominium units, apartment units, cooperative units in mutual housing projects and multifamily residential property.
- viii) **Repayment:** The loans are to be repaid (if any of the following occurs before the end of the loan term): resale of the property; refinance of the first lien; repayment of first lien or if the unit ceases to be the assisted household’s principal residence. The amount of recapture will be based upon the recapture provision at 24 CFR §92.254(a)(5)(ii), summarized as follows:

- (a) Recapture of the amount of the NSP investment is reduced on a *pro rata* share based on the time the homeowner has owned and occupied the unit measured against the required affordability period. The recapture amount is subject to available shared net proceeds in the event of sale or foreclosure of the housing unit.
 - (b) In the event of sale or foreclosure of the housing unit, if the shared net proceeds (i.e., the sales price minus closing costs; any other necessary transaction costs; and superior lien loan repayment,) are in excess of the amount of the NSP investment that is subject to recapture, then the net proceeds may be divided proportionately between repayment of NSP loan(s) and the homeowner as set forth in the following mathematical formula: $(\text{NSP investment} / (\text{NSP investment} + \text{homeowner investment})) \times \text{net proceeds} = \text{NSP amount to be recaptured}$
- ix) **Restrictions:** The following first lien purchase loan requirements are imposed for households receiving homebuyer assistance:
 - (a) No adjustable rate mortgage loans (ARMs) or interest rate buy-down loans are allowed;
 - (b) No mortgages with a loan to value equal to or greater than 100% are allowed;
 - (c) No subprime Mortgage Loans are allowed;
 - (d) An origination fee and any other fees associated with the mortgage loan may not exceed 2% of the loan amount; and,
 - (e) The debt to income ratio (back-end ratio), as defined in Fannie/Freddie conventional loan underwriting guidelines, may not exceed 45%.
- x) **Homebuyer Counseling:** All NSP-assisted homebuyers will be required to complete at least 8 hours of homebuyer counseling from a HUD-approved housing counseling agency before obtaining a mortgage loan. Evidence must include documentation describing the level of homebuyer counseling, including post purchase counseling. Applicant must state who will provide the homebuyer counseling and must submit a copy of the curriculum. A proposed written agreement for service provider (if the applicant is not providing the service) must also be provided.
- xi) **Income Targeting:** Benefits low, moderate and middle-income persons as defined in the NSP Notice ($\leq 120\%$ of area median income). As required in the Amendment, at least 35% of the non-administrative allocation should be targeted to benefit households with incomes less than or equal to 50% AMI.
- xii) **Program Income:** Any program income received from financing mechanisms utilizing Texas NSP funds, including principal payments from 0% financing, must be returned to the Department. Revenue received by a private individual or other entity as a result of a financing mechanism involving NSP funds must also be returned to the Department.
- xiii) **Benchmarks:**

- (1) Three months:
 - (a) Environmental Assessment complete and submitted to Department for review.
 - (2) Six months:
 - (a) All properties/households identified.
 - (b) For all properties to be purchased, earnest money contracts or options to purchase must have been executed to meet HERA requirement of obligation. Earnest money or option contracts must include the contingency of final environmental clearance prior to purchase (if environmental clearance and authority to use grant funds not already issued).
 - (3) Twelve months:
 - (a) Homebuyer counseling requirement met for all NSP-assisted homebuyers.
 - (b) All loans closed.
- xiv) **Activity Delivery Cost Limits:** Activity Delivery costs for all financing mechanisms will be limited to 10% of the NSP non-administrative costs per housing unit or property.

b) Acquisition of Real Property (Purchase and Rehabilitation)

Activity Type: NSP Eligible Use (B) Purchase and rehabilitate homes and residential properties that have been abandoned or foreclosed upon, in order to sell, rent or redevelop such homes and properties.

CDBG Eligible Activities: 24 CFR §570.201(a) Acquisition, (b) Disposition; 24 CFR §570.202 Rehabilitation.

- i) To implement this activity, Applicants will purchase residential properties that have been abandoned or foreclosed at a discount to ensure purchasers are paying below-market value for the property. Appraisals that conform to the requirements of the URA at 49 CFR 24.103 will be required for the purposes of determining the statutory purchase discount. The appraisal must be completed within 60 days prior to the final offer made for the property by a subgrantee or developer. The acquisition of abandoned property may be funded if the property has been vacant for at least 90 days and payments on the mortgage or taxes have not been made for at least 90 days. Any individual property may be acquired at a 5% discount; however, any portfolio of properties must collectively reflect a 15% discount from current market values.
- ii) Acquired homes and residential properties must be rehabilitated and made available for sale or rent to eligible households within 12 months of acquisition.
- iii) The acquisition and subsequent rehabilitation, reconstruction or redevelopment of residential properties will be funded through a loan with the Department. A subgrantee or developer that has acquired and rehabilitated homes and residential properties through Texas NSP funds may repay the Department when private financing is secured by a qualifying homebuyer. If the property is eligible for Financing Mechanisms (foreclosed home or residential property), then the homebuyers may qualify for the Homebuyer Assistance available under that activity. A subgrantee or developer may also utilize Permanent Financing through the

Department if the property is eligible and the homebuyers qualify under the activity of Financing Mechanisms. The loan will be transferred to the homebuyer and converted to a 30-year amortizing loan with 0% interest.

- iv) Rehabilitation includes activities and related costs as described in 24 CFR §570.202(b), but limited to the improvement or modification of an existing residential property through an alteration, addition, or enhancement including the demolition of an existing residential property and the reconstruction (rebuilding of a structure on the same site in substantially the same manner) of residential property.
- v) Redeveloped residential property must result in permanent housing.
- vi) Eligible property types for rehabilitation are limited to single family dwellings, condominium units and cooperative units in mutual housing projects. A Manufactured Housing Unit is not an eligible property type for Rehabilitation. NSP funds may be used to replace (Reconstruct) a housing unit with a new MHU or Modular Home if:
 - (1) The unit complies with the Texas Manufactured Housing Standards Act under Chapter 1201 of the Texas Occupation Code;
 - (2) The unit is permanently installed in accordance with the Texas Manufactured Housing Standards Act;
 - (3) The unit is permanently attached to utilities; and
 - (4) The ownership of the unit is recorded in the taxing authority of the county in which it is located.
- vii) Texas NSP loans will be required to be repaid to the Department within 12 months of acquisition unless maintained as rental property (single-family or multifamily) under program requirements.
- viii) **Income Targeting:** Benefit to low, moderate and middle income persons as defined in the NSP Notice ($\leq$ 120% of area median income). As required in the Amendment, at least 35% of the non-administrative allocation should be targeted to benefit households with incomes less than or equal to 50% AMI.
- ix) **Activity Delivery Costs:** Administrative costs directly associated with the activity of acquisition are limited to 15% of the hard costs required to acquire the property.
- x) **Program Income:** Any program income generated through the Acquisition and Rehabilitation activity must be returned to the Department.
- xi) **Benchmarks:** The performance under the contract will be evaluated according to the following benchmarks counting from the start date of the contract with the Department:
 - (1) Three months:
 - (a) Environmental assessment complete and submitted to Department for review.
 - (2) Six months:

- (a) Properties identified and earnest money contracts have been initiated pending site-specific environmental clearance.
- (3) Twelve months:
 - (a) Homebuyer counseling requirement met for all NSP-assisted homebuyers.
 - (b) All loans closed.
- (4) Twenty-four months:
 - (a) Properties resold and 100% repayment made to the NSP.

vii) **Activity Delivery Cost Limits:** Activity Delivery costs for acquisition only will be limited to 15% of the NSP non-administrative costs per housing unit or property however acquisition with rehabilitation will be limited to 20% of the NSP non-administrative costs per housing unit or property.

c) **Land Bank**

Activity Type: NSP Eligible Use (C) Establish land banks for homes that have been foreclosed upon.

CDBG Eligible Activities: 24 CFR §570.201 (a) Acquisition and (b) Disposition

A land bank is a governmental or nongovernmental nonprofit entity established, at least in part, to assemble, manage temporarily, and dispose of properties for the purpose of stabilizing neighborhoods and encouraging reuse or redevelopment of the properties.

- i) The Department shall accept applications under this NOFA from qualified Applicants to establish local land banks to assemble, manage temporarily, and dispose of properties that have been foreclosed upon. HUD has limited the types of properties that may be acquired using land bank funding in the following manner:
 - (1) Properties must be located within an area with an AMI of 120% or less;
 - (2) Acquired properties must have been foreclosed upon through a legal proceeding under Texas state law, which includes, but is not limited to tax foreclosures and financial foreclosures;
 - (3) Properties to be acquired must be located within a defined service area, as defined by the Applicant according to the requirements in the Texas NSP Application;
 - (4) Vacant land may not be acquired. Properties to be acquired must have a foreclosed upon home; however, it is permissible for acquired homes to be subsequently demolished and remain in the land bank.
- ii) Land bank funding may only be used to acquire and dispose of eligible properties. NSP funds may also be used for basic, reasonable maintenance intended to stabilize the property and for the temporary management of the property which includes maintenance, assembly facilitating the redevelopment of and marketing of land banked properties. If the land bank is a governmental entity, it may also maintain foreclosed property that it does not own provided that it charges the owner of the property the full cost of the service or places a lien on the property for the full cost of the service.

- iii) For the purposes of land bank activities in the NSP, a land bank acquires foreclosed properties that do not have a designated specific, eligible redevelopment use in accordance with NSP requirements. However, simply holding property off of the local real estate market is not considered sufficient to stabilize most neighborhoods. Therefore, an NSP land bank may only hold the property up to ten years before it obligates (commits through a contract) the property to an eligible NSP use.
- iv) **TSAHC NOFA:** The Department shall contract with the Texas State Affordable Housing Corporation (the “TSAHC”) to administer approximately \$5 million through a separate NOFA (the “TSAHC NOFA”) to establish a statewide affordable housing land bank. The TSAHC NOFA will be released at least 30 days after the publication of this NOFA and will be limited to providing land bank services in partnership with qualified nonprofit entities.
 - (1) TSHAC will also oversee the development and provision of training and technical assistance activities to Applicants under this NOFA that apply for land bank funding. All training and technical assistance will be provided to Applicants free of charge.
- v) **Program Income:** Any program income received from land banking activities utilizing Texas NSP funds must be returned to the Department. Revenue received by a private individual or other entity as a result of land banking involving NSP funds must also be returned to the Department.
- vi) **Benchmarks:** In accordance with HERA, the contract term for the Land Bank Program Activity shall not exceed 10 years, or until all land bank properties have been redeveloped in accordance with NSP requirements. Performance under the contract will be evaluated according to the following benchmarks:
 - (1) Three months:
 - (a) Environmental Assessment complete and submitted to Department for review.
 - (1) Six months:
 - (a) Properties identified and earnest money contracts have been initiated pending site-specific environmental clearance.
 - (2) Twelve months:
 - (a) All loans closed for acquired properties.
 - (3) Ten years:
 - (a) Properties resold and 100% repayment made to the NSP.
- vii) **Activity Delivery Cost Limits:** Activity Delivery costs for Land Bank will be limited to 20% of the NSP non-administrative costs per housing unit or property.

d) Clearance (Removal of Blight or Demolition)

Activity Type: NSP Eligible Use (D) Demolish Blighted Structures

CDBG Eligible Activity: 24 CFR 570.201(d) Clearance of blighted structures only.

- i) As defined in the Amendment, this activity is anticipated to be used on a limited basis to address urbanized areas of greatest need where subrecipients can prove that

blighted structures are affecting property values in the area and pose a threat to human health, safety, and public welfare. This activity cannot be utilized to target the 25% requirement for 50% AMI, but may be used in conjunction with other eligible activities. This activity is funded as a grant.

ii) **Income Targeting:** Benefits areas with low, moderate and middle-income persons (LMMA) as defined in the NSP Notice ($\leq 120\%$ of area median income).

iii) **Activity Delivery Costs:** Administrative costs directly associated with the activity of clearance are limited to 5% of the hard costs required to carry out the activity.

iv) **Benchmarks:** The performance under the contract will be evaluated according to the following benchmarks counting from the start date of the contract with the Department:

(1) Three months:

(a) Environmental Assessment complete and submitted to Department for review.

(2) Six months:

(a) All properties to be demolished must be under contract for clearance or acquisition (if property is to be acquired) pending site-specific environmental clearance (if tiering methodology is used).

(b) All properties set up in contract management system.

(3) Eighteen months:

(a) 100% of Clearance activity funds drawn.

e) **Redevelopment**

Activity Type: NSP eligible use (E) Redevelop Demolished or Vacant Properties

CDBG Eligible Activities: 24 CFR §570.201(a) Acquisition, (b) Disposition, (c) Public Facilities, (e) Public Services, (i) Relocation, (n) Homeownership Assistance (restricted)

i) Redevelopment of demolished or vacant properties will address areas of greatest need throughout the state wherever there are large amounts of demolished or vacant properties that are contributing to declining land values. “Vacant properties” includes both vacant land and properties with vacant structures on the land; however, the properties must have been previously improved. Undeveloped or “greenfield” sites may not be acquired under Eligible Use (E).

ii) Eligible redevelopment activities include the new construction of housing and building infrastructure and the redevelopment of property to be used as rental housing. Redevelopment must result in the production of residential property.

iii) **Specific Requirements:** 3-year redevelopment loans for up to 100% financing at 0% interest serving households earning 50% or below AMI

iv) **Income Targeting:** Benefit to low, moderate and middle income persons as defined in the NSP Notice ($\leq 120\%$ of area median income). As required in the Amendment,

at least 35% of the non-administrative allocation should be targeted to benefit households with incomes less than or equal to 50% AMI.

v) **Benchmarks:**

(1) Three months:

(a) Environmental assessment complete and submitted to Department for review.

(2) Six months:

(a) All properties/households identified.

(b) For all properties to be acquired, earnest money contracts must have been initiated to meet HERA requirement of obligation pending site-specific environmental clearance.

(3) Twelve months:

(a) Homebuyer counseling requirement met for all NSP-assisted homebuyers.

(b) All loans to households closed.

(4) Twenty-four months:

(a) Contract 100% drawn

(5) Thirty-six months:

(a) Repayment of all redevelopment loans complete.

vi) **Activity Delivery Cost Limits:** Activity Delivery costs for Redevelopment will be limited to 20% of the NSP non-administrative costs per housing unit or property.

vii) **Program Income:** Any program income generated through the Redevelopment activity must be returned to the Department.

9) **Affordability Requirements**

a) The Texas NSP will adopt the federal program standards for continued affordability for rental housing at 24 CFR §92.252. Continued affordability requirements may apply to rental activity as a result of the activities of Financing Mechanisms, Acquisition, Land Banking and/or Redevelopment.

Figure 2. Continuing Affordability of Texas NSP Funds

Rental Housing Activity	Minimum Period of Affordability in Years
Rehabilitation or acquisition of existing housing per unit amount of HOME funds: Under \$15,000	5
\$15,000 to \$40,000	10
Over \$40,000 or rehabilitation involving refinancing	15
New construction or acquisition of newly constructed housing	20

- b) The Texas NSP will adopt the federal program standards for homeownership assistance at 24 CFR §92.254. Affordability periods will apply to any Homeownership Assistance as a result of the activities of Financing Mechanisms, Acquisition, Land Banking and/or Redevelopment.

Figure 3. Affordability Period of Texas NSP Funds

Homeownership Assistance Amount Per-Unit	Minimum Period of Affordability in Years
Under \$15,000	5
\$15,000 to \$40,000	10
Over \$40,000	15

- c) The subrecipient must ensure that the HOME requirements are enforceable for any NSP-assisted activities. (Note that the affordability standards dictated by HERA are longer than those under 24 CFR §570.503 and §570.501(b). HOME requirements reflect the minimum allowable standard).
- d) If NSP funds assist a property that was previously assisted with HOME funds, but on which the affordability restrictions were terminated through foreclosure or transfer in lieu of foreclosure pursuant to 24 CFR Part 92, the HOME affordability restrictions for the greater of the remaining period of HOME affordability or the continuing affordability requirements of this notice.

10) Loan Requirements

- a) **Single-Family Homeownership Loan Requirements.** The Texas NSP will follow the Single Family Mortgage limits set under the February 2008 edition of Section 203(b) of the National Housing Act. Eligible entities may, with written approval of the Department, utilize as a mortgage limit the most recent 95% of Actual Median Sales for each county as promulgated by HUD.
- i) The unit assisted must be the primary residence of the homebuyer. Awarded entities will provide the NSP assistance to the qualifying homebuyer in the form of a loan or forgivable loan as a financing mechanism discussed in Section 8(a). A down payment of \$1,000 will be required from all homebuyers receiving Permanent Financing through the Texas NSP. Affordability terms will be based on the total amount of assistance provided and in accordance with 24 CFR §92.254.

- ii) Each loan to an assisted homebuyer must be payable to the Department. Each loan for reconstruction or rehabilitation shall be evidenced by a construction loan agreement, note, deed of trust, mechanic's lien note, and mechanic's lien contract secured by the property. Loan documents will be provided by the Department and must be executed prior to the commencement of any construction activities (including demolition).
 - iii) Forgiveness of the loan balance is calculated based on a *pro rata* annual share of the loan term. The anniversary date of the loan shall constitute completion of the year. Any partial year shall not be waived. The amount due will be based on the *pro rata* share number of years of the remaining loan term.
 - iv) If at any time prior to the full loan period there occurs a resale of the property, a refinance of any superior lien, a repayment of any superior lien, or if the unit ceases to be the assisted Household's principal residence, the remaining loan balance shall become due and payable.
 - v) Subrecipients must ensure that each NSP-assisted homebuyer obtains a mortgage loan from a lender who agrees to comply with the bank regulators' guidance for non-traditional mortgages (see, Statement on subprime Mortgage Lending issued by the Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Department of the Treasury, and National Credit Union Administration). NSP-assisted homebuyers may not receive subprime mortgage loans. Compliance must be documented in the records maintained for each homebuyer.
 - vi) If NSP funds assist a property that was previously assisted with HOME funds, but on which the affordability restrictions were terminated through foreclosure or transfer in lieu of foreclosure pursuant to 24 CFR Part 92, the HOME affordability restrictions for the greater of the remaining period of HOME affordability or the continuing affordability requirements of this notice.
- b) **Multifamily Rental Development Loan Requirements.** The Texas NSP will follow the maximum per-unit subsidy amount and subsidy layering allowable under the HOME Program using Section 221(d)(3) limits as defined at 24 CFR §92.250.
- i) At least 20% of the assisted development must benefit households with incomes at or below 120% AMI.
 - ii) Award amounts are limited to available funding as limited in the application process and respective applicant pool. The minimum award may not be less than \$1,000 per NSP assisted unit. The Department's underwriting guidelines in 10 TAC §1.32 will be used which set as a feasibility criterion a 1.15 debt coverage ratio minimum. Developments involving rehabilitation must establish that the rehabilitation will substantially improve the condition of the housing. When NSP

funds are used for a rehabilitation development the entire unit must be brought up to the applicable property standards, pursuant to 24 CFR §92.251(a) (1).

- iii) When Department funds will have a first lien position and funds are used for new construction and/or rehabilitation, assurance of completion of the development in the form of payment and performance bonds in the full amount of the construction contract will be required. Such assurance of completion will run to the Department as obligee and must be documented prior to closing.
- iv) Properties will be restricted under a Land Use Restriction Agreement (“LURA”), or other such instrument as determined by the Department for these terms. Among other restrictions, the LURA may require the owner of the property to continue to accept subsidies which may be offered by the federal government, prohibit the owner from exercising an option to prepay a federally insured loan, impose tenant income-based occupancy and rental restrictions, or impose any of these and other restrictions as deemed necessary at the sole discretion of the Department in order to preserve the property as affordable housing on a case-by-case basis.
- v) The Texas NSP will adopt the federal program standards for continued affordability for rental housing at 24 CFR §92.252, however, multifamily housing units may be required to adhere to a 30-year affordability period as defined in the Texas Government Code §2306.185, which outlines State of Texas long-term affordability requirements.

c) Documents Supporting Mortgage Loans

- i) Contract Administrators must not proceed or allow a contractor to proceed with construction, including demolition, on any Activity, Project or Development without first completing the required environmental clearance procedures and Loan closing with the Department.
- ii) A mortgage Loan shall be evidenced by a mortgage or deed of trust note or bond and by a mortgage that creates a lien on the housing development and on all real property that constitutes the site of or that relates to the housing development.
- iii) For each Loan made for the Development of multifamily housing with funds provided to the state under the NSP program, the Department shall obtain a mortgagee's title policy in the amount of the loan. The Department may not designate a specific title insurance company to provide the mortgagee title policy or require the borrower to provide the policy from a specific title insurance company. The borrower shall select the title insurance company to close the loan and to provide the mortgagee title policy.
- iv) A note or bond and a mortgage or deed of trust:
 - (1) must contain provisions satisfactory to the Department;
 - (2) must be in a form satisfactory to the Department; and

- (3) may contain exculpatory provisions relieving the borrower or its principal from personal liability if the Department agrees.

d) Documents Supporting Homebuyer Assistance and Rehabilitation Loans

- i) Documentation required for Homebuyer Assistance and Rehabilitation Loans. The Administrator must ensure the following documents are submitted to the Department in order to request that Loan documents be prepared for the Household:
- (1) A title report or a commitment to issue a title policy not older than ninety (90) days that:
 - (a) evidences no tax lien, mechanic's or materialman's lien or any other restrictions or encumbrances that impair the good and marketable nature of title to the ownership interest. The title report must be a report of the property reflecting the current owner's deed vesting title, including complete deed information, grantees, grantors, execution and recording dates, recording references, and legal description, as well as all existing mortgage/deed of trust liens.
 - (2) Tax certificate that evidences a current paid status, and in the case of delinquency, evidence of an approved payment plan with the taxing authority and evidence that the payment plan is current; and
 - (3) Within ninety (90) days after the Loan closing date, the Administrator or Developer must submit to the Department the original recorded deed of trust and transfer of lien, if applicable. Failure to submit these documents within ninety (90) days after the Loan closing date will result in the Department withholding payment for disbursement requests.

11) Site and Construction/Development Restrictions

a) Single Family Housing

- i) Pursuant to 24 CFR §92.251, housing that is constructed or rehabilitated with NSP funds must meet all applicable local codes, rehabilitation standards, ordinances, and zoning ordinances at the time of project completion. In the absence of a local code for new construction or rehabilitation, the housing must meet the International Residential Code or Texas Minimum Construction Standards (TMCS), as applicable, and be in compliance with the basic access standards in new construction, established by §2306.514 of the Texas Government Code. In addition, housing that is rehabilitated with funds awarded under this NOFA must meet all applicable energy efficiency standards established by §2306.187 of the Texas Government Code, and energy standards as verified by RESCHECK.
- ii) If a Texas NSP assisted unit is reconstructed, the applicant must also ensure compliance with the universal design features in new construction, established by §2306.514 of the Texas Government Code, required for any applicant utilizing

federal or state funds administered by TDHCA in the construction of single family homes.

- iii) All other assistance (e.g., acquisition) must meet all applicable State and local housing quality standards and code requirements and if there are no such standards or code requirements, the housing must meet the Housing Quality Standards in 24 CFR §982.401. When NSP funds are used for rehabilitation the entire unit must be brought up to the applicable property standards, pursuant to 24 CFR §92.251(a)(1).

b) Multifamily Rental Housing

- i) Pursuant to 24 CFR §92.251, housing that is constructed or rehabilitated with HOME funds must meet all applicable local codes, rehabilitation standards, ordinances, and zoning ordinances at the time of project completion. In the absence of a local code for new construction or rehabilitation, NSP-assisted new construction or rehabilitation must meet, as applicable, one of three model codes: Uniform Building Code (ICBO), National Building Code (BOCA), Standard (Southern) Building Code (SBCCI); or the Council of American Building Officials (CABO) one or two family code; or the Minimum Property Standards (MPS) in 24 CFR §200.925 or §200.926. To avoid duplicative inspections when Federal Housing Administration (FHA) financing is involved in a HOME-assisted property, a participating jurisdiction may rely on a Minimum Property Standards (MPS) inspection performed by a qualified person. Newly constructed housing must meet the current edition of the Model Energy Code published by the Council of American Building Officials.
- ii) Housing must meet the accessibility requirements at 24 CFR Part 8, which implements Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. §794) and covered multifamily dwellings, as defined at 24 CFR §100.201, must also meet the design and construction requirements at 24 CFR §100.205, which implement the Fair Housing Act (42 U.S.C. 3601–3619). Additionally, pursuant to the 2009 Qualified Allocation Plan (QAP), 10 TAC §49.9(h)(4)(H), Developments involving New Construction (excluding New Construction of nonresidential buildings) where some Units are two-stories and are normally exempt from Fair Housing accessibility requirements, a minimum of 20% of each Unit type (i.e. one bedroom, two bedroom, three bedroom) must provide an accessible entry level and all common-use facilities in compliance with the Fair Housing Guidelines, and include a minimum of one bedroom and one bathroom or powder room at the entry level. A certification will be required after the Development is completed from an inspector, architect, or accessibility specialist. Any Developments designed as single family structures must also satisfy the requirements of §2306.514, Texas Government Code.
- iii) All of the current Qualified Allocation Plan and Real Estate Analysis Rules 10 TAC §49.6, excluding subsections (d), (f), (g) and (h) apply.
- iv) All other HOME-assisted housing (e.g., acquisition) must meet all applicable State and local housing quality standards and code requirements and if there are no such

standards or code requirements, the housing must meet the housing quality standards in 24 CFR §982.401. When HOME funds are used for a rehabilitation development the entire unit must be brought up to the applicable property standards, pursuant to 24 CFR §92.251(a) (1).

- v) Multifamily housing assisted with NSP funds must meet the accessibility requirements at 24 CFR Part 8, which implements Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. Section 794) and covered multifamily dwellings, as defined at 24 CFR §100.201, and the design and construction requirements at 24 CFR §100.205, which implement the Fair Housing Act (42 U.S.C. 3601-3619).
 - vi) All applications with multifamily housing units intended to serve persons with disabilities must adhere to the Department's Integrated Housing Rule at 10 TAC §1.15.
 - vii) Rental units secured through Texas NSP assistance must be inspected prior to occupancy and must comply with Housing Quality Standards (HQS) established by HUD in 24 CFR Part 92.
 - viii) Multifamily properties will be restricted under a Land Use Restriction Agreement ("LURA"), or other such instrument as determined by the Department for these terms. Among other restrictions, the LURA may require the owner of the property to continue to accept subsidies which may be offered by the federal government, prohibit the owner from exercising an option to prepay a federally insured loan, impose tenant income-based occupancy and rental restrictions, or impose any of these and other restrictions as deemed necessary at the sole discretion of the Department in order to preserve the property as affordable housing on a case-by-case basis.
- c) **Additional Requirements (Single and Multifamily Housing)**
- i) NSP assisted new construction or rehabilitation will comply with federal lead-based paint requirements including lead screening in housing built before 1978 in accordance with 24 CFR Part 92.355 and 24 CFR Part 35, subparts A, B, J, K, M, and R.
 - ii) Davis-Bacon Labor Standards, as applicable.
 - iii) Affirmative Marketing. Recipients must adopt affirmative marketing policies and procedures in furtherance of Texas' commitment to non-discrimination and equal opportunity in housing. Affirmative marketing steps consist of actions to provide information and otherwise attract eligible persons in the housing market area to the available housing without regard to race, color, national origin, gender, religion, familial status or disability. Records should be maintained describing actions taken by the Administrator to affirmatively market units and assess the results of these actions.

- iv) Administrators may not retain Program Income of any kind, including Program Income to fund other eligible NSP Activities and submit any Program Income received to the Department within ten (10) days of receipt. Note: Revenue for the purposes of HERA has the same meaning as program income, as defined at 24 CFR §570.500(a) with the additional modifications as defined in the *Federal Register* notice for NSP.

12) Application Requirements

- d) **Direct Pool:** To remain qualified for the reservation amount of a Direct Allocation, initial applications within each eligible county must be submitted within 30 days of notification on the TDHCA web site that HUD has approved this Amendment. Failure to meet the deadline will result in the relinquishment of the reservation of funds. After the deadline, requests for amounts in excess of the identified Direct Allocation amount for each county will be considered based on the availability of remaining funds, on a first-come, first-served basis.
- b) **Select Pool:** To remain qualified for this pool of funding, initial applications within each eligible county must be submitted within 30 days of notification on the TDHCA web site that HUD has approved the Amendment. The State will competitively award Select Pool funds based on the selection criteria defined in the activity described in this NOFA within 30 days from the application deadline. Failure to meet the deadline will result in the relinquishment of eligibility. After the deadline, requests for amounts in excess of \$500,000 for each county will be considered based on the availability of remaining funds and the score and ranking of the applicant's submission.
- c) Applicants may request more funding than initially reserved in this NOFA; however, the Department reserves the right to recommend those additional funds in accordance with Department processes, which may delay award. After the first thirty (30) days of the application period, all remaining reserved or unallocated funds in the NOFA will be made available to unfunded requests under Department review, by application pool. After one hundred and twenty (120) days after the opening of the application period, all remaining funds that have not been requested under the NOFA will be distributed by the Department in accordance with NSP federal program guidelines.
- d) Eligible applicants within the county should coordinate to ensure that their proposals consistently address the needs in their communities and do not duplicate the needs identified for each county. Duplication of requests for a county will delay the allocation agreement for a community and could result in a reduced amount of time available for applicants to contract for specific acquisitions. If needed, the State will allocate not less than \$500,000 to multiple entities based on their proportionate need and the county's available direct allocation amount.
- e) **Selection Criteria and Priorities:** The State of Texas has established the priorities and scoring described below that will be used in the application review process. While the criteria are important to demonstrate a successful proposal, the scoring structure was designed to ensure that the State complies with the HUD Notice designed to prioritize

areas of greatest need, meets applicable CDBG regulations, and effectively spends the funds:

Maximum Total Score = 100 Points

- Greatest Need (50 Points)
- Neighborhood Stabilization (20 Points)
- Low-Income Households (20 Points)
- Partnerships & Coordination (10 Points)

- i) **Greatest Need (50 Points):** The State will give priority to proposals that address the greatest need as represented on Exhibit 1; a higher Need Score indicates greater need. If an applicant has locally available, verifiable data that documents a greater need than established in the Amendment, it may be submitted. Controvertible data may include but is not limited to local data sources such as local financial institution data or local government records or a subset (smaller than county-level) of a national data source such as U.S. Postal Service data. Source documentation for all controvertible data is required. Certifications will be required for primary source data submissions. Finally, the controvertible data submission must calculate a higher score than the State's proposal by utilizing the formulas and methodology as published in the Amendment. The State will consult with HUD to determine whether the alternate data source is acceptable by HUD standards.
- ii) **Neighborhood Stabilization (20 Points):** A narrative description that defines NSP-funded activities and meets the program's mission to alleviate distress of housing foreclosure and abandonment of properties caused by problematic mortgage lending activities. Priority will be given to applications which identify specific properties for eligible activities or provide a list of households to be assisted.
- iii) **Assistance to Low-Income Households at or Below 50% AMI (20 Points):** In order to emphasize affordability for households at or below 50% of the area median income (AMI), the State will give priority to proposals that will serve persons in this income category beyond the Texas NSP minimum allocation wide requirement of 35% for non-land bank activities. Proposal scores will be prorated according to the additional percentage of funds that will benefit households at or below 50% AMI.
- iv) **Partnerships & Coordination (10 Points):** The State will give priority to those applicants that demonstrate effective cooperation in addressing needs by providing evidence of capacity, communication and planning with other entities in the area to be served. This priority will include proposals submitted by city and county governments, nonprofits and regional efforts to efficiently manage NSP funds. The applicant must demonstrate a strong management role in the program delivery.
- f) **Acquisitions & Relocation:** It is estimated that most properties will be vacant, but previously improved, abandoned and foreclosed; it is not anticipated that relocation will occur. However, the Texas NSP will require adherence to the guidelines set forth in the

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (49 CFR Part 24).

- g) **Resolution:** All applications submitted must include an **original** resolution from the Applicant's direct governing body, authorizing the submission of the Application, acknowledgement of NSP as a reimbursement program, naming of a person and the person's title authorized to represent the organization and signature authority to execute a contract. If submission of a resolution is prohibitive at the time of application submission due to the time constraints of the NSP, a letter of intent from the chief elected official or the Chief Executive Officer of the applicant will suffice for the purposes of an application. A resolution conforming to the requirements herein will be required prior to contract execution.

13) Review Process

- a) Each application will be assigned a "received date" based on the date and time it is physically received by the Division. Then each application will be reviewed on its own merits, as applicable. Applications will continue to be prioritized for funding based on their competitive scoring or "received date", depending on allocation. Applications will be reviewed for applicant and activity eligibility, and threshold criteria as described in this NOFA.
- b) The Department will ensure review of materials required under the NOFA and Program Guide and will issue a notice of any Administrative Deficiencies within ten (10) business days of the received date. Administrative deficiencies are omissions, inaccuracies or incomplete information on the application that can be readily corrected. Applications with Administrative Deficiencies not cured within a subsequent ten (10) business days, will be terminated and must reapply for consideration of funds. Applications that have completed this phase will be reviewed for recommendation to the Board by the Selection Committee.
- c) If a submitted Application has an entire section of the application missing; has excessive omissions of documentation from the Selection Criteria or required documentation; or is so unclear, disjointed or incomplete that a thorough review cannot reasonably be performed by the Department, as determined by the Department, will be terminated without being processed as an Administrative Deficiency. To the extent that a review was able to be performed, specific reasons for the Department's determination of ineligibility will be included in the termination letter to the Applicant.
- d) The Department may decline to consider any Application if the proposed activities do not, in the Department's sole determination, represent a prudent use of the Department's funds. The Department is not obligated to proceed with any action pertaining to any Applications that are received, and may decide it is in the Department's best interest to refrain from pursuing any selection process. The Department reserves the right to negotiate individual elements of any Application.

- e) All Applicants will be processed through the Department's Application Evaluation System, and will include a previous award and past performance evaluation. Poor past performance may disqualify an Applicant for a funding recommendation or the recommendation may include conditions.
- f) Funding recommendations of eligible Applicants will be presented to the Department's Governing Board of Directors based on eligibility and limited by the total amount of funds available under this NOFA and the maximum award amount.
- g) In accordance with §2306.082, Texas Government Code and 10 TAC §1.17, it is the Department's policy to encourage the use of appropriate alternative dispute resolution procedures ("ADR") under the Governmental Dispute Resolution Act, Chapter 2009, Texas Government Code, to assist in resolving disputes under the Department's jurisdiction. As described in Chapter 154, Civil Practices and Remedies Code, ADR procedures include mediation. Except as prohibited by the Department's ex parte communications policy, the Department encourages informal communications between Department staff and Applicants, and other interested persons, to exchange information and informally resolve disputes. The Department also has administrative appeals processes to fairly and expeditiously resolve disputes. If at anytime an Applicant or other person would like to engage the Department in an ADR procedure, the person may send a proposal to the Department's Dispute Resolution Coordinator. For additional information on the Department's ADR Policy, see the Department's General Administrative Rule on ADR at 10 TAC §1.17.
- h) An Applicant may appeal decisions made by staff in accordance with 10 TAC §1.7.
- i) Eligible applicants within the county should coordinate to ensure that their proposals consistently address the needs in their communities and do not duplicate the needs identified for each county. Duplication of requests for a county will delay the allocation agreement for a community and could result in a reduced amount of time available for applicants to contract for specific acquisitions. In the application, applicants are required to identify:
 - vi) The geographic neighborhoods and communities targeted for Texas NSP funds within their jurisdiction;
 - vii) The Texas NSP eligible activities proposed to meet the specific needs in each area; and
 - viii) The strategy for maximum revitalization and impact of funds.

14) Application Submission

- a) All applications submitted for the Direct Pool under this NOFA must be received on or before 5:00 p.m. on **Wednesday April 15, 2009, regardless of method of delivery.**
- b) All applications submitted for the Select Pool under this NOFA must be received on or before 5:00 p.m. on **Wednesday April 15, 2009, regardless of method of delivery.**

- c) The Department will accept applications from 8 a.m. to 5 p.m. each business day, excluding federal and state holidays from the date this NOFA is published on the Department's web site until the deadline. Questions regarding this NOFA should be addressed to:

Texas Department of Housing & Community Affairs
221 E. 11th Street
Austin, Texas 78701
Telephone: (512) 463-8921
E-mail: NSP@tdhca.state.tx.us

- d) All applications must be submitted, and provide all documentation, as described in this NOFA and associated application materials.
- e) Applicants must submit one complete printed copy of all Application materials and one complete scanned copy on a disc of the Application materials as detailed in the Program Guide. All scanned copies must be scanned in accordance with the guidance provided in the Program.
- f) All Application materials including manuals, NOFA, program guidelines, and all applicable NSP rules, will be available on the Department's website at www.tdhca.state.tx.us. Applications will be required to adhere to the threshold requirements in effect at the time of the Application submission. Applications must be on forms provided by the Department, and cannot be altered or modified and must be in final form before submitting them to the Department.
- g) This NOFA does not include text of the various applicable regulatory provisions that may be important to the NSP Program. For proper completion of the application, the Department strongly encourages potential applicants to review the State and Federal regulations, and contact the NSP Division for guidance and assistance.
- h) **Application Workshop:** the Department will present an application workshop in Austin, Texas on a date to be determined. The workshop will address information such as the Application preparation and submission requirements, evaluation criteria, state and federal program information, and environmental requirements. The Application workshop schedule and registration will be posted on the Department's website at www.tdhca.state.tx.us
- i) **Audit Requirements:** An applicant is not eligible to apply for funds or any other assistance from the Department unless a past audit or Audit Certification Form has been submitted to the Department in a satisfactory format on or before the application deadline for funds or other assistance per 10 TAC §1.3(b). This is a threshold requirement outlined in the application, therefore applications that have outstanding past audits will be disqualified. Staff will not recommend applications for funding to

the Department's Governing Board unless all unresolved audit findings, questions or disallowed costs are resolved per 10 TAC §1.3(c).

- j) Applications must be sent via overnight delivery to:

**Texas Department of Housing and Community Affairs
Attn: Neighborhood Stabilization Program
221 East 11th Street
Austin, TX 78701-2410**

or via the U.S. Postal Service to:

**Texas Department of Housing and Community Affairs
Attn: Neighborhood Stabilization Program
Post Office Box 13941
Austin, TX 78711-3941**

NOTE: This NOFA does not include the text of the various applicable regulatory provisions that may be important to the administration of the Neighborhood Stabilization Program. For proper completion of the application, the Department strongly encourages potential applicants to review all applicable State and Federal regulations.

Exhibit 1. Texas Neighborhood Stabilization Program County Need Score

<i>County Name</i>	<i>Direct Texas NSP Allocation</i>	<i>Select Pool Eligible</i>	<i>Need Score</i>
Tarrant	\$7,320,349		13320
Dallas	4,684,332		10684
Cameron	3,465,632		9466
Bexar	3,150,408		9150
Hidalgo	3,005,258		9005
Harris	2,875,584		8876
Nueces	2,522,253		8522
Collin	2,278,454		8278
Webb	2,025,812		8026
Travis	2,017,952		8018
Montgomery	1,697,675		7698
El Paso	1,648,634		7649
Brazoria	1,586,234		7586
Potter	1,579,681		7580
Jefferson	1,498,945		7499
Denton	1,166,500		7166
Taylor	1,099,259		7099
Williamson	1,066,554		7067
Bell	1,064,488		7064
Lubbock	1,057,705		7058
Galveston	1,003,104		7003
Wichita	803,464		6803
Fort Bend	726,857		6727
Ector	699,232		6699
McLennan	647,971		6648
Gregg		Gregg	6143
Tom Green		Tom Green	6055
Grayson		Grayson	5809
Brazos		Brazos	5761
Victoria		Victoria	5741
Orange		Orange	5634
Bowie		Bowie	5593
Harrison		Harrison	5583
Midland		Midland	5507
Smith		Smith	5502
Comal		Comal	5498
Hays		Hays	5326
Ellis		Ellis	4325
Johnson		Johnson	4284
Kaufman		Kaufman	3964

<i>County Name</i>	<i>Direct Texas NSP Allocation</i>	<i>Select Pool Eligible</i>	<i>Need Score</i>
Parker		Parker	2295
Bastrop		Bastrop	1898
Hood		Hood	1658
Liberty		Liberty	1508
Hunt		Hunt	1473
Henderson		Henderson	1432
Rockwall		Rockwall	1266
Wise		Wise	996
Hill		Hill	766
Burnet		Burnet	766
Navarro		Navarro	746
Guadalupe		Guadalupe	683
Randall		Randall	567
Angelina		Angelina	495
Wood		Wood	463
Matagorda		Matagorda	452
Lamar		Lamar	401
San Patricio		San Patricio	391
Atascosa		Atascosa	389
Milam		Milam	366
Maverick		Maverick	359
Jim Wells		Jim Wells	341
Eastland		Eastland	316
Van Zandt		Van Zandt	300
Kleberg		Kleberg	296
Grimes		Grimes	292
Hale		Hale	269
Palo Pinto		Palo Pinto	243
Nacogdoches		Nacogdoches	242
Hopkins		Hopkins	242
Kendall		Kendall	234
Coryell		Coryell	230
Cooke		Cooke	224
Kerr		Kerr	210
Medina		Medina	196
Aransas		Aransas	184
Caldwell		Caldwell	183
Wilson		Wilson	176
Gonzales		Gonzales	169
Waller		Waller	167
Anderson		Anderson	165
Val Verde		Val Verde	165

<i>County Name</i>	<i>Direct Texas NSP Allocation</i>	<i>Select Pool Eligible</i>	<i>Need Score</i>
Montague		Montague	165
Llano		Llano	165
Washington		Washington	159
Fannin		Fannin	159
Walker		Walker	152
Upshur		Upshur	152
Brown		Brown	150
Cherokee		Cherokee	145
Jackson		Jackson	131
Austin		Austin	127
Starr		Starr	115
Wharton		Wharton	114
Polk		Polk	111
Gillespie		Gillespie	106
Jasper		Jasper	106
Leon		Leon	105
Willacy		Willacy	105
Erath		Erath	103
Howard		Howard	102

PLACEHOLDER FOR SPREADSHEET

Williamson County Room Rental
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Mary Clark, Commissioner Pct. #1
Submitted For: Mary Clark
Department: Commissioner Pct. #1
Agenda Category: Regular Agenda Items

Information

Agenda Item

Discuss and take appropriate action regarding community room and conference room rentals.

Background

Williamson County has a variety of meeting rooms. Some require a rental fee, while others are free. Rooms are available to non-profit groups or other organizations with only the consent from a Commissioner or the County Judge. Currently there are no guidelines in place. With the anticipated use of the community room at the new Round Rock Annex, Commissioner Birkman put together a committee with Peggy Vasquez, Executive Assistant the Judge; Joe Latteo, Facilities and Maintenance Director; Mary Clark, Executive Assistant to the Commissioner, Pct.1 and Commissioner Birkman. Extensive research was done on policy and procedures and well as fees for other publicly owned facilities in all the major city owned buildings within the county, including but not limited to Round Rock, Georgetown, City Park and Leander. The committee is proposing the attached rules and regulations and fee schedule and is asking that the list of attached rooms be included under these guidelines. This does not include any rooms in the Historic Courthouse. In addition to the rules and regulations we are asking that the court consider including additional personnel in the county budget under Joe Latteo's Department to help with access and supervision of the community rooms when they are in use. Attached is a proposed job description. As far as booking the rooms and collecting the monies, these duties would fall under personnel that are currently in place.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [RR attendant justification](#)

Link: [RR building attendant](#)

Link: [Community Room comparables](#)

Link: [Community Rooms Rules and Regs](#)

Link: [Community Room Consent Form](#)

Link: [Community Rooms Fee Schedule](#)

Form Routing/Status

Form Started By: Mary Clark Started On: 02/25/2009 03:38
PM

Final Approval Date: 02/27/2009

NEW PERSONNEL JUSTIFICATION / SUPPORT DOCUMENTATION

Hiring Department: Facilities Department

Position Title: Building Attendant

G/S _____ **Salary** _____

Please attach a current job description as well as an organizational chart with this form

1. Please describe the specific need for this position.
This position is needed in order to have a county employee on site during function that are scheduled for the community rooms at the Round Rock Annex
2. Explain how adding this position will strengthen/benefit the department and/or Williamson County.

Will allow for a county employee to be on site to resolve problems that may occur such as plumbing, electrical, janitorial (limited) and air conditioning issues. They will also provide building security during functions.
3. If this position already exists in your department, when was the last time this particular position was added and how many of these positions do you currently have?
NO
4. Will the addition of this position, if recommended, impact the budgets of any other departments directly or indirectly?
NO
5. What, if any, alternatives to adding this position were considered? Is software/technology available to achieve these same goals?
NO
6. Can this workload be performed at less than a full-time slot?
May be able to use two or three part time positions

7. Should this position be recommended, can any previously allocated part-time funding be cut?

N/A

8. Explain how work will be accomplished if the position is not recommended i.e. service levels.

9. How would this workload be reallocated should the position not be recommended?

10. Identify the physical location/office space for this position.

Primary location will be Round Rock Annex

11. Please include metrics/stats to support this request i.e. workload information, caseload, etc.

12. Describe the financial impact of this position, i.e. revenue generation and/or expense reduction if applicable.

13. How will the addition of this position reduce the workload for other department staff?

Yes

14. Please list any other pertinent information to support this request.

REQUEST FOR NEW POSITION

PART A

HR RECOMMENDATION

DEPARTMENT: Building Maintenance **DATE:** 4-9-08

NO. OF POSITIONS 1

OFFICIAL/DEPT HEAD: Joseph Latteo

POSITION TITLE, IF CURRENT AND CLASSIFIED (*You do not have to fill out part B if the position is already classified*):

PROPOSED TITLE, IF NEW AND UNCLASSIFIED: Building Attendant

PART B: *Complete only if position is new and unclassified*

JOB SUMMARY: (*Three or four sentences that provide a general summary*)

Provide security, electrical, plumbing and minor janitorial service for functions that are scheduled for the Round Rock Community rooms and other county buildings.

ESSENTIAL DUTIES: (*Four to six sentences that list specific duties*)

Provide security for the building during events scheduled in community rooms, which includes locking and unlocking facilities. Repair and place light bulb, ballast, recepticals and switches. Repair or replace fauctes, flush valves and other assorted plumbing fixtures. Unclog urinals, toilets, sinks and sewer lines. Change filters in air handling units. Perform janitorial duties, such as emptying trash contains, assure restrooms remain clean, restock paper products. Maintain exterior of building free of trash and other debri. During times when events are not scheduled, perform building maintenance duties as required through out the county.

PHYSICAL DEMANDS: (*Please list physical demands, such as lifting, carrying, driving, etc.*)

Must be able to climb ladders. Lift a minimum of 50 pounds to chest height. Requires bending , kneeling, crawling in small spaces and operate a motor vehicle.

ENVIRONMENTAL FACTORS: (*Please state whether work is mostly indoors in smoke-free, air-conditioned office, or otherwise*)

Works in all kins of indoor and outdoor enviroments. Contact with operating machinery. Exposure to dust, cleaning chemicals, fumes and high noise level

QUALIFICATIONS: (*Please list required education, followed by required years of experience and type of experience; then list preferred items, such as extra education or experience, special knowledge, skills, abilities*))

Required: **Must be able to pass a back ground check**

Preferred: **Two years experience in general building maintenance and or equivalent vocational training. Ability to work with to with hand and power tools in a safe manner. Ability to read and write English at the high school level. Ability to deal with the general public, county employees, department heads and elected officials in a professional manner. Valid Texas driver's license and a good driving record.**



MEMORANDUM

To: Williamson County Commissioner's Court
Joe Latteo, Facilities and Maintenance Director

From: Mary Clark, Executive Assistant to Commissioner Birkman

Date: April 25, 2008

Subject: Community Room Rentals – Prices & Policies

ROUND ROCK LIBRARY

- Prices
 - 1400 square feet: holds 125 people auditorium style, 60 classroom style
 - Resident/nonprofit: \$15/2hrs., \$15/hr. for additional use
 - Non-resident/non profit: \$20/2hrs., \$20/hr. for additional use
 - Resident/private: \$70/2hrs., \$70/hr. for additional use
 - Non-resident/private: \$90/2hrs., \$90/hr. for additional use
 - 2800 square feet: holds 250 people auditorium style, 120 classroom style
 - Resident/nonprofit: \$25/2hrs.
 - Non-resident/non profit: \$32/2hrs.
 - Resident/private: \$100/2hrs.
 - Non-resident/private: \$125/2hrs.
- Policies
 - Open Sun.-Sat. 7am-10:30pm
 - May only be used one time per month for each rate
 - First come, first serve basis
 - Individuals or groups responsible for own set up and tear down
 - Kitchen available for heating/re-heating catered foods; not for full meal preparation
 - Tables and chairs available by room
 - No smoking, alcoholic beverages, or recreational drug use
 - Nothing can be attached to walls
 - Open flames including candles prohibited

BRUSHY CREEK COMMUNITY CENTER

- Prices
 - Resident: \$60/2hrs.
 - Non-resident: \$95/2hrs.
 - Kitchen available for \$30/2hrs.
- Policies
 - Open Mon.-Fri. 5:30am-3pm, Sun. 10am-6pm
 - \$50 deposit required 120 days prior
 - No smoking
 - Set up and tear down time part of total rental time
 - No open flames

CEDAR PARK LIBRARY

- Prices
 - Youth events: Minimum of \$10/2hrs.
 - Civic and community oriented: Minimum of \$50/2hrs.
 - Non commercial and commercial: Minimum of \$100/2hrs.
 - Refundable \$150 cleaning/damage fee
- Policies
 - Open weekdays 9am-11pm, weekends 9am-5pm
 - City and County use takes priority
 - No smoking
 - No food or beverages
 - No decorations may be attached to walls

WILLIAMSON COUNTY URS

- Prices
 - Non-profit: no fee
 - Profit organizations: \$75 flat rate
 - Kitchen: \$50 extra
- Policies
 - No parties
 - No alcoholic beverages
 - Nothing that includes selling products. Ex: Craft shows

LEANDER LIBRARY

- Prices
 - Resident/nonprofit: \$50/2hrs.
 - Non-resident/non profit: \$75/2hrs.
 - Resident/organization: \$125/2hrs.
 - Non-resident/organization: \$150/2hrs.

- Policies
 - Open Mon.-Thur. 9am-9am, Fri.-Sat. 9am-7pm, Sun. 12-6pm
 - User responsible for set up and tear down
 - Refundable \$150 cleaning/damage fee

GEORGETOWN LIBRARY

- Prices
 - Classroom: holds 40 people
 - Resident: \$20/2hrs. \$10 per additional hour. \$60/6+hrs.
 - Non-resident: \$40/2hrs. \$20 per additional hour. \$120/6+hrs.
 - Nonprofit 501(c)3: \$10/2hrs. \$5 per additional hour. \$30/6+hrs.
 - Commercial: \$40/2hrs. \$20 per additional hour. \$120/6+hrs.
 - Security deposit: \$50
 - Hewlett or Friends room: holds 200 people
 - Resident: \$40/2hrs. \$20 per additional hour. \$20/6+hrs.
 - Non-resident: \$80/2hrs. \$40 per additional hour. \$240/6+hrs.
 - Nonprofit 501(c)3: \$20/2hrs. \$10 per additional hour. \$60/6+hrs.
 - Commercial: \$100/2hrs. \$50 per additional hour. \$300/6+hrs.
 - Security deposit: \$100
 - Hewlett and Friends room: Holds 400 people
 - Resident: \$80/2hrs. \$40 per additional hour. \$240/6+hrs.
 - Non-resident: \$160/2hrs. \$80 per additional hour. \$480/6+hrs.
 - Nonprofit 501(c)3: \$40/2hrs. \$20 per additional hour. \$120/6+hrs.
 - Commercial: \$200/2hrs. \$100 per additional hour. \$600/6+hrs.
 - Security deposit: \$150
- Policies
 - Rooms available 8am-11pm
 - Rooms may be rented no more than once a month
 - Red Poppy Café Company will provide food and beverage services. Only if service is declined or permission is received from the library director may outside food and beverages be brought in.
 - All fees are due at time of reservation. No refunds made for cancellation less than one week prior to scheduled use. Checks should be made payable to City of Georgetown.
 - No rental fees for events that are sponsored by the library or City of Georgetown.
 - If meeting goes longer than 15 minutes over, an additional hour will be charged.
 - Individuals or groups are responsible for setting up and returning room to its original configuration.
 - Any Advertising or printed material of events or programs sponsored by the renter must contain the following statement: THIS EVENT IS NOT AFFILIATED WITH OR SPONSORED BY THE GEORGETOWN PUBLIC LIBRARY OR THE CITY OF GEORGETOWN.
 - No activities may be held outside of the room rented.
 - No candles or open flames allowed in meeting rooms.
 - No decorations may be attached to walls or ceilings.

- o Equipment rental fees
 - LCD Projector: \$25 per meeting
 - TV with DVD & VCR: \$10 per meeting
 - Overhead projector: \$5 per meeting

FERN BLUFF MUD

- Prices
 - o Bluff room: holds 25 people
 - Resident and nonprofit: \$10/hr. \$200 security deposit.
 - Non-resident: \$35/hr. \$400 security deposit.
 - o Brook room: holds 50 people
 - Resident and nonprofit: \$15/hr. \$250 security deposit.
 - Non-resident: \$75/hr. \$500 security deposit.
 - o Bluff and Brook rooms: holds 75 people
 - Resident and nonprofit: \$25/hr. \$300 security deposit.
 - Non-resident: \$100/hr. \$600 security deposit.
 - o Canyon room: holds 125 people
 - Resident and nonprofit: \$35/hr. \$300 security deposit.
 - Non-resident: \$150/hr. \$600 security deposit.
 - o Canyon and Brook rooms: holds 150 people
 - Resident and nonprofit: \$50/hr. \$400 security deposit.
 - Non-resident: \$175/hr. \$800 security deposit.
 - o Entire Facility: holds 275 people (160-180 for dinner seating)
 - Resident and nonprofit: \$60/hr. \$500 security deposit.
 - Non-resident: \$200/hr. \$1000 security deposit.
- Policies
 - o Canyon room or entire facility, 6hr. minimum on Friday or Saturday.
 - o Canyon room includes dance floor (if moved fee is charged).
 - o If room is not clean \$250 clean-up fee will be charged.
 - o Kitchen rental is on a first-come, first-serve basis.
 - o Sheriff hourly charge of \$26/hr. will be required of duration of event if alcohol will be served.
 - o Amenities available:
 - Kitchen: \$20
 - Move dance floor: \$250 for setup
 - TV: \$50
 - Projector screen: \$50
 - Optional setup of tables and chairs:
 - Canyon Room or Entire Facility: \$250
 - Bluff and/or Brook Room: \$150

WILLIAMSON COUNTY COURTHOUSE

- Prices
 - o Conference Room: holds 10 people
 - \$25 per hour, 2 hour minimum, 4 hour maximum.
 - \$100 security deposit.

- \$25 per half-hour past time agreed upon in contract will be deducted from deposit.
- o District Courtroom: holds 200 people
 - \$150 per hour.
 - \$300 security deposit.
 - \$150 per half-hour past time agreed upon in contract will be deducted from deposit.
 - \$25 per hour for adjacent changing room.
- o Commissioners Courtroom: holds 100 people
 - \$100 per hour.
 - \$300 security deposit.
 - \$100 per half-hour past time agreed upon in contract will be deducted from deposit.
- Policies
 - o All rental fees due 30 days prior to event.
 - o Additional fees will be charged for hours necessary for set-up, clean-up, rehearsals, or other activities.
 - o A licensed Sheriff's Deputy is mandatory for groups over 75 and any event between 6pm and 10pm, or if alcohol is being served.
 - o Sheriff's Deputies are \$40 per hour.
 - o No smoking, candles or open flames. Supervised caterer flames are allowed.
 - o Activities must be confined to room(s) dedicated to the event.
 - o Weapons are not permitted in the Courthouse.
 - o No set-up closer than 2 feet from the wall.
 - o No stapling, taping, or tacking banners or decorations to walls.
 - o No combustible materials, sparklers, water-related displays, smoke or fog machines.
 - o No tinsel, glitter, confetti, rice, birdseed, hay, hay bales, helium-filled balloons, stickers, or silly string.
 - o Professional vendors may bring in balloons.
 - o No amplified music or bands.
 - o All food and beverages must be approved by the museum.

GEORGETOWN COMMUNITY CENTER

- Prices
 - o Whole Building: holds 440 people
 - Resident: Mon.-Thurs. \$500, Fri.-Sun. \$600.
 - Non-Resident: Mon.-Thurs. \$700, Fri.-Sun. \$800.
 - Non-profit: Mon.-Thurs. \$250, Fri.-Sun. \$250
 - Commercial: Mon.-Thurs. \$800, Fri.-Sun. \$900.
 - o Half Building: holds 220 people
 - Resident: Mon.-Thurs. \$250, Fri.-Sat. \$350.
 - Non-Resident: Mon.-Thurs. \$350, Fri.-Sat. \$450.
 - Non-profit: Mon.-Thurs. \$100, Fri.-Sat. \$150.
 - Commercial: N/A
 - o Half Building with Courtyard
 - Resident: Mon.-Thurs. \$275, Fri.-Sun. \$375.
 - Non-Resident: Mon.-Thurs. \$375, Fri.-Sun. \$475.

- Non-profit: Mon.-Thurs. \$125, Fri.-Sun. \$175.
- Policies
 - Keys will not be issued without signed contract and valid identification.
 - \$500 deposit, \$1000 with alcohol or dances.
 - Non-profit renters must provide a copy of non-profit status.
 - No thumbtacks, tape, staples, or glue is allowed to attach decorations to walls or tables and chairs.
 - No tape on floor.
 - No decorations may be hung from beams.
 - Fog machines are not allowed.
 - No glass bottles less than 1 quart.
 - No propane tanks allowed in building. BBQ pits available behind the building.
 - Music permitted inside only.
 - No smoking within 15 feet of the entrance.
 - No animals allowed.
 - Unauthorized intoxicants, drugs, controlled substances, and firearms are prohibited.
 - Existing City of Georgetown signs may not be removed or relocated.
 - Set up and clean up are included in the total rental time.
 - Kitchen must be cleaned.
 - Trash bags, brooms, and mops are available for use in the janitor's closet.
 - Tables and chairs must be wiped down and returned the storage area.
 - All equipment, decorations, food or other items brought in by the renter or attendees must be removed prior the end of the rental period.
 - Building must be left clean and orderly. Trash must be placed behind the building in the dumpster and any excess debris, water, etc. must be swept and/or mopped up.
 - All lights must be turned out.
 - All doors must be closed and locked.

KINNINGHAM AND RABB CENTERS

- Prices
 - Resident: \$200/4hrs. \$15 per additional hour. \$100 refundable litter damage.
 - Non-resident: \$225/4hrs. \$20 per additional hour. \$100 refundable litter damage.
- Policies
 - Initial four hours must include set up and clean up.

ALLEN R BACA CENTER

- Prices
 - Grand Meeting Room (includes kitchen): holds 465 people
 - Resident weekday: 1hr. rental \$65. 4hrs. \$195. Additional hours \$60.
 - Resident weekend: 1hr. \$110. 4hrs. \$330. Additional hours \$90.
 - Non-resident weekday: 1hr. \$110. 4hrs. \$330. Additional hours \$90.
 - Non-resident weekend: 1hr. \$160. 4hrs. \$480. Additional hours \$130.
 - Security deposit: \$350.
 - Meeting Room #1 or #2: holds 77 people

- Resident weekday: 1hr. \$20. 4hrs. \$60. Additional hours \$15.
- Resident weekend: 1hr. \$35. 4hrs. \$105. Additional hours \$25.
- Non-resident weekday: 1hr. \$35. 4hrs. \$105. Additional hours \$25.
- Non-resident weekend: 1hr. \$60. 4hrs. \$180. Additional hours \$50.
- Security deposit: \$50.
- o Computer Lab: holds 15 people
 - Resident weekday: 1hr. \$15. 4hrs. \$45. Additional hours \$10.
 - Resident weekend: 1hr. \$25. 4hrs. \$75. Additional hours \$20.
 - Non-resident weekday: 1hr. \$25. 4hrs. \$75. Additional hours \$20.
 - Non-resident weekend: 1hr. \$40. 4hrs. \$120. Additional hours \$30.
 - Security deposit: \$1000
- o Arts and Crafts Room: holds 30 people
 - Resident weekday: 1hr. \$20. 4hrs. \$60. Additional hours \$25.
 - Resident weekend: 1hr. \$25. 4hrs. \$75. Additional hours \$20.
 - Non-resident weekday: 1hr. \$25. 4hrs. \$75. Additional hours \$20.
 - Non-resident weekend: 1hr. \$40. 4hrs. \$120. Additional hours \$30.
 - Security deposit: \$50
- o Aerobics Room
 - Resident weekday: 1hr. \$20. 4hrs. \$60. Additional hours \$25.
 - Resident weekend: 1hr. \$35. 4hrs. \$105. Additional hours \$25.
 - Non-resident weekday: 1hr. \$35. 4hrs. \$57. Additional hours \$25.
 - Non-resident weekend: 1hr. \$55. 4hrs. \$165. Additional hours \$45.
 - Security deposit: \$50
- o Weight Room
 - Resident weekday: 1hr. \$30. 4hrs. \$90. Additional hours \$25.
 - Resident weekend: 1hr. \$45. 4hrs. \$135. Additional hours \$40.
 - Non-resident weekday: 1hr. \$45. 4hrs. \$135. Additional hours \$40.
 - Non-resident weekend: 1hr. \$75. 4hrs. \$225. Additional hours \$65.
 - Security deposit: \$1000
- o Dining Room: holds 350 people
 - Resident weekday: 1hr. \$50. 4hrs. \$150. Additional hours \$45.
 - Resident weekend: 1hr. \$64. 4hrs. \$225. Additional hours \$65.
 - Non-resident weekday: 1hr. \$75. 4hrs. \$225. Additional hours \$65.
 - Non-resident weekend: 1hr. \$130. 4hrs. \$225. Additional hours \$115.
 - Security deposit: \$200
- Billiard Room: holds 15 people
 - Resident weekday: 1hr. \$15. 4hrs. \$45. Additional hours \$10.
 - Resident weekend: 1hr. \$20. 4hrs. \$60. Additional hours \$15.
 - Non-resident weekday: 1hr. \$20. 4hrs. \$60. Additional hours \$15.
 - Non-resident weekend: 1hr. \$30. 4hrs. \$90. Additional hours \$20.
 - Security deposit: \$500
- TV/Game Room: holds 20 people
 - Resident weekday: 1hr. \$15. 4hrs. \$45. Additional hours \$10.
 - Resident weekend: 1hr. \$20. 4hrs. \$60. Additional hours \$15.
 - Non-resident weekday: 1hr. \$20. 4hrs. \$60. Additional hours \$15.
 - Non-resident weekend: 1hr. \$30. 4hrs. \$90. Additional hours \$20.
 - Security deposit: \$500
- Grand Room, Meeting Rooms 1&2, and kitchen: holds 510 people
 - Resident weekday: 1hr. \$100. 4hrs. \$300. Additional hours \$90.

- Resident weekend: 1hr. \$165. 4hrs. \$495. Additional hours \$150.
- Non-resident weekday: 1hr. \$165. 4hrs. \$495. Additional hours \$150.
- Non-resident weekend: 1hr. \$270. 4hrs. \$810. Additional hours \$235.
- Security deposit: \$500

Grand Room, Meeting Rooms 1&2, kitchen, billiard, and TV/game rooms:
holds 564 people

- Resident weekday: 1hr. \$130. 4hrs. \$300. Additional hours \$120.
- Resident weekend: 1hr. \$205. 4hrs. \$615. Additional hours \$175.
- Non-resident weekday: 1hr. \$205. 4hrs. \$615. Additional hours \$175.
- Non-resident weekend: 1hr. \$330. 4hrs. \$990. Additional hours \$300.
- Security deposit: \$1000

- Policies

- Weekend rates begin Friday at 5pm and run through Sunday.
- Two Round Rock Police officers must be on duty if alcohol is being served. \$90/hr. will be charged.



(DRAFT)
Williamson County Room Rental
Rules and Regulations

Williamson County has a variety of rooms in various county buildings that are available for public use. The purpose of the public rooms is for the use of Williamson County and its citizens. Williamson County reserves the right to refuse to rent rooms to any individual or group at the discretion of the Williamson County Commissioner's Court. A detailed list of county buildings with community rooms available for rent is attached.

The following are the rules and regulations for room rentals for people or groups that are **not** part of official county business.

General Rules of Room Usage

1. A contract agreement must be signed by the renter prior to the event which acknowledges receipt of the Williamson County Community Room Rental Information and the Williamson County Rules and Regulations. The person signing the agreement must provide a valid state issued driver's license or identification card, which will be copied, and this person will be responsible for any damages.
2. You must be 21 years of age or older to rent a room and have a valid state issued driver's license or identification card.
3. Non-profit renters must provide a copy of current non-profit status.
4. Renters are responsible to inform their guests/event attendees of all rules and regulations.
5. Use of the facility does not in any way imply that the Williamson County Commissioner's Court or Williamson County endorses, encourages, or approves the purpose of the user.
6. Food and non-alcoholic beverages are allowed as long as the room is completely cleaned after usage, including taking out all trash. Possession or consumption of alcoholic beverages in the meeting rooms is strictly prohibited. **Failure to follow this rule will result in loss of room rental privileges and loss of deposit.**
7. Rented meeting rooms may be reserved a maximum of 6 months in advance for use. All rooms are available for usage only between 8:00 AM and 10:00 PM. Monday through Friday. Weekend usage must be approved by the county judge or the commissioner of the precinct in which the building is located.
8. No person, association, organization, business, or corporation may rent any of the rooms more than 5 times a month.
9. All fees are due when the reservation is made. No refunds will be made for any cancellation less than one week prior to scheduled use. Checks for rentals and security deposits should be made payable to Williamson County.
10. If a meeting goes more than 15 minutes over the scheduled time, an additional half hour will be billed. If the meeting goes more than 30 minutes over the scheduled time, an additional hour will be billed. **Continued usage of the room(s) past the time of rental will result in loss of room rental privileges and loss of deposit.**
11. The individual or group renting the room is responsible for setting up the room and returning it to its original configuration. Set up and clean up time should be included in the amount of rental time. A schematic map is posted in the room.
12. Any advertising or printed material of events or programs sponsored by the renter must contain the following statement: **THIS EVENT IS NOT AFFILIATED WITH OR SPONSORED BY WILLIAMSON COUNTY.**

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Rules and Regulations¶

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13. Public restrooms are available for use during the event.
14. All events, their attendees, caterers, entertainment, etc., must vacate the premises so that the building can be secured no later than 10:00 pm.
15. The County staff does not assist in setting up or dismantling of specials events. These services may be available for an additional fee.
16. The county facility is a public space and there may be public using other parts of the building during the event.
17. Activities must be confined to the rented room or combination of rooms dedicated to the event.
18. Use of the Williamson County grounds for events is prohibited, unless expressly granted permission from the commissioner of the precinct where the room is rented, or if the commissioner is unavailable, the county judge.

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Miscellaneous Restrictions

1. Smoking is prohibited in any of the meeting rooms.
2. Registration tables, refreshments, or any other activities are not permitted outside of the room rented.
3. No candles or open flames are allowed in any of the meeting rooms.
4. No decorations may be attached in any way to the walls or ceilings of any of the rooms.
5. Fog machines are not allowed.
6. No furniture may be borrowed or moved from other areas of the building.
7. No live animals are allowed in the community rooms, with the exception of the room at the Williamson County Animal Shelter, or service animals.
8. Williamson County reserves the right to cancel or reschedule any meeting in case of an emergency and will notify the representative of any previously scheduled meeting as quickly as possible.
9. Williamson County is not responsible for any articles lost or stolen from any of the rented rooms.
10. Groups requesting exceptions to these rules and policies must do so in writing with an explanation for the exception requested to the precinct commissioner where the building is located. If the commissioner is unavailable you may contact the county judge.
11. Failure to follow the above rules and policies will result in loss of security deposit(s) and refusal of further meeting room bookings.
12. Any circumstances not covered in the above rules and policies will be resolved by decision with the precinct commissioner or county judge.

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I have read the Rules & Regulations and fully understand its contents.

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Authorized Representative Signature

Date

Print Name of organization or group

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Address: _____

Phone: _____

Email: _____



DRAFT

Williamson County Community Room Usage Consent Form

(see attached list for details on rooms and locations)

- Central Maintenance Facility - URS training & conference rooms
- Animal Shelter - Community Room
- Hutto Rifle Range - Community Room
- Round Rock Annex - Community Room
- Cedar Park Annex – Conference Room
- Taylor Annex – Conference Room

All organizations, groups, and businesses interested in renting a community room or conference room from the county will have a responsible representative agree to this consent form by signature.

KEYS OR ACCESS TO THE BUILDING

Each renter will be provided a key or proximity card, or access will be given by a county employee for usage during rental. If you are issued a key or proximity card it should be returned by no later than the 5 p.m. on the next business day after the rental. Failure to return the key in a timely manner will result in the loss of the security deposit or future room rental privileges.

JANITORIAL ISSUES

All facilities rooms should be in good condition when keys or proximity cards are issued for utilized spaces. There are many things that can result in complaints after usage such as, but not limited to, floor staining, trash not being taken out of the facility, or restrooms in disarray. These are merely examples. **The point is to return the room in the same condition as it was when you arrived. A layout of the room & furniture will be posted at the facility.** This will allow the room to be ready for the next occupant with no more than a normal janitorial service. Any extra cleaning required will be charged to the last user.

EMERGENCIES

When in doubt call 911 for any medical emergency.

Fire alarms in all buildings are monitored by an outside service. In some cases there will be a loud audible trouble alarm. In the event this happens, please call one of the phone numbers below.

If any immediate attention is required during your event please refer to the following numbers:

Facilities Services (512)943-1599

7 AM – 5 PM Monday – Friday

Any occurrences outside the above hours please call for on-call personnel:

Williamson County Dispatch (non emergency) **(512)943-1396 or (512)943-1419**

I have received a copy of the Williamson County Community Rooms Rules and Regulations and fully understand its contents. _____ (Initial here)

Authorized Representative Signature: _____ Date: _____

Name: _____

Address: _____

Phone: _____

Email: _____



**Williamson County Community Rooms / Conference Rooms
Rental Rates**

-
- **Central Maintenance Facility – Community Room**
 - **3151 S.E. Inner Loop, Georgetown, TX 78626**
 - Large Community Room
 - Size – 43' x 44'
 - Warming kitchen
 - Tables and chairs
 - Capacity: 125
 - Small Conference Room
 - Size – 28' x 16'
 - Small coffee bar
 - Large conference table with chairs
 - Capacity: 25

-
- **Animal Shelter - Community Room**
 - **1855 S.E. Inner Loop, Georgetown, TX 78626**
 - Large Community Room
 - Size – 31' x 37'
 - Tables and chairs
 - Capacity: 100

-
- **Hutto Rifle Range - Community Room**
 - **3901 CR 130, Hutto, TX 78634**
 - Size – 60' x 26'
 - Restrooms
 - Coffee Bar
 - Capacity: 125

-
- **Round Rock Annex - Conference Room**
 - **211 Commerce Cove, Round Rock, TX 78664**
 - Size 20' x 20'
 - Large conference table with chairs
 - Capacity: 25
-

- **Cedar Park Annex – Conference Room**
 - o **350 Discovery Blvd., Cedar Park, TX**
 - Size – 15’ x 15’
 - Large conference table with chairs
 - Capacity: 25

-
- **Taylor Annex – Conference Room**
 - o **412 Vance, Taylor, TX 76574**
 - Size – 26’ x 12’
 - Large conference table with chairs
 - Capacity: 25

-
- **Future Round Rock Annex - Community Room**
 - o **1801 E. Old Settlers Blvd., Round Rock, TX 78664**
 - Size 54’ x 54’
 - Warming kitchen
 - Table and chairs
 - Capacity: 200
 - Half Room with or without warming kitchen
 - Size 54’ x 29’
 - Tables and chairs
 - Capacity 100

FEE SCHEDULE

	200 or more person capacity	100 - 199 person capacity	99 – 30 person capacity	29 or less person capacity
Resident	\$100 (2 hours)	\$75 (2 hours)	\$50 (2 hours)	\$50 (2 hours)
Non – Resident	\$125 (2 hours)	\$100 (2 hours)	\$75 (2 hours)	\$50 (2 hours)
Governmental / Non – profits	\$75 (2 hours)	\$50 (2 hours)	\$25 (2 hours)	\$25 (2 hours)
Security Deposit	\$200	\$100	\$50	\$50

- Two hour minimum
- If a meeting goes more than 15 minutes over the scheduled time, an additional half hour will be billed. If the meeting goes more than 30 minutes over the scheduled time, an additional hour will be billed.
- Consistent usage pass scheduled times may result in loss of room rental privileges

Clearwater Ranch PID
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Grimes Kathy, Commissioner Pct. #2
Submitted For: Charlie Crossfield
Department: Commissioner Pct. #2
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider setting date for a public hearing for adoption of assessment order for the Clearwater Ranch Public Improvement District.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Grimes Kathy Started On: 03/05/2009 09:38 AM
Final Approval Date: 03/05/2009

Salary Grievance Committee
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Rebecca Clemons, County Judge
Department: County Judge
Agenda Category: Regular Agenda Items

Information

Agenda Item

In accordance with Section 152.014 of the Local Government Code, select public members (9) and alternates (27) for the salary grievance committee.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Rebecca Clemons
Started On: 03/03/2009 04:17 PM
Final Approval Date: 03/04/2009

Consider approving the Waiver of Penalty and Interest to customers as described in attachments from the Tax Assessor/Collector

Commissioners Court - Regular Session

Date: 03/10/2009

Submitted By: Kathryn Morehouse, County Tax Assessor Collector

Submitted For: Deborah Hunt

Department: County Tax Assessor Collector

Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider approving the Waiver of Penalty and Interest to customers as described in attachments from the Tax Assessor/Collector.

Background

In accordance with Section 33.011 of the Texas Property Tax Code. "The Governing body of a taxing unit shall waive penalties and may provide for the waiver of interest if interest on a delinquent tax is an act or omission of an officer, employee, or agent of the taxing unit of the appraisal district in which the taxing unit participates caused or resulted in the taxpayer's failure to pay the tax before the delinquency and if the tax is paid within 21 days after the taxpayer knows or should know of the delinquency."

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [memo court waive Mar 4 09](#)

Link: [Waiving P&I Mar 4 09](#)

Form Routing/Status

Form Started By: Kathryn Morehouse Started On: 03/04/2009 08:16 AM

Final Approval Date: 03/04/2009

Williamson County

Tax Assessor/Collector

Deborah M. Hunt, CTA

Date: March 6, 2009

To: Members of the Commissioners Court

From: Deborah M. Hunt, CTA

Subject: Waiver of Penalty & Interest

In accordance with Section 33.011 of the Texas Property Tax Code, "The Governing Body of a taxing unit shall waive penalties and may provide for the waiver of interest if interest on a delinquent tax is an act or omission of an officer, employee, or agent of the taxing unit or the appraisal district in which the taxing unit participates caused or resulted in the taxpayer's failure to pay the tax before delinquency and if the tax is paid within 21 days after the taxpayer knows or should know of the delinquency."

Main Office and Mailing Address:

710 South Main Street, Ste. #102
Georgetown, Texas 78626
Phone: (512) 943-1601
Fax: (512) 943-1618
www.williamson-county.org

Annex Locations:

211 Commerce Blvd., Ste. #101 Round Rock, Texas 78664 Phone: (512) 248-3278 Fax: (512) 248-3253	350 Discovery Blvd., Ste. #101 Cedar Park, Texas 78613 Phone: (512) 260-4290 Fax: (512) 260-4295	412 Vance St., Ste. #1 Taylor, Texas 76574 Phone: (512) 352-4140 Fax: (512) 352-4143

Account #	NAME	P&I	Description
R471330	Farahmandi, Syavash	\$236.35	Waive P & I due to USPS error.
R431879	Eddings, Joseph D & Shay	\$1,729.38	Waive P & I due to USPS error.
R356108	Shakespear, Macailif W & Susan K	\$58.76	Payment for this account was refunded in error on acct. #R356098
R481974	Hall, Terrance W & Claire V	\$63.41	Waive P & I due to admin./software error. Supplemental Bill was not sent to new owners in early January 2009
R461011	Matteson, Deron	\$211.25	Waive P & I due to admin error. Title company check was applied to incorrect account (R358292)

Architectural Services for Design of Renovations to the Williamson County Tax Assesor/Collector
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Jonathan Harris, Purchasing
Submitted For: Jonathan Harris
Department: Purchasing
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider authorizing advertising and setting date of April 8, 2009 at 2pm in the Purchasing Department to receive qualifications for Architectural Team Services for the design of Renovations to the Williamson County Tax Assesor/Collector offices located at 904 S. Main, Georgetown, TX.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Jonathan Harris Started On: 03/05/2009 10:17 AM
Final Approval Date: 03/05/2009

Traffic Signal Maintenance for Williamson County
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Jonathan Harris, Purchasing
Submitted For: Jonathan Harris
Department: Purchasing
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider awarding bids received for Traffic Signal Maintenance for Williamson County (Bid #09WC709) to the lowest and best bidder Patriot Signals, Inc.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Traffic Signal Maintenance for Williamson County](#)

Form Routing/Status

Form Started By: Jonathan Harris Started On: 03/05/2009 10:35 AM
Final Approval Date: 03/05/2009

DESCRIPTION	QUANTITY	ATS RATE	ATS TOTAL	PATRIOT RATE	PATRIOT TOTAL
Supervisor	2	\$72.00	\$144.00	\$100.00	\$200.00
Signal Technician	4.5	\$72.00	\$324.00	\$100.00	\$450.00
Bucket Truck Operator	2	\$72.00	\$144.00	\$100.00	\$200.00
Utility Labor	2	\$72.00	\$144.00	\$100.00	\$200.00
Bucket Truck	6.5	\$72.00	\$468.00	\$0.00	\$0.00
TOTAL			\$1,224.00		\$1,050.00

Discuss VoteSafe License Purchase
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Barry Becker, Purchasing
Department: Purchasing
Agenda Category: Regular Agenda Items

Information

Agenda Item

Discuss the purchase of VoteSafe License from Votec Corporation for the pollbook software.

Background

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Barry Becker Started On: 03/05/2009 11:22 AM

Final Approval Date: 03/05/2009

Award Backup Generator Maintenance for Williamson County
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Kerstin Hancock, Purchasing
Department: Purchasing
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider awarding bids received for Backup Generator Maintenance for Williamson County to best and lowest bid meeting specifications - Allegiance Power Systems

Background

Bid Tabulation, recommendation email, revocation letter from Power Pro-Tech Services, Inc. and supporting documentation

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq

Attachments

Link: [Bid Tab Backup Generator Maintenance for Williamson County](#)

Link: [Recommendation email Backup Generator Maintenance](#)

Link: [Revocation of Generator Bid](#)

Link: [Backup Generator Bid supporting documentation](#)

Form Routing/Status

Form Started By: Kerstin Hancock Started On: 03/05/2009 11:28 AM

Final Approval Date: 03/05/2009

**BACKUP GENERATOR MAINTENANCE FOR WILLIAMSON COUNTY
ANNUAL CONTRACT
BID NUMBER: 09WCA064**

Recommended Award: Allegiance Power Systems

Bid # 09WCA064	Annual Service	Quarterly Service	Total Annual & 3 Qrtly	Emergencies and additional work Regular Hours	Emergencies and additional work After Hours	Emergencies and additional work Weekend Hours	Emergencies and additional work Holiday Hours	Parts %	Load Bank	Total Service & Load Bank
Allegiance Power Sys	\$4,160.00	\$1,320.00	\$8,120.00	\$75.00	\$112.50	\$112.50	\$150.00	\$0.00	\$4,423.00	\$12,543.00
Austin Generator	\$9,205.19	\$1,772.06	\$14,521.37	\$90.00	\$90.00	\$90.00	\$90.00	\$0.00	\$8,370.50	\$22,891.87
Cummins Southern Plain	\$4,801.00	\$1,776.00	\$10,129.00	\$97.00	\$145.00	\$145.00	\$145.00	\$0.10	\$5,790.00	\$15,919.00
Fleet Maintenance	\$5,819.00	\$1,631.00	\$10,712.00	\$60.00	\$90.00	\$90.00	\$90.00	\$0.10	\$6,447.00	\$17,159.00
Power Pro-Tech Services *	\$2,800.00	\$1,180.00	\$6,340.00	\$75.00	\$112.00	\$150.00	\$150.00	\$0.05	\$10,000.00	\$16,340.00

* Vendor withdrew bid due to pricing error – see attached letter

From: James Whetston
Sent: Friday, February 27, 2009 2:44 PM
To: Kerstin Hancock
Subject: Generator spread sheet

Attachments: Generator bid tab 2-09.xls
Hi,

It looks like Allegiance is the “apparent” low bidder. I used the column labeled (Total, Annual & 3 Qrtly) for my determination. Load Bank testing is something that we would do only if the need arises. The same for rental. You should have received Power Pro’s request to be removed from the bid.

James M, Whetston

Assistant Director
Facilities Maintenance
Ph: 512-943-1599
Fax: 512-930-3313



Power Pro-Tech Services, Inc.

The American Generator Company

PPT Solar & Electrical Services

PPT Mechanical Services

240 Circle Drive
Maitland, FL 32751

Tel: (407) 628-8186
Fax: (407) 628-8919

TOLL FREE: 1-800-437-4474

www.Generator.com - www.PPTElectrical.com
www.PPTMechanical.com

February 27, 2009

James Whetson
Kerstin Hancock
Williamson County
301 SE Inner Loop – Suite 106
Georgetown, TX 78626

Subject: Revocation of Submitted Bid

James, Kerstin,

Due to a misunderstanding on how you wanted your Annual prices presented on the pricing page of Bid Number 09WCA064, I find it necessary to ask that Power Pro-Tech Services' bid response not be considered for award.

While we cannot be considered as an option for award of this bid, I look forward to responding to any future bids you release for generator or HVAC maintenance.

Thank you,

Tom Britt

Tom Britt
Director of Sales

Mission Statement

To Offer the Highest Quality Service and Most Compelling Economic Value to Companies that Rely on Emergency Power to Protect & Preserve the Welfare of their Customers, Employees and Business.

Bid # 09WCA064	Regular Hours	After Hours	Weekend Hours	Hoilday Hours	Parts %	Annual Service	Quarterly Service	Total Annual & 3 Qrtly	Load Bank	Total Service & Load Bank
Allegiance Power Sys	\$75.00	\$112.50	\$112.50	\$150.00	\$0.00	\$4,160.00	\$1,320.00	\$8,120.00	\$4,423.00	\$12,543.00
Austin Generator	\$90.00	\$90.00	\$90.00	\$90.00	\$0.00	\$9,205.19	\$1,772.06	\$14,521.37	\$8,370.50	\$22,891.87
Commins Southern Plain	\$97.00	\$145.00	\$145.00	\$145.00	\$0.10	\$4,801.00	\$1,776.00	\$10,129.00	\$5,790.00	\$15,919.00
Fleet Maintenance	\$60.00	\$90.00	\$90.00	\$90.00	\$0.10	\$5,819.00	\$1,631.00	\$10,712.00	\$6,447.00	\$17,159.00
Power Pro-Tech Services	\$75.00	\$112.00	\$150.00	\$150.00	\$0.05	\$2,800.00	\$1,180.00	\$6,340.00	\$10,000.00	\$16,340.00
	Allegiance Annual	Allegiance Quarterly	Austin Gen Annual	Austin Gen Quarterly	Commins Annual	Commins Quarterly	Fleet Maint Annual	Fleet Maint Quarterly	Power Pro Annual	Power Pro Quarterly
Jail North	\$1,400.00	\$165.00	\$3,212.36	\$362.23	\$1,323.00	\$222.00	\$1,816.00	\$238.00	\$775.00	\$180.00
Jail (old)	\$675.00	\$165.00	\$1,200.72	\$259.16	\$650.00	\$222.00	\$781.00	\$199.00	\$395.00	\$160.00
Health Dept.	\$375.00	\$165.00	\$696.33	\$186.21	\$515.00	\$222.00	\$495.00	\$199.00	\$255.00	\$140.00
Health Admin	\$235.00	\$165.00	\$583.54	\$186.21	\$345.00	\$222.00	\$442.00	\$199.00	\$255.00	\$140.00
Juveniel Justice Center	\$420.00	\$165.00	\$1,060.72	\$191.31	\$535.00	\$222.00	\$640.00	\$199.00	\$275.00	\$140.00
Central Maintenance	\$235.00	\$165.00	\$541.69	\$186.21	\$363.00	\$222.00	\$456.00	\$199.00	\$295.00	\$140.00
Taylor Health	\$400.00	\$165.00	\$951.79	\$214.52	\$535.00	\$222.00	\$549.00	\$199.00	\$275.00	\$140.00
Round Rock Health	\$420.00	\$165.00	\$958.04	\$186.21	\$535.00	\$222.00	\$640.00	\$199.00	\$275.00	\$140.00
	\$4,160.00	\$1,320.00	\$9,205.19	\$1,772.06	\$4,801.00	\$1,776.00	\$5,819.00	\$1,631.00	\$2,800.00	\$1,180.00
									bid withdrawn due to pricing error, see attached letter	
	Allegiance Rental	Allegiance Load Bank	Austin Gen Rental	Austin Gen Load Bank	Commins Rental	Commins Load Bank	Fleet Maint Rental	Fleet Maint Load Bank	Power Pro Rental	Power Prp Load Bank
Jail North	\$2,266.00	\$1,716.00	\$3,238.00	\$2,481.50	\$2,112.00	\$2,500.00	\$4,308.00	\$2,040.00	\$3,500.00	\$3,300.00
Jail (old)	\$866.00	\$716.00	\$1,142.00	\$1,322.00	\$763.00	\$1,100.00	\$4,308.00	\$884.00	\$1,500.00	\$1,800.00
Health Dept.	\$399.00	\$316.00	\$320.00	\$685.00	\$380.00	\$300.00	\$170.00	\$515.00	\$850.00	\$800.00
Health Admin	\$262.00	\$246.00	\$164.00	\$685.00	\$195.00	\$260.00	\$127.00	\$476.00	\$500.00	\$600.00
Juveniel Justice Center	\$525.00	\$416.00	\$302.00	\$824.00	\$380.00	\$500.00	\$340.00	\$714.00	\$1,000.00	\$1,100.00
Central Maintenance	\$262.00	\$251.00	\$164.00	\$685.00	\$195.00	\$270.00	\$127.00	\$514.00	\$500.00	\$600.00
Taylor Health	\$525.00	\$366.00	\$302.00	\$894.00	\$286.00	\$400.00	\$340.00	\$590.00	\$850.00	\$800.00
Round Rock Health	\$525.00	\$396.00	\$302.00	\$794.00	\$286.00	\$460.00	\$340.00	\$714.00	\$1,000.00	\$1,000.00
	\$5,630.00	\$4,423.00	\$5,934.00	\$8,370.50	\$4,597.00	\$5,790.00	\$10,060.00	\$6,447.00	\$9,700.00	\$10,000.00

[illegible]

Victim's Assistance Donations, B/A, 3/10/09
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Lisa Moore, County Auditor
Submitted For: Melanie Denny
Department: County Auditor
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider an order declaring an emergency and a grave necessity due to unforeseeable circumstances and approve a budget amendment for Victim's Assistance Donations:

Background

Various donations received for Victim's Assistance.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
	0100.0000.367400	Donations	\$387.53	01

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Lisa Moore Started On: 03/03/2009 01:14 PM
Final Approval Date: 03/04/2009

Victim's Assistance Donations, B/A, 3/10/09
Commissioners Court - Regular Session

Date: 03/10/2009
Submitted By: Lisa Moore, County Auditor
Submitted For: Melanie Denny
Department: County Auditor
Agenda Category: Regular Agenda Items

Information

Agenda Item

Consider an order declaring an emergency and a grave necessity due to unforeseeable circumstances and approve a budget amendment for Victim's Assistance Donations:

Background

Various donations received for Victim's Assistance.

Fiscal Impact

From/To	Acct No.	Description	Amount	Sort Seq
	0100.0560.003671	V. A. Donations	\$387.53	01

Attachments

No file(s) attached.

Form Routing/Status

Form Started By: Lisa Moore Started On: 03/03/2009 01:17 PM
Final Approval Date: 03/04/2009
