

Memorandum



CITY OF DALLAS

DATE August 1, 2014

TO The Honorable Mayor and Members of the City Council

SUBJECT **DFW Air Quality and State Implementation Plan Update**

On Wednesday, August 6, 2014, the City Council will be briefed on DFW Air Quality and State Implementation Plan Update. The briefing materials are attached for your review.

Please let me know if you have questions or need additional information.

A handwritten signature in black ink, appearing to read 'Jill Jordan'.

Jill A. Jordan, P.E.
Assistant City Manager

Attachment

c: A.C. Gonzalez, City Manager
Warren M.S. Ernst, City Attorney
Rosa A. Rios, City Secretary
Judge Daniel F. Solis, Administrative Judge
Craig D. Kinton, City Auditor
Ryan S. Evans, Interim First Assistant City Manager
Forest E. Turner, Assistant City Manager
Joey Zapata, Assistant City Manager
Charles M. Cato, Interim Assistant City Manager
Theresa O'Donnell, Interim Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Shawn Williams, Interim Public Information Officer
Elsa Cantu, Assistant to the City Manager – Mayor and Council

DFW Air Quality and State Implementation Plan Update

August 6, 2014

Presented by the Office of Environmental Quality



Air Quality Standards

- **Federal Clean Air Act:** Passed in 1970; Amended in 1990
- Requires the Environmental Protection Agency (EPA) to establish health-based standards called National Ambient Air Quality Standards (NAAQS)
- Six Criteria Pollutants
 - ❑ Ground Level Ozone/Smog (O₃)
 - ❑ Particulate Matter (PM)
 - ❑ Lead (Pb)
 - ❑ Nitrogen Dioxide (NO₂)
 - ❑ Sulfur Dioxide (SO₂)
 - ❑ Carbon Monoxide (CO)

Importance of Clean Air

■ Health

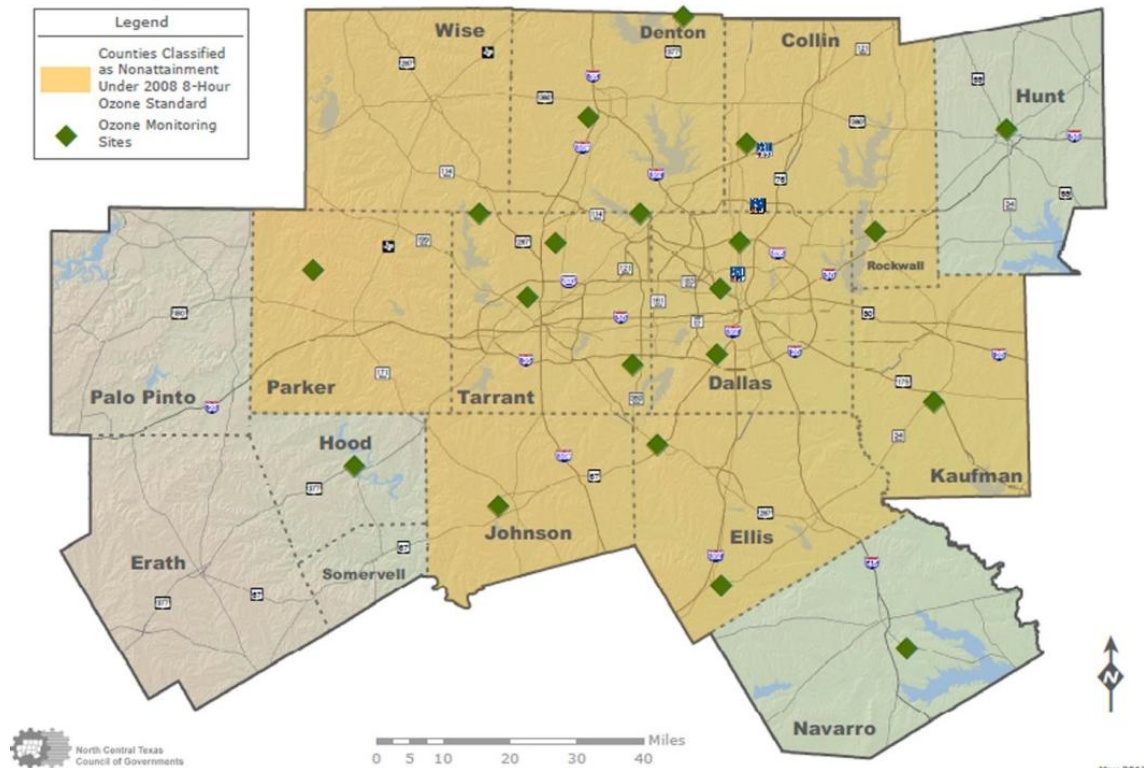
- ❑ Ozone and other air pollutants such as particulate matter can aggravate lung and cardiovascular diseases
 - Asthma
 - Emphysema
 - Chronic bronchitis
 - Increased risk of stroke
 - Increased risk of heart attack
- ❑ 8% of children, and 7% of adults living in Dallas County have asthma
- ❑ 5% of adults in Dallas County have chronic obstructive pulmonary disease

■ Economic consequences

- ❑ Compliance with more stringent regulations may increase industry/State costs
- ❑ Reduced transportation funding may limit population and economic growth
- ❑ Vehicle testing/inspection fees may increase
 - Inspection emissions tests are imposed on vehicles in the DFW region that are not required in most other locations in Texas
 - The only areas in Texas that require inspection emissions tests are: DFW and Houston areas (\$39.75), Travis/Williamson Counties (\$28.75), El Paso County (\$26.75)

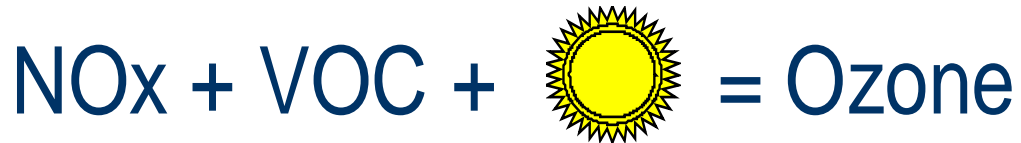
DFW Non-Attainment Area and Air Quality Monitoring Sites

- DFW region is currently a serious non-attainment area for the 1997 85 ppb ozone standard.
- Wise County was added in 2012, making a 10-county, moderate non-attainment area for the 2008 75 ppb ozone standard.



Ground-Level Ozone Formation

Ozone forms when nitrogen oxides (NO_x) and volatile organic compounds (VOC) mix in the presence of strong ultraviolet (UV) rays from sunlight and heat.



Primary Sources of NO_x

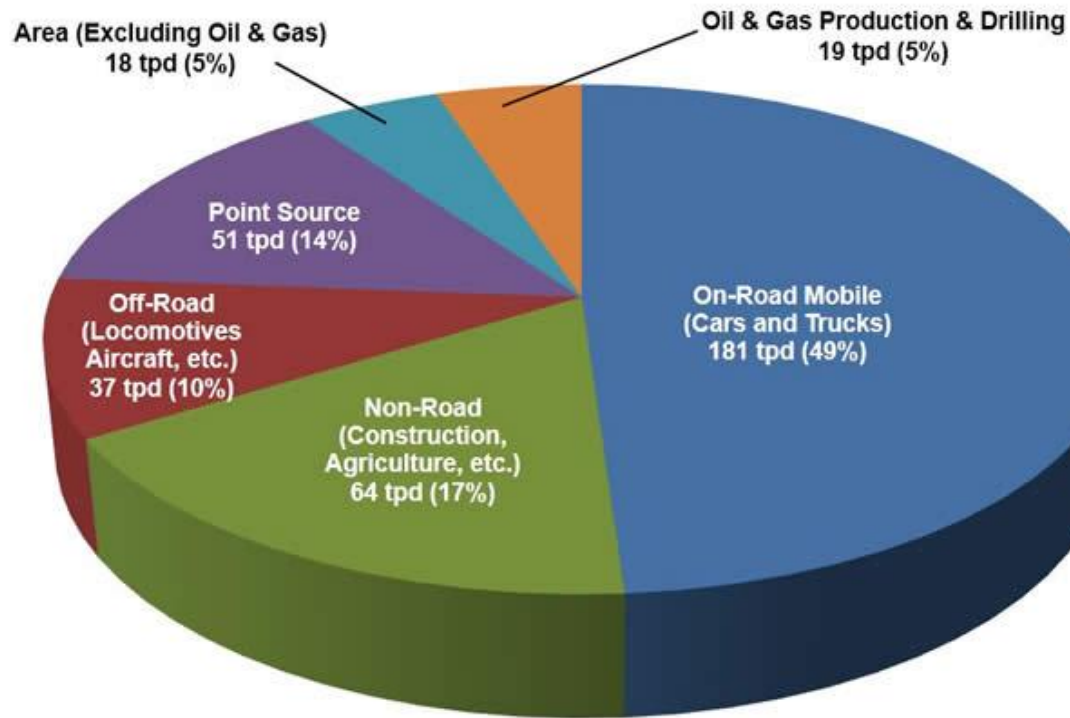
- High-temperature combustion of fossil fuels
 - Cars, trucks, and marine vessels
 - Construction equipment
 - Power generation
 - Industrial processes
 - Natural gas furnaces



Primary Sources of NO_x in North Texas Region

STATE OF AIR QUALITY IN NORTH TEXAS Estimated 2012 Nitrogen Oxide (NO_x) Emissions Inventory

Source Category Estimates = 370 tons per day (tpd)



Source: Texas Commission on Environmental Quality

Primary Sources of VOC

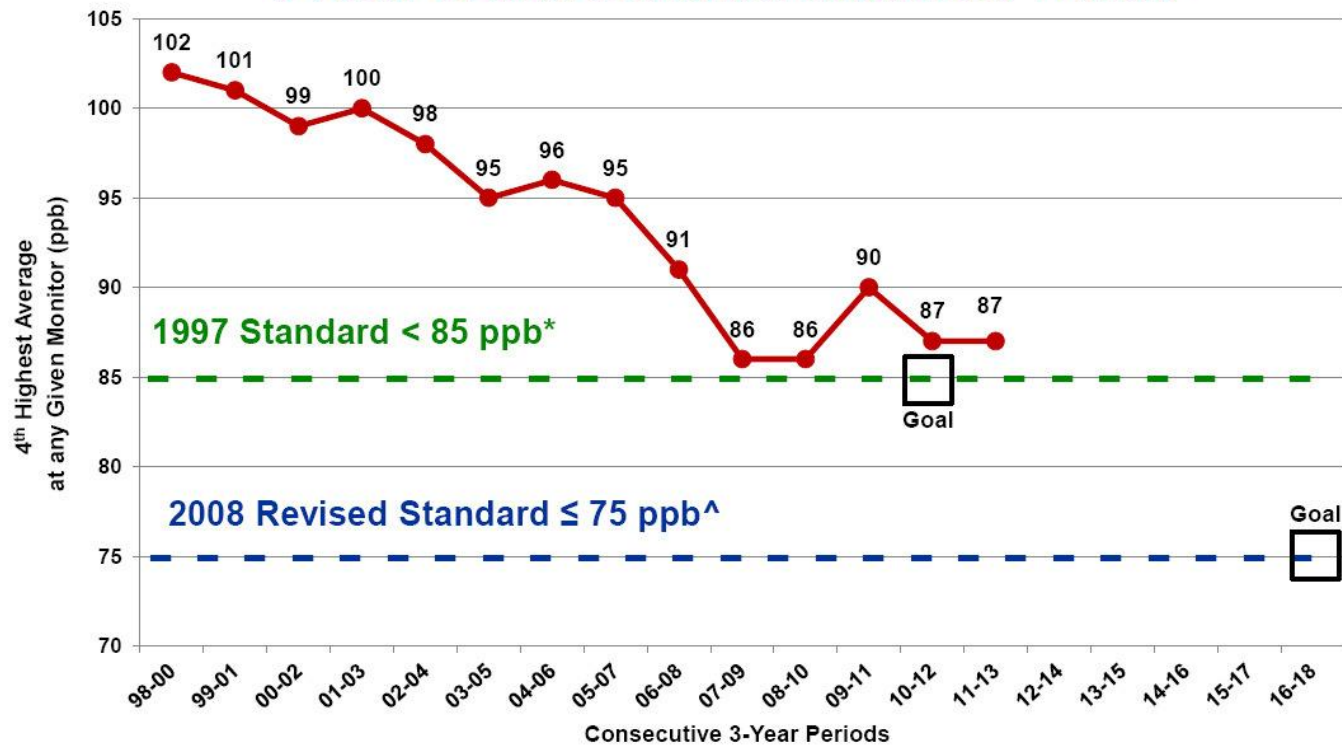
- Chemicals that easily vaporize and incomplete combustion of fuels
 - Gasoline stations
 - Motor vehicles, airplanes, trains, boats
 - Petroleum storage tanks
 - Oil refineries



DFW Historical Ozone Trends

2013 OZONE SEASON RECAP

8-Hour Ozone Standard Historical Trends



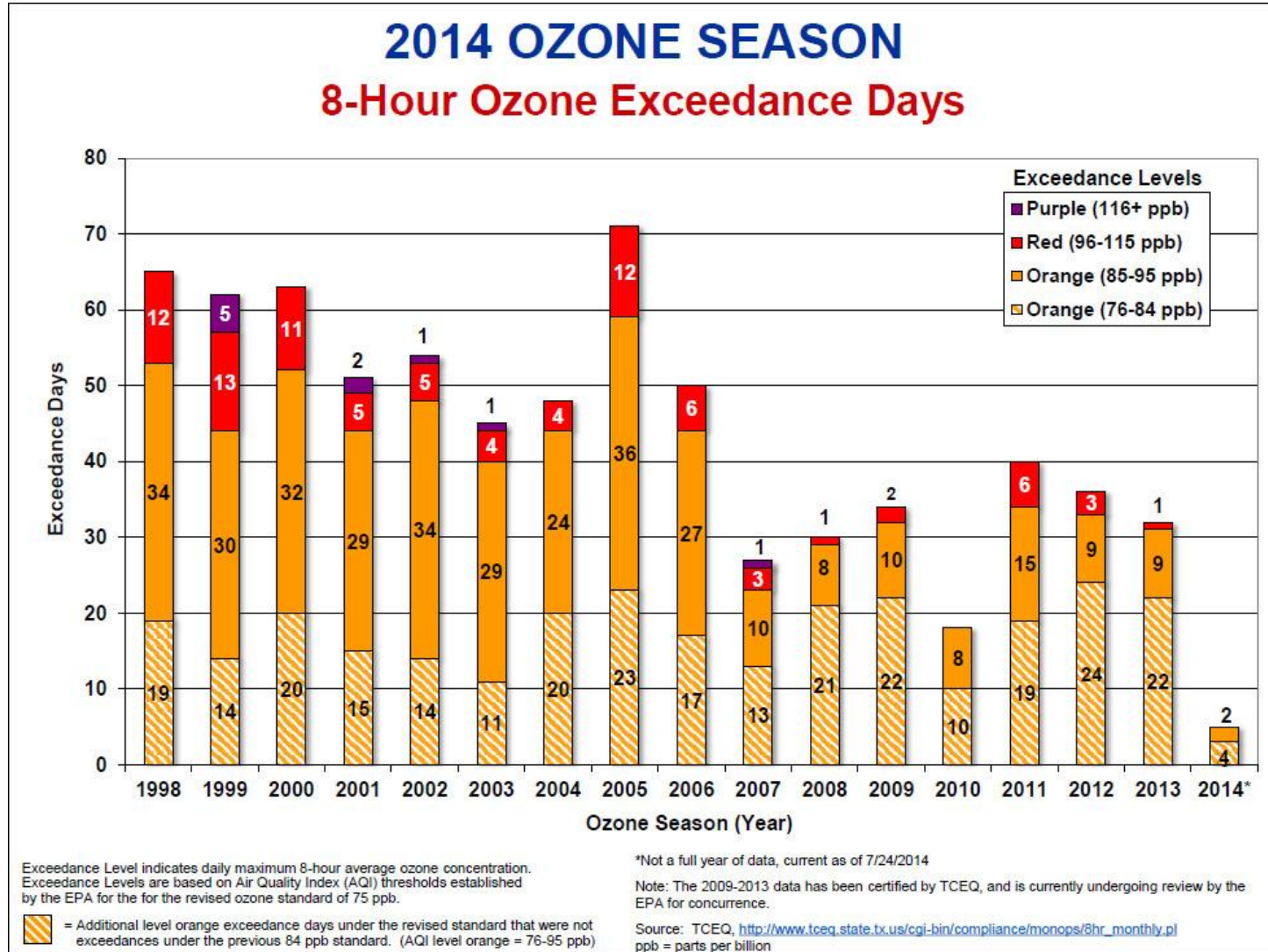
*Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when, at each monitor, the three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than 85 parts per billion (ppb).

^Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when, at each monitor, the three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is equal to or less than 75 parts per billion (ppb).

Note: The 2013 data has not been verified by the TCEQ. This is the most current data, but it is not official until certified by TCEQ technical staff.

Source: NCTCOG TR Dept

DFW Historical Ozone Trends



State Implementation Plan (SIP)

- Applies to areas not meeting federal National Ambient Air Quality Standards (ozone for DFW)
- Prepared by TCEQ, approved by EPA
- SIP is designed to reduce pollution to meet health-based standards
- Sets control strategies for reducing emissions
- Establishes a technical and regulatory process for achieving and demonstrating attainment

Most Effective SIP Control Strategies

- Federal on-road and non-road NO_x and VOC reduction measures
 - Reformulated gasoline, Texas Low Emission Diesel
 - Federal Low Emissions Vehicles program
- Adopt new State regulations requiring emission limits and control of NO_x from combustion sources (industrial, commercial, institutional)
- Encourage Local Initiatives
 - Voluntary Mobile Emissions Reduction Program
 - Clean vehicle programs, locally-enforced idling restrictions, aviation efficiencies
 - Transportation Control Measures
 - Bicycle/pedestrian projects, HOV/managed lanes projects, mass transit projects

SIP Timeline

- With the adoption of the 2008 75 ppb Ozone standard, a new SIP must be submitted by TCEQ and approved by EPA
 - Reasonably Available Control Technology rulemaking is underway to determine measures for SIP input
 - TCEQ is reviewing Reasonable Available Control Measures submitted in April 2014 as suggestions for possible SIP input
- TCEQ anticipated public comment period and public hearings: December 2014 – January 2015
- TCEQ anticipated adoption: May/June 2015
- 2008 75 ppb Ozone standard attainment deadline: December 2018

Current City Air Quality Control Strategies

- Internal City strategies
 - Reduce Vehicle Emissions
 - Anti-idling Policy
 - City Clean Fleet Vehicle Policy
 - Alternative Fuel Fleet
 - Reduce Electrical Consumption
 - Water Conservation Plan
 - Co-generation
 - Building Retrofits
 - Methane Gas Capture
 - Energy Performance Contracting
 - Purchase Renewable Energy
 - Ozone Action Plan

Current City Air Quality Control Strategies (cont'd)

- External Community-wide strategies
 - Anti-idling Ordinance
 - Taxi Ordinance
 - Cement Resolution
 - Green Building Resolution and Ordinance
 - Tree Ordinance
 - City Code Chapter 5A-Air Pollution
 - Mirrors state regulations pertaining to air quality, which in turn, mirrors federal regulations.
 - Air pollution control services – Public Works Department
 - Verify permits and registrations, and inspect facilities
 - Sample air quality daily
 - Investigate complaints

City PBW Air Pollution Control Services

- Verification and Inspection

- City acts as agents of the TCEQ to review requirements and enforce air quality rules
 - Verify air permits and registrations, and inspect facilities that have the potential to emit pollutants
 - 1,537 facilities on record in 2014
- Operating costs of \$785K are covered by:
 - \$525K from TCEQ annual grant
 - \$260K from City general fund (which is offset by registration fee revenues)



City PBW Air Pollution Control Services - Sampling

- Daily air quality sampling for:
 - ❑ Ozone
 - ❑ Sulfur dioxide
 - ❑ Lead
 - ❑ Carbon monoxide
 - ❑ Nitrogen oxides
 - ❑ Dust/particulates
 - ❑ Biological contaminants
- City acts as extension of TCEQ for monitoring the ambient air quality
 - ❑ Sets up sampling sites per TCEQ instructions
 - ❑ Verifies that sampling stations operate properly
 - ❑ Delivers physical samples to local laboratories (for certain samplers)
 - ❑ Coordinates regionally and nationally with numerous agencies
- Monitoring operating costs of \$900K are covered by four TCEQ grants totaling \$700K and approximately \$200K from City general fund



City PBW Air Pollution Control Services – Complaint Investigations

- Investigates complaints from citizens related to air quality issues
- Citizens voice concerns about a variety of issues such as:
 - Odors
 - Dust/Allergens
 - Smoke
- TCEQ is notified of each investigation and outcome



Possible Future City Initiatives

- Continue energy benchmarking and reduction/retrofit programs for City and commercial buildings to reduce pollution from power plants
- More emphasis on employee trip reduction programs
- Provide incentives for City employees to bike or use mass transit
- Enhance City programs to encourage biking and use of mass transit
- More education on air quality and training to reduce air pollution

Possible Future City Initiatives (cont'd)

- Increase tree planting to reduce Urban Heat Island effects and reduce air pollution
- Consider office supply delivery management
- Investigate use of new technologies and pilot demonstration projects to reduce air pollution
- Implement comprehensive greenhouse gas and ozone reduction plan
- Work with NCTCOG on EPA Advance project for Particulate Matter

Next Steps

- Continue to monitor TCEQ and NCTCOG announcements and meetings regarding SIP status
- Review draft SIP during the expected public comment period of December 2014 through January 2015
- Brief Council on SIP status in early 2015

Questions

Appendix A EPA Ozone Pollution Levels

Health categories	Ozone
very unhealthy	Active children and adults, and people with lung disease such as asthma, should avoid all outdoor exertion. Everyone else, especially children, should avoid prolonged or heavy exertion outdoors.
unhealthy	Active children and adults, and people with lung disease such as asthma, should avoid prolonged or heavy exertion outdoors. Everyone else, especially children, should reduce prolonged or heavy exertion outdoors.
unhealthy for sensitive groups	Active children and adults, and people with lung disease such as asthma, should reduce prolonged or heavy exertion outdoors.
moderate	Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors.
good	None

Appendix B

New Federal Air Quality Rules in Process

- Greenhouse Gas/Carbon Pollution Standard: Clean Power Plan
 - State proposals due June 30, 2016
- Tier 3 Emission and Fuel Standards for Vehicles
 - Reduce sulfur standard from 30 to 10 ppm starting January 2017 (already implemented in CA)
 - Vehicle standards: Phase in between 2017 and 2025
 - 80% reduction in VOC and NO_x tailpipe emissions from 2013/14 fleet
 - 70% reduction in PM tailpipe emissions
 - 50% reduction in evaporative VOC emissions from existing standards
- Tier 4 Emission Standards for Locomotives
 - Applies to model year 2015 and later
 - Should achieve approximately 75% NO_x reduction and approximately 50% VOC emissions reduction from previous engine standards from locomotive engines
- Phase II of Clean Air Interstate Rule to begin in 2015
 - Statewide caps on NO_x emissions from power plants

Appendix C
Most Ozone-Polluted Cities
(Per American Lung Association 2014 State of the Air Report)

- #1 Los Angeles-Long Beach, CA
- #2 Visalia-Porterville-Hanford, CA
- #3 Bakersfield, CA
- #4 Fresno-Madera, CA
- #5 Sacramento-Roseville, CA
- #6 Houston-The Woodlands, TX
- #7 Modesto-Merced, CA
- #8 Washington-Baltimore-Arlington, DC-MD-VA-WV-PA
- #8 Dallas-Forth Worth, TX
- #10 Las Vegas-Henderson, NV-AZ