

CLARK COUNTY AIR QUALITY FORUM

MINUTES

November 13, 2007

10:00 – 12:00 a.m.

RTC, Room 296
600 S. Grand Central Parkway
Las Vegas, NV

- **Welcome and Introductions – Michael Elges NDEP**

The meeting was attended by:

Karina O'Connor – USEPA
Russell S. Merle Jr. – DAQEM
Lloyd Nelson – DMV
Greg Cole – DMV
John Pietrzycki – DMV
Bill Kemner – Environmental Quality Management
Rodney Langston – DAQEM
Paul Fransioli – T & B Systems
Skip Spilman – City of Boulder City
Keith Letus – City of Las Vegas
Robert W. Hall – Nevada Environmental Coalition
Beth Xie – RTC
Deborah Hart – DAQEM
Dawn Leaper – DAQEM
Ronald Levine – NMTA
Robert Tekniepe – DAQEM
Al Leskys – DAQEM
Ayoub Ayoub – Southern Nevada Water Authority
Vasant Rajagopalan – DAQEM
Stan Andease – RTC
Michael Elges – NDEP

- **Public Input & Discussion**

Bob Hall brought up the fact that is no environmental documentation on impact of drought and need for water for controls. This was in regards to the Interchange Project at Lake Mead.

- **PM₁₀ Milestone Achievement Report – Russell Merle, DAQEM**

Mr. Merle presented a powerpoint presentation on the PM₁₀ Milestone Achievement Report (*attachment #1*). Mr. Merle did state the Clark County made the 12/31/06 attainment date. He also addressed the reason the report was done was due to the fact that the emission inventory changed significantly and the BLM added 26,440 acres to the BLM disposal area. The next step would be a maintenance plan. The plan is to submit the plan following and EPA finding of attainment in 2008-2009.

Questions asked by the attendees:

1. What will the construction activity study look at? Response: It will look at methods used in each area to track construction emissions, duration of projects, etc.

- **Exceptional Events/Wildfire Packages – John Koswan, DAQEM**

Mr. Koswan informed the forum that in March of this year, EPA released an exceptional events rulemaking with criteria for events. Clark County followed up in response and has prepared the first package of wildfire data influencing ozone values in 2006. He did state that Clark County is working with EPA staff with their review of the package.

- **Voluntary Vehicle Repair Program – Robert Tekniepe, DAQEM**

Mr. Tekniepe presented a powerpoint presentation on the Voluntary Vehicle Repair Program (*attachment #2*). The program is now funded through November 2008. Over 800 vehicles have now been repaired. Mr. Tekniepe did state that they are working on another voluntary program to exchange gas lawnmowers to electric lawnmowers.

Questions asked by the attendees:

1. How was it marketed? Response: Flyers, distributed in critical areas.

- **Summer 2007 Ozone Study – Robert Baxter, T&B Systems**

Mr. Baxter presented a powerpoint presentation on the 2007 summer ozone study Southwest Desert to Las Vegas Ozone Transport Study (SLOTS) (*attachment #3*). Mr. Baxter noted that there are many internet products available to supplement analysis, however real-time monitoring is important, with cameras for smoke confirmation.

- **SIP Changes pursuant to Section 110(k)(6) – Michael Elges, NDEP**

Mr. Elges stated that NDEP wanted to provide some insight into a state issue regarding SIPs. He did state that a portion of Nevada's SIP is quite old (70's and 80's) and that they are making effort to align the SIP with state revisions. Mr. Elges did state that they were only focused on the Nevada portion of the SIP. He brought up the FR notice last December regarding the excess emissions regulations, EPA invoked a CAA section 110(k)(6) provision to change excess emissions portion of

the SIP. This section provides EPA ability to correct errors. EPA noted that the previously adopted section doesn't meet current guidance. NDEP noted that this section has been approved twice before. NDEP feels that a SIP call should be used for these types of issues. NDEP's biggest issue is procedure, rather than changes to excess emissions regulations (e.g. no public process). NDEP will move forward with litigation if needed. 12 or 13 other states are in agreement with Nevada. NDEP is now in a holding pattern hoping for EPA withdrawn notice.

- **Wrap Up/Questions**

Next Meeting – Tuesday, March 11, 2008

Attachment 1

PM₁₀ State Implementation Plan “*Milestone Achievement Report*”



Clark County, Nevada
Department of Air Quality and
Environmental Management

Milestone Achievement Report (MAR)

- Purpose of the MAR
 - Document achievement of qualitative milestones
 - Control Measures
 - SIP Commitments
 - Document attainment of the National Ambient Air Quality Standards (NAAQS)

Federal Elements of the MAR

- Demonstrate NAAQS compliance with air quality data for years 2004 through 2006
- Document implementation of regulatory control measures (i.e., air quality regulations)
- Document implementation of non-regulatory control measures (e.g., street sweeping, enhanced enforcement)

Federal Elements of the MAR (cont.)

- Document development of improved emission inventories for specified source categories
- Remodel attainment demonstration using improved emission inventories

Additional Clark County MAR Elements

- Additional research conducted in support of future plan improvements
- Natural Events Action Plan
- Public outreach and education programs
- Request for clean data finding / finding of attainment

PM₁₀ SIP Emission Inventory Updates

- Refined vacant land emission factors
- Refined vacant land soil characterization
- Updated inventory of vacant land
- Updated construction activities emissions
- Refined and updated on-road mobile sources emissions inventory
- Refined private unpaved roads inventory
- Updated non-road emissions inventory

PM₁₀ SIP Commitment Completion

- Conduct PM₁₀ saturation study – completed 2006
- Develop improved construction inventory – completed 2006
- Improve emission factors for native desert and disturbed areas – completed 2006
- Track silt loading on paved roads – completed 2006

SIP Commitment Completion (cont.)

- Stabilize shoulders for paved roads – completed 2006
- Encourage adoption of dust suppressant product specifications – ongoing in collaboration with Region 9 and other agencies

Updated Attainment Demonstration Model

- Requirement triggered by significant change in 2003 emission inventory
 - 26,440 acres (net) added to BLM Disposal Boundary in 2003
- Used automated System Dynamics Proportional Rollback Model to insure consistent results

EPA Action

- EPA has received and commenced review of Clark County MAR
- Addendum to General Preamble does not require specific EPA action on this report
- EPA Region 9 has indicated they look forward to receipt of Clark County PM₁₀ Maintenance Plan

What's Next?

- PM₁₀ Maintenance State Implementation Plan: CAA Section 175A, i.e., **Maintenance SIP**
 - Similar to PM₁₀ SIP (revision to existing SIP)
 - Emission inventories, control measures, ...etc.
 - Demonstrate continued attainment of the PM₁₀ NAAQS for 10 years
 - Must contain “contingency provisions”
 - Submit plan following EPA finding of attainment, 2008-2009

Questions?

Please Contact:

**Clark County Department of Air Quality &
Environmental Management at 455-5942**



Or log onto:

<http://www.accessclarkcounty.com/daqem/aq/plans/pm10mar2007.html>

Attachment 2

Voluntary Vehicle Repair Program: Progress Report

Department of Air Quality & Environmental Management
Planning Division – Mobile Sources Section
Prepared by: Richard J. Ansson, Jr, J.D., L.L.M.
November 13, 2007



Voluntary Vehicle Repair Program

Voluntary Vehicle Repair Program (VVRP)

- The VVRP is a collaborative effort between Clark County DAQEM and the Nevada State Department of Motor Vehicles (DMV).
- The VVRP is funded via a grants from the Emissions Control Program Operated by DMV.
- The VVRP is designed to assist low-income families who have a vehicle that failed an initial emissions inspection test and who meet specific criteria.
- The program benefits the low-income family as it makes their vehicle street-legal.
- The program benefits Clark County residents because it improves the quality of air that we all breathe.



Voluntary Vehicle Repair Program

- The VVRP provides eligible Clark County residents up to \$650 toward the repair of their vehicle after a \$35 co-payment.
- An individual may be eligible to receive assistance through the VVRP if:
 - The vehicle is a passenger car or light truck that has failed a smog check and is a high-emitting vehicle.
 - The vehicle is currently registered and operating in Clark County, Nevada.
 - The vehicle is registered to the owner/ participant.
 - The repairs are not covered by a manufacturer's warranty.
 - The estimated repairs do not exceed the vehicle's fair market value.
 - The owner meets income eligibility requirements.



Voluntary Vehicle Repair Program

Program Overview

- The DAQEM started the VVRP in June 2006.
- The VVRP has successfully repaired 800 pollutant-emitting vehicles.
- The VVRP has repaired 396 OBD (1996 & Newer) vehicles.
- The VVRP has repaired 404 non-OBD (pre-1996) vehicles.
- The average cost of repair per vehicle is \$468.75.



Voluntary Vehicle Repair Program

Program Overview

Pre and Post Test Comparison Non-OBD Vehicles*			
Test Criteria	Fail	Pass	% Change
HC @ Idle	842	91	- 89.2%
HC @ 2500	527	60	- 88.6%
CO @ Idle	3.01	0.25	- 91.7%
CO @ 2500	4.58	0.34	- 92.6%

* 404 vehicles were tested. Listed in the table are the average emissions rates for non-OBD vehicles that passed and failed the two-speed idle test.

Voluntary Vehicle Repair Program

Program Overview

Pre and Post Test Comparison OBD Vehicles*			
Test Criteria	Fail	Pass	% Change
HC @ Idle	483	30.04	- 93.8%
HC @ 2500	532	29.87	- 94.4%
CO @ Idle	3.25	0.12	- 96.3%
CO @ 2500	0.66	0.10	- 84.8%

* 396 vehicles were tested. Listed in the table are the average emissions rates for OBD vehicles that passed and failed the computerized OBD II test.

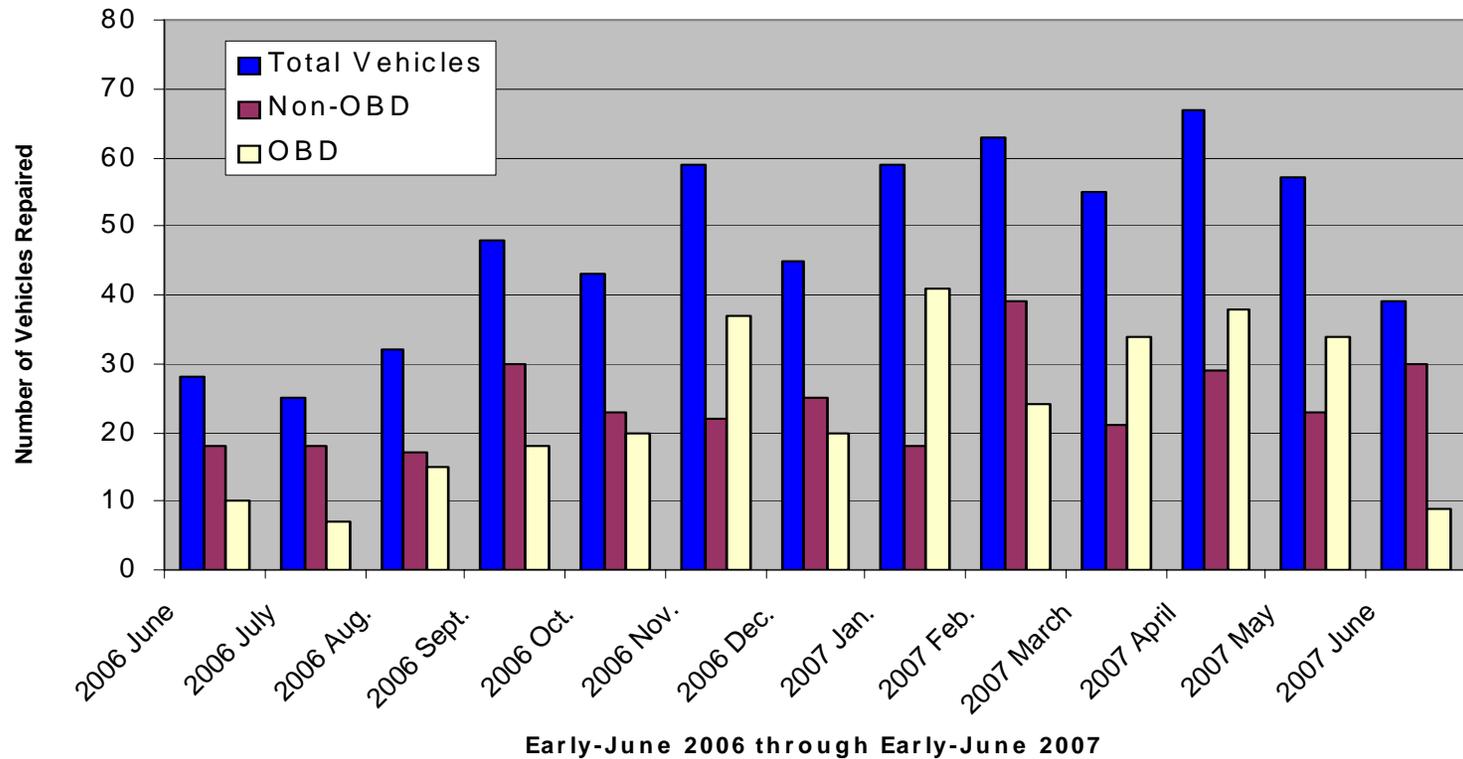
Voluntary Vehicle Repair Program

- Annualized Program Summary
 - 620 cars were repaired between early-June 2006 and early-June 2007.
 - 313 were non-OBD vehicles.
 - 307 were OBD vehicles.
 - The annualized cost of repair was \$468.75.
 - The monthly cost of repairing vehicles ranged from \$390 to \$509.



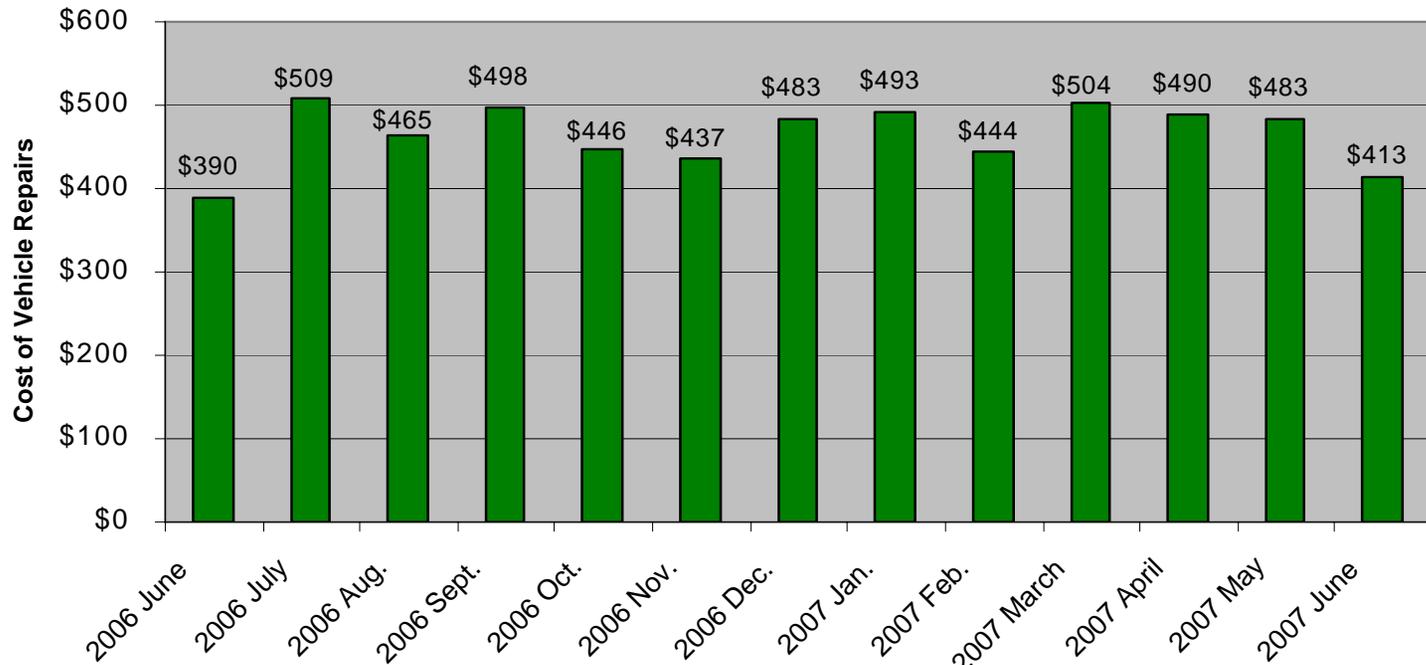
Voluntary Vehicle Repair Program

Annualized Number of Vehicles Repaired



Voluntary Vehicle Repair Program

Annualized Monthly Cost of Vehicles Repaired



Early-June 2006 through Early-June 2007

Voluntary Vehicle Repair Program

Annualized CO and HC Emissions Reductions

Type of Vehicle	Number of Vehicles	HC emissions reductions in lbs/yr/vehicle	HC emissions reductions in total tons/yr	CO emissions reductions in lbs/yr/vehicle	CO emissions reductions in total tons/yr
Non-OBD	313 of 620 (50.5%)	412 lbs/yr	64 tons/yr	2,922 lbs/yr	457 tons/yr
OBD	307 of 620 (49.5%)	116 lbs/yr	18 tons/yr	1,918 lbs/yr	294 tons/yr

In determining emissions reductions, it is assumed that the repaired vehicle will be driven at least 15,000 miles per year; the repaired vehicle will be driven 40 to 50 miles per hour; and the engine has a 250 cubic inch displacement.

Voluntary Vehicle Repair Program

Estimated Annual Cost of Emissions Reductions

Pollutant	Reduction in total tons per year	Average Cost Per Vehicle	Average Cost Reduction Per Ton Per Vehicle
HC	82 tons/yr	\$468.75	\$3,544.21 per ton
CO	751 tons/yr	\$468.75	\$386.98 per ton

The annual cost of reducing HC and CO emissions is recognized by evaluating the reduction of emissions in tons per pollutant, per vehicle, in combination with the annualized cost of repairing each vehicle.

Voluntary Vehicle Repair Program

Conclusion

- Since June 2006, the VVRP has repaired 800 high-pollutant vehicles.
- The VVRP has assisted low-income Clark County residents in making their vehicles street-legal.
- The annualized repair cost is \$468.75 per vehicle.
- Annualized air quality benefits are:
 - a reduction in HC emissions of 82 tons per year;
 - a reduction in CO emissions of 751 tons per year;
 - at an average cost per ton, per vehicle of \$3,544.21 for HC and \$386.98 for CO.



Attachment 3

Southwest Desert to Las Vegas Ozone Transport Study (SLOTS)

Robert A. Baxter, CCM
T&B Systems



Clark County Air Quality Forum – 11/13/07

T&B Systems

Overview

- Background
- Objectives of the study
- Design of the measurement program
- Summary of field measurements
- What we learned



Background

- Prior study transport documentation
 - Urban areas in southern and central California
 - Wildfires
- Transported ozone is significant
- NPS studies in Joshua Tree
- SLOTS measurements to further enhance knowledge



Objectives

- Promote cooperation and information exchange
- Improve our understanding of transport
 - Urban
 - Wildfire
- Generate an improved database to support planning
- Identify criteria and procedures for flagging ozone concentrations due to exceptional events



Measurement Program Design

- June – August 2007
- Enhanced continuous ozone and winds
- Enhanced upper air measurements
 - 3 sodars
 - Radar wind profiler
 - Profiling radiometer
 - Mobile rawinsonde
- Aircraft sampling of ozone, PM_{2.5} and temperature structure
- Forecasted intensive studies



Monitoring Network



Monitoring Network



- Ozone
- Winds
- Solar Power



Monitoring Network



Monitoring Network

- Ozone
- Winds
- T, RH
- UA Winds
- Real-time
- Solar power

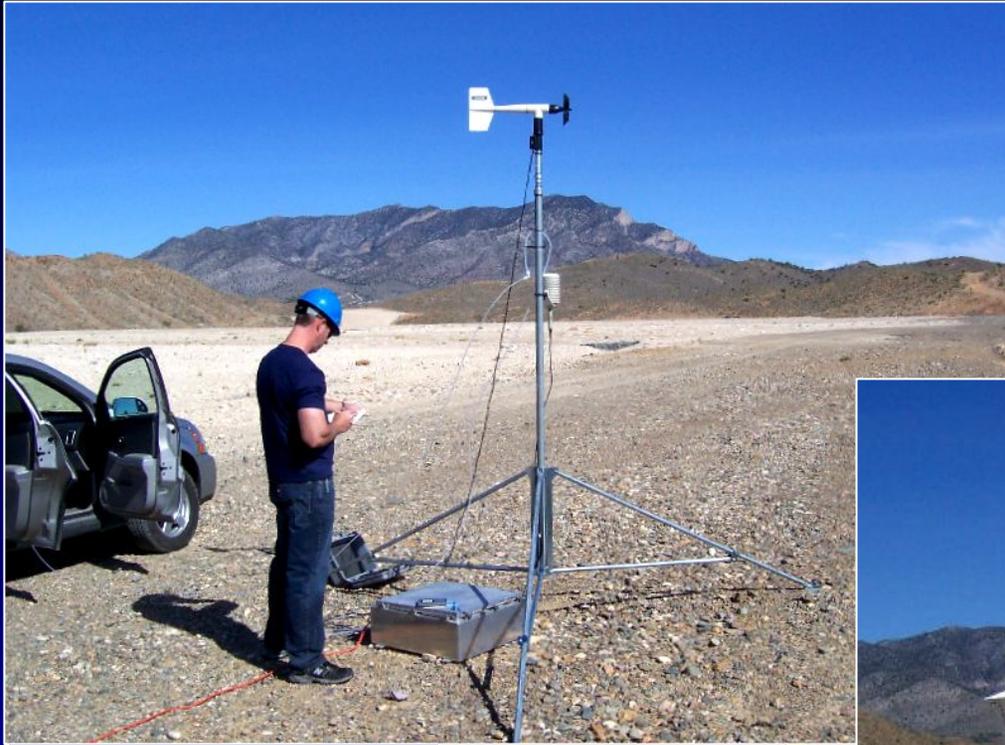


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T&B Systems

Monitoring Network



Monitoring Network

- UA Winds
- Solar Power
- Real-time



T&B Systems

Monitoring Network



Monitoring Network



- UA Winds
- UA T/RH
- Surface Winds
- Time-lapse pictures
- Real-time



T&B Systems

Mobile Monitoring Network



- Temperature
- Ozone
- Optical PM_{2.5}
- Visual Documentation



- UA Winds
- UA T/RH



Field Measurement Summary

- Continuous data set June through August
- Urban transport IOPs
 - June 22, 23, 24
 - July 16, 17
- Wildfire IOPs
 - June 25, 26
 - August 8, 9
- Additional analyses
 - Preliminary smoke impact June 24, August 4, 5, 21

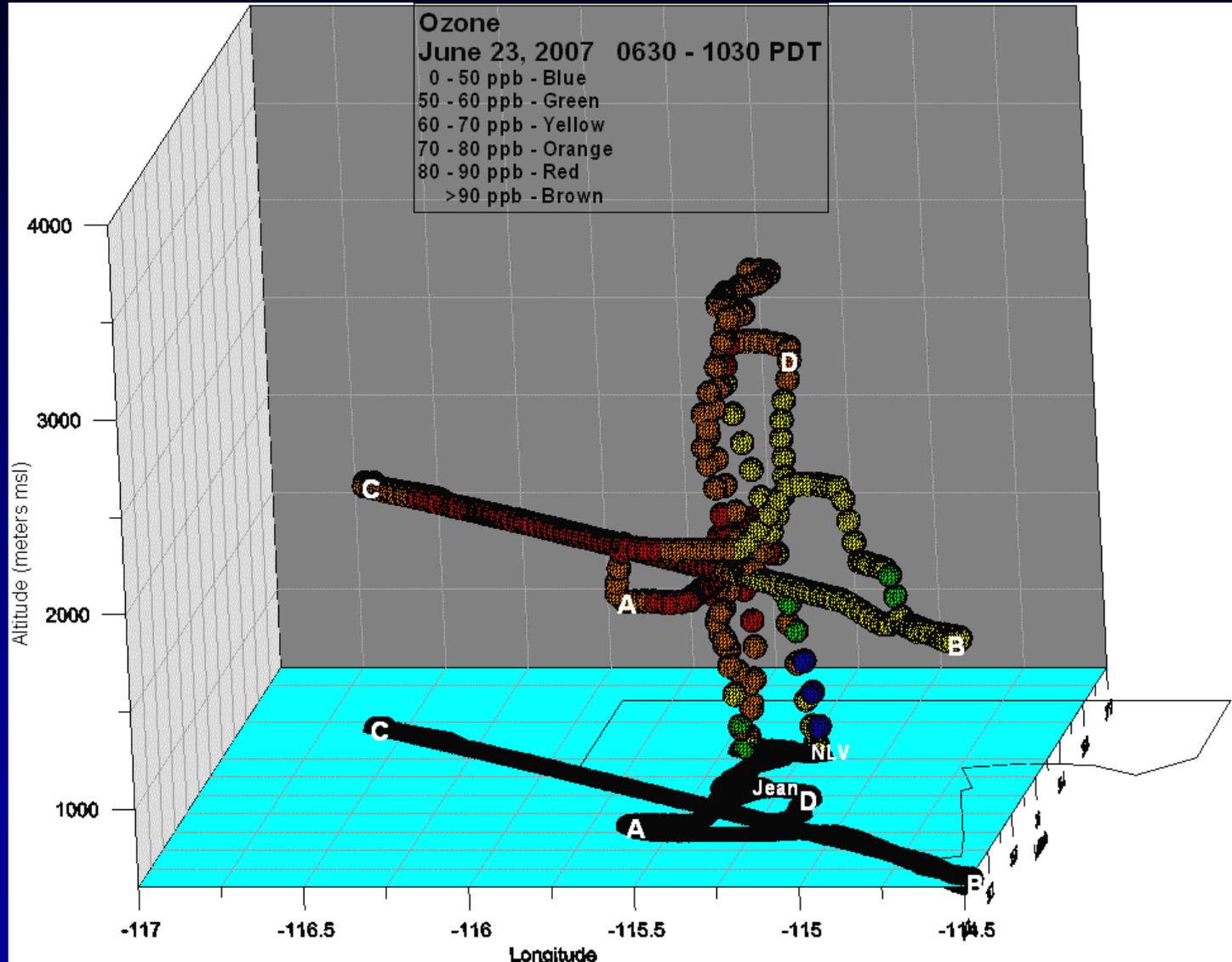


What We Learned

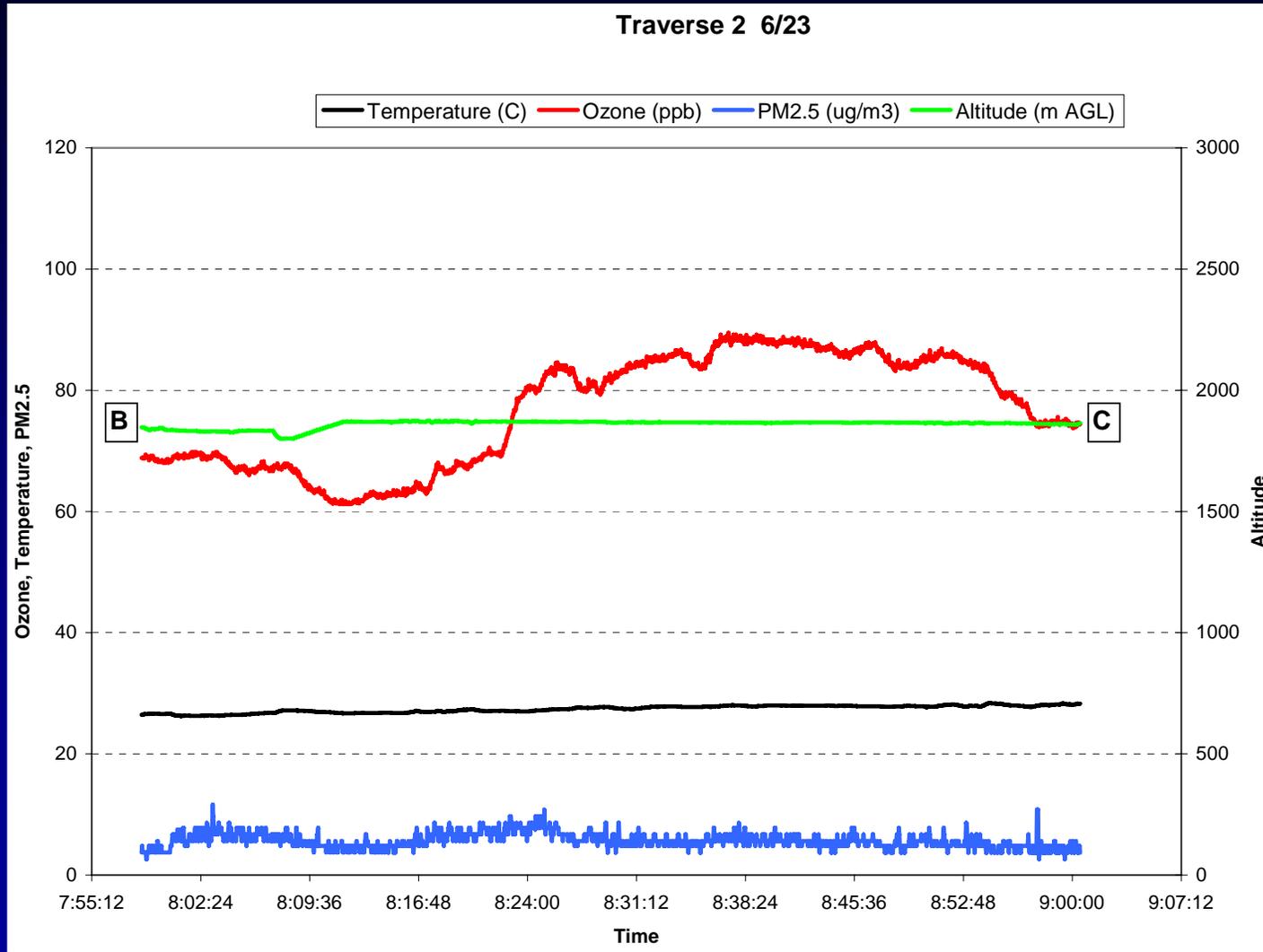
- Urban transport example – June 23
- Wildfire ozone transport – August 8



Urban Transport



Urban Transport



Urban Transport



Urban Transport

What Was Learned

- Timing of the plume transport is important
- Aircraft observed urban plumes reaching the CA/NV border were typically more than 100 km wide
- Observed upper-air winds at Mountain Pass and Jean supported the observed impacts in Clark County from transport
- Even with deep mixing in the desert (3 km or more), ozone concentrations remain high for distances of 100s of kilometers
- Small changes in wind direction can make a big difference in the final transport to Clark County
- On aircraft flight days, the region around Pahrump appeared to be more in the path of the plume than was the path to the southeast that would lead to Clark County



Wildfire Transport – Zaca Fire



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T&B Systems

Wildfire Transport – Zaca Fire

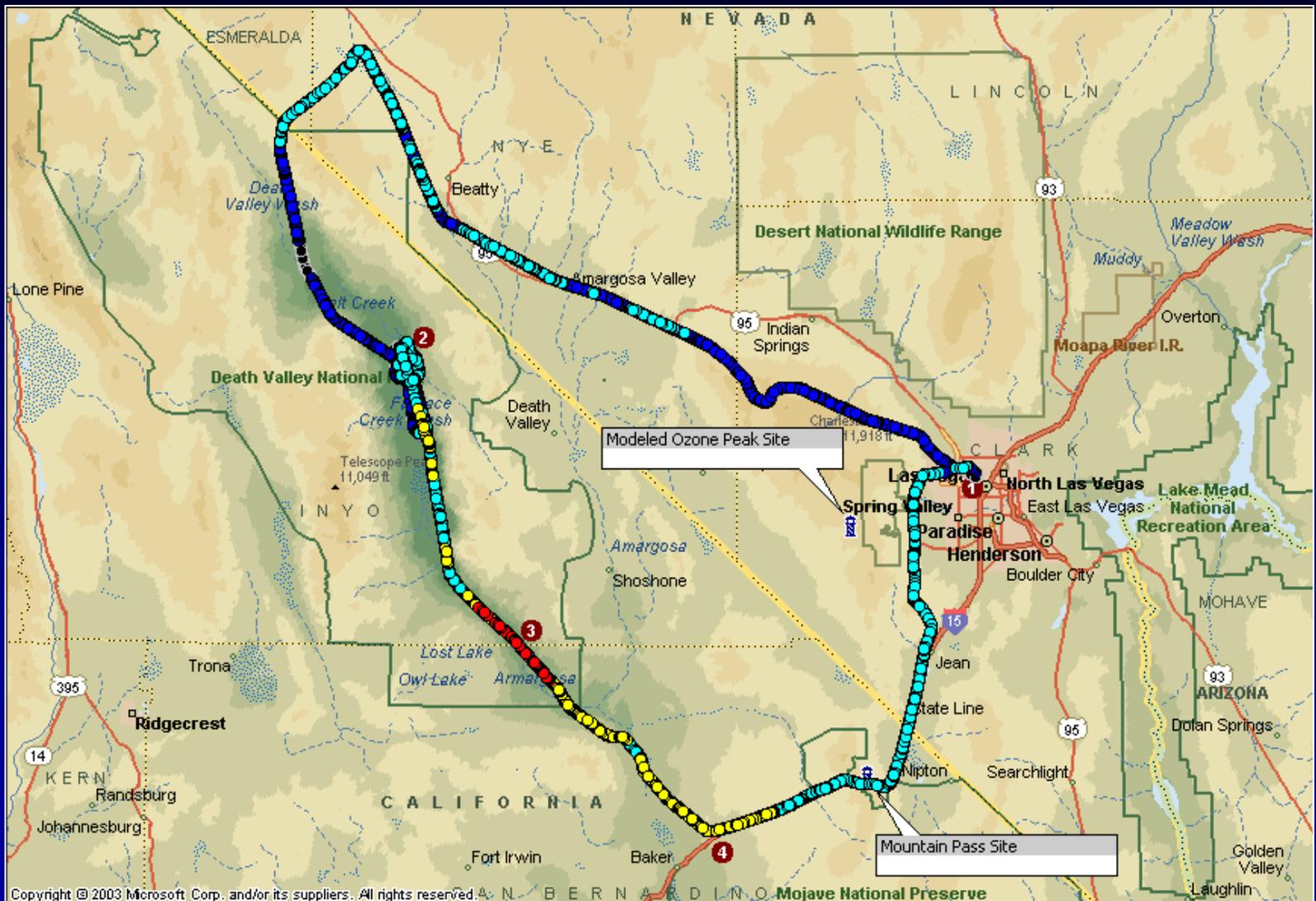


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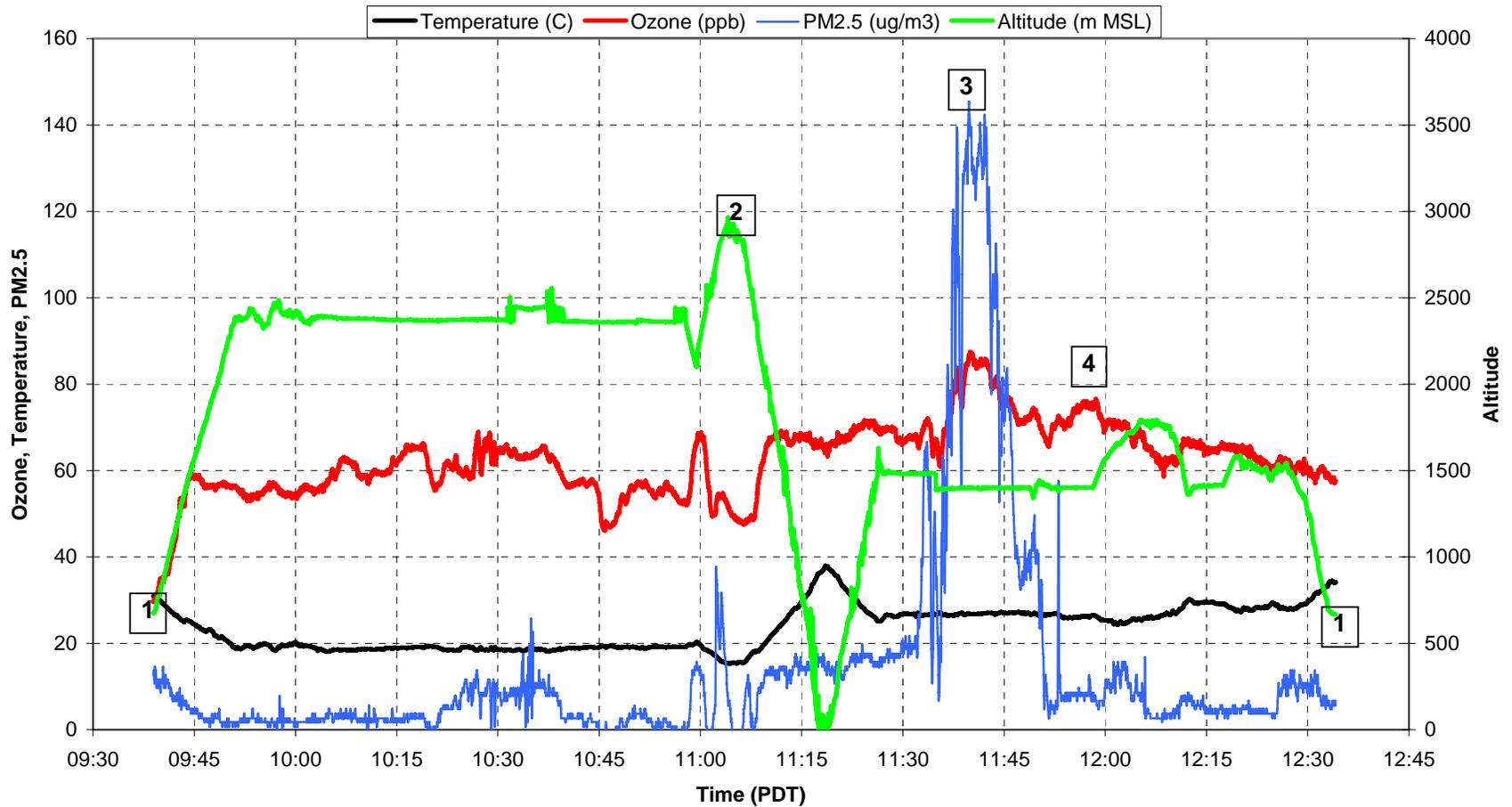
Wildfire Transport – Zaca Fire



T&B Systems

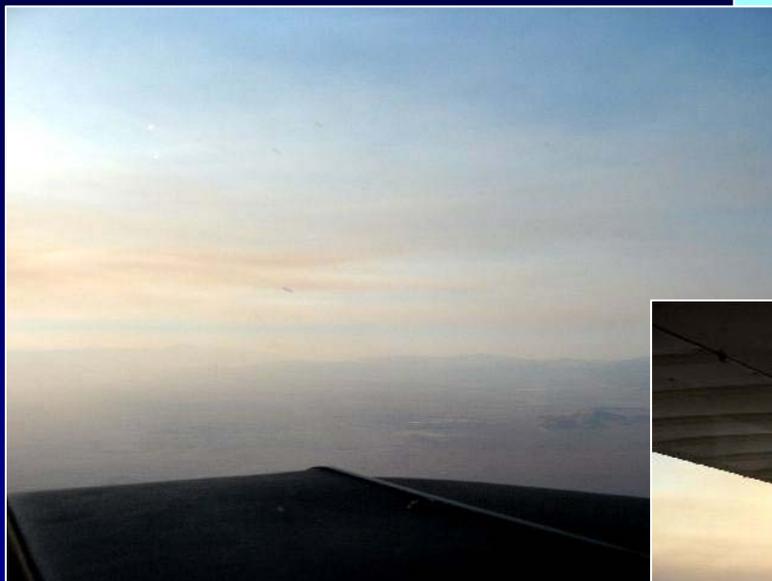
Wildfire Transport – Zaca Fire

Morning Flight on 8/8



T&B Systems

Smoke Plumes



T&B Systems

Wildfire Transport

What Was Learned

- Timing of the plume transport is important
- Aircraft observed wildfire plumes that were intact and reaching the CA/NV border were typically less than 50 km wide
- Optical method for $PM_{2.5}$ is likely more sensitive to smoke than other continuous methods
- Even with deep mixing in the desert (3 km or more), ozone concentrations remain high for distances of 100s of kilometers, e.g. White fire ozone decrease of 10 ppb from the observed peak to the CA/NV border
- Observed smoke plumes were generally higher in altitude than urban plumes making the forecast of ground impact more difficult
- On aircraft flight days, the region around Pahrump appeared to be more in the path of the plume than was the path to the southeast that would lead to Clark County



Wildfire Exceptional Event Protocol

- Internet products available for analysis
 - Satellite
 - Modeling
 - Observational data
- Importance of real-time monitoring of fire events
- Use of cameras for smoke confirmation
- Correlation of available products being investigated
 - Cameras
 - Internet products
 - Air quality impacts
- Deliverable will be a list of best products for documenting exceptional wildfire events



A photograph showing the underside of an airplane wing and tail section. The sun is setting in the distance, creating a bright orange and yellow glow over a range of mountains. The sky transitions from orange near the horizon to a deep blue at the top.

Questions?

Please contact:

**Department of Air Quality and
Environmental Management (DAQEM)**

(702) 455-5942