

AB 617 Community Air Protection Program

Steering Committee Meeting Notes

Perkins Elementary School Cafeteria (1770 Main Street, San Diego 92113)

11/27/18

6:00 pm – 8:00 pm

- Opening Remarks
Jon Adams
- Discussion on monitoring equipment and location (David Shina, David Sodeman)

District Monitoring Agenda

1. Suggest the recommended pollutants & parameters
2. Identify the equipment and labs for analyses
3. List sites researched by the District and those recommended by the committee.
4. Show the costs associated with items 1-2.

Pollutants & Parameters

Volatile Organic Compounds
Diesel Emissions (Black Carbon)
Metals
Wind speed/wind direction (possibly)

Contractor Laboratory

Why a third-party lab?
Laboratory space
Laboratory analyzers, support equipment, and software
Staffing
Meet CARB implementation Date

Volatile Organic Compounds

Compounds and analysis defined by the federal Environmental Protection Agency
The District and State have been sampling for these compounds at various locations throughout the county.

Ideal for historical data, trends, and comparisons

We have in-house knowledge

List of Volatile Organic Compounds

TOXICS-VOCs			
1	1,1,1-trichloroethane	30	cis-1,2-dichloroethene
2	1,1,2,2-tetrachloroethane	31	cis-1,3-dichloropropene
3	1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113)	32	dichlorodifluoromethane (F-12)
4	1,1,2-trichloroethane	33	ethyl acetate
5	1,1-dichloroethane	34	ethyl benzene
6	1,1-dichloroethene	35	hexachloro-1,3-butadiene
7	1,2,4-trichlorobenzene	36	isoprene
8	1,2,4-trimethylbenzene	37	o-xylene
9	1,2-dibromoethane	38	m-xylene
10	1,2-dichloroethane	39	p-xylene
11	1,2-dichloropropane	40	m-dichlorobenzene
12	1,2-dichlorotetrafluoroethane (F-114)	41	methyl methacrylate
13	1,3,5-trimethylbenzene	42	methyl tertiary butyl ether (MTBE)
14	1,3-butadiene	43	methylene chloride (dichloromethane)
15	2-butanone (MEK)	44	naphthalene
16	4-ethyltoluene	45	n-hexane
17	4-methyl-2-pentanone (MIBK)	46	o-dichlorobenzene
18	acetone	47	p-dichlorobenzene
19	acetonitrile	48	styrene
20	acrolein	49	tetrachloroethylene
21	acrylonitrile	50	tetrachloromethane
22	benzene	51	toluene
23	benzyl chloride	52	trans-1,2-dichloroethene
24	bromoform	53	trans-1,3-dichloropropene
25	bromomethane (methyl bromide)	54	trichloroethylene
26	chlorobenzene	55	trichlorofluoromethane (F-11)
27	chloroethane	56	vinyl acetate
28	chloroform	57	vinyl chloride
29	chloromethane		

Volatile Organic Compound Sampler



Volatile Organic Compound Costs per Site

Xontech 901 = \$11,000/unit

Analysis = \$250/analysis

Suggested contractor lab is Atmospheric Analysis Consulting in Ventura, California

Have worked with lab in past with good results

For a sampling frequency of 1 day in 6, the annual cost=\$15,250 (minimum)

Metals

Those Metals that have been defined by the EPA National Toxics program

EPA sampling and analysis procedures are published

The District and CARB have been sampling for these metals at various locations throughout the county

Ideal for historical data, trends, and comparisons

We have in-house knowledge

List of Metals

Antimony

Arsenic

Beryllium

Cadmium

Chromium

Cobalt

Lead

Manganese

Nickel

Selenium

Metals Sampler



Metals Costs per Site

Met One E-Sequential = \$17,000/unit

Sample media= \$20/filter

Analysis = \$181/analysis

Contractor Laboratory= Australian Laboratory Services (ALS) in Kelso, Washington

For a sampling frequency of 1 day in 6, the annual cost=\$11,000 (minimum)

Elemental Carbon Laboratory-based

Elemental Carbon is defined by the analysis process/procedure.

Thermal optical method

The analysis procedure will be the same one that is used by two EPA national programs (Urban and National Parks)

The EPA and CARB have been sampling for Elemental Carbon at two locations in the county District has limited in-house knowledge

Black Carbon Field-based

Black Carbon is defined by the analysis process/procedure

Optical or photo acoustic

The analysis procedure we will use is the one that has been commercially available since the late 1980s.

Continuous black carbon is not currently being measured in County.

The technology was used for a different project in the county that ended ~20+ years ago.

District has limited in-house knowledge

Particulate Monitoring



Carbon Analyses Costs per Site

Elemental Carbon Lab-based:

Met One SuperSASS = \$21,000/unit

Sample media= \$20/filter

Contractor laboratory= \$68/analysis

Desert Research Institute (DRI) in Reno, Nevada

For a sampling frequency of 1 day in 3, the annual cost=\$10,858 (minimum)

Black Carbon Field-based

Met One BC-1054= \$15,000/unit

Support Equipment Costs



SHELTER



DATALOGGER



COMMUNICATION

Support Equipment Costs per Site

Shelter= \$10,000- \$25,000

Using a small parking space footprint (5' x 7'), not including fencing~ \$17,000/unit

Data logger= \$10,000/unit

Modem/communication= \$100/month

Electrical= \$200/month (estimate)

Fencing/moving/miscellaneous= \$1,200/move

Summary of costs

Equipment	Elemental Carbon-filter	Black Carbon-continuous	Data Loggers	Gas sampler	Metals sampler	Shelter	Enclosure Installation	Electrical Installation	Total
	per unit	per unit	per unit	per unit	per unit	per unit	estimate	estimate	
10 AB-617 sites	\$21,000	\$15,000	\$10,000	\$11,000	\$17,000	\$17,000	\$1,200	\$1,200	\$935,200
Sherman	\$21,000	\$15,000	n/a	n/a	\$17,000	n/a	n/a	n/a	\$53,000

Note A: 1 car/5 sites will be needed (~\$35,000/car)

Note B: At least one spare for each suite of equipment will need to be purchased (not including the shelter)

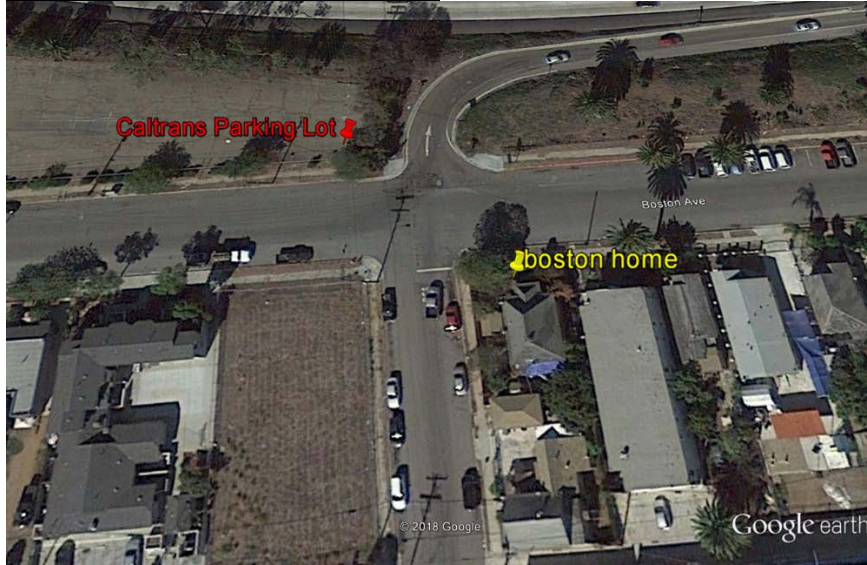
Annual Costs

	Elemental Carbon Lab Analysis	Lab Gaseous Analysis	Metals Lab Analysis	Monthly Electrical	Camera	Total
Frequency	1:3 days	1:6 days	1:6 days	estimate	estimate	
10 AB-617 sites	\$10,858	\$15,250	\$11,000	\$200	\$20,000	\$573,080
Sherman	\$10,858	n/a	n/a	n/a	\$20,000	\$30,858

Non-School Sites

Home, 29 th and Boston	I-5 on-ramp proximity= location good, but footprint too small.
Caltrans lot at 29th & Boston	Large footprint, power and security.
Chicano Park 1-Senior Center	Under construction
Chicano Park 2-Handball courts	One area between courts= small footprint, unknown power capability; will have to bore into cement for fence posts
Chicano Park 3-Gazebo area	One area by gazebo= would be obtrusive to accommodate the large footprint needed; Mercado biz area better (more bridge span coverage)
Chicano Park 4-by Mercado Biz	Several areas; best under bridge in Mercado biz parking lot
Chicano Park 5- Mercado Homes	Tight accommodations. Caltrans right next door.
Chicano Park 6-Cesar Chavez Parkway - near Interstate 5	Area is 1.5 blocks upwind (Chavez Campus) and it abuts Chicano Park; nearby power
Chicano Park 7-Caltrans yard	Large footprint, power and security. Also, large section of the bridge span is covered
SA Recycling	May need Caltrans property; power may be cost prohibitive?
Home in Logan Heights	Small footprint. Downwind is a community center type area-better?
Praxair	Dumpster area in alley; needs a long lead time for power drop

Caltrans Parking Lot vs. Home



Chicano Park Area



Chicano Park Area (Senior Center)



Chicano Park Area (Courts)



Chicano Park Area (Gazebo)



Chicano Park Area (Mercado Biz)



Chicano Park Area (Caltrans)



Recycling Center



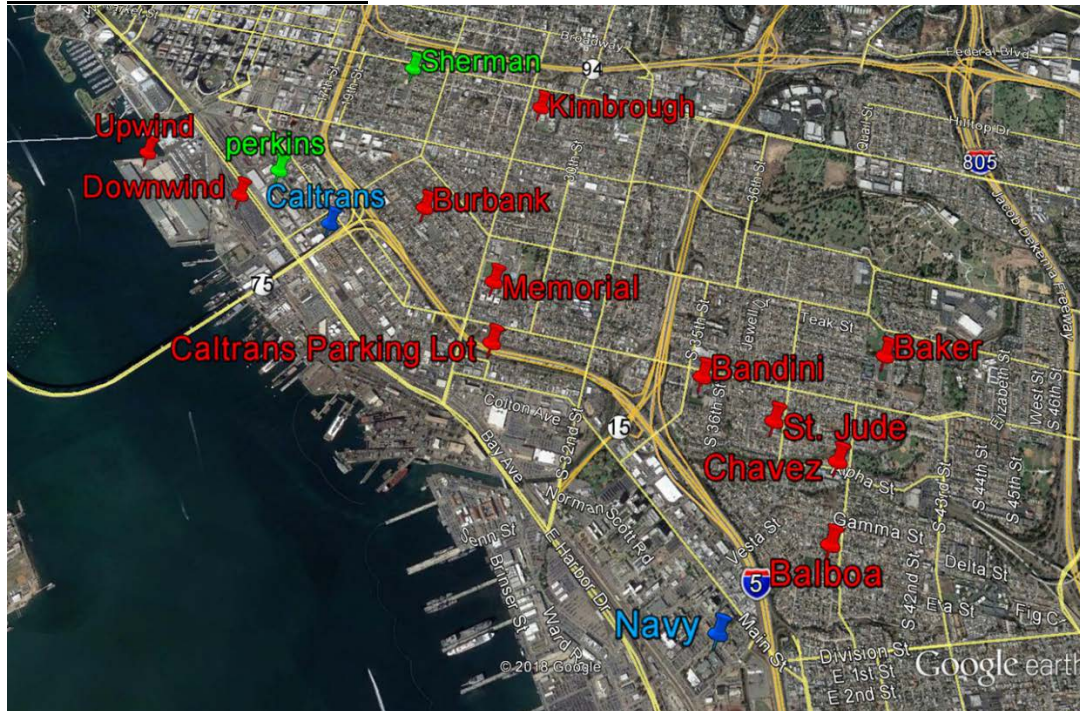
Other Sites in Northern Portside

Logan Heights K-8 School	Limited space; Memorial JHS & Boys and Girls Club have more usable locations
Memorial Scholars & Athletes	Big campus; good siting possibilities
Emerson/Bandini Elementary	Good siting possibilities; possible power sources
Balboa Elementary School	Decent siting possibilities; possible power sources
Baker Elementary School	Good siting possibilities; possible power sources
Caesar Chavez Elementary School	SDUSD notified of our interest
St. Jude Academy 128	Good siting possibilities; possible power sources
Kimbrough Head Start	Excellent siting possibilities; possible power sources
Burbank School	Good siting possibilities; possible power sources
Perkins Elementary	Former permanent location; parking issues in the past
Sherman Heights School	Permanent location
Mercado Head Start Center	Severe space limitations. Power accessibility unknown.
Barrio Logan Child Development	No room. By VFW (slight possibility there)
Fire Station(s)	No room
Site on or near Navy housing	Run by private entity; perhaps near the medical center

Schools Northern Portside



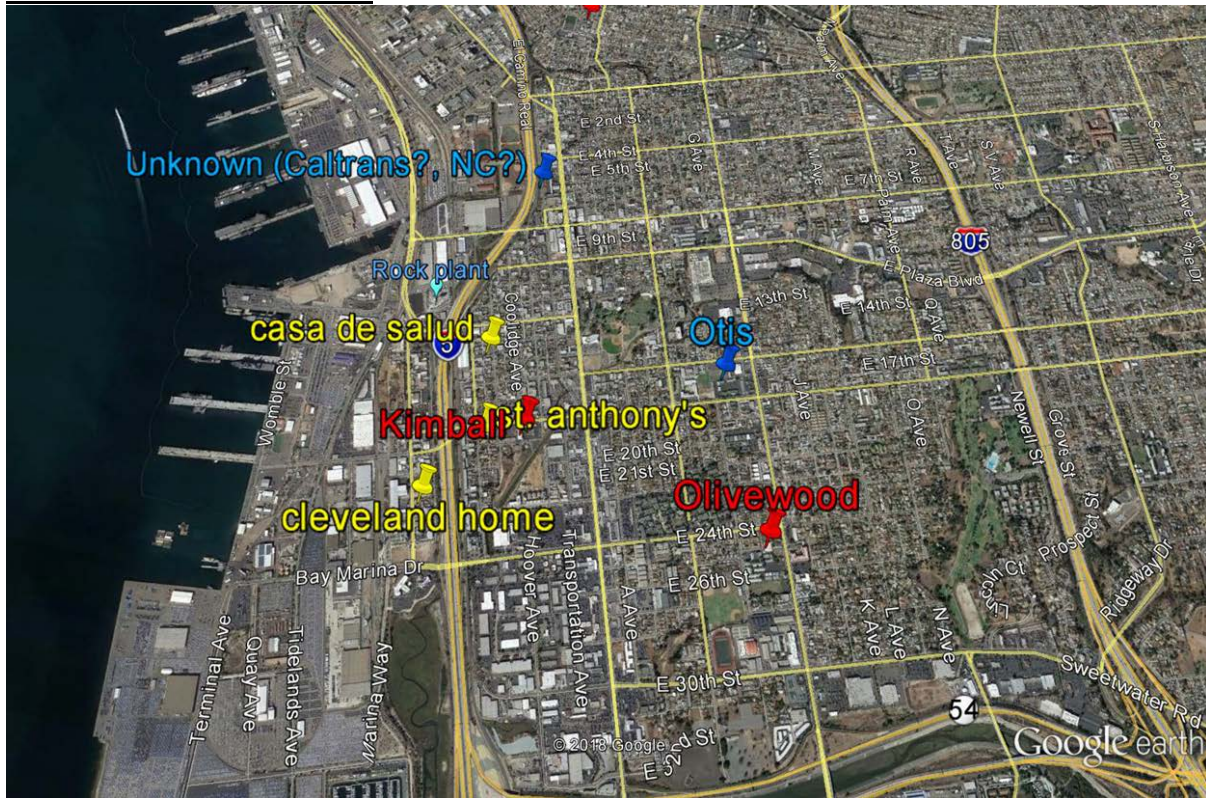
Overall Northern Portside



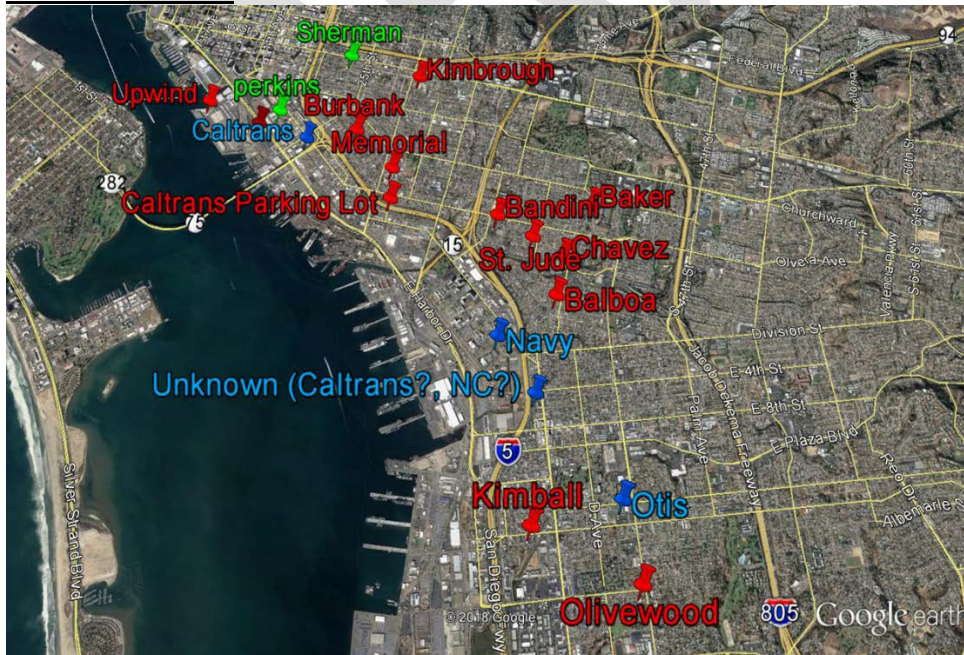
Summary of Sites in National City

5th and Roosevelt	Countless homes 2 blocks downwind & observed several trucks along Roos.
Kimball Elementary	Excellent site with power. Welding business nearby
Godschalk home on Cleveland Avenue	smallish footprint (one sampler?); Kimball School better
Auto body shops	Need input from steering committee
Casa de Salud	No room
Otis Middle & Elementary School	Large footprint for a full station, but outside of area(?)
Saint Anthony's Church	Kimball School better site & across the street
Olivewood Elementary School	Excellent site with power. Welding school nearby

Southern Portside Overall



Portside Overall



Contact Information

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Question – What is the difference between black carbon and elemental carbon?

Answer – The names have been used interchangeably but the main difference are how the samples are measured. Optical methods are used to determine Black carbon, whereas thermal methods are used to determine the same chemical entity as Elemental Carbon.

Question – Would the data collected as either black carbon or elemental carbon be used differently? If not, why measure both?

Answer – No, but you measure for both because you get a more complete picture of the emissions because we can get hourly data points for black carbon and daily (24-hr integrated sample) data points for elemental carbon.

Question – What size of the particle will the instruments measure for (PM₁₀ vs PM_{2.5})?

Answer – The instruments can measure for whichever size programmed for but we recommend measuring for PM_{2.5}.

Question – Will you be able to speciate the carbon?

Answer – Yes, we have done this before and will be able to for AB 617 monitoring.

Question – Is there a bidding process we can go through for the monitoring equipment and lab analysis?

Answer – The companies that make the equipment and analyze the samples are very limited. For Carbon there are only 1 or 2 companies in the U.S. who provide the service. Our recommended companies are those we have worked with in the past or are highly respected in the industry.

Question – Are using outside labs cheaper than the District analyzing the samples?

Answer – Yes, the District does not have the laboratory space, all of the needed analyzers nor support equipment or the staff to handle the increased work load. Also, we would not be able to meet the CARB implementation date if we had to hire and train new staff.

Question – Why can't we monitor at the Senior Center?

Answer – It is currently under construction and it is near to the smallest part of the bridge span.

Question – We want to capture emissions from the bridge span and not I5?

Answer – We want to capture emissions from both but the monitor in question would be placed

to capture emissions from the Coronado Bridge. Other monitor locations would capture the emissions from I5.

Question – What should be the height of the monitors?

Answer – The preferred height would not have any obstructions like trees or buildings in the way but some of these locations will not meet perfectly with the EPA siting guidelines.

Question – Could we place a monitor on top of the gazebo or restrooms?

Answer – We could but we would need constant access and power and we believe we have a better location at the Mercado parking lot.

Question – Would the area next to the Caltrans building get a representative sampling of air pollution in the area?

Answer – Yes, this is our preferred location.

Question – Can we monitor at NAASCO?

Answer – We have discussed the possibility but access would be a concern and fence line monitoring would also monitor emissions blowing east from the shipyard and bay.

Question – Can we view the historical emissions inventory data from stationary sources?

Answer – Yes, all the data can be viewed through the EPA air database or we can provide you the information.

Question – Can we see the data to determine any trends?

Answer – Yes, you can view all the raw data and we are currently in the process of graphing the data to show trends.

Question – You keep referring to “upwind” and “downwind” but what specifically are we trying to measure?

Answer – When we have upwind and downwind measurements from sources (Port District, I5, Stationary sources) we can better determine what emissions come from those sources by subtracting out the levels of pollution in the air prior to reaching those sources.

Question –The curvature of the Bay would seem to change the sources of air blowing in from the water (West to East). How could one monitor measure the pollution coming from different areas?

Answer – Agreed, there are varied wind patterns in the San Diego Bay and that is why our plan would be to place monitors throughout the Community of Portside Neighborhoods (North to South) to measure air pollution at varied points within the community.

Statement – I would like to recommend the National City Historic Train Depot as a possible monitoring location.

Answer – We will look into that location.

- Source Apportionment- what is it; why use it; how does it work (CARB)

Outline

Overview of Source Attribution

Statutory requirement

What are sources and source categories?

How does source attribution work?

How can it help meet the goals of AB 617 community monitoring?

Methodologies for performing community-scale source attribution

AB 617 Source Attribution Requirement

“A methodology for assessing and identifying the contributing sources or categories of sources, including, but not limited to, stationary and mobile sources, and an estimate of their relative contribution to elevated exposure to air pollution in impacted communities...”

Sources and Source Categories

Source Category	Examples of Source Type
Stationary	Boilers, diesel engines, mineral processing facilities, paint/coating operations, chrome platers
Area-wide	Consumer products (hairspray, cleaning supplies), cooking, asphalt paving
Mobile (on-road)	Cars, trucks
Mobile (off-road)	Locomotives, ocean-going vessels, cranes, bulldozers, cargo-handling equipment

What is Source Attribution?

Identification of sources or categories of sources contributing to community-scale air pollution

Allows us to estimate the relative contribution of each category of emissions sources to the elevated air quality burden

Meteorological Measurements

Air Quality Measurements

PM and its constituents, metals (Cr, Ni, Mn, Fe), Ions (sulfate, nitrate, etc.), elemental & organic carbon (EC/OC), organic compounds (Benzene, 1,3-Butadiene), volatile organic compounds (VOCs)

Types of Source Attribution

Source-Oriented Approaches

Emissions inventory/ratios

Air quality modeling

Receptor-Oriented approaches

Chemical mass balance (CMB)

- Requires “fingerprint” of each source

Positive matrix factorization (PMF)

- Requires a lot of sampling data

Back-trajectory/inverse modeling

Pollution roses

Monitoring Plan Considerations

Monitoring to inform source attribution

What monitoring and/or meteorological data will be required to best utilize the recommended source attribution tools?

Monitoring Data

Pollutants of concern (community knowledge; emissions inventories)

Number of monitoring stations (community size; number of sources; budget)

Location of stations (source and sensitive receptor locations; power needs)

Duration of monitoring (seasonal variation; number of samples)

Meteorological data

Wind speed/direction, atmospheric pressure, temperature, relative humidity

Number/location of monitoring stations (representative of local conditions)

Summary

Source attribution can identify sources or source categories contributing to the air quality burden in a community.

Approaches can be source-oriented (inventory ratios, air quality modeling) or receptor-oriented (CMB & PMF).

Monitoring and source attribution processes are iterative, constantly improving with new, more precise data and methodologies.

Results may be used to identify locations of concern within community.

Results may help focus monitoring on specific source types and/or facilities.

Question – What data is needed in San Diego to have emissions reductions as part of our AB617 plan (not only monitoring)?

Answer – The data SDAPCD has been collecting has been on a regional scale. The data we will collect from the Community Air Protection Program (AB 617) monitors will give us neighborhood specific data and we will be able to more accurately determine the source types of emissions (stationary, mobile, area).

Question – Once we have data showing which source type the emissions are coming from how will this help us?

Answer – By knowing the source type of emissions we can focus our efforts for emissions reductions (rules or incentive programs).

Question- Why is the data the District has been collecting not good enough to move into the emissions reductions portion of the program?

Answer - The Community Air Protection Program (AB 617) monitors will give us neighborhood specific data and we will be able to more accurately determine the source types of emissions (stationary, mobile, area). It will build upon existing data and be more precise.

Question – How specific will the data be? Will we know on the facility level?

Answer – We will be able to identify source categories but not specific facilities within that source category.

Question – Will we be able to differentiate diesel emissions from ships, trucks or planes?

Answer – We will not be able to differentiate from the samples but based upon which monitor the samples are taken from and what sources are upwind we can get an idea.

Statement – I believe it's very important to get this local neighborhood data and be able to differentiate the types of sources which are most polluting to our neighborhoods so we can be more informed when the next update to the community plan occurs.

- Presentation by Aclima on Mobile Monitoring

Question – Is your technology certified?

Answer – It is not currently certified as reference equipment as this is a long process but we are currently working on gaining this equivalency. We have gone through a series of data validation steps while working with Google so we are confident in our data.

Question – Has there been any decision on using Aclima technology in the Community of Portside Neighborhoods?

Answer – No, this presentation was only to introduce the technology and we plan on talking more during the next steering committee about this or any other technologies which can help us in our efforts.

- Approval of 10/25/18 Steering Committee Meeting Notes
There were no objections or changes requested.

- Steering Committee Member Make Up and Charter (Jon Adams)

Question - Is there any objection to adding SDG&E to the Steering Committee knowing that if we do, we will need to add a community member to keep the majority of the committee as community members.

Answer – there was no objection to adding SDG&E to the committee.

- Public Comment Period
No member from the public provided any comments.

- Closing Remarks

A request was made to change the date of the next meeting from 12/18 to 12/17. The District will check with Perkins Elementary to see if it is possible.

Next scheduled meeting is 12/18/18 or 12/17/18 at Perkins Elementary School Cafeteria (1770 Main Street, San Diego, 92113 from 6:00 pm – 8:00 pm)