

# PQAO Training 2019

## Monitoring Network Design and Changes

Exercise: Monitoring Site Relocation vs. Shutdown

### Exercise Description

A metropolitan area with approximately 200,000 people has three monitoring sites, shown in the map below, and a minimum monitoring requirement of one ozone and one PM2.5 monitor. The Elderberry Dr monitoring site suffered significant structural damage during a brush fire in late summer. The fire caused irreparable damage to the building and the heat caused irreparable harm the monitoring equipment.

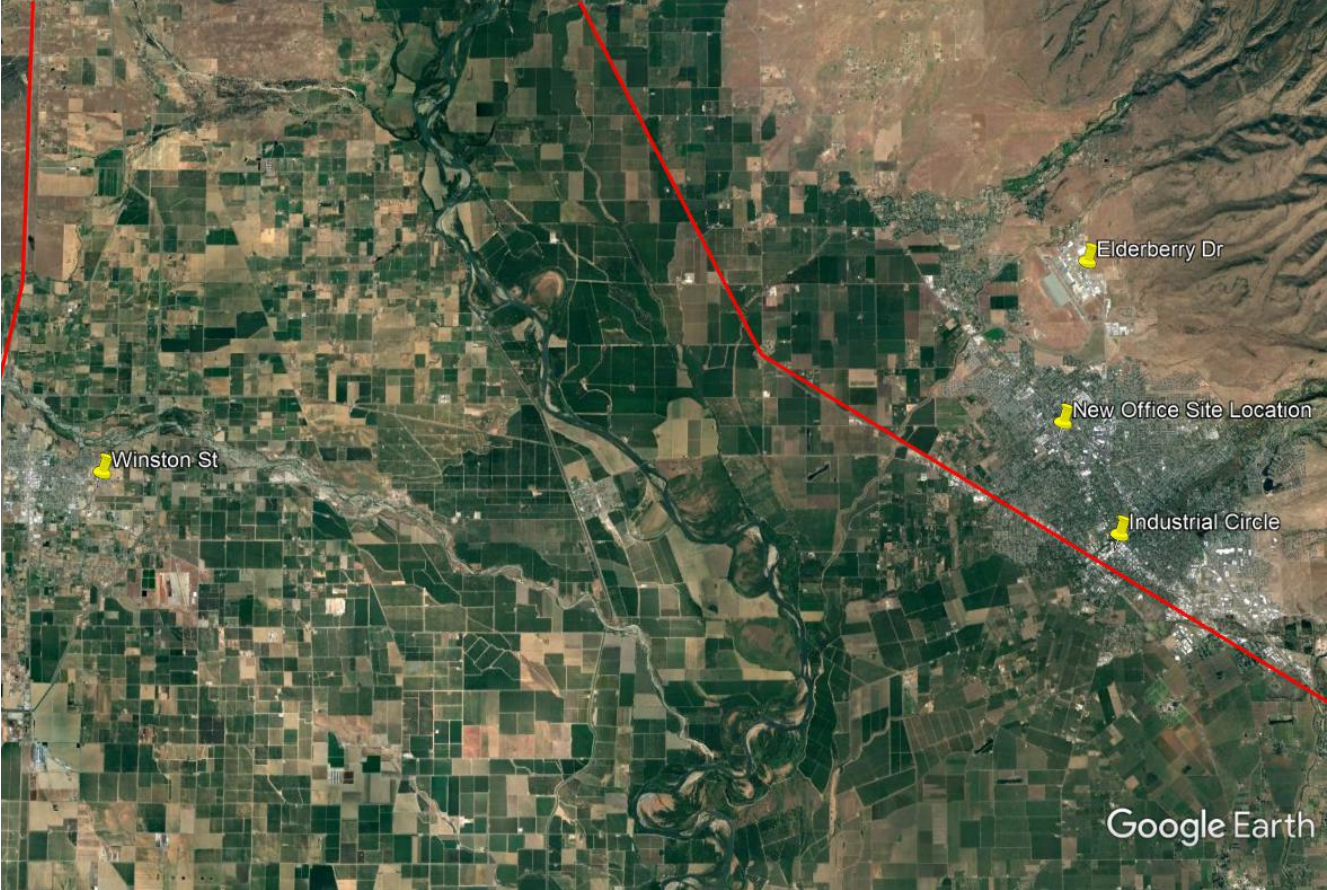
The district does not have the funds to rebuild the facility, but has already begun the planning phase of a new office building, set to break ground late next year.

*Your task is to determine whether the Elderberry Dr Monitoring Site should be shut down or relocated:*

1. Identify factors that are relevant in deciding whether to shut down or relocate a monitoring site
2. List factors that would support an effort to shut down the Elderberry Dr site
3. List factors that would support an effort to relocate the Elderberry Dr site
4. List steps that must be taken if there will be monitor downtime at a monitoring site

# Monitoring Sites

Area Map with Monitoring Sites



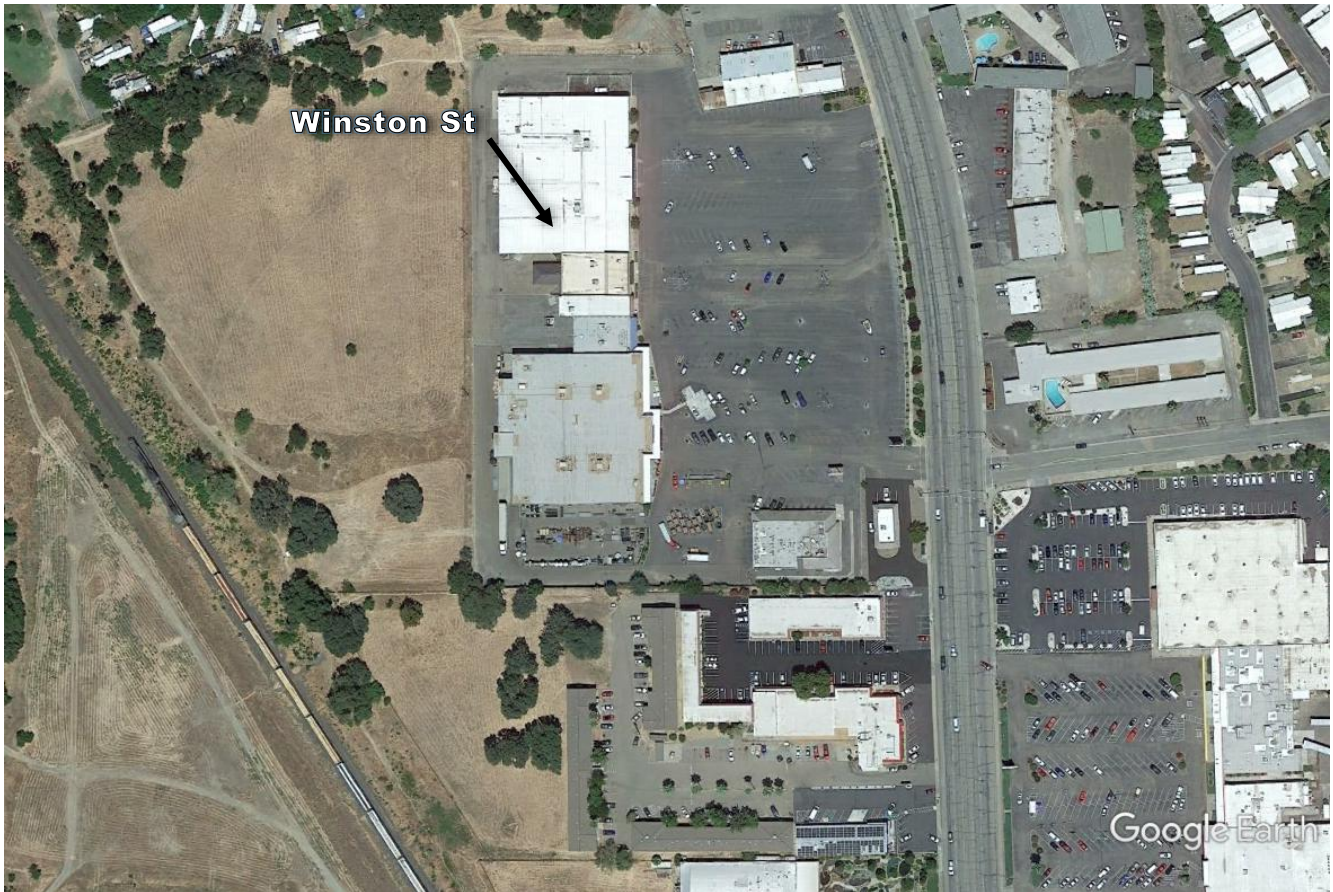
## Monitoring Site Information – Winston St

- AQS ID: 06555003
- Site Name: Winston St
- Pollutants Measured: Ozone, PM<sub>2.5</sub>

### Site Description

Monitoring was established in 1998 in a strip mall and is located on the west side of the property. Area is mostly residential with two freight/passenger train tracks about 0.25 miles to the southwest, a major highway 2 miles to the northwest. The Elderberry Dr site is 17 miles to the northeast and the industrial circle site is about 17 miles to the east. The Site for the new office is 16 miles east.

### Monitoring Site Map



### Data Table

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Design Value (ppb)	70	75	74	73	69	72	71	72	69	71
Design Value ( $\mu\text{g}/\text{m}^3$ )	25.0	25.8	25.0	20.6	18.0	26.6	30.6	27.9	32.7	34.7
Number of Exceedances (O <sub>3</sub> /PM <sub>2.5</sub> )	-	-	-	-	-	3		5/3	0	1
Shutdown Test *	-	-	-	-	-	-	-	-	-	Fail

\*Shutdown Test: <10% probability that the monitor will exceed 80% of the NAAQS in the next three years

## Monitoring Site Information - Industrial Circle

- AQS ID: 06444001
- Site Name: Industrial Circle
- Pollutants Measured: Ozone, PM2.5, PM10

### Site Description

Monitoring was established in 1990 at the juvenile hall service center and is located on the north side of the property. Area is mostly industrial with a large fiberglass facility about 0.25 miles to the north, a major highway 2 miles to the northwest, significant agricultural operations beginning 1 miles to the south, and a small airport facility 2 miles to the southwest. The Elderberry Dr site is 5 miles to north and the Winston St site is about 17 miles to the west. The Site for the new office is 2.25 miles north.

### Monitoring Site Map



### Data Table

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Design Value (ppb)	70	69	74	70	72	71	68	72	72	71
Design Value ( $\mu\text{g}/\text{m}^3$ )	24.8	36.1	17.4	27.5	35.4	33.4	34.5	33.8	18.0	28.0
Number of Exceedances (O <sub>3</sub> /PM <sub>2.5</sub> )	-	-	-	-	-	3	1	2	0	1
Shutdown Test *	-	-	-	-	-	-	-	-	-	Fail

\*Shutdown Test: <10% probability that the monitor will exceed 80% of the NAAQS in the next three years

## Monitoring Site Information - Elderberry Dr

- AQS ID: 06444005
- Site Name: Elderberry Dr
- Pollutants Measured: Ozone, PM2.5, PM10,

### Site Description

Monitoring was established in 2000 at a county operated yard in an out building and was located on the north west corner of the property. Area is mostly residential with a major highway 6 miles to the west, a major retail shopping center 2 miles to the south. The Winston St site is 1 mile to the west and the industrial circle site is about 4 miles to the south. The Site for the new office is 3 miles south.

### Monitoring Site Map



### Data Table

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Design Value (ppb)	73	69	69	68	73	72	70	68	69	69
Design Value ( $\mu\text{g}/\text{m}^3$ )	24.7	30.3	30.4	30.2	26.5	15.8	25.6	34.4	29.0	26.2
Number of Exceedances ( $\text{O}_3/\text{PM}_{2.5}$ )	-	-	-	-	-	5/3	4/4	3/4	3/3	3/2
Shutdown Test *	-	-	-	-	-	-	-	-	-	Fail

\*Shutdown Test: <10% probability that the monitor will exceed 80% of the NAAQS in the next three years

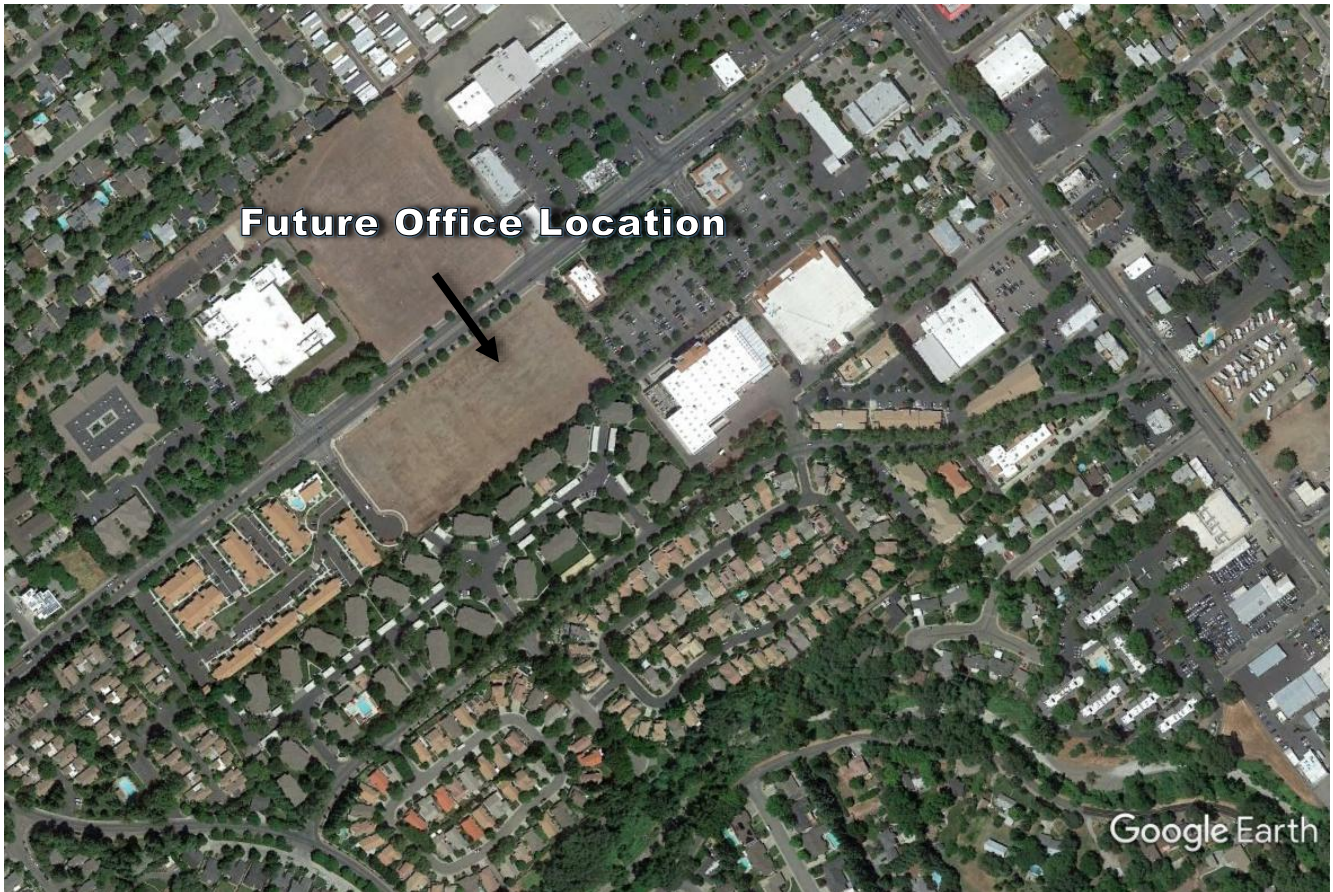
## Monitoring Site Information – Future Office Location

- AQS ID: None
- Site Name: Future office location
- Pollutants Measured: none

## Site Description

No monitoring is currently occurring at this location. Area is mostly residential with a major highway 1 mile to the west, a major retail shopping center 2 miles to the east. The Winston St site is 1 mile to the west and the industrial circle site is about 4 miles to the south. The Site for the new office is 3 miles south.

## Monitoring Site Map



## Data Table

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Design Value (ppb)	-	-	-	-	-	-	-	-	-	-
Design Value ( $\mu\text{g}/\text{m}^3$ )	-	-	-	-	-	-	-	-	-	-
Number of Exceedances (O <sub>3</sub> /PM <sub>2.5</sub> )	-	-	-	-	-	-	-	-	-	-
Shutdown Test *	-	-	-	-	-	-	-	-	-	-

\*Shutdown Test: <10% probability that the monitor will exceed 80% of the NAAQS in the next three years