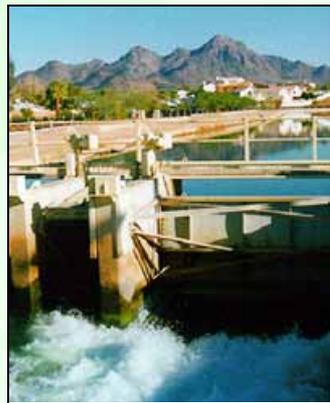




# **Exceptional Events and Data Collection in the Vicinity of the West 43<sup>rd</sup> Avenue Monitor**

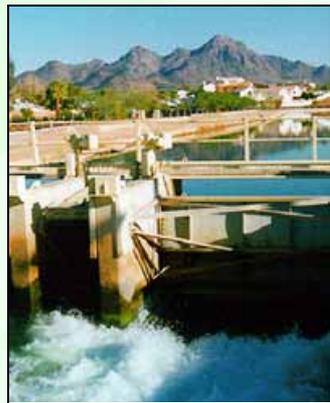
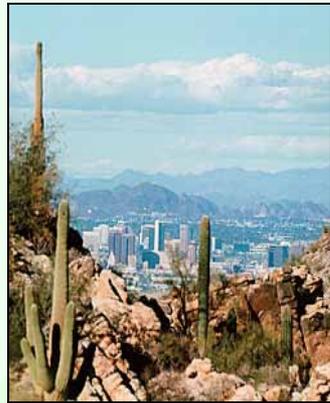
## **MAG Management Committee**

### **April 14, 2010**



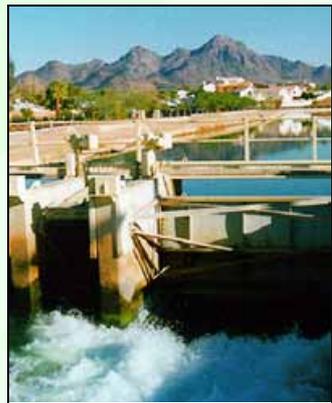
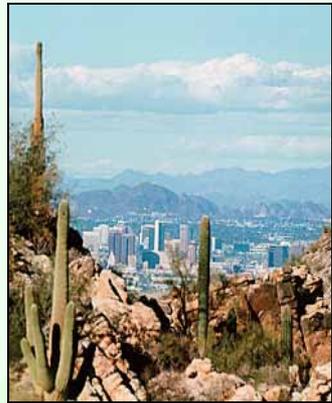
# Five Percent Plan for PM-10

- n **Required by Clean Air Act Section 189(d) -**  
For Serious nonattainment areas that do not meet the PM-10 standard by the attainment date (December 31, 2006)
- n **Five Percent Plan due one year later**
  - MAG submitted Plan to EPA by Dec 31, 2007
- n **Plan shows PM-10 emission reductions of 5% per year until the standard is attained in 2010**
  - Commitments received for 53 new measures
  - 5% emission reductions in 2008, 2009 and 2010
  - Modeling demonstrates attainment in 2010
  - 3 years of clean data needed at all PM-10 monitors in 2008, 2009 and 2010



# Status of Five Percent Plan

- n **EPA has not acted to approve or disapprove the MAG 2007 Five Percent Plan for PM-10**
  - l **Clean Air Act requires EPA action within 18 months (June 30, 2009)**
- n **December 2, 2009 - ACLPI filed a lawsuit to order EPA to propose approval or disapproval of the Plan within 1 month and finalize the action within 3 months**
- n **February 1, 2010 - WildEarth Guardians sent a notice of intent to file a lawsuit against EPA for failure to take action on the Plan**



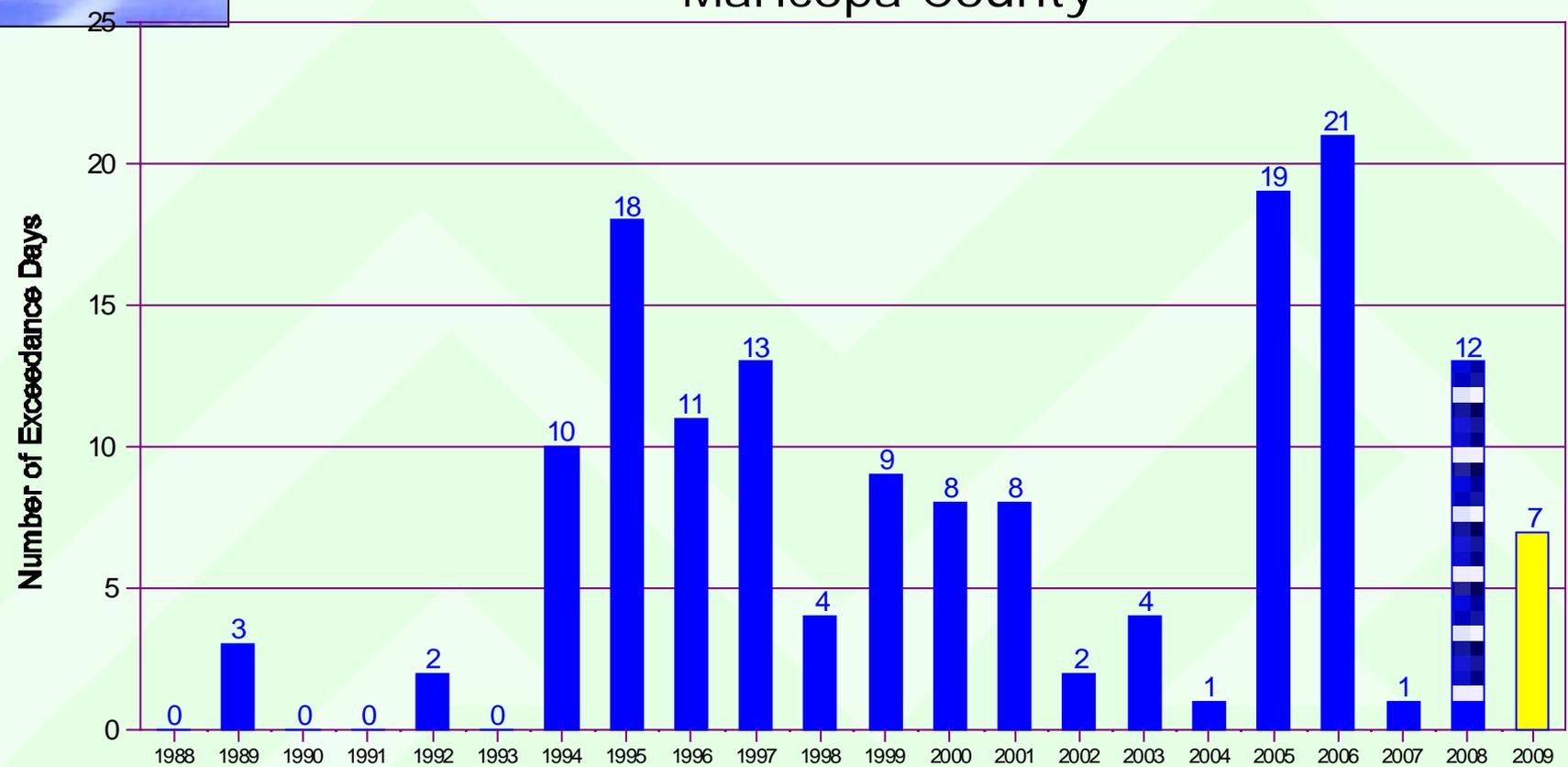
# Status of Five Percent Plan

- n **If EPA proposes disapproval of the Plan, in whole or part, sanctions would be imposed if the problem is not corrected within**
  - l 18 months from proposed finding of disapproval
    - n Tighter controls on major industries (2:1 offsets in emissions)
  - l 24 months from proposed finding of disapproval
    - n Loss of federal highway funds - \$1.1B at risk in MAG Transportation Improvement Program (TIP)
    - n Federal implementation plan imposed
- n **Imposition of highway sanctions may trigger a conformity lapse**
  - l Major projects in \$7B TIP could not proceed



# PM-10 Monitoring Data

## Days Exceeding the 24-Hour PM-10 Standard in Maricopa County



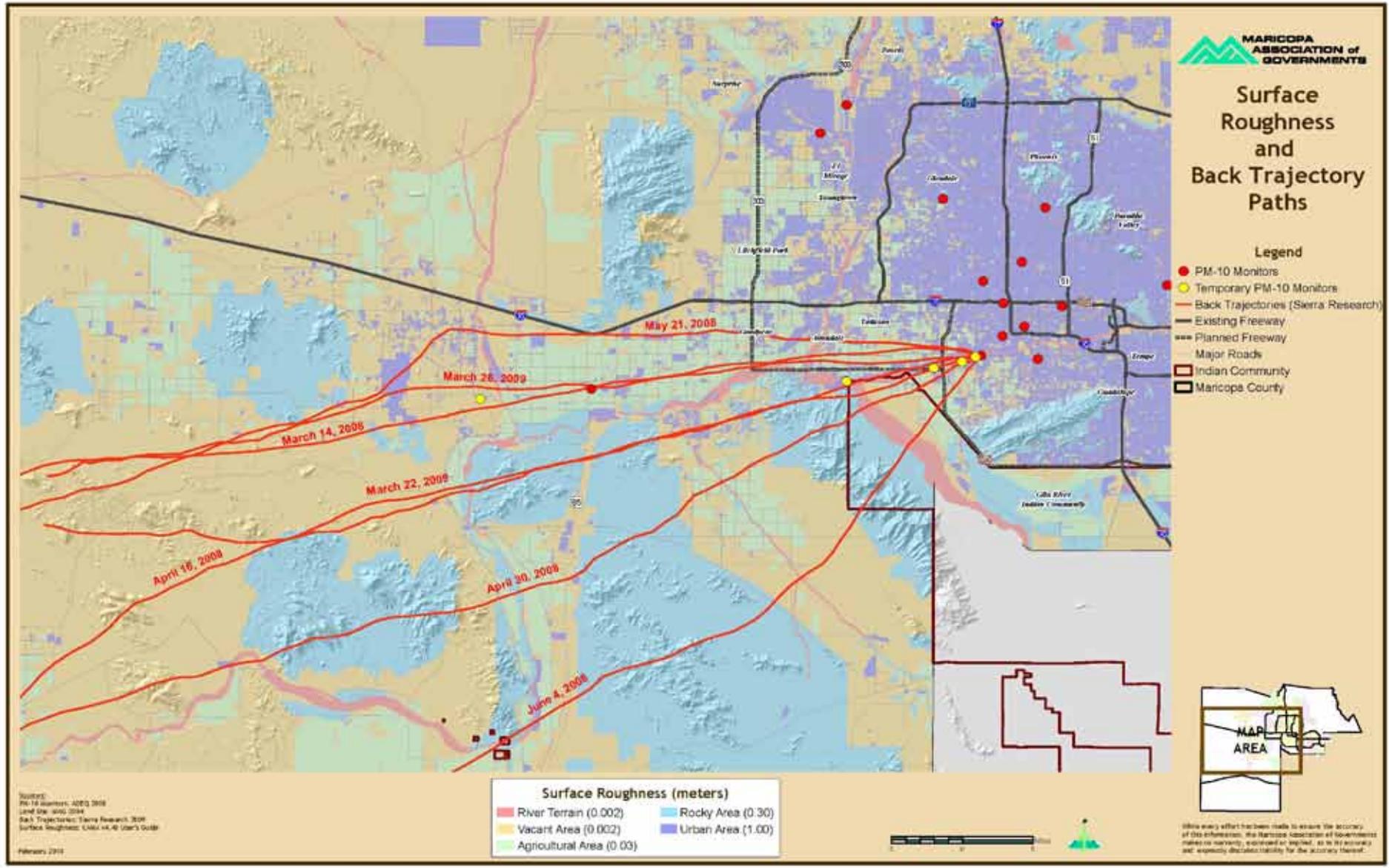
Notes:

1. The hatched blue area represents 11 exceedance days in 2008 that ADEQ has documented as exceptional/natural events, but have not been approved by EPA.
2. Some or all of the 7 exceedance days in 2009 (shown in yellow) may be exceptional/natural events, but these have not yet been documented by ADEQ or approved by EPA. The 2009 exceedances represent preliminary data as of October 27, 2009.
3. Exceedance days that have been approved by EPA as exceptional/natural events have been removed from this chart.
4. Most of the exceedances before 2004 were recorded by filter-based monitors that measured PM-10 concentrations on every sixth day. Since 2004, the filter-based monitors that exceeded the PM-10 standard have been replaced with monitors that measure PM-10 concentrations every day.
5. Chart also includes exceedance days at the Buckeye monitor, which is outside the PM-10 nonattainment area.



# EPA Concerns - Exceptional Events

- n **Four high wind days in 2008**
  - March 14, April 16, April 30, and June 4
  - W 43rd Ave monitor exceeded PM-10 standard
- n **Additional information is being collected to supplement ADEQ's exceptional event documentation**
- n **Products to date**
  - Surface roughness and friction velocity maps
  - Table with maximum anthropogenic PM-10 contributions based on land use
  - Paper explaining why PM-10 concentrations are higher at W. 43<sup>rd</sup> Ave than downwind monitors
  - Graphs showing winds were exceptionally high

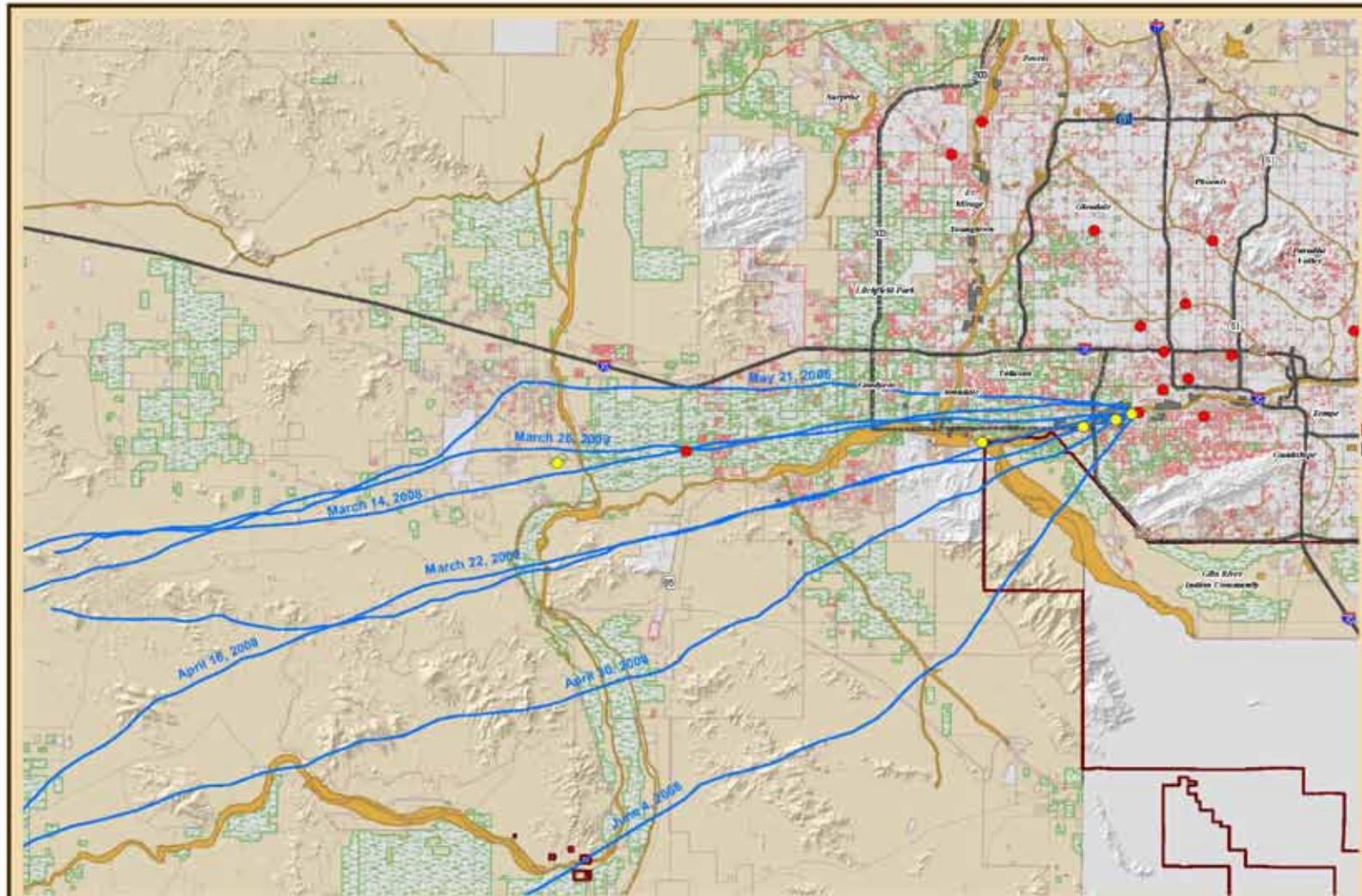




### Friction Velocity at 10 Meters and Back Trajectory Paths

**Legend**

- PM-10 Monitors
- Temporary PM-10 Monitors
- Back Trajectories (Sierra Research)
- Existing Freeway
- Planned Freeway
- Major Roads
- Indian Community
- Maricopa County



**Friction Velocity at 10 meters**

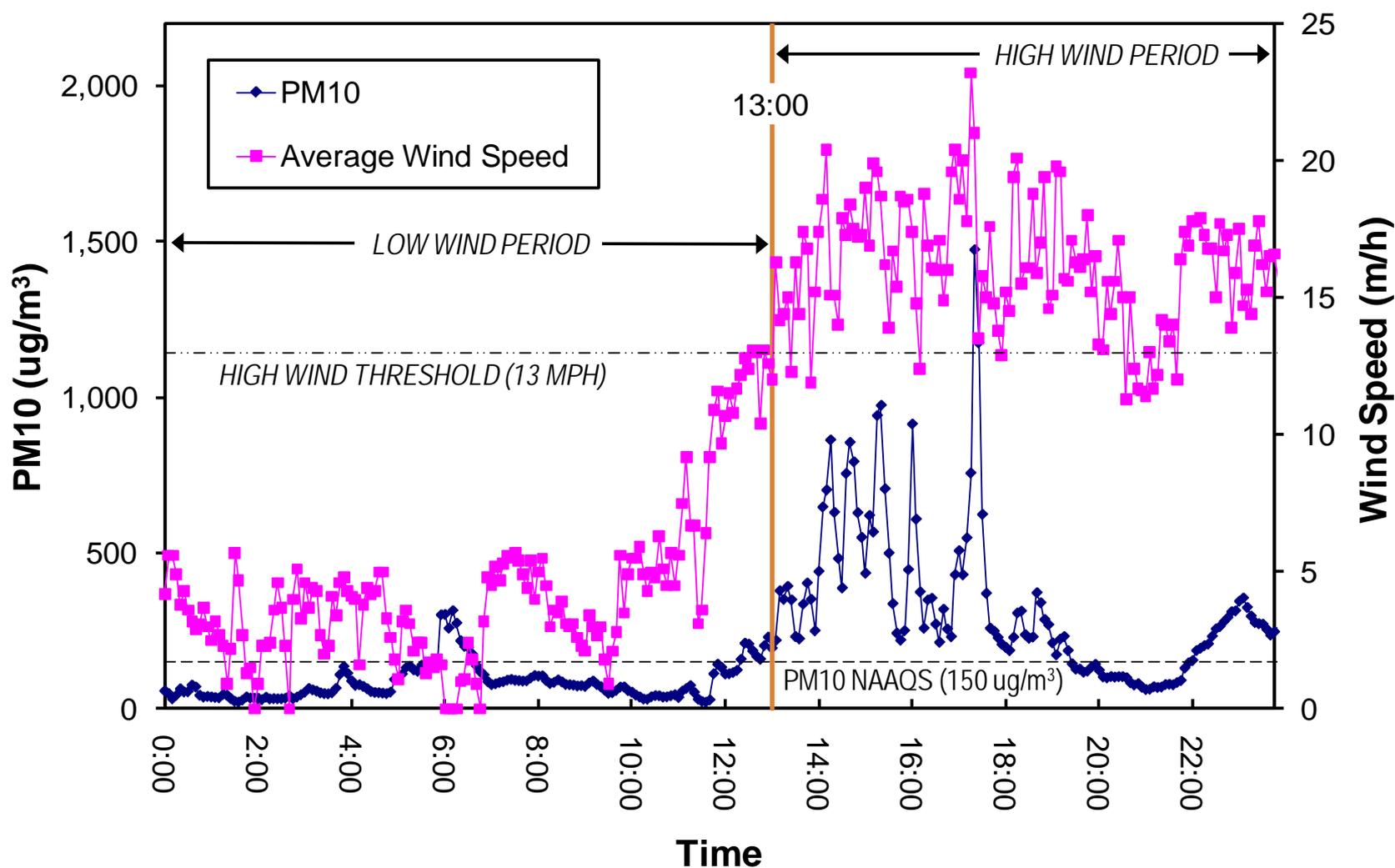
- Sand and Gravel Area, 13 mph
- River Terrain, 13 mph
- Vacant Disturbed Area, 18 mph
- Vacant Desert Area, 25 mph
- Construction Area, 25 mph
- Agricultural Area, 30 mph



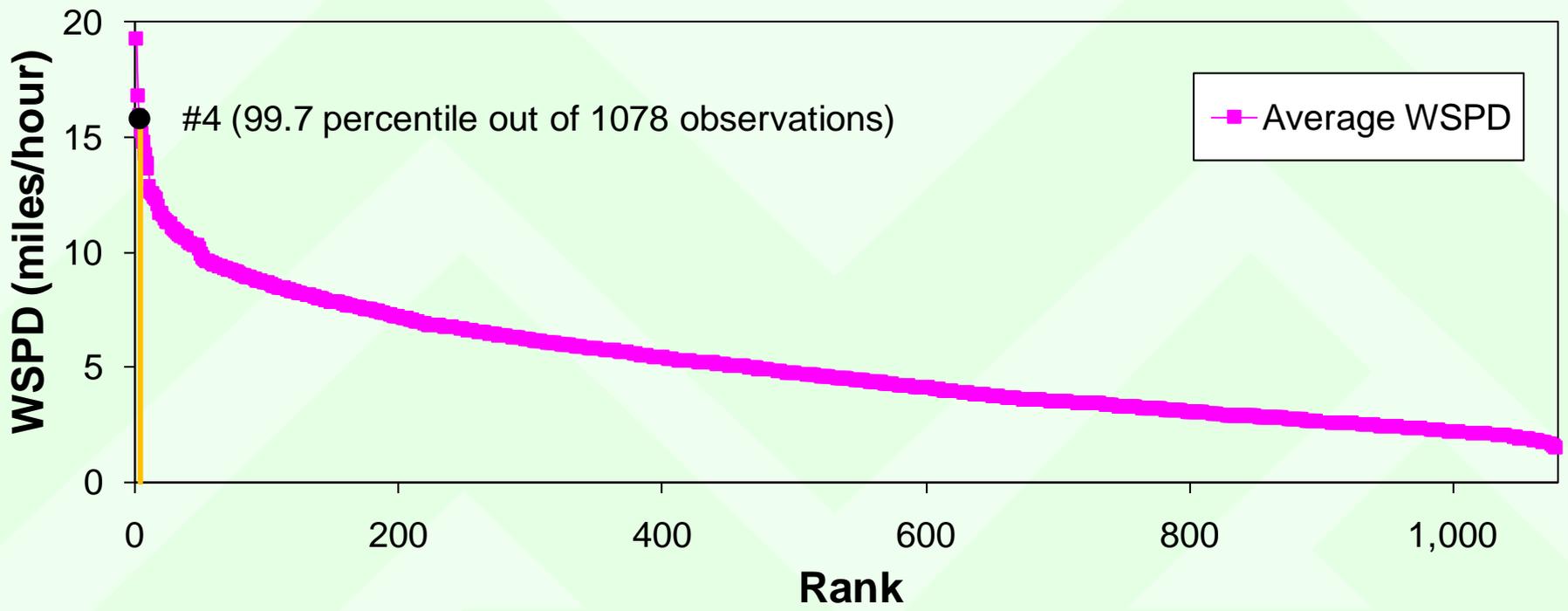
While every effort has been made to ensure the accuracy of this information, the Maricopa Association of Governments makes no warranty, expressed or implied, as to its accuracy and accepts no liability for the accuracy thereof.

Sources:  
 PM-10 Monitors: AQEG 2008  
 Land Use: BMD 2004  
 Back Trajectories: Sierra Research 2008  
 Proposed Freeway (Velocities): HARBING and GILES, 1998; Division of Free-Expressed Particulates from Smart Cells

**Figure 1**  
**Diurnal Profile of 5-Minute Average PM<sub>10</sub> Concentrations**  
**and Wind Speed at West 43rd Monitor**  
**(6/4/2008)**



**Figure 3**  
**Distribution of 13:00 pm – Midnight Wind Speed (5-min Average)**  
**at West 43rd Monitor (January 2007 – December 2009)**





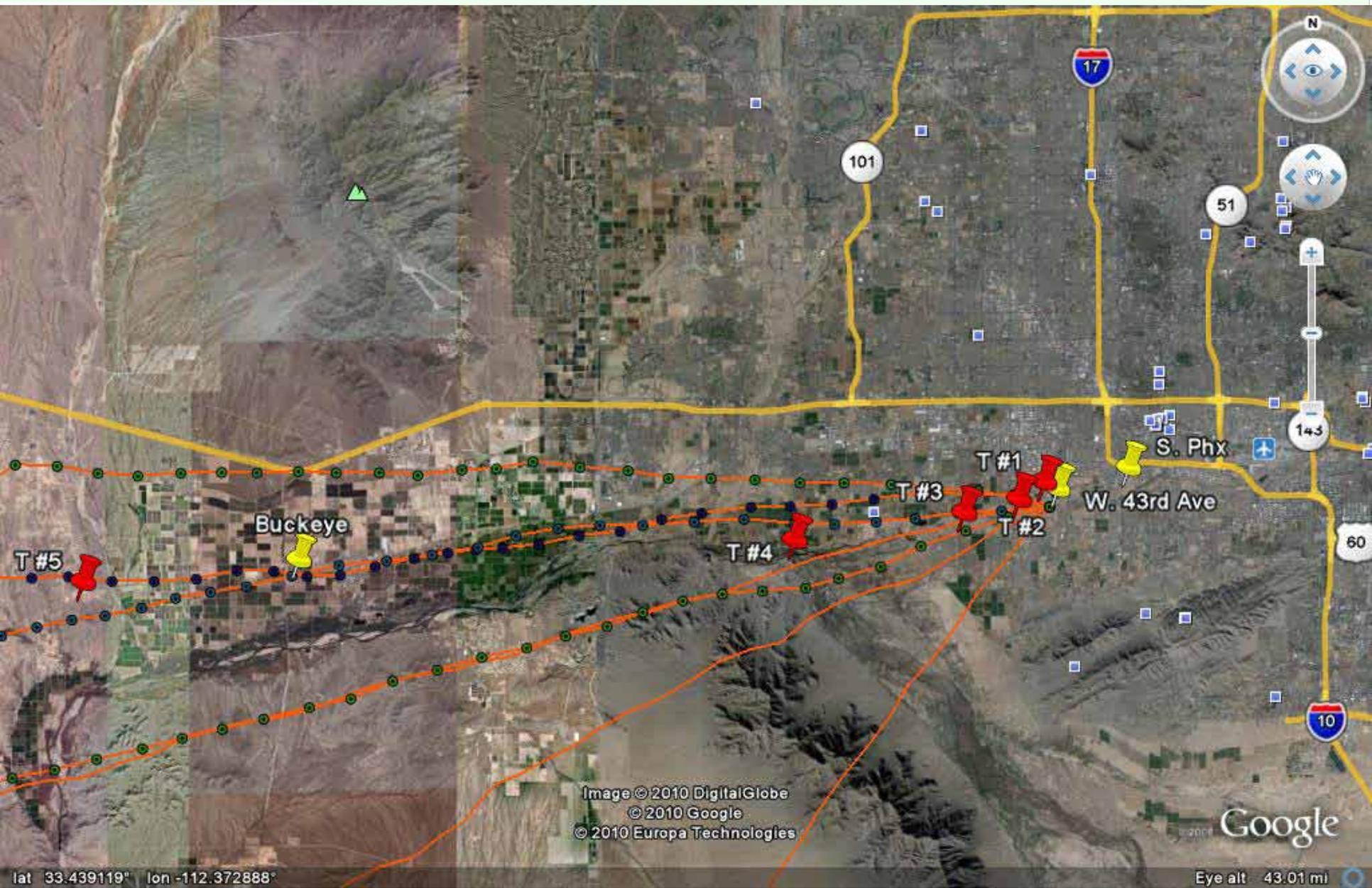
## Data Collection Plan

- n **Air quality and meteorological monitoring and analysis**
  - l Cooperative effort on the part of ADEQ, ASU, EPA, MAG, and MCAQD
  - l Identify sources contributing to elevated PM-10 levels at W. 43<sup>rd</sup> Ave under windy conditions, including:
    - n Nearby sources
    - n Unique soil conditions
    - n Transport from outside the area



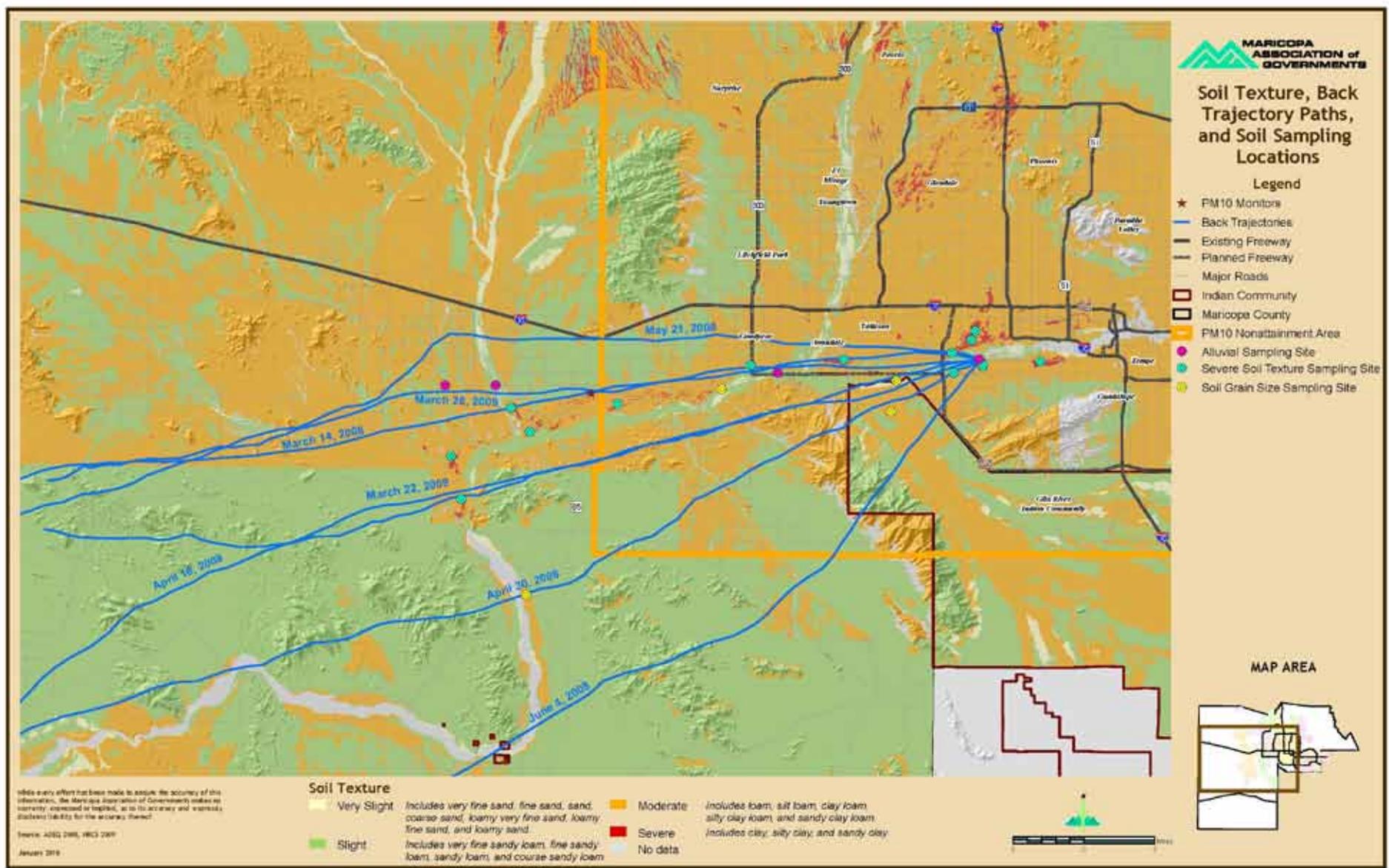
## Data Collection Plan

- n **Air quality and meteorological monitoring**
  - l 5 temporary monitors located upwind of the West 43<sup>rd</sup> Ave monitor
  - l Streaker Aerosol Samplers at each site
  - l Particle size analyzer at W. 43<sup>rd</sup> Ave
  - l Dustraks at upwind and downwind sites
  - l Digital cameras at strategic locations
- n **Soil sampling**



lat 33.439119° lon -112.372888°

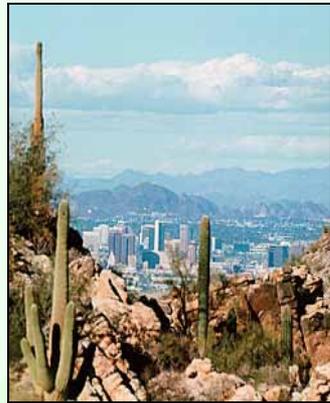
Eye alt 43.01 mi



# Data Collection Plan – Tentative Schedule

- n Air quality and meteorological monitoring and analysis – March thru June 2010
- n Soil survey and analysis – April & May 2010
- n Draft report – June 1, 2010
- n Final report – July 15, 2010

*Note: Schedule may have to be altered due to high rainfall during the past several months*



## Phoenix Rio Salado Oeste Environmental Restoration Project

- ▮ A permanent long-term stabilization project for the Salt River area where the West 43<sup>rd</sup> Avenue monitor is located
- ▮ An environmental restoration project with the Army Corps of Engineers that includes flood control improvements and recreation features
- ▮ Will connect and continue the restoration of the Salt River area from 19<sup>th</sup> to 83<sup>rd</sup> avenues
- ▮ City of Phoenix received the 404 permit in December 2009 for the initial phase

Phoenix-Owned Parcel with 404 Permit

43rd Avenue Air Quality Monitor

Rio Salado Oeste Environmental Restoration Project  
U.S. Army Corps of Engineers in partnership with  
City of Phoenix and the  
Flood Control District of Maricopa County

**Legend**

- Take line / Project limits
- Property Ownership**
  - City of Phoenix
  - State of Arizona
  - Maricopa County
  - Bureau of Land Management
  - Private
  - Gila River Indian Community

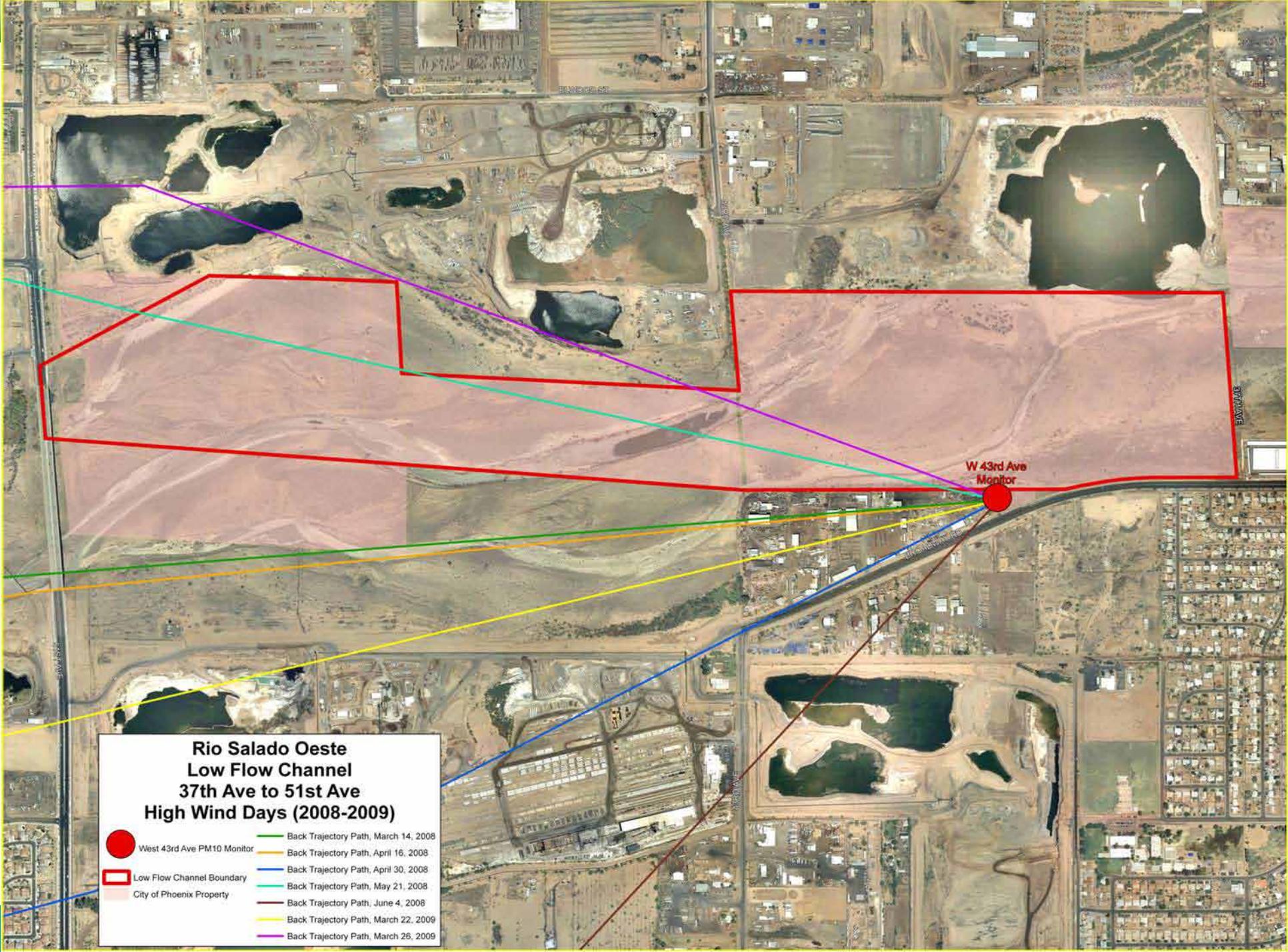
0 2,000 4,000 Feet

Source: Files provided by USACE  
Aerial photo: ESRI/ArcGIS Online  
Copyright 2009 e-Cubed



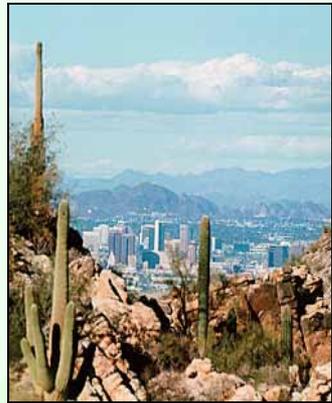
RIO SALADO OESTE CDDR  
LAND OWNERSHIP MAP

DATE 12/17/09  
PAGE H-1



**Rio Salado Oeste  
Low Flow Channel  
37th Ave to 51st Ave  
High Wind Days (2008-2009)**

-  West 43rd Ave PM10 Monitor
-  Low Flow Channel Boundary
-  City of Phoenix Property
-  Back Trajectory Path, March 14, 2008
-  Back Trajectory Path, April 16, 2008
-  Back Trajectory Path, April 30, 2008
-  Back Trajectory Path, May 21, 2008
-  Back Trajectory Path, June 4, 2008
-  Back Trajectory Path, March 22, 2009
-  Back Trajectory Path, March 26, 2009



# For More Information

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