

Smoke Impacts and Public Health: Health Advisories/School Closures

CARPA/ IASC Workshop
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Placer County Health and Human Services
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- Tom Christofk
- Ken Cutler





smoke

California

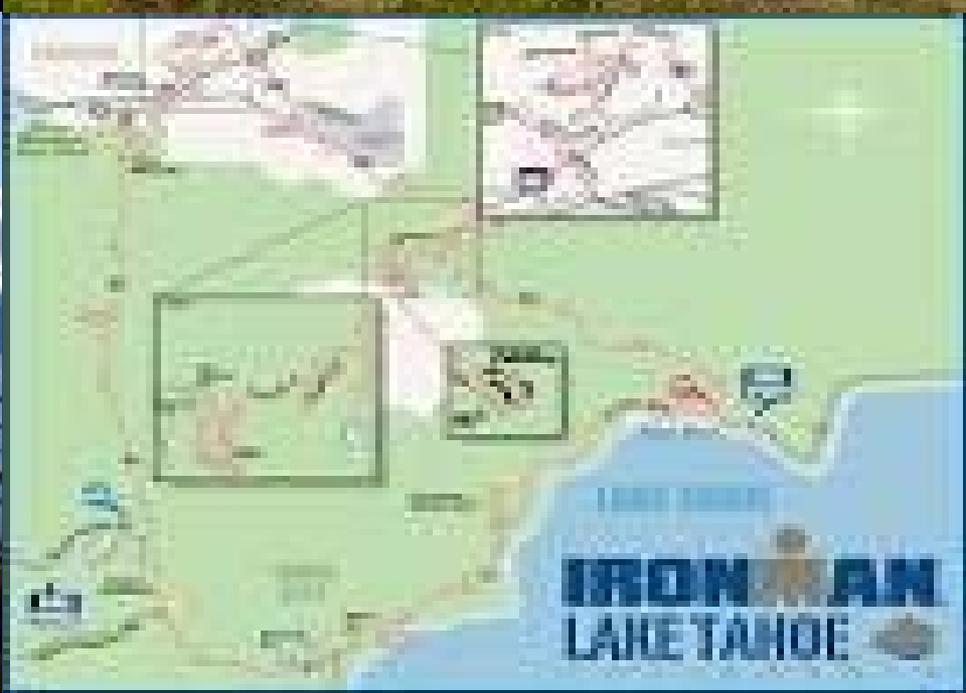
Nevada

Lake Tahoe

25 km



Diana Allen | 530.434.1500 | www.TahoeIronman.com



BIKE COURSE

- 112 Miles
- 2 1/3-Loop
- Lake Tahoe, California

-  1ST LOOP MILE MARKERS
-  2ND LOOP MILE MARKERS
-  3RD LOOP MILE MARKERS

TURN BY TURN

- Exit Kings Beach State Park and turn left on North Lake Boulevard/Highway 28
- Turn right on Carnelian Woods Avenue
- U-Turn at end of Carnelian Woods Avenue
- Turn right on North Lake Boulevard/ Highway 28 to Tahoe City
- Turn Right on Grove Street
- Turn Left onto Fairway Drive
- Turn Right onto Highway 89 North
- Follow Highway 89 and turn right on West River Street
- Turn left on McIver Crossing
- Go straight through the traffic circle bearing right and on to Donner Pass Road
- Stay Straight thru Bridge Street Intersection
- Turn Right onto Glenshire Drive
- Turn Right onto Truckee River Legacy Trail (Bike Path)
- Follow Signs for Truckee Regional Park
- Turn Left onto Truckee Regional Park Access Road
- Turn Left onto Brockway Road
- Go straight through the traffic circle at Martis Valley Road
- Turn Right onto HWY 267 South
- Turn Right on North Lake Boulevard/Highway 28 to complete the second and third loop (third loop is only 1/3 of the course)
- To get to finish on the third loop turn Left on Squaw Valley Road
- Follow Squaw Valley Road and turn left into the transition at The Village at Squaw Valley



 AID STATIONS

 TRANSITION AREA

IRONMAN
LAKE TAHOE
CALIFORNIA

IRONMAN[®]

LAKE TAHOE

C A L I F O R N I A




RUN COURSE

- 26.2 Miles
- 2-Loop (Out & Back)
- Lake Tahoe, California

- 1ST LOOP MILE MARKERS
- 2ND LOOP MILE MARKERS
- SPECIAL NEEDS
- AID STATIONS

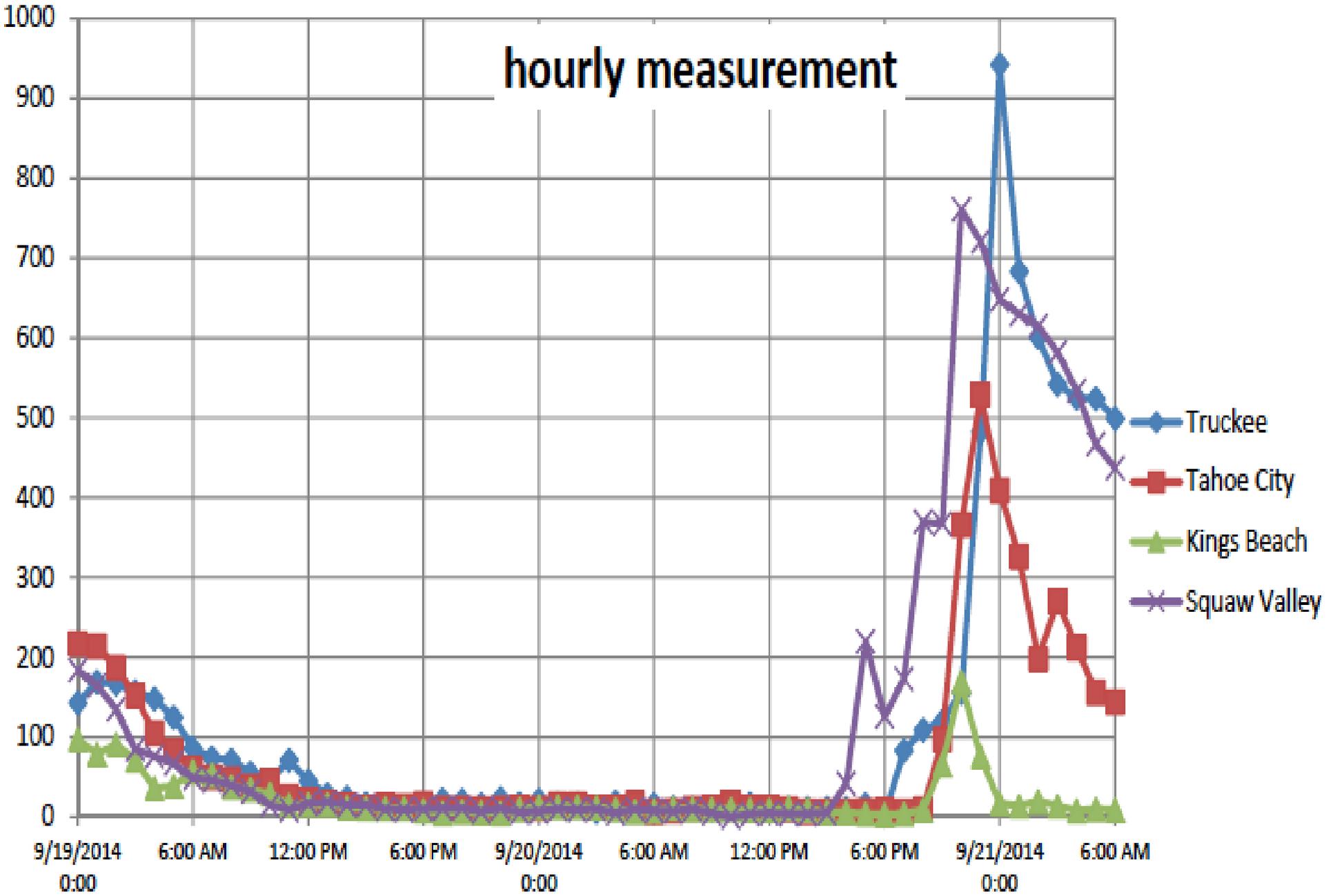
Turn By Turns

- Exit A Lot heading south into Squaw Valley Village and out onto Squaw Valley Road
- Turn right on Squaw Creek Road
- Run course completes a loop around the outside of The Resort at Squaw Creek before returning to Squaw Creek Road
- Follow Squaw Creek Road back to the trail entrance on the south side of Squaw Valley Road
- Turn right on the trail and follow this to Hwy 89
- Turn right on Hwy 89
- After crossing the Truckee River, turn right to access the Truckee River Trail
- Turn left onto the Truckee River Trail heading south towards Tahoe City
- Turn around at the end of the Truckee River Trail before it crosses Hwy 89
- Return on the Truckee River Trail and Hwy 89 back to Squaw Valley Road
- Return on Squaw Valley Road to Squaw Valley Village to start the second lap
- Second lap follows the first lap except the turn around is on the Truckee River Trail north of Alpine Meadows Road
- The finish line is located in Squaw Valley Village





hourly measurement



3-hour average

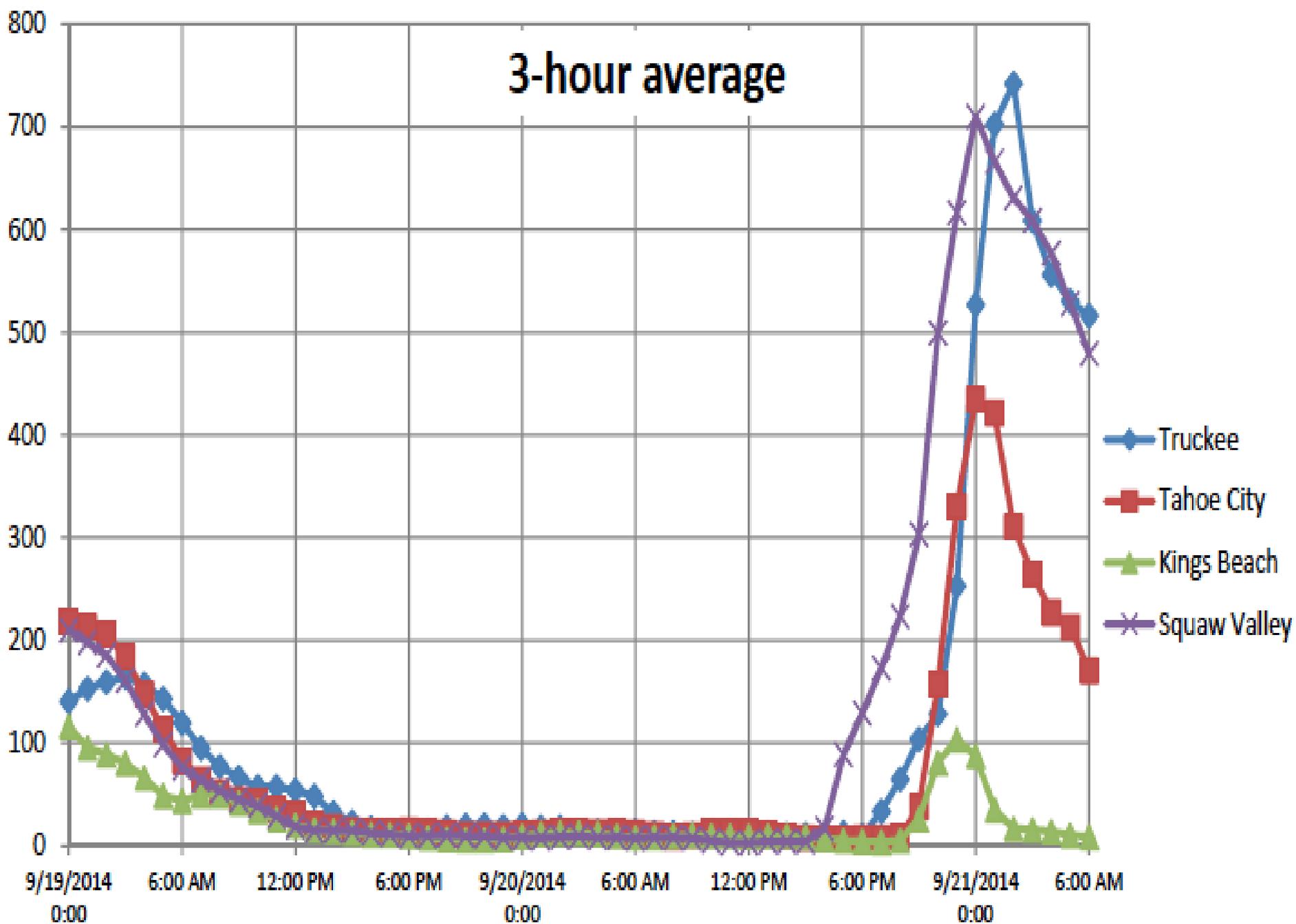


Table 3. Recommended Actions for Public Health Officials ^{2,3}

AQI Category (AQI Values)	PM2.5 or PM10 Levels (ug/m ³)			Visibility - Arid Conditions (miles)	Recommended Actions
	1-3hr avg	8 hr avg	24 hr avg ¹		
Good (0 to 50)	0 – 38	0 – 22	0 – 12	≥ 11	<ul style="list-style-type: none"> If smoke event forecast, implement communication plan
Moderate (51 to 100)	39 – 88	23 – 50	12.1 – 35.4	6 – 10	<ul style="list-style-type: none"> Issue public service announcements (PSAs) advising public about health effects and symptoms and ways to reduce exposure Distribute information about exposure avoidance
Unhealthy for Sensitive Groups (101 to 150)	89 – 138	51 – 79	35.5 – 55.4	3 – 5	<ul style="list-style-type: none"> If smoke event projected to be prolonged, evaluate and notify possible sites for cleaner air shelters If smoke event projected to be prolonged, prepare evacuation plans
Unhealthy (151 to 200)	139 – 351	80 – 200	55.5 – 150.4	1.5 – 2.75	<ul style="list-style-type: none"> Consider “Smoke Day” for schools (i.e., no school that day), possibly based on school environment and travel considerations Consider canceling public events, based on public health and travel considerations
Very Unhealthy (201 to 300)	352 – 526	201 – 300	150.5 – 250.4	1 – 1.25	<ul style="list-style-type: none"> Consider closing some or all schools (Newer schools with a central air cleaning filter may be more protective than older, leakier homes. See “Closures”, below.) Cancel outdoor events (e.g., concerts and competitive sports)
Hazardous (> 300)	> 526	> 300	> 250.5-500	< 1	<ul style="list-style-type: none"> Close schools Cancel outdoor events (e.g., concerts and competitive sports) Consider closing workplaces not essential to public health If PM level is projected to remain high for a prolonged time, consider evacuation of sensitive populations

¹Revised 24 hour average breakpoints from the **Revised Air Quality Standards for Particle Pollution and Updates to the Air Quality Index**, US Environmental Protection Agency, December 14, 2012. Available at <http://www.epa.gov/airquality/particlepollution/actions.html#dec12>.

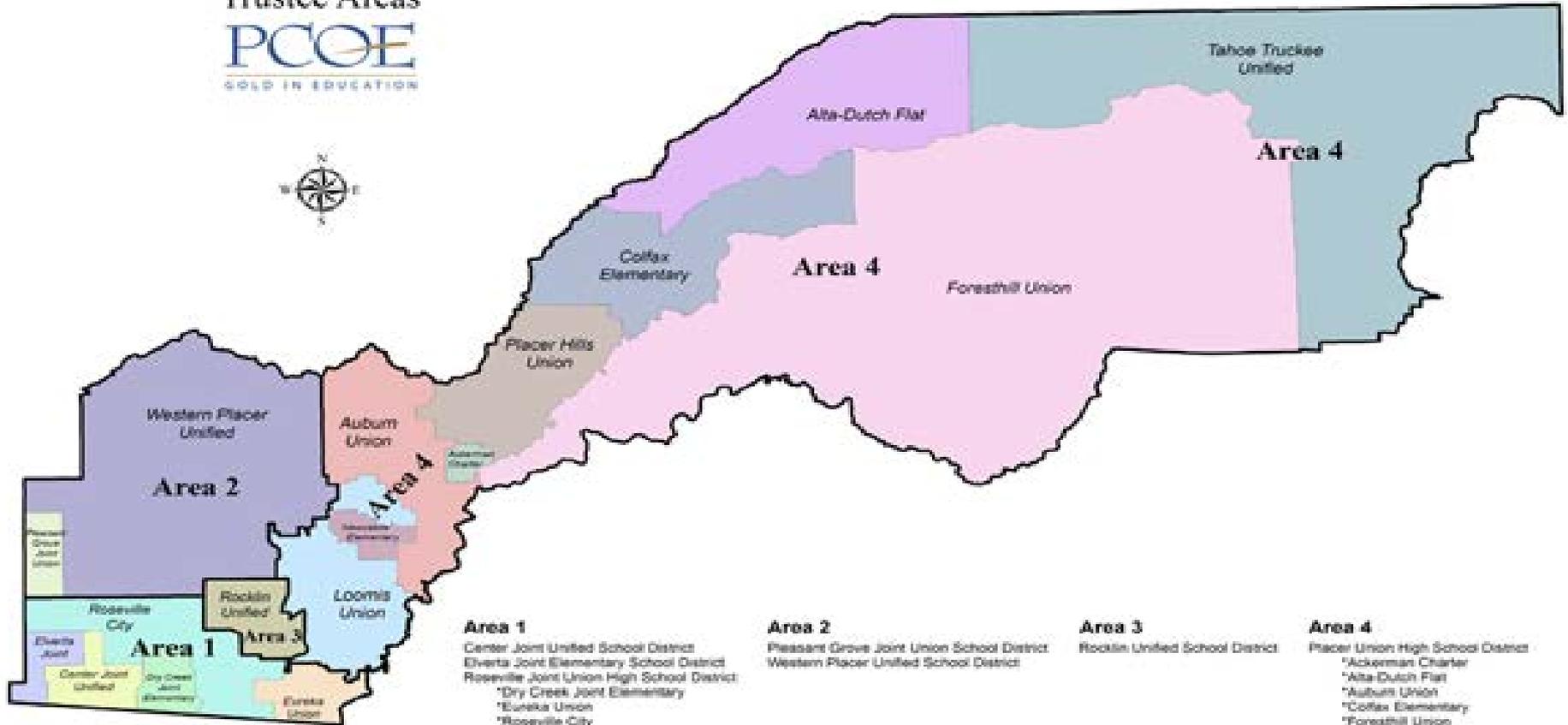
²These 1- and 8-hr PM2.5 levels are estimated using the 24-hr breakpoints of the PM2.5 Air Quality Index included in the February 7, 2007 issue paper (http://www.epa.gov/airnow/aqi_issue_paper_020707.pdf) by dividing the 24-hr concentrations by the following ratios: 8-hr ratio is 0.7, 1-hr ratio is 0.4. Visibility is based on 1-hr values. If only PM10 measurements are available during smoky conditions, it can be assumed that the PM10 is composed primarily of fine particles (PM2.5), and that therefore the AQI and associated cautionary statements and advisories for PM2.5 may be used. This assumption is reflected in the column headings for Table 3.

³Washington and Montana have developed more precautionary breakpoints, which can be found at: <http://www.deq.mt.gov/FireUpdates/BreakpointsRevised.asp> and <http://www.ecy.wa.gov/programs/air/pdfs/WAQA.pdf>

What about school?

Placer County Board of Education

Trustee Areas



Area 1
 Center Joint Unified School District
 Elverta Joint Elementary School District
 Roseville Joint Union High School District
 *Dry Creek Joint Elementary
 *Eureka Union
 *Roseville City

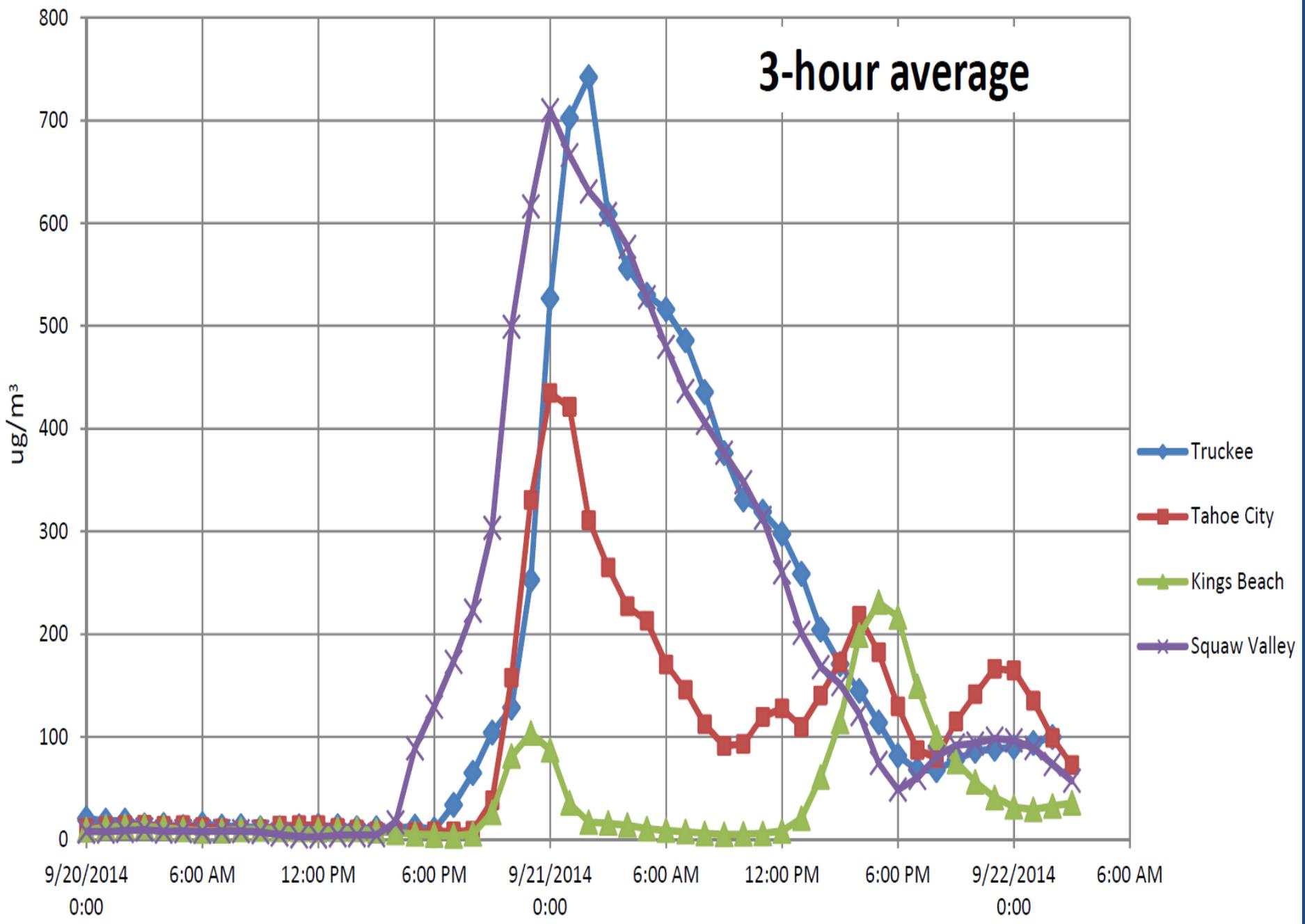
Area 2
 Pleasant Grove Joint Union School District
 Western Placer Unified School District

Area 3
 Rocklin Unified School District

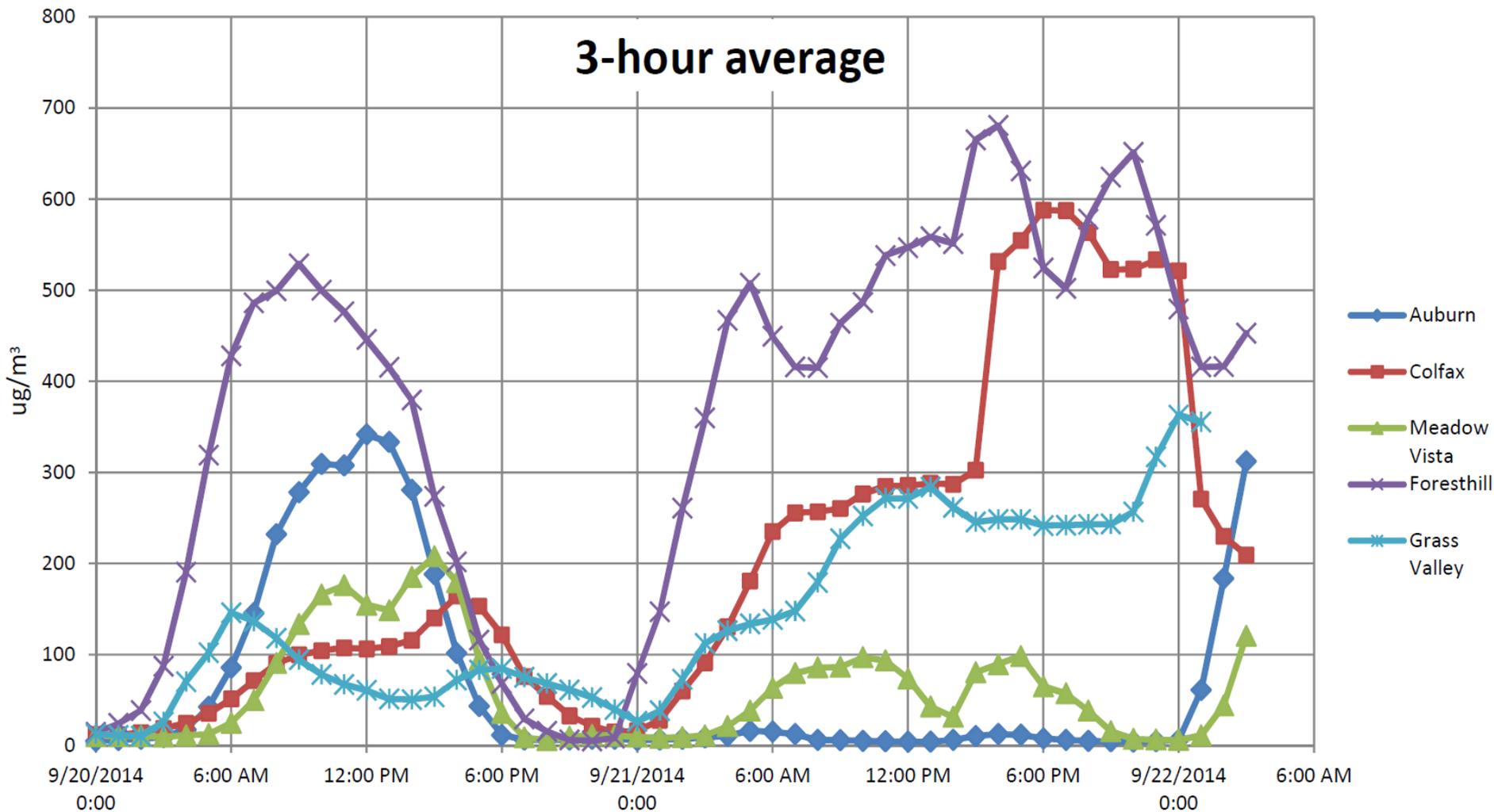
Area 4
 Placer Union High School District
 *Ackerman Charter
 *Alta-Dutch Flat
 *Auburn Union
 *Colfax Elementary
 *Foresthill Union
 *Loomis Union
 *Newcastle Elementary
 *Placer Hills Union School District
 Tahoe-Truckee Unified School District

*Denotes feeder schools to high school districts

3-hour average

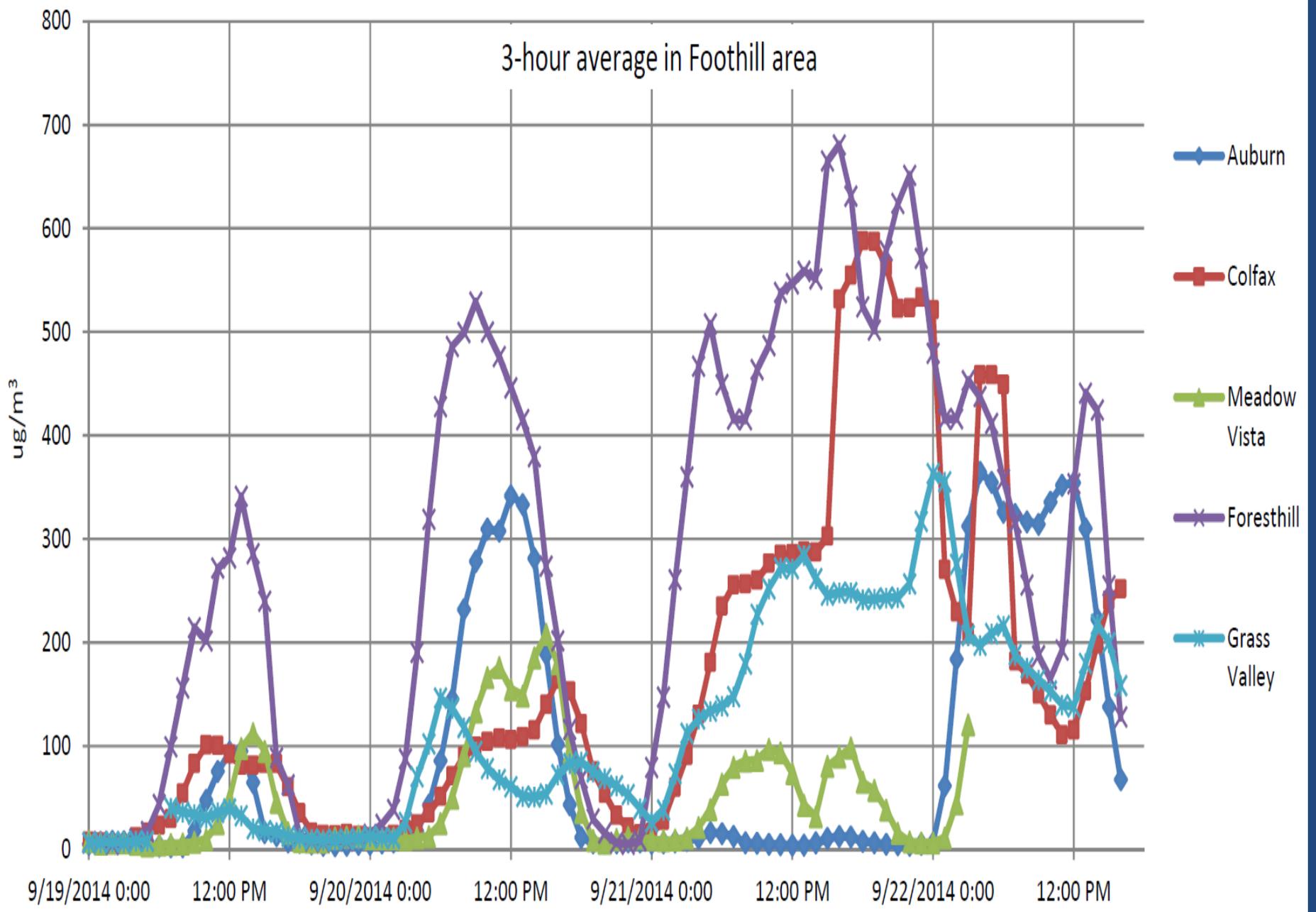


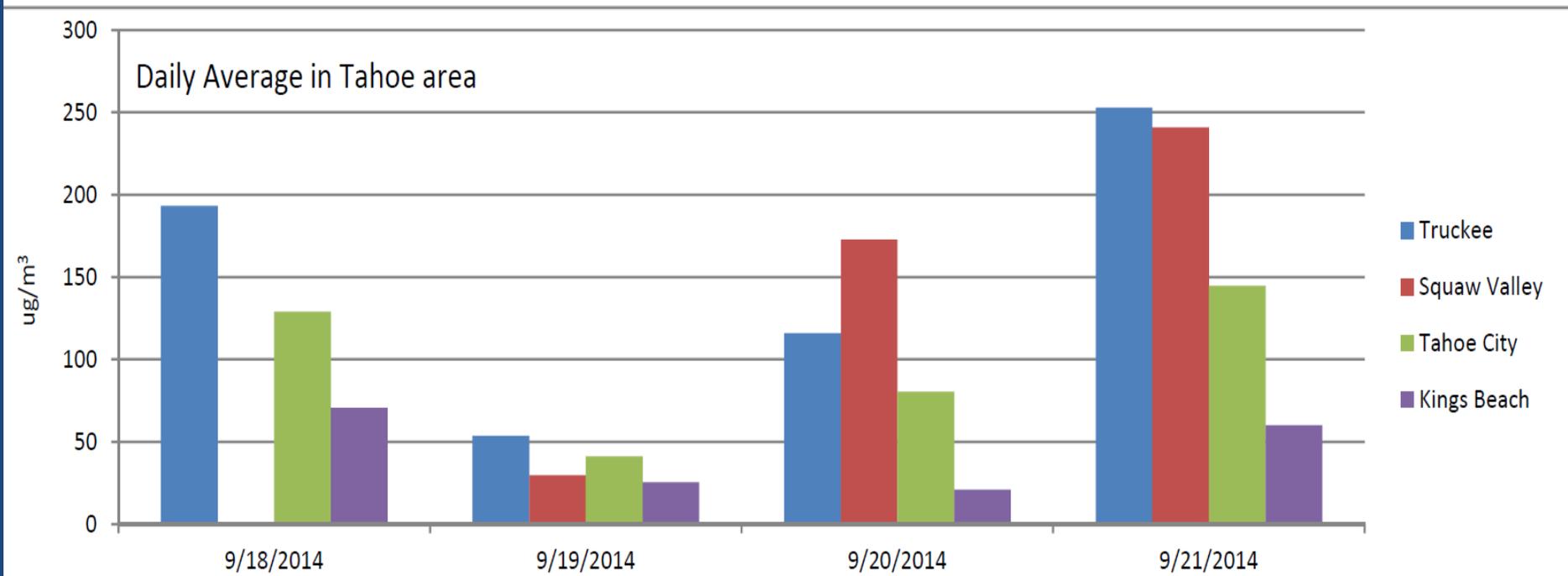
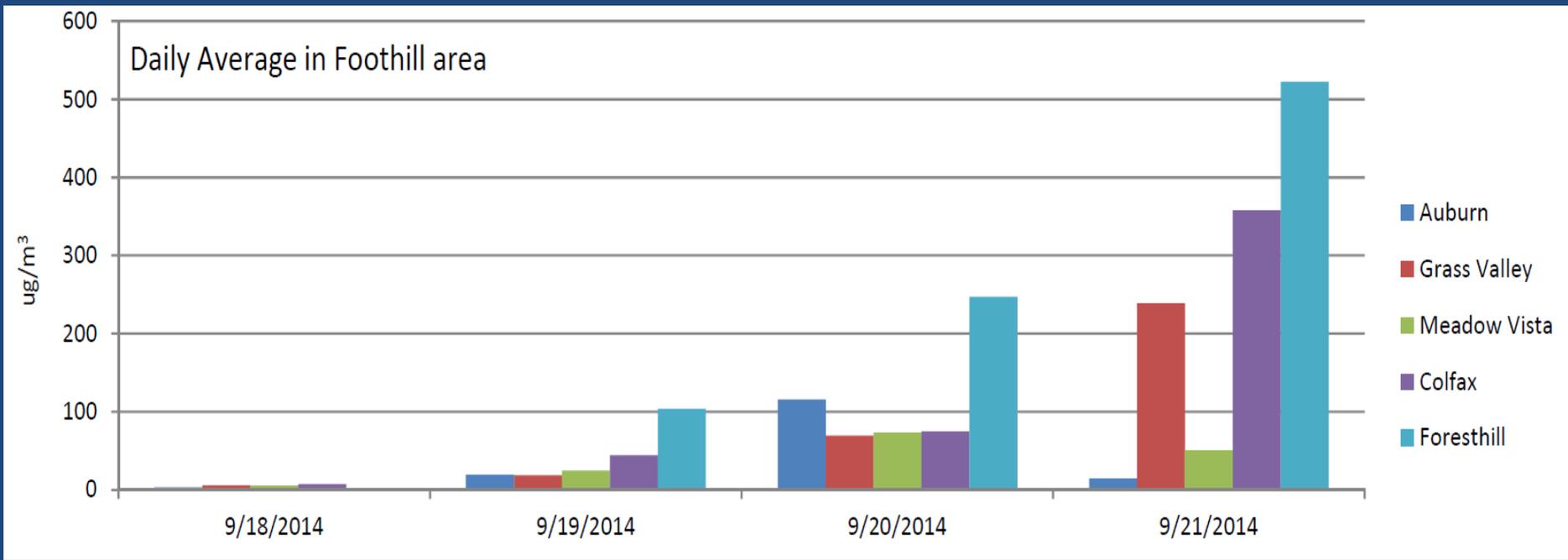
3-hour average

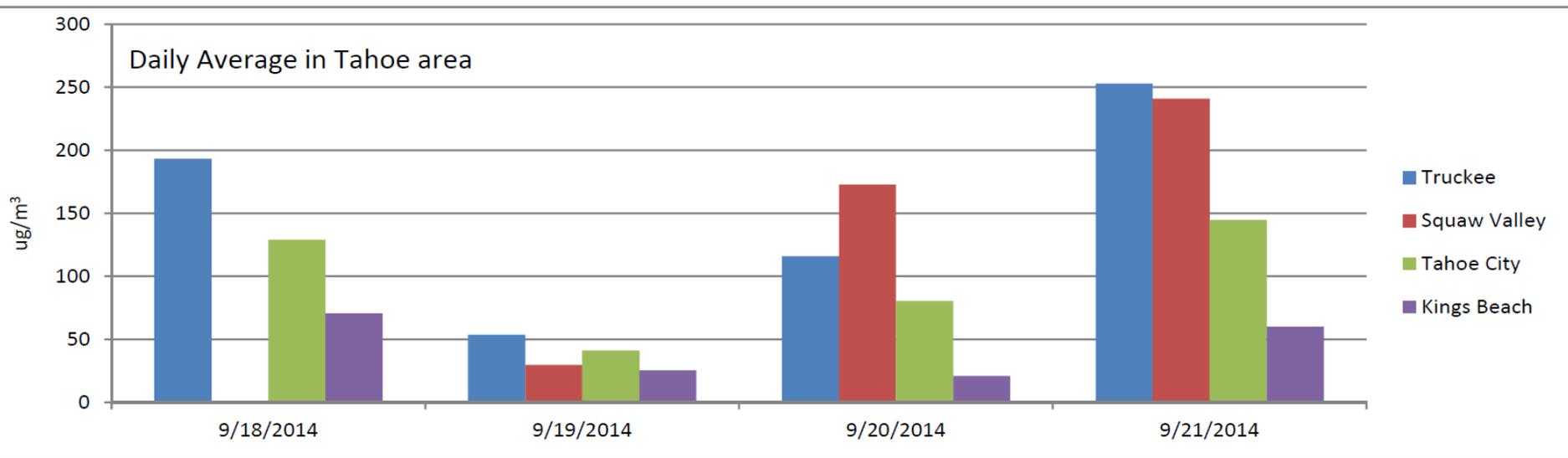
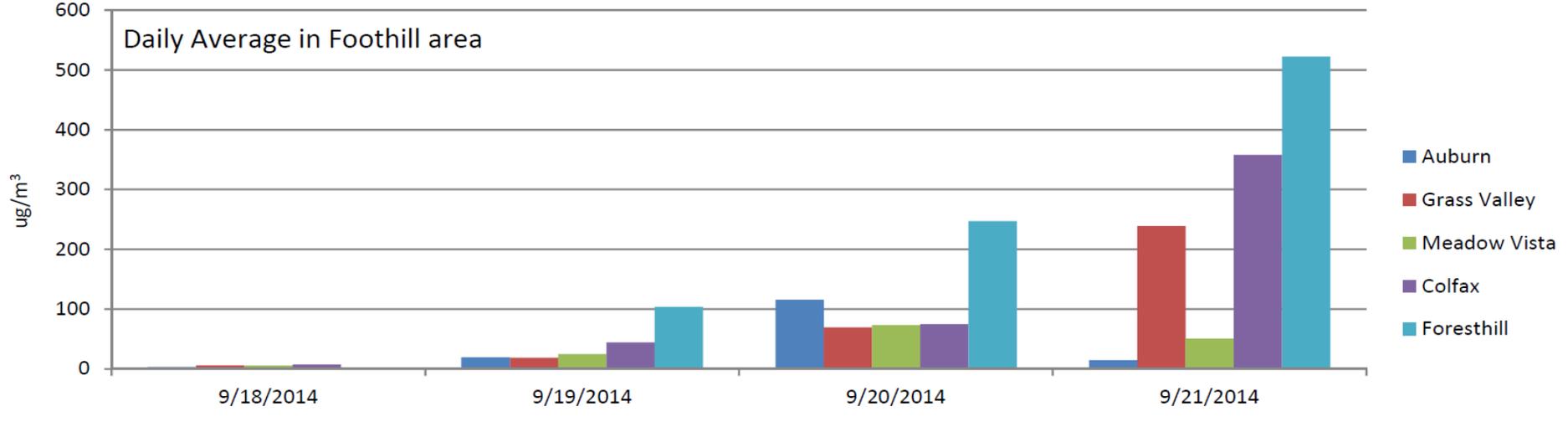


	Auburn	Colfax	Meadow Vista	Foresthill	Grass Valley	Truckee	Tahoe City	Kings Beach	Squaw Valley
past 24-hr average (ug/m³)	45.92	365.58	63.92	525.67	249.14	218.91	130.54	62.13	195.21

3-hour average in Foothill area







Note: Daily average means the concentration average from midnight to midnight.

PM2.5 24-hour average ending at 4:00pm (ug/m3)

Roseville	Lincoln	Auburn	Colfax	Meadow Vista	Foresthill	Grass Valley	Truckee	Tahoe City	Kings Beach	Squaw Valley
11.52	8.96	184.17	319.54	51.64	382.00	217.91	76.38	84.46	52.38	74.33

Lessons learned...

- The importance of simple, graphic messaging
- The importance of 24-hour PM 2.5
- The importance of pre-existing relationships and shared understanding
- The autonomy of school districts and event organizers
- The importance of a timely communication with stakeholders (Enough, but not too much!)

Other observations...

- Schools have criteria for snow closures, but really none for smoke closures.
- High variability in approaches
- Need to consider not just school closures, but also after/before school events.
- Data are useful, but so is common sense!
 - If it isn't smoky, air quality data may not adequately reflect real time.
 - Smoke can clear or come back quickly, and air monitoring information, or AQI may not be correct.
 - You can flex your outdoor activities to when the smoke leaves
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Thank you!