State of Hawaii 2009 Air Monitoring Network Plan

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Appendix A: Public Notice Documentation
Appendix B: State of Hawaii 2005 Emissions Inventory
Appendix C: State of Hawaii NCore Monitoring Plan

Acronyms and Abbreviations

BAM	Beta-Attenuation Mass Monitor
CFR	Code of Federal Regulations
CO	Carbon Monoxide
FRM	Federal Reference Method
H_2S	Hydrogen Sulfide gas
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NCore	National Core Multipollutant Monitoring Stations
NO_2	Nitrogen Dioxide
O_3	Ozone
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in aerodynamic diameter
PM_{10}	Particulate matter less than or equal to 10 microns in aerodynamic diameter
PPM	Parts per million
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulfur dioxide
SPM	Special Purpose Monitors
TEOM	Tapered Element Oscillating Microbalance
TSP	Total suspended particulates
WD	Wind direction
WS	Wind speed
$\mu g/m^3$	micrograms per cubic meter of air

Introduction

This annual review evaluates the state's existing ambient air monitoring network to determine adequacy in meeting monitoring objectives, optimize the network by closing, moving or adding stations, and ensure that air quality issues important to the state are being addressed. This plan is being submitted to the United States Environmental Protection Agency (EPA) according to 40 CFR Part 58, Subpart B.

Notification of the plan availability for public inspection was provided through public notices published on May 11, 2009 in the daily newspapers of all counties. The plan was available for review at all county District Health offices as well as on the Clean Air Branch website (http://hawaii.gov/health/environmental/air/cab/index.html) for 30 days from May 11, 2009 to June 9, 2009. Documentation of public notification and comments received is provided in **Appendix A**.

Section 1
Network Design

1.1 Network Overview

The current ambient air monitoring network consists of 7 SLAMS and 6 SPM stations. The SPM stations are all on the Island of Hawaii to monitor emissions from the continuing eruption of the Kilauea volcano and emissions from the geothermal energy plant. There is one station on the island of Maui to monitor the effects of cane-burning and the rest of the SLAMS stations are in the Honolulu MSA, where the majority of the population live and work.

Table 1-1 provides the street address, where available, as well as the latitude and longitude of each station in the network. **Table 1-2** is a summary of the current monitoring network and details the type, pollutants monitored, monitoring objective and spatial scale of each station. **Table 1-3** lists the sampling method and operating schedule of each pollutant monitored.

The state's ambient air monitoring network meets, and for some pollutants, exceeds the minimum monitoring requirements for all criteria pollutants pursuant to 40 CFR 58 Appendix D. According to the U.S. Census Bureau, the state of Hawaii has one Metropolitan Statistical Area (MSA), located in the City and County of Honolulu with a census year 2000 population of 876,156. **Tables 1-4, 1-5 and 1-6** show the state's compliance with the minimum monitoring requirements for PM_{10}, $PM_{2.5}$, and O_3, respectively.

Table 1-7 summarizes the type and number of stations in the network by pollutant.

Figure 1-1 is a map showing the locations of the current stations.

Table 1-1. Station Location

ID	AQS Code	Street Address	Latitude	Longitude
OAHU				
DH1	150031001	1250 Punchbowl St., Honolulu, Oahu	21°18'27.27"N	157°51'19.52"W
KA5	150030010	2052 Lauwiliwili St., Kapolei, Oahu	21°19'25.48"N	158°05'19.01"W
MA4	150031006	92-670 Farrington Hwy., Kapolei, Oahu	21°20'39.36"N	158°06'46.68"W
PC3	150032004	860 4th St., Pearl City, Oahu	21°23'34.20"N	157°58'08.85"W
SI2	150031004	1039 Sand Island Pkwy., Honolulu, Oahu	21°18.13.82"N	157°52'16.22"W
WB6	150030011	Ko'Olina Golf Course, Kapolei, Oahu	21°19'57.87"N	158°06'50.87"W
MAUI				
KH19	150090006	Hale Piilani Park, Kihei	20°46'51.59"N	156°26'46.94"W
HAWAII				
HL11	150011006	1099 Waianuenue Ave., Hilo	19°43'03.32"N	155°06'37.91"W
KN12	150011012	81-1043 Konawaena School Rd., Kona	19°30'35.2"N	155°54'48.3"W
MV17	150012017	17-860 Volcano Rd., Mt. View	19°34'11.58"N	155°04'39.84"W
PA16	150012016	96-3150 Pikake St., Pahala	19°12'14.04"N	155°28'48.66"W
PE10	150012010	13-763 Leilani Ave., Puna	19°27'50.36"N	154°53'55.34"W
PH15	None	TMK 1-3-46-75, Puna	19°28'18.6"N	154°53'20.5"W

Table 1-2. Description of the Current State of Hawaii Air Monitoring Network

#	ID	LOCATION	MET	POLLUTANT	TYPE	SITE	SPATIAL SCALE/ OBJECTIVE	START DATE
1	**DH1** **150031001**	**Honolulu** 1250 Punchbowl St. Honolulu, HI	WS WD	CO SO_2 PM_{10} (TEOM) $PM_{2.5}$ (BAM) *$PM_{2.5}$ (FRM)* *$PM_{2.5}$ (co-loc)*	Continuous Continuous Continuous Continuous *1 in 3 days* *1 in 6 days*	SLAMS SLAMS SLAMS SLAMS *SLAMS*	Neighborhood; max Neighborhood; pop Neighborhood; pop Neighborhood; pop *Neighborhood; pop* *Co-located monitor*	1/72 1/72 2/92 4/1/09 *1/99 – 3/31/09* *1/99 – 3/31/09*
2	**KA5** **150030010**	**Kapolei** 2052 Lauwiliwili St Kapolei, HI	WS WD °F	CO SO_2 NO_2 PM_{10} (BAM) *PM_{10} (TEOM)* $PM_{2.5}$ (BAM) *$PM_{2.5}$ (FRM)*	Continuous Continuous Continuous Continuous *Continuous* Continuous *1 in 3 days*	SLAMS SLAMS SLAMS SLAMS *SLAMS* SLAMS *SLAMS*	Neighborhood; pop Neighborhood; pop Neighborhood; pop Neighborhood; pop *Neighborhood; pop* Neighborhood; pop *Neighborhood; pop*	7/29/02 7/29/02 7/29/02 12/18/08 *7/29/02-12/17/08* 1/1/09 *7/29/02-12/31/08*
3	**MA4** **150031006**	**Makaiwa** 92-670 Farrington Hwy Kapolei, HI	WS WD	SO_2	Continuous	SLAMS	Neighborhood; source	7/89
4	**PC3** **150032004**	**Pearl City** 860 4th St. Pearl City, HI	WS WD	PM_{10} (BAM) *PM_{10} (TEOM)* $PM_{2.5}$ (BAM) *$PM_{2.5}$ (FRM)* *$PM_{2.5}$ (FRM) *$PM_{2.5}$ (FRM) $PM_{2.5}$ Spec. Air Toxics	Continuous *Continuous* Continuous *1 in 3 days* 1 in 6 days 1 in 12 days 1 in 6 days 1 in 6 days	SLAMS *SLAMS* SLAMS *SLAMS* SPM SPM	Neighborhood; pop. *Neighborhood; pop* Neighborhood; pop. *Neighborhood; pop.* Co-located monitor Co-located monitor	9/29/07 *2/94-9/28/07* 1/10/09 *1/99 – 1/9/09* 1/99 4/1/09 1/3/03 1/02
5	**SI2** **150031004**	**Sand Island** 1039 Sand Island Pkwy Honolulu, HI	WS WD °F	O_3 $PM_{2.5}$ (BAM) *$PM_{2.5}$ (FRM)*	Continuous Continuous *1 in 6 days*	SLAMS SLAMS *SLAMS*	Urban; maximum Urban; transport *Urban; transport*	2/81 1/1/09 *10/1/99 – 12/31/08*
6	**WB6** **150030011**	**West Beach** Ko'Olina Golf Course TMK (1) 9-1-14:27 Kapolei, HI	WS WD °F	SO_2 NO_2 PM_{10} (BAM) *PM_{10} (FRM)*	Continuous Continuous Continuous *1 in 6 days*	SLAMS SLAMS SLAMS *SLAMS*	Neighborhood; source Neighborhood; source Neighborhood; source *Neighborhood; source*	2/91 11/92 1/1/09 *2/91 – 12/31/08*
7	**KH19** **150090006**	**Kihei** Hale Piilani Park TMK (2)-3-9-4-28 Kihei, HI	WS WD	*PM_{10} (TEOM)* $PM_{2.5}$ (BAM) *$PM_{2.5}$ (FRM)*	*Continuous* Continuous *1 in 6 day*	*SPM* SLAMS *SLAMS*	*Neighborhood; source* Neighborhood; source *Neighborhood; source*	*1/28/99 – 12/31/08* 12/1/08 *2/99 –11/30/08*
8	**HL11** **150011006**	**Hilo** 1099 Waianuenue Ave Hilo, HI	WS WD °F	SO_2 $PM_{2.5}$	Continuous Continuous	SLAMS SPM	Neighborhood; pop. Neighborhood; pop.	1/97 5/1/08
9	**KN12** **150011012**	**Kona** 81-1043 Konawaena School Rd. Kona, HI	WS WD °F	SO_2 $PM_{2.5}$ (BAM) $PM_{2.5}$ (FRM)	Continuous Continuous 1 in 12 days	SLAMS SPM	Neighborhood; source Neighborhood; source Special CDC study	9/05 3/15/08 2/6/09 -
10	**MV17** **150012017**	**Mountain View** 17-860 Volcano Rd. Mt. View, HI 96771	WS WD	SO_2 $PM_{2.5}$ (BAM)	Continuous Continuous	SPM SPM	Neighborhood; source Neighborhood; source	12/4/07 4/11/08
11	**PA16** **150012016**	**Pahala** 96-3150 Pikake St., Pahala, HI 96777	WS WD	SO_2 $PM_{2.5}$ (BAM)	Continuous Continuous	SPM SPM	Neighborhood; source Neighborhood; source	8/10/07 4/11/08
12	**PE10** **150012010**	**Puna E** 13-763 Leilani Ave. Pahoa, HI	WS WD °F	H_2S SO_2	Continuous Continuous	SPM SPM	Neighborhood; source Neighborhood; source	3/91 2/16/05
13	**PH15** **None**	**Puna H** TMK (3)-1-3-46-75 Pahoa, HI	WS WD °F	H_2S	Continuous	SPM	Neighborhood; source	11/02

Table 1-3. Pollutant Sampling Method and Operating Schedule

ID	PM_{10} Continuous Sampler	$PM_{2.5}$ Continuous BAM[2]	CO Continuous Gas Filter Correlation	NO_2 Continuous Chemi-luminescence	SO_2 Continuous Pulsed Fluorescence	O_3 Continuous UV Photometric	H_2S Continuous Pulsed Fluorescence
DH1	TEOM[1]	●	●		●		
KA5	BAM	●	●	●	●		
MA4					●		
PC3	BAM	●					
SI2		●				●	
WB6	BAM			●	●		
KH19		●					
HL11		●			●		
KN12		●			●		
MV17		●			●		
PA16		●			●		
PE10					●		●
PH15							●

[1]Tapered Element Oscillating Microbalance®; federal equivalent method

[2] Beta-Attenuation Mass Monitor; federal equivalent method

Table 1-4. PM_{10} Minimum Monitoring Requirements for the MSA

MSA Population Category (40 CFR 58 Appendix D Table D-4)	High Concentration ≥120% of NAAQS (≥180 µg/m^3)	Medium Concentration >80% of NAAQS (>120 µg/m^3)	Low Concentration <80% of NAAQS (<120 µg/m^3)
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	**1-2**
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

MSA	2000 Census Population	Maximum Design Value 2005 – 2007	Minimum No. of Monitors Required	Number of Active Monitors in the MSA	Number of Monitors Needed
Honolulu	876,156	113 µg/m^3	1-2	4	0

Table 1-5. $PM_{2.5}$ Minimum Monitoring Requirements for the MSA

MSA Population Category (40 CFR 58 Appendix D Table D-5)	Most recent 3-year Design Value ≥85% of any $PM_{2.5}$ NAAQS (≥29.8 µg/m^3 for 24-hr standard; ≥12.8 µg/m^3 for annual standard)	Most recent 3-year Design Value <85% of any $PM_{2.5}$ NAAQS (<29.8 µg/m^3 for 24-hour standard; <12.8 µg/m^3 for annual standard)
>1,000,000	3	2
500,000-1,000,000	2	**1**
250,000-500,000	1	0

MSA	2000 Census Population	Maximum Annual Design Value 2005 – 2007	Maximum Daily Design Value 2005-2007	Minimum No. of Monitors Required	Number of Active Monitors in the MSA	Number of Monitors Needed
Honolulu	876,156	4.9 µg/m^3	10.1 µg/m^3	1	4	0

Table 1-6. O_3 Minimum Monitoring Requirements for the MSA

MSA Population Category (40 CFR 58 Appendix D Table D-2)	Most recent 3-year design value ≥85% of any O_3 NAAQS (≥0.064 ppm, new 8-hr standard)	Most recent 3-year design value <85% of any O_3 NAAQS (<0.064 ppm, new 8-hr standard)
>10 million	4	2
4-10 million	3	1
350,000-<4 million	2	**1**
50,000-<350,000	1	0

MSA	2000 Census Population	Maximum Design Value 2005 – 2007	Minimum No. of Monitors Required	Number of Active Monitors in the MSA	Number of Monitors Needed
Honolulu	876,156	0.042 ppm	1	1	0

There are no minimum monitoring requirements for CO, SO_2, NO_2, and Pb.

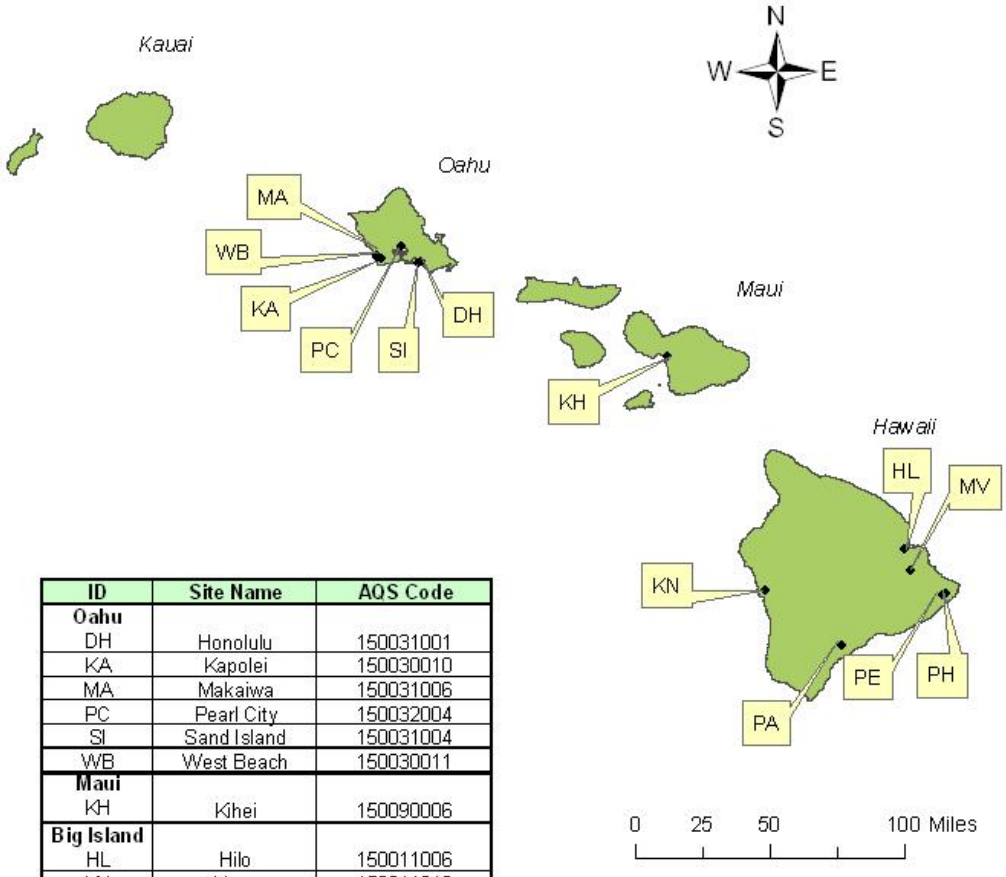
Table 1-7. Summary of Number of Stations by Pollutant or Program

Pollutant or Program	No. of SLAMS Stations	No. of SPM Stations	Total No. in MSA	Total No. in State
CO	2	-	2	2
NO_2	2	-	2	2
SO_2	6	3	4	9
O_3	1	-	1	1
PM_{10}	4	-	4	4
$PM_{2.5}$	5	4	4	9
Pb	-	1[1]	1	1
Air Toxics	-	1	1	1
$PM_{2.5}$ Speciation	-	1	1	1
H_2S	-	2[2]	0	2

[1] Pb is no longer required by EPA to be monitored in the state of Hawaii, however, it is being monitored as part of the Air Toxics program

[2] H_2S is not a federal criteria pollutant and is being monitored because of geothermal energy production on the Island of Hawaii

Figure 1-1
2009-2010 State of Hawaii Ambient Air Monitoring Network



ID	Site Name	AQS Code
Oahu		
DH	Honolulu	150031001
KA	Kapolei	150030010
MA	Makaiwa	150031006
PC	Pearl City	150032004
SI	Sand Island	150031004
WB	West Beach	150030011
Maui		
KH	Kihei	150090006
Big Island		
HL	Hilo	150011006
KN	Kona	150011012
PE	Puna E	150012010
PH	Puna H	None
MV	Mountain View	150012017
PA	Pahala	150012016

Section 2
Network Review and Modifications

2.1 Recent and Proposed Modifications to the Network

2.1.a Station Additions

1. Monitoring of volcanic emissions on the island of Hawaii continues to be a priority for the state.

   The Kilauea volcano on the island of Hawaii is the single largest emission source in the state, producing more than 2,000 tons of SO_2 per day. Since the second vent at Halema'uma'u opened in early 2008, the SO_2 emissions from the park have been as high as 9,000 tons per day. The criteria pollutants of concern are SO_2 and $PM_{2.5}$ depending on the wind direction and distance from the vents.

   In 2009-2010, the state plans to install two new SPM stations on the island of Hawaii to monitor for SO_2 and $PM_{2.5}$. One station is being established at the Orchid Parkway fire station in Hawaiian Ocean View Estates (HOVE). HOVE is a residential and agricultural community with a population of approximately 9,000 and is downwind of the Pu'u O'o and Halema'uma'u volcanic vents during prevailing wind conditions. This site was selected in part because preliminary monitoring using Area Rae instruments showed occasional periods of very high SO_2 concentrations.

   The second new station will most likely be on the northwestern side of the island. Although there are several stations monitoring volcanic emissions during prevailing wind conditions, there are no stations to monitor the impact on the northern side of the island when the winds come from the southerly direction. During the winter season when cold fronts pass through the islands, the winds shift from the normal northeasterly direction, to the southerly or southeasterly direction. This often brings the vog, or volcanic haze, to communities on the northern end of the island. Tentative plans are to site a station in or around the Waikoloa area or in north Kona.

   Figure 2-1 is a map showing the current stations, the location of the HOVE station, and the possible location of the second new station on the northwestern side of the island.

2. Monitoring of cruise ship emissions on the island of Kauai

   The state is proceeding with establishing one SPM station on the island of Kauai to monitor SO_2 and $PM_{2.5}$ from cruise ship emissions. Cruise ships dock in Nawiliwili Harbor in Lihue and prevailing winds carry emissions on-shore into nearby communities. Although initial plans are to monitor for these two pollutants, other pollutants may be added later.

   A site has been selected in the residential community of Niumalu, which is less than one mile upwind of the harbor (**Figure 2-2**).. The lease and necessary permits are being obtained and the trailer and equipment have been purchased. The site is expected to be operating within the next 18 months.

Figure 2-1. Proposed New Monitoring Stations on the Island of Hawaii

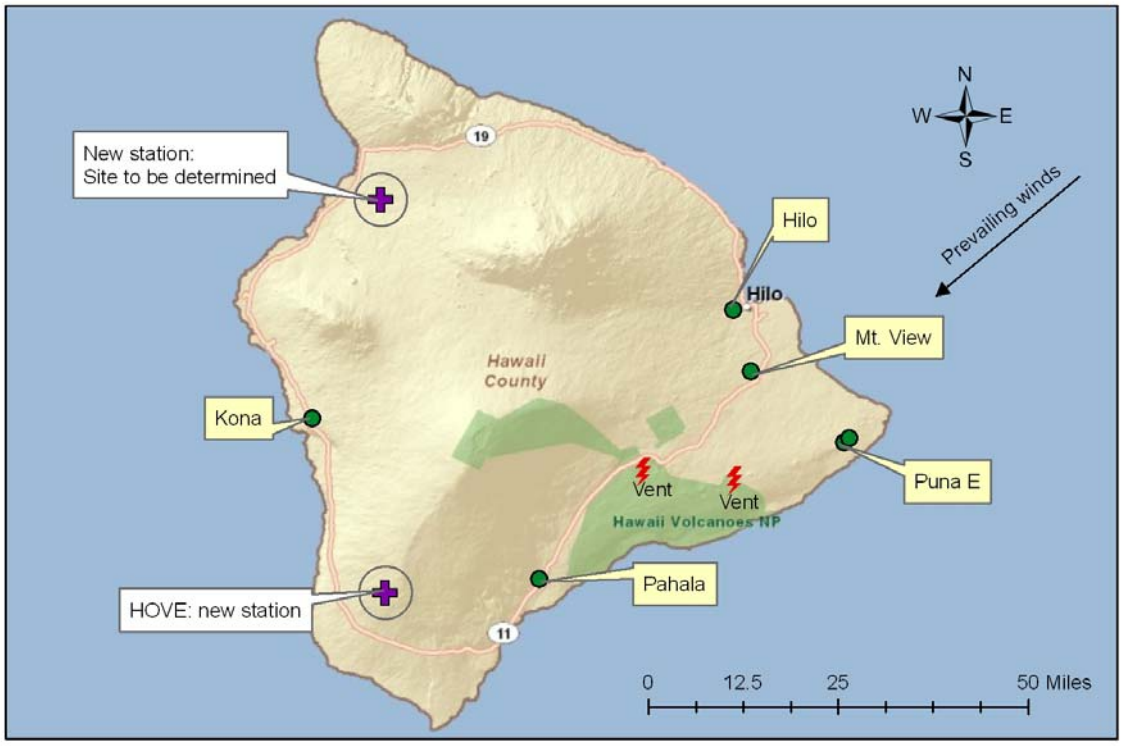


Figure 2-2. Kauai Monitoring Station

2.1.b Station Closures

1. Closure of the SLAMS Makaiwa Air Monitoring Station MA4 (1500301006)

   With EPA concurrence, the state is planning to close the Makaiwa station in 2009. The purpose of this SLAMS station is to measure SO_2 impacts from Campbell Industrial Park and Hawaiian Electric Company's Kahe Generating Station. Closure of the station meets the discontinuance criteria set forth in 40 CFR 58 as follows:

   - As illustrated in **Figures 2-3 through 2-6** and **Tables 2-1 and 2-2**, data from the most recent five years is less than 10% of the health and welfare SO_2 NAAQS and does not support the objective of this site;
   - There are two other multi-pollutant monitoring stations in close proximity to Makaiwa that can provide needed data. The West Beach station is located less than one mile to the southwest and Kapolei is located approximately two miles to the southeast of Makaiwa;
   - Reallocation of resources is needed to fulfill the state's priority monitoring objectives; and,
   - A major subdivision development is planned for the area where the monitoring station is located. Pending permit approvals, the Makaiwa Hills subdivision is scheduled to begin sometime in 2009 and the 1,781 acre project includes the land where the station is currently situated.

Figure 2-3

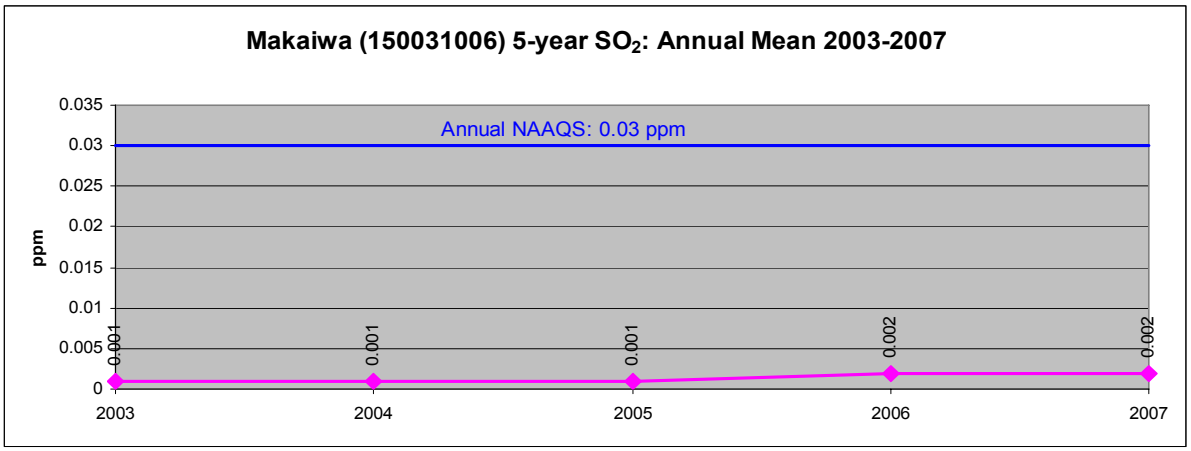


Figure 2-4

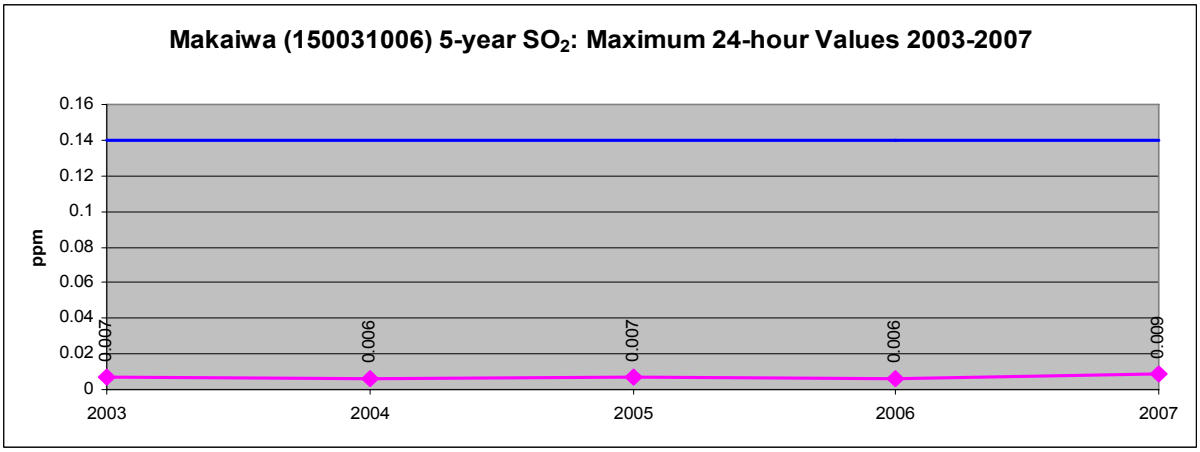


Figure 2-5

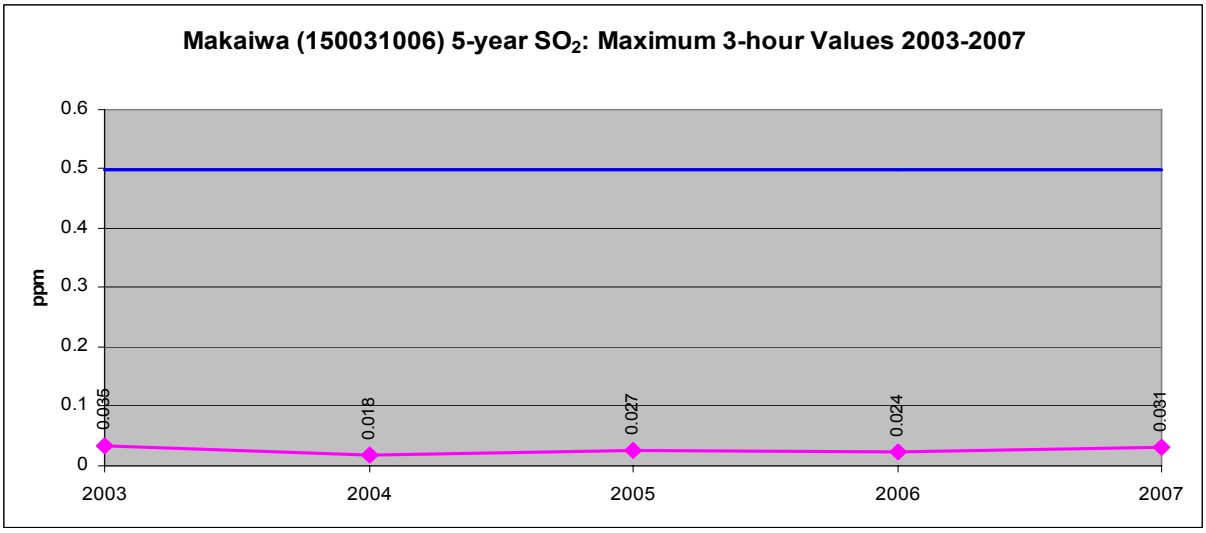


Table 2-1. Makaiwa (150031006) 5-Year SO_2 Statistics

Annual Mean Statistics					
	2003	**2004**	**2005**	**2006**	**2007**
Annual Mean	0.001	0.001	0.001	0.002	0.002
Percent of NAAQS	3%	3%	3%	7%	7%
Completeness	97%	98%	98%	99%	99%
Maximum 24-hour Statistics					
	2003	**2004**	**2005**	**2006**	**2007**
Max. 24-hr value	0.007	0.006	0.007	0.006	0.009
Percent of NAAQS	5%	4%	5%	4%	6%
Completeness	98%	97%	98%	99%	99%
Maximum 3-hour Statistics					
	2003	**2004**	**2005**	**2006**	**2007**
Max. 3-hr value	0.035	0.018	0.027	0.024	0.031
Percent of NAAQS	7%	4%	5%	5%	6%
Completeness	96%	97%	97%	98%	98%

Figure 2-6

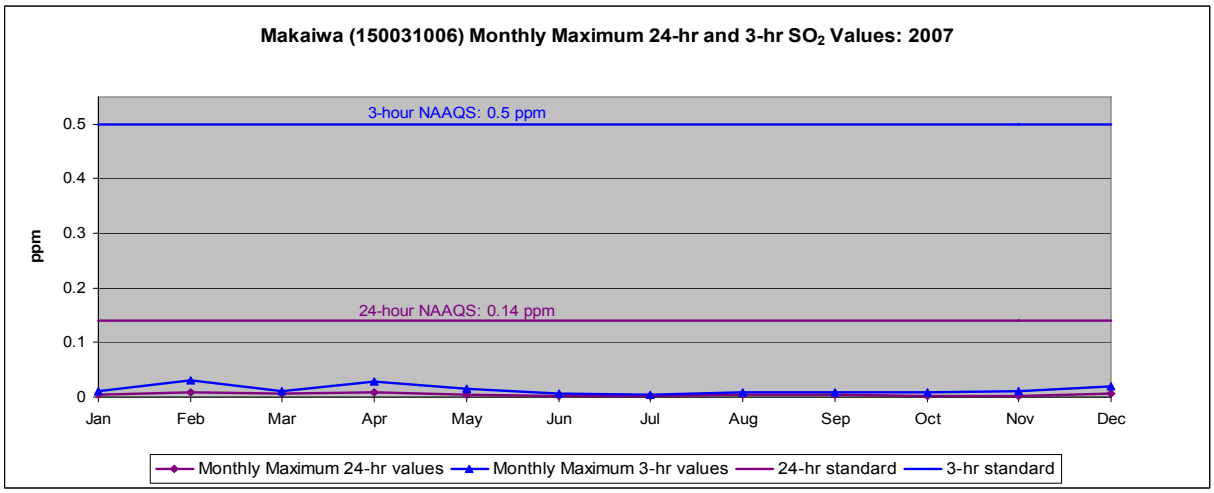


Table 2-2. 2007 Makaiwa SO_2 Statistics

Monthly Maximum 3-hr and 24-hr Statistics for 2007												
	Jan	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Max. 3-hr (ppm)	0.01	0.03	0.01	0.03	0.02	0.006	0.005	0.009	0.008	0.008	0.01	0.02
% of NAAQS	2	6	2	6	4	1	1	2	2	2	2	4
% Complete	99	99	99	99	91	93	99	99	99	99	99	99
Max. 24-hr (ppm)	0.004	0.009	0.006	0.008	0.004	0.003	0.002	0.004	0.004	0.003	0.003	0.006
% of NAAQS	3	6	4	6	3	2	1	3	3	2	2	4
% Complete	100	100	100	100	97	87	100	100	100	100	100	100

2. Closure of the SPM PM_{10} Monitor at the Kihei, Maui Station KH19 (150090006)
   The SPM PM_{10} monitor at this station was discontinued on 12/31/08. The PM_{10} TEOM instrument broke down, could not be repaired and due to budgetary constraints could not be replaced.

   The objective of the SPM PM_{10} was to monitor for cane-burning, and the SLAMS $PM_{2.5}$ monitor with the same objective is continuing to operate at this station. Since the 1 in 6 day FRM $PM_{2.5}$ sampler was replaced with a BAMS 1020 monitor on 12/1/08, continuous data is being collected.

2.1.c Station Designation Changes

1. SPM to SLAMS
   In accordance with 40 CFR 58, the following SPM stations using FRM or FEM, in compliance with all QA and siting requirements, and operating for more than 24 months have been or will become SLAMS within the next 18 months:
   1) Hilo HL11 (150011006) SO_2 became SLAMS as of 1/1/09
   2) Hilo HL11 (150011006) $PM_{2.5}$ will become SLAMS on 5/1/10
   3) Kona KN12 (150011012) SO_2 became SLAMS as of 1/1/09
   4) Kona KN12 (15001102) $PM_{2.5}$ will become SLAMS on 3/15/10
   5) Mountain View MV17 (150012017) SO_2 will become SLAMS on 12/4/09
   6) Pahala PA16 (150012016) SO_2 will become SLAMS on 8/10/09
   7) Pahala PA16 (150012016) $PM_{2.5}$ will become SLAMS on 4/11/10

2. $PM_{2.5}$ Co-located Site
   In accordance with 40 CFR 58, Appendix A, the $PM_{2.5}$ network requires one co-located site. The network now operates all FEM $PM_{2.5}$ monitors and therefore has co-located one $PM_{2.5}$ FRM on a 1 in 6 day schedule with the primary FEM at Pearl City. Additionally, to comply with the requirement of co-locating an FRM with an FRM, a 1 in 12 day FRM is also operating at the Pearl City station. The Honolulu station no longer operates a co-located monitor.

   The reasons for co-location at the Pearl City station were:
   - The station meets $PM_{2.5}$ siting requirements;
   - The station has an existing core $PM_{2.5}$ monitor as well as a PM_{10} monitor;
   - $PM_{2.5}$ across the network is very low but Pearl City historically exhibits higher than normal values during annual New Year celebrations.

   When the SPM $PM_{2.5}$ monitors become SLAMS, as detailed above, the DOH will co-locate an additional site.

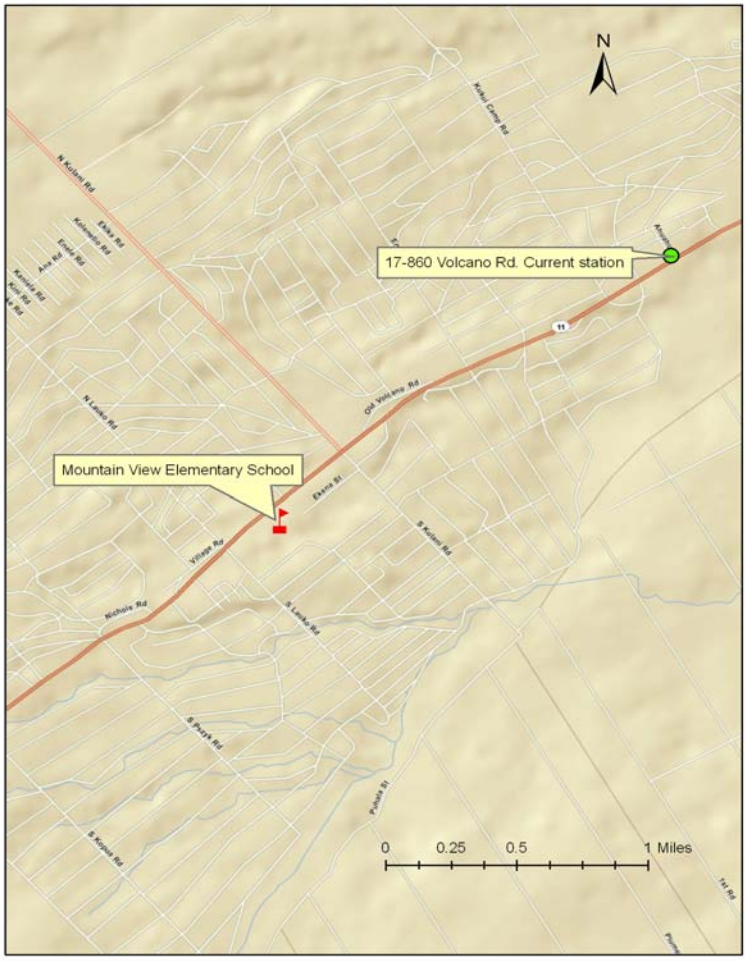
2.1.d Station Relocations

1. Relocation of the SPM Mountain View station MV17 (150012017) to Mountain View Elementary School

   The lease for the Mt. View station at its current location is expiring in February 2010. Since the second volcano vent opened in early 2008, there is increased concern for schools in the area to have timely access to SO_2 data so that decisions can be made to ensure the safety of students, faculty and employees.

   During southerly wind conditions, Mountain View can be affected by high levels of SO_2 and $PM_{2.5}$. Mt. View Elementary school has agreed to allow an air monitoring station to be placed on the school grounds. Preparations will begin in 2009 or early 2010 to move the station to the school. As shown in **Figure 2-7**, the school is approximately 1.8 miles southwest of the current station location.

Figure 2-7. Relocation of the Mountain View Monitoring Station (150012017)



2. Relocation of the $PM_{2.5}$ Speciation Monitor from Pearl City (150032004) to Kapolei (150030010)

   With the selection of Kapolei as the NCore station, the $PM_{2.5}$ speciation monitor will be moved from the Pearl City station to the Kapolei station. The speciation monitors are expected to be operating and collecting data by October 1, 2009 using the Met-One SASS and the URG 3000N samplers.

2.1.e Equipment Changes

1. Continuous $PM_{2.5}$ (FEM)

   With the MetOne BAM 1020 continuous $PM_{2.5}$ instrument (EQPM-0308-170) receiving federal equivalency status on March 13, 2008, all of the manual FRM $PM_{2.5}$ samplers were converted to continuous instruments. The state will ensure compliance with all co-location requirements in 40 CFR Part 58. See the detailed station descriptions in Section 3 for the changes.

2. Continuous PM_{10} (FEM)

   The manual 1 in 6 day PM_{10} sampler at the West Beach station (150030011) was discontinued and a continuous BAM 1020 PM_{10} sampler was installed. With this conversion, the network now has all continuous PM_{10} monitors. Additionally, since there are no co-location requirements for FEM PM_{10} samplers, the co-located FRM PM_{10} sampler was also discontinued.

3. $PM_{2.5}$ Chemical Speciation Sampler

   In accordance with EPA requirements, the quartz module on the Met-One SASS sampler at the Pearl City station (150032004) will be discontinued and replaced with the URG 3000N sampler.

   The state has received the sampler and will begin collecting data on October 1, 2009 at the Kapolei station (see Section 2.1.d above).

2.2 Attainment of the New O_3 and Pb NAAQS

1. O_3 NAAQS effective May 27, 2008 and O_3 Monitoring Network

   In May 2008, EPA revised the 8-hour O_3 NAAQS, lowering it from 0.08 ppm to 0.075 ppm. The states were required to submit attainment status of the new standard to EPA no later than March 12, 2009.

   In January 2009, the state of Hawaii submitted documents to EPA declaring attainment of the new O_3 standard. In the most recent three year data period of 2005 to 2007, the average of the fourth highest daily maximum 8-hour concentration was 0.038 ppm, well below the standard of 0.075 ppm.

The state is in attainment of the new standard and meets the minimum monitoring requirements for the MSA. The current plan is to add an additional O_3 monitor at the NCore station (Kapolei 150030010). This additional O_3 monitor will be collecting data by January 1, 2011 when the NCore station is fully operational.

2. Pb NAAQS effective October 15, 2008 and Pb Monitoring Network

   In October 2008, EPA revised the level and form of the Pb NAAQS from 1.5 $\mu g/m^3$ in a calendar quarter to 0.15 $\mu g/m^3$ in a rolling 3-month period. Additionally, the rule requires that states establish source-oriented monitoring for facilities which emit 1.0 or more tons per year of Pb, based on the most recent (2005) National Emission Inventory.

   There are no sources in the state which emit 1.0 or more tons per year of Pb, therefore, source-oriented monitoring will not be conducted in Hawaii. **Appendix B** is the validated 2005 Emissions Inventory that was used to determine Pb source emissions.

   In October 1997, with EPA approval, the state discontinued SLAMS monitoring for Pb because the values were consistently very low. However, in 2002, the state began monitoring for Pb as part of the SPM Air Toxics program. Using the latest three years of data collected from the SPM TSP monitor, the state will submit attainment status of the new Pb NAAQS no later than October 15, 2009. Additionally, the state will continue to operate the Air Toxics TSP monitor for lead on a 1 in 6 day schedule.

2.3 National Core (NCore) Multi-pollutant Monitoring Station

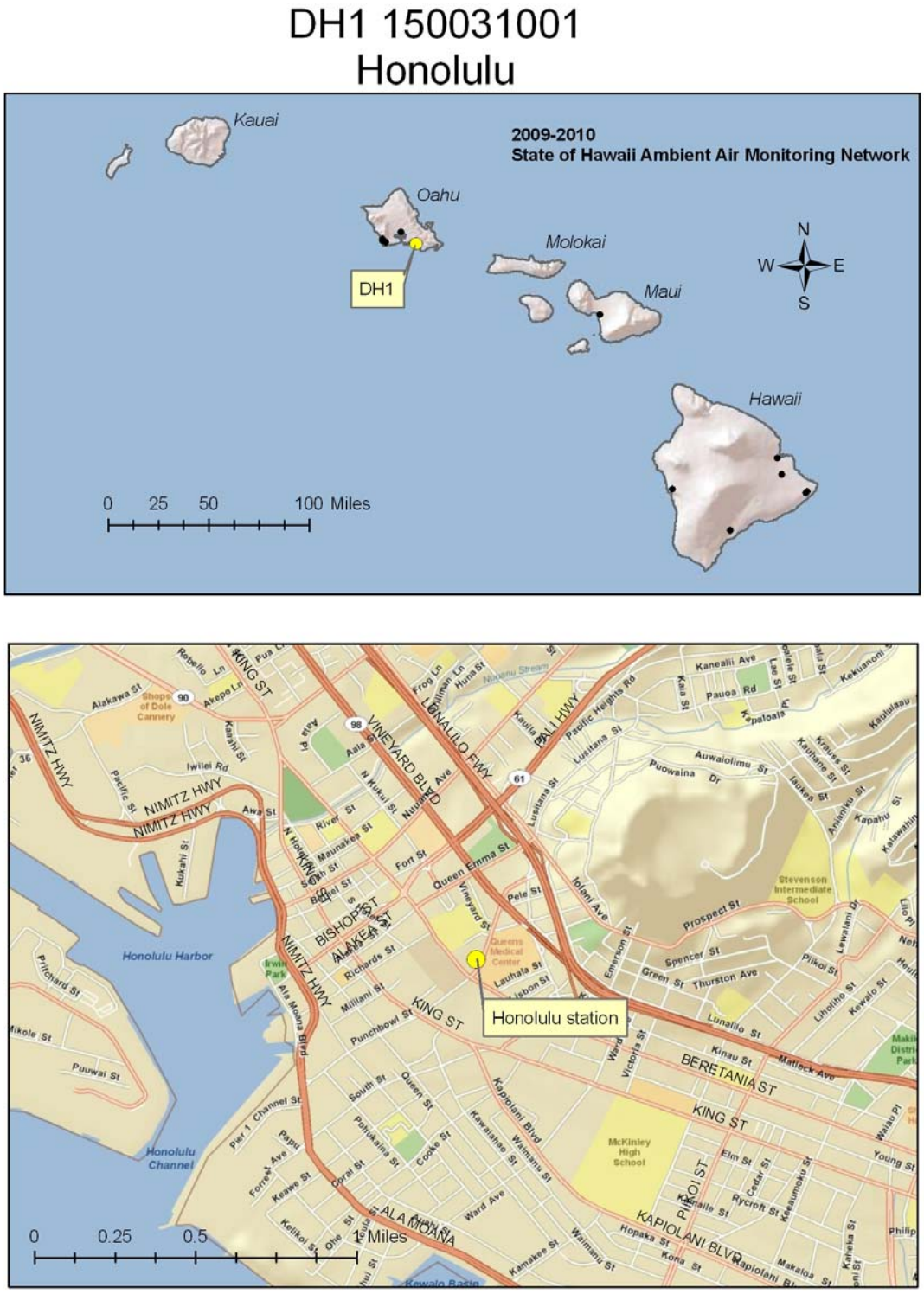
In 2006, as part of the new National Monitoring Strategy, the EPA established a requirement, codified in 40 CFR 53 and 58, that every state establish a minimum of one NCore multi-pollutant monitoring station.

With EPA approval, the state is recommending that the Kapolei monitoring station (150030010) be designated as the NCore station. **Appendix C** provides the detailed NCore plan.

Section 3
Detailed Site Descriptions

Following are detailed map and site descriptions of each station in the ambient air monitoring network.

Figure 3-1. DH1 150031001 Honolulu Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	DH1 Honolulu

Date of Report:	5/5/2009

SITE INFORMATION

City: Honolulu	**CDP:** Honolulu	**Census Tract:** 41	**AIRS ID:** 150031001
Address: 1250 Punchbowl St., Honolulu (Oahu)			
UTM (NAD 83): 4N North 236619.4 m East 618715 m		**Latitude (NAD 83):** 21° 18' 27.3" N **Longitude:** 157° 51' 19.5" W	**Elevation (MSL):** 20 m
Pollutants Monitored: CO, SO_2, PM_{10}, $PM_{2.5}$ (SLAMS)			
Name(s) of nearest intersecting street(s): Punchbowl St. (east); Beretania St. (south); Vineyard Blvd. (north)			
Brief description of site location and landmarks: Located in the downtown Honolulu business and government district, the station is located on the roof of the Department of Health building (Kinau Hale). Queen's Medical Center is to the east, Punchbowl crater to the north, State Capitol building to the south as well as other state and county government buildings.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Punchbowl St.	Beretania St.	Vineyard Blvd.	H-1 Freeway
Freeway				X
Major Street or Highway	X	X	X	
Traffic Activity				
Distance of roadway from air intake (m)	30	122	610	914
Direction of roadway from air inlet	E	S	N	N/NE
Composition of roadway	asphalt	asphalt	asphalt	asphalt
Number of traffic lanes	5	6	6	6
Average daily traffic (estimate)	32,173 (2001)[1]	No data	35,903 (2001)[1]	No data
Average vehicle speed (estimate, mph)	20	25	25	45
Traffic one way or two	2	1	2	2
Number of parking lanes	0	0	0	0
Roadway paved?	Y	Y	Y	Y

Obstructions			
Type	**Size (m)**	**Direction from Site**	**Distance from Site (m)**
Penthouse	5W x 2.4D x 2.4H	W	12
Tree	16W x 12H	E	7

Meteorology and Climatology: Source of met data is site WS, WD

[1] Source: State of Hawaii, Department of Transportation

DATA QUALITY

Audits	Result
Last PEP Audit: 7/13/08	Awaiting EPA report
Last Independent (DOH) Audit: 12/4/08	Primary $PM_{2.5}$ sequential sampler failed external leak check. Deficiency corrected and sampler passed audit on 12/16/08.
Last Flow Audit: PM_{10}: 12/4/08; $PM_{2.5}$ 12/4/08	PM_{10}: Pass $PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

SITE AND MONITOR INFORMATION (DH1 continued)

Probe Siting		
	Gases (CO, SO_2)	**PM**
Location	Probe extends off the east side of building, nearest Punchbowl Street	Top of building
If on building: height (m) width (m) depth (m)	10	 12 61 15
Horizontal distance from supporting structure (m)	1.5	N/A
Vertical distance above supporting structure (m)	N/A	1.8
Height of probe above ground (m)	11	13.4
Distance from tree(s)	7	N/A
Horizontal distance from edge of nearest traffic lane (m)	9	N/A
Horizontal distance from nearest parking lot (m)	24	24
Horizontal distance from walls, parapets, penthouses (m)	1.5 (wall)	11 (penthouse)
Distance from obstacles, such as buildings (m)	1.5 (supporting building wall)	300
Distance from furnace or incineration flues (m)	N/A	N/A
Unrestricted air flow	270°	360°
Located in paved area or vegetative ground cover	Paved	Paved

Monitor Information								
	SO_2	**CO**	**PM_{10}**	**$PM_{2.5}$**	**WS**	**WD**		
Instrument Manufacturer	TECO	TECO	Rupprecht & Patashnick	Met-One	RM Young	RM Young		
Model No.	43i	48	1400A	BAM 1020	05103VP	05103VP		
AQS Method Code	060	054	079	170	Not entered into AQS			
Date sampling began	1/72	1/72	2/92	4/1/09	11/12/03	11/12/03		
Frequency	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous		
Probe material	Teflon	Teflon	N/A	N/A	N/A	N/A		
Residence Time (seconds)	No data	No data	N/A	N/A	N/A	N/A		
Distance between co-located monitors	N/A	N/A	N/A	4 m	N/A	N/A		

5-Year Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
7/18/05 – 7/19/06	No $PM_{2.5}$ data collected. Site shut-down due to re-roofing
7/18/05 – 8/2/06	No CO and SO_2 data collected. Site shut-down due to re-roofing
7/18/05 – 8/5/06	No PM_{10} data collected. Site shut-down due to re-roofing
1/99 to 12/05	$PM_{2.5}$ collected daily. Since 1/1/06, sampling reduced (with EPA approval) to 1 in 3 days
8/2/06	$PM_{2.5}$ sampler changed from Anderson to R & P
4/1/09	$PM_{2.5}$ FRM shut-down on 3/31/09; FEM continuous $PM_{2.5}$ began operating on 4/1/09

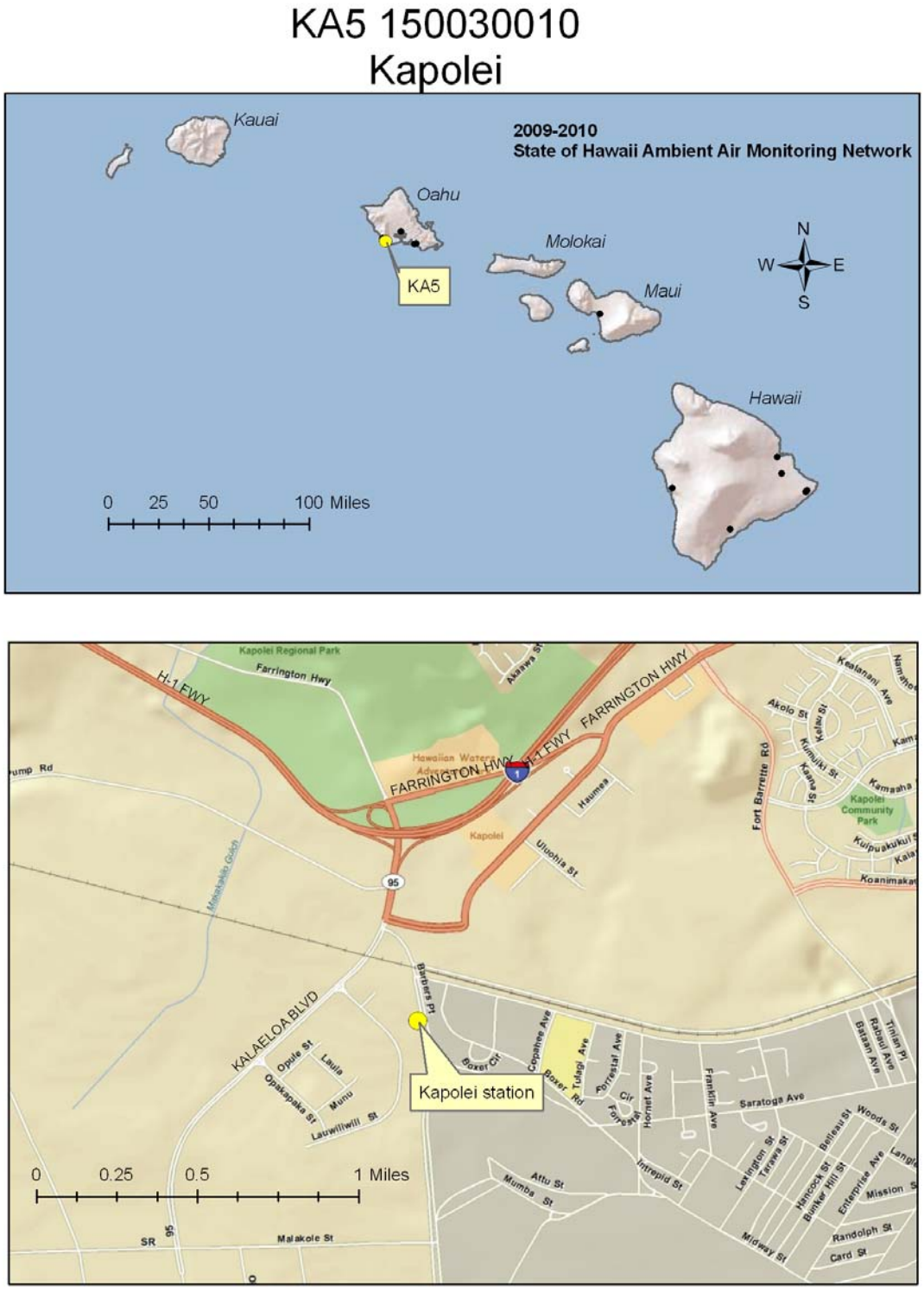
SITE REPRESENTATIVENESS

	CO	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Spatial Scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Averaging Times	1-hr; 8-hr	3-hr; 24-hr; Annual	24-hr; Annual	24-hr; Annual
Monitoring Objective	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	N/A	N/A	Yes

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 3-2. KA5 150030010 Kapolei Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	KA5 Kapolei

Date of Report:	5/5/2009

SITE INFORMATION

City: Kapolei	**CDP:** Honolulu	**Census Tract:** 85	**AIRS ID:** 150030010	
Address: 2052 Lauwiliwili St., Kapolei (Oahu)				
UTM (NAD 83): 4N North 2358251.4 m East 594516.6 m		**Latitude (NAD 83):** 21° 19' 25.5" N **Longitude:** 158° 05' 19.0" W		**Elevation (MSL):** 18 m
Pollutants: CO, SO_2, NO_2, PM_{10}, $PM_{2.5}$ (SLAMS)				
Name(s) of nearest intersecting street(s): Kalaeloa Blvd.; Lauwiliwili St.				
Brief description of site location and landmarks: Located in the Kapolei Business Park, the station is about 220 meters east of the Kapolei fire station and approximately 1.25 km northeast of Campbell Industrial Park (CIP). Additionally, the station is approximately 325 meters south of the growing city of Kapolei.				
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section				
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section				

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Kalaeloa Blvd.	Lauwiliwili St.	H-1 Freeway	
Freeway			X	
Major Street or Highway	X			
Local Street or Road		X		
Traffic Activity				
Distance of roadway from air intake (m)	379	167	686	
Direction of roadway from air inlet	NW	W	N	
Composition of roadway	asphalt	asphalt	asphalt	
Number of traffic lanes	4	2	6	
Average daily traffic (estimate)	No data	No data	No data	
Average vehicle speed (estimate, mph)	35	30	55	
Traffic one way or two	2	2	2	
Number of parking lanes	0	0	0	
Roadway paved?	Y	Y	Y	

Obstructions			
Type	**Size (m)**	**Direction from Site**	**Distance from Site (m)**
None			

Meteorology and Climatology: Source of met data is site WS, WD and ambient temperature

DATA QUALITY

Audits	Result
Last PEP Audit: 8/27/08	Awaiting EPA report
Last Independent (DOH) Audit: 10/7 to 10/8/08	Pass
Last Flow Audit: PM_{10}: 10/7/08; $PM_{2.5}$: 10/8/08	PM_{10}: Pass $PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

SITE AND MONITOR INFORMATION (KA5 continued)

Probe Siting		
	Gases (CO, SO_2, NO_2)	**PM_{10}, $PM_{2.5}$**
Location	Top of shelter	Top of shelter
Shelter: height (m) width (m) depth (m)	 4 2.4 5	 4 2.4 5
Horizontal distance from supporting structure (m)	N/A	N/A
Vertical distance above supporting structure (m)	1	1
Height of probe above ground (m)	5	5
Distance from tree(s) (m)	106	106 (PM_{10}) inlet 117 ($PM_{2.5}$) inlet
Horizontal distance from edge of nearest traffic lane (m)	167	167
Horizontal distance from nearest parking lot (m)	87	87
Horizontal distance from walls, parapets, penthouses (m)	N/A	N/A
Distance from obstacles, such as buildings (m)	170	170
Distance from furnace or incineration flues (m)	N/A	N/A
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	Vegetative/Barren	Vegetative/Barren

Monitor Information									
	CO	**SO_2**	**NO_2**	**PM_{10}**	**$PM_{2.5}$**	**WS**	**WD**		
Instrument Manufacturer	TECO	TECO	TECO	Met-One	Met-One	RM Young	RM Young		
Model No.	48i	43A	42C	BAM1020	BAM1020	05103VP	05103VP		
AQS Method Code	054	060	074	122	170	Not entered into AQS			
Date sampling began	7/29/02	7/29/02	7/29/02	12/18/08	1/1/09	-	-		
Frequency	Cont.	Cont.	Cont.	Cont.	Cont.	Cont.	Cont.		
Probe material	Glass	Glass	Glass	N/A	N/A	N/A	N/A		
Residence Time (seconds)	No data	No data	No data	N/A	N/A	N/A	N/A		
Distance between co-located monitors	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
July 2002	Site moved approximately 250 yards south from original location. The original location was established in 1991 but siting audits concluded that the Desalination plant was an obstacle when the winds were from the southerly direction (from the Industrial Park).
3/20/08 - 4/15/08	Site shut down for repairs. PM_{10} BAM and $PM_{2.5}$ BAM installed.
12/17/08	TEOM PM_{10} monitor discontinued and replaced with a BAMS 1020

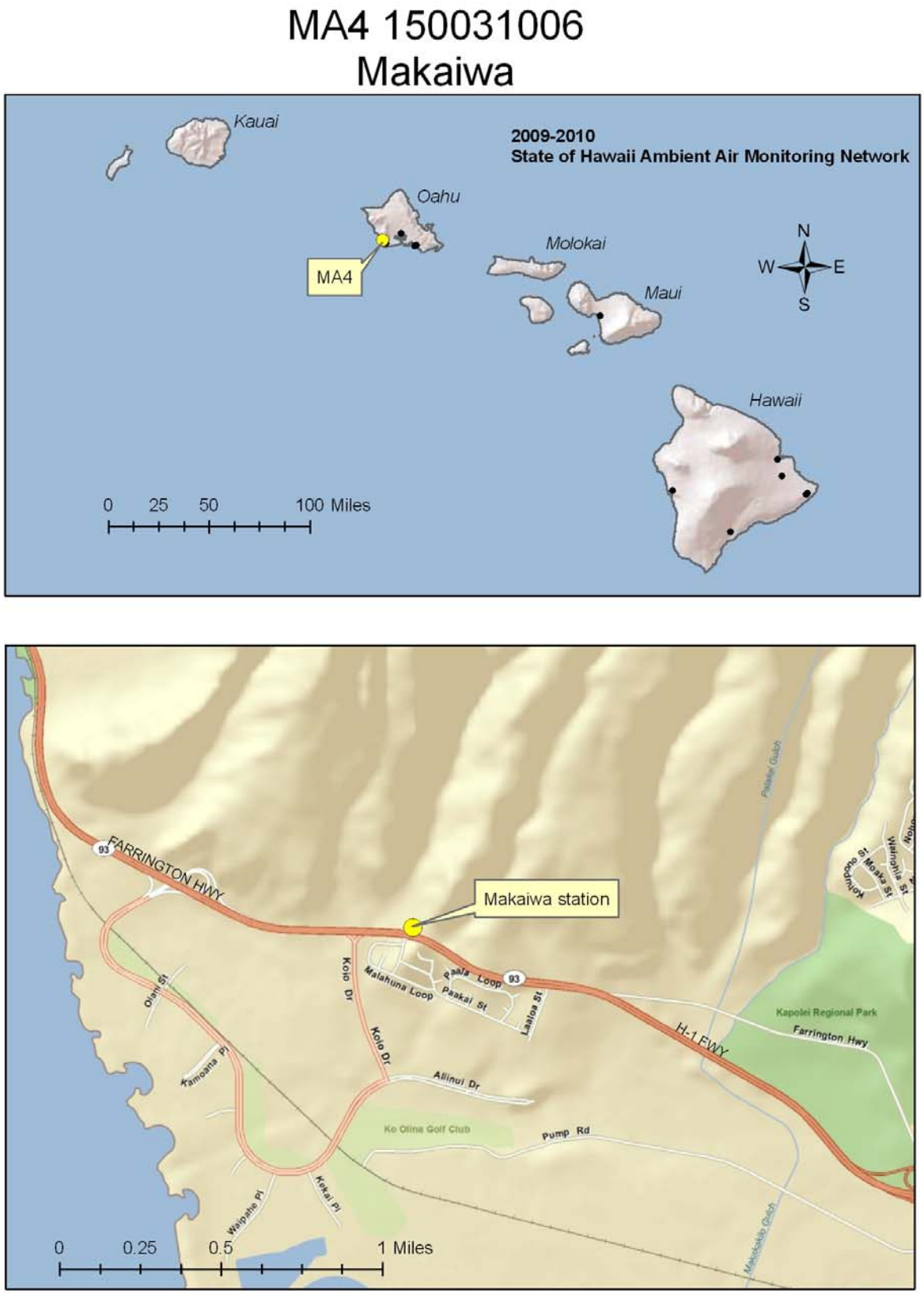
SITE REPRESENTATIVENESS

	CO	**SO_2**	**NO_2**	**PM_{10}**	**$PM_{2.5}$**
Spatial Scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Averaging Times	1-hr; 8-hr	3-hr; 24-hr; annual	annual	24-hr; annual	24-hr; annual
Monitoring Objective	Population	Population	Population	Population	Population
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	N/A	N/A	N/A	Yes

Planned station modifications within the next 18 months:

- This station is being recommended as the NCore site
- If approved as the NCore site by EPA, the $PM_{2.5}$ speciation monitors (Met One SASS and URG 3000N) will be installed and operating by October 1, 2009

Figure 3-3. MA4 150031006 Makaiwa Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	MA4 Makaiwa

Date of Report:	5/5/2009

SITE INFORMATION

City: Kapolei	**CDP:** Honolulu	**Census Tract:** 86.03	**AIRS ID:** 150031006
Address: 92-670 Farrington Hwy., Kapolei (Oahu)			
UTM (NAD 83): 4N North 2360508.6 m East 591978 m		**Latitude (NAD 83):** 21° 20' 39.4" N **Longitude:** 158° 06' 46.7" W	**Elevation (MSL):** 51 m
Pollutants: SO_2 (SLAMS)			
Name(s) of nearest intersecting street(s): Farrington Hwy.			
Brief description of site location and landmarks: Located across from the Honokai Hale subdivision in Makaiwa Gulch, approximately 1 mile southeast of the HECO Kahe power plant and 2 miles north of the edge of Campbell Industrial Park.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Farrington Hwy.			
Freeway				
Major Street or Highway	X			
Local Street or Road				
Traffic Activity				
Distance of roadway from air intake (m)	26			
Direction of roadway from air inlet	S			
Composition of roadway	asphalt			
Number of traffic lanes	4			
Average daily traffic (estimate)	45,532 (2001)[1]			
Average vehicle speed (estimate, mph)	50			
Traffic one way or two	2			
Number of parking lanes	0			
Roadway paved?	Y			

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

[1] Source: State of Hawaii, Department of Transportation

DATA QUALITY

Audits	Result
Last PEP Audit: Not applicable	
Last Independent (DOH) Audit: 10/3/08	Pass
Last Flow Audit: Not applicable	
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

SITE AND MONITOR INFORMATION (MA4 continued)

Probe Siting		
	Gases (SO_2)	
Location	Top of shelter	
Shelter: height (m) width (m) depth (m)	 4 5 2	
Horizontal distance from supporting structure (m)	N/A	
Vertical distance above supporting structure (m)	1	
Height of probe above ground (m)	4	
Distance from tree(s) (m)	13 (SE); 16 (N)	
Horizontal distance from edge of nearest traffic lane (m)	26	
Horizontal distance from nearest parking lot (m)	N/A	
Horizontal distance from walls, parapets, penthouses (m)	N/A	
Distance from obstacles, such as buildings (m)	N/A	
Distance from furnace or incineration flues (m)	N/A	
Unrestricted air flow	360°	
Located in paved area or vegetative ground cover	Vegetative/Barren	

Monitor Information							
	SO_2	**WS**	**WD**				
Instrument Manufacturer	TECO	RM Young	RM Young				
Model No.	43A	05103VP	05103VP				
AQS Method Code	060	Not entered into AQS					
Date sampling began	7/89	-	-				
Frequency	Continuous	Continuous	Continuous				
Probe material	Glass	N/A	N/A				
Residence Time (seconds)	No data	N/A	N/A				
Distance between co-located monitors	N/A	N/A	N/A				

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
	None

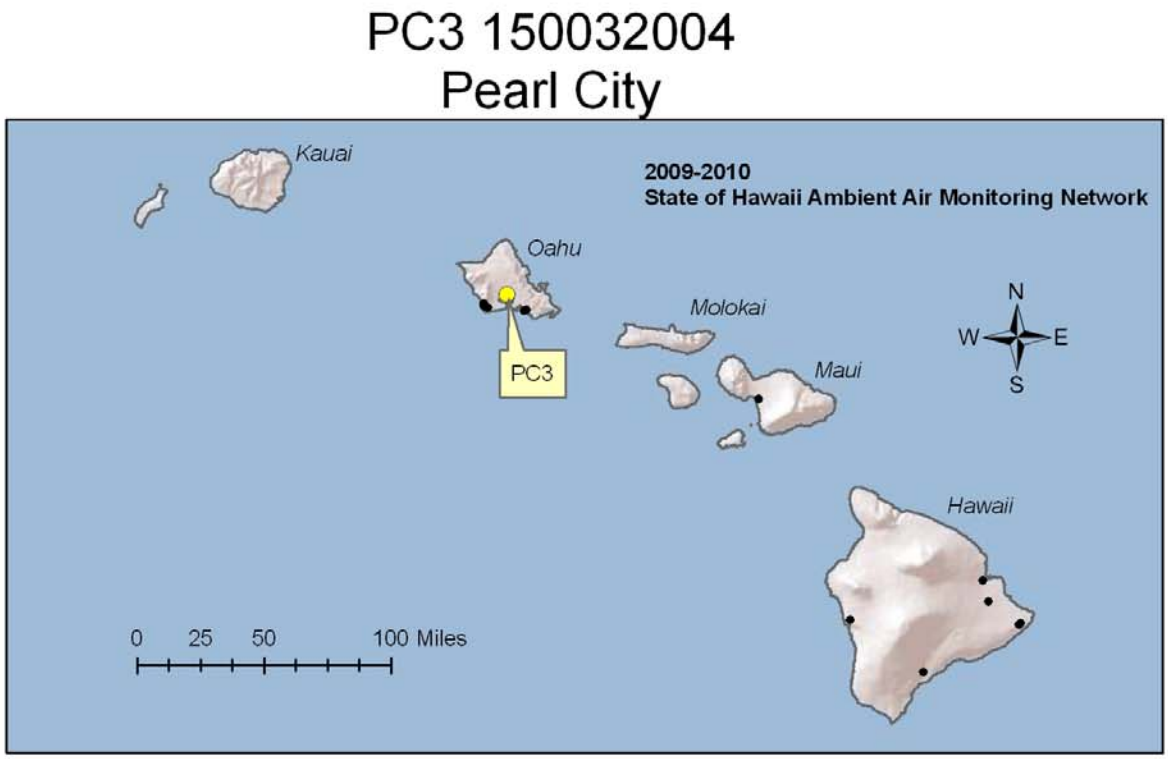
SITE REPRESENTATIVENESS

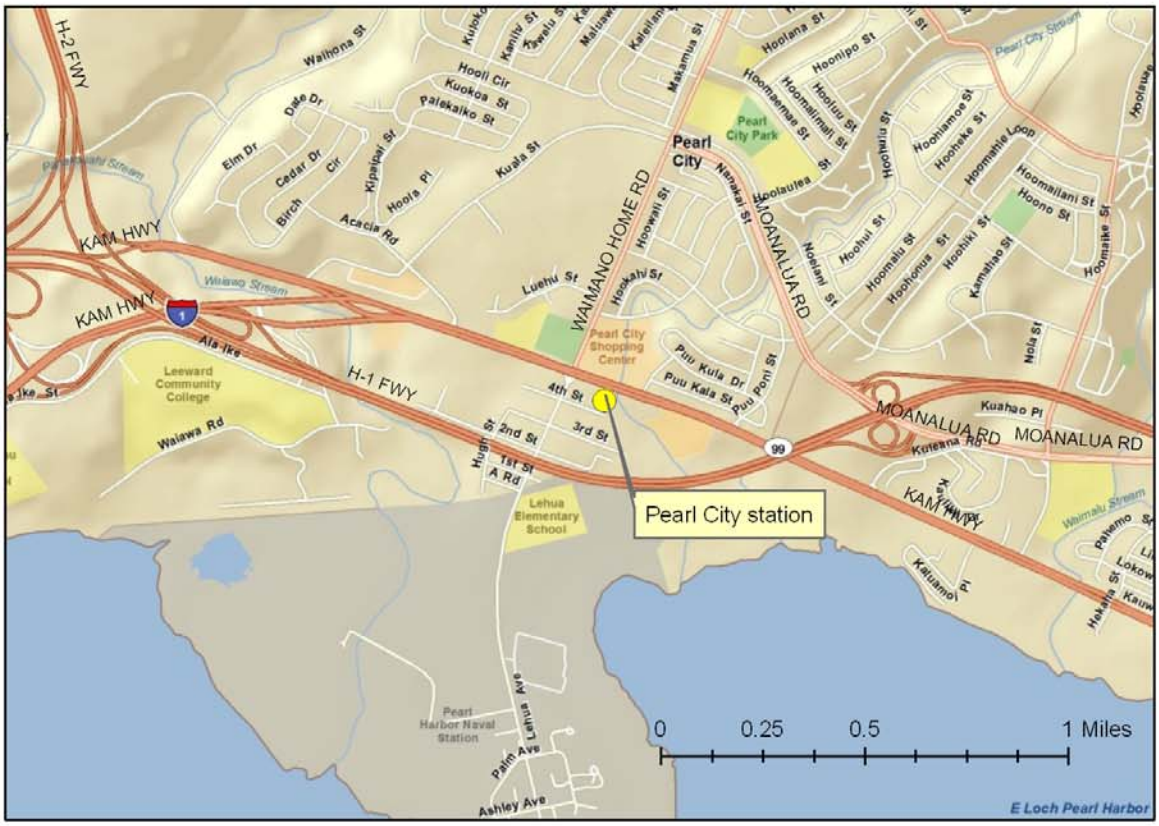
	SO_2				
Spatial Scale	Neighborhood				
Averaging Times	3-hr; 24-hr; annual				
Monitoring Objective	Source Impact				
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A				

Planned station modifications within the next 18 months:

- With EPA approval, this station will be discontinued on June 30, 2009. See Section 2.1.b for details.

Figure 3-5. PC3 150032004 Pearl City Location Map





State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	PC3 Pearl City

Date of Report:	5/5/2009

SITE INFORMATION

City: Pearl City	**CDP:** Honolulu	**Census Tract:** 80.01	**AIRS ID:** 150032004
Address: 860 4th St., Pearl City (Oahu)			
UTM (NAD 83): 4N North 2365975.2 m East 606858.9 m		**Latitude (NAD 83):** 21° 23' 34.2" N **Longitude:** 157° 58' 08.9" W	**Elevation (MSL):** 23 m
Pollutants: PM_{10}, $PM_{2.5}$, $PM_{2.5}$ (SLAMS) Speciation, Air Toxics (SPM)			
Name(s) of nearest intersecting street(s): 4th St., Kamehameha Hwy., Lehua Avenue, H-1 Freeway			
Brief description of site location and landmarks: Located on the Department of Health building at 860 4th St., Pearl City. Approximately SSW of the Pearl City Shopping Center and Kamehameha Hwy., N of the H-1 freeway and approximately 1 mile west of HECO Waiau and 3 miles NW of the Pearl Harbor Naval Complex.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	4th St.	Lehua Ave.	Kam. Hwy.	H-1
Freeway				X
Major Street or Highway			X	
Local Street or Road	X			
Through Street or Highway		X		
Traffic Activity				
Distance of roadway from air intake (m)	50	138	58	320
Direction of roadway from air inlet	S	W	N	S
Composition of roadway	asphalt	asphalt	asphalt	concrete
Number of traffic lanes	2	4	6	10
Average daily traffic (estimate)	No Data	15,692 (2002)[1]	52,113 (2002)[1]	No Data
Average vehicle speed (estimate, mph)	20	30	35	55
Traffic one way or two	2	2	2	2
Number of parking lanes	0	2	0	0
Roadway paved?	Y	Y	Y	Y

Obstructions			
Type	**Size (m)**	**Direction from Site**	**Distance from Site (m)**
Air conditioning vent and mechanical room	Ht. of A/C vent: 4 m Ht. of room: 3 m	N	14

Meteorology and Climatology: Source of met data is site WS, WD

[1] Source: State of Hawaii, Department of Transportation

DATA QUALITY

Audits	Result
Last PEP Audit:	
Last Independent (DOH) Audit: 11/21/08	Pass
Last Flow Audit: 11/21/08	PM_{10}:Pass $PM_{2.5}$: Pass $PM_{2.5}$speciation: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

SITE AND MONITOR INFORMATION (PC3 continued)

Probe Siting				
	PM	**Speciation**	**Toxics (metals)**	**Toxics (Gas)**
Location	Top of building	Top of building	Top of building	Top of building
Shelter: height (m) width (m) depth (m)	N/A	N/A	N/A	N/A
Horizontal distance from supporting structure (m)	N/A	N/A	N/A	N/A
Vertical distance above supporting structure (m)	2	2	1	2
Height of probe above ground (m)	13	13	12	13
Distance from tree(s) (m)	N/A	N/A	N/A	N/A
Horizontal distance from edge of nearest traffic lane (m)	58	53	53	60
Horizontal distance from nearest parking lot (m)	-	-	-	-
Horizontal distance from walls, parapets, penthouses (m)	14	19	19	12
Distance from obstacles, such as buildings (m)	N/A	N/A	N/A	N/A
Distance from furnace or incineration flues (m)	N/A	N/A	N/A	N/A
Unrestricted air flow	360°	360°	360°	360°
Located in paved area or vegetative ground cover	rooftop	rooftop	rooftop	rooftop

Monitor Information								
	PM_{10}	**$PM_{2.5}$**	**Speciation**	**Air Toxics**	**$PM_{2.5}$**	**$PM_{2.5}$**		
Instrument Manufacturer	Met One	Met One	Met One	-	Andersen	Andersen		
Model No.	BAM 1020	BAM 1020	SASS	-	RAAS 2.5	RAAS 2.5		
AQS Method Code	122	170			120	120		
Date sampling began	9/29/07	1/10/09	1/03	1/02	4/1/09	4/1/09		
Frequency	continuous	Continuous	1 in 6	1 in 6	1 in 6	1 in 12		
Probe material	N/A	N/A	Aluminum	-	-	-		
Residence Time (seconds)	N/A	N/A	No data	No data	-	-		
Distance between co-located monitors	N/A	4 m	N/A	N/A	2.1 m	2.1 m		

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
8/5/02 – 11/27/02	Building renovations and installation of AC vent
9/29/07	Met One BAM continuous PM_{10} began operation. R & P TEOM operated from 2/94 to 9/28/07
1/10/09	Met One BAM continuous $PM_{2.5}$ began operation. Anderson RAAS FRM $PM_{2.5}$ was the primary sampler from 1/99 to 1/9/09.
4/1/09	Andersen $PM_{2.5}$ FRM 1 in 6 and 1 in 12 day samplers co-located

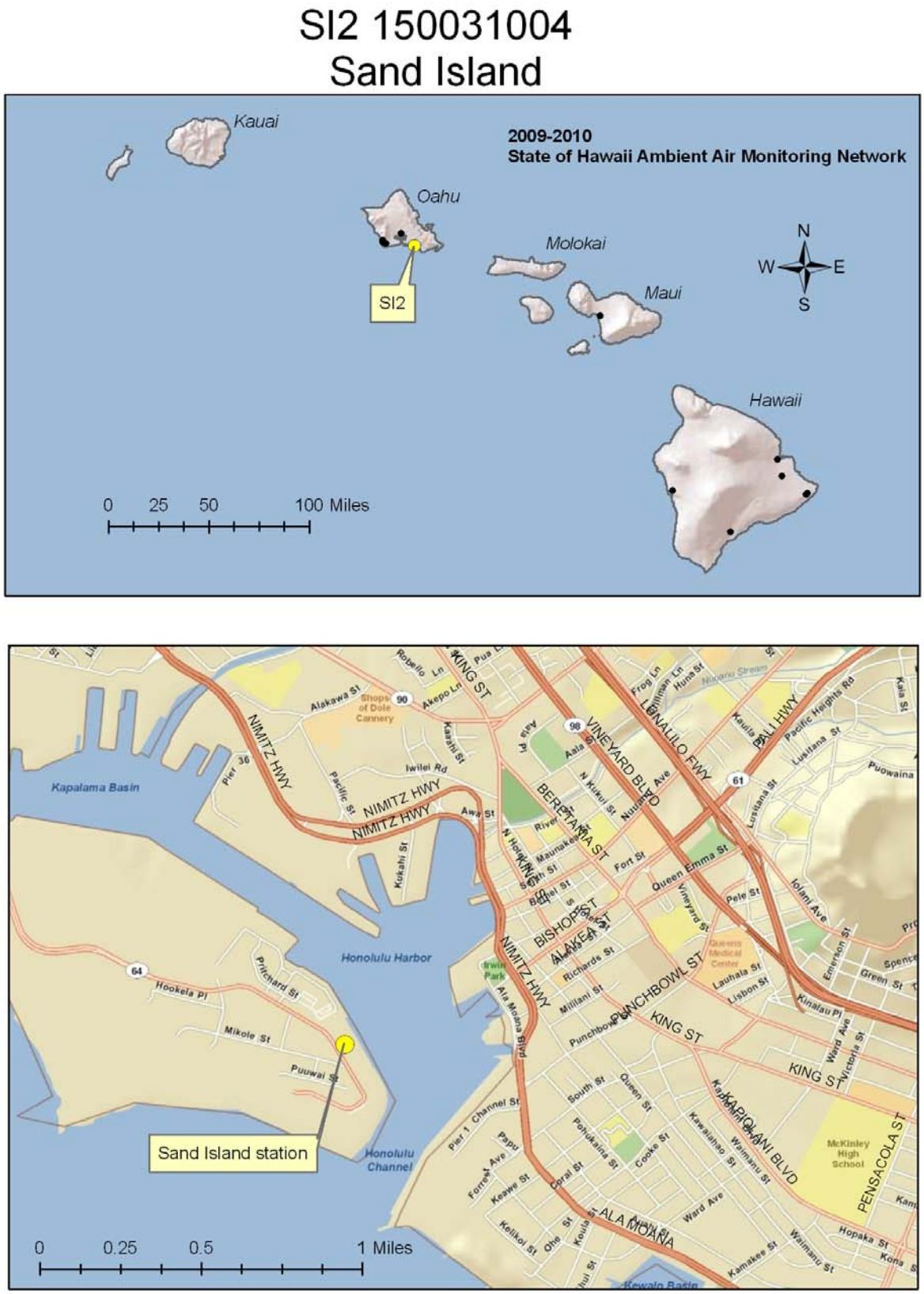
SITE REPRESENTATIVENESS

	PM_{10}	**$PM_{2.5}$**	**Speciation**	**Air Toxics**	
Spatial Scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	
Averaging Times	24-hr; annual	24-hr; annual	24-hr	24-hr	
Monitoring Objective	Population exposure	Population exposure	Population exposure	Population exposure	
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	Yes	N/A	N/A	

Planned station modifications within the next 18 months:

- If Kapolei is approved as the NCore station, the Met One SASS $PM_{2.5}$ speciation monitor will be moved from this site to Kapolei

Figure 3-5. SI2 150031004 Sand Island Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	SI2 Sand Island

Date of Report:	5/5/2009

SITE INFORMATION

City: Honolulu	**CDP:** Honolulu	**Census Tract:** 57	**AIRS ID:** 150031004
Address: Anuenue Fisheries, Honolulu (Oahu)			
UTM (NAD 83): 4N North 2356193.9 m East 617084.4 m		**Latitude (NAD 83):** 21° 18' 13.8" N **Longitude:** 157° 52' 16.2" W	**Elevation (MSL):** 5 m
Pollutants: O_3, $PM_{2.5}$ (SLAMS)			
Name(s) of nearest intersecting street(s): Sand Island Parkway			
Brief description of site location and landmarks: Located in the University of Hawaii's Anuenue Fisheries near the entrance to the Sand Island State Recreation Area. Sand Island is at the southern point of downtown Honolulu, across from Honolulu Harbor and Aloha Tower.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	SI Parkway			
Freeway				
Major Street or Highway				
Local Street or Road				
Through Street or Highway	X			
Traffic Activity				
Distance of roadway from air intake (m)	37			
Direction of roadway from air inlet	W			
Composition of roadway	asphalt			
Number of traffic lanes	2			
Average daily traffic (estimate)	1592 (2002)[1]			
Average vehicle speed (estimate, mph)	30			
Traffic one way or two	2			
Number of parking lanes	2			
Roadway paved?	Y			

Obstructions			
Type	**Size (m)**	**Direction from Site**	**Distance from Site (m)**
Tent shelter	Height: 6	S	14

Meteorology and Climatology: Source of met data is site WS, WD

[1] Source: State of Hawaii, Department of Transportation

DATA QUALITY

Audits	Result
Last PEP Audit:	
Last Independent (DOH) Audit: 10/29/08	Indoor temperature sensor exceeded audit criteria at low temperature range. Corrected and passed audit on 11/5/08.
Last Flow Audit: 10/29/08	$PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

SITE AND MONITOR INFORMATION (SI2 continued)

Probe Siting		
	Gases (O_3)	**PM**
Location	Top of shelter	Top of shelter
Shelter: height (m) width (m) depth (m)	 3 2 5	 3 2 5
Horizontal distance from supporting structure (m)	N/A	N/A
Vertical distance above supporting structure (m)	1	2
Height of probe above ground (m)	4	5
Distance from tree(s) (m)	N/A	N/A
Horizontal distance from edge of nearest traffic lane (m)	37	37
Horizontal distance from nearest parking lot (m)	40	40
Horizontal distance from walls, parapets, penthouses (m)	N/A	N/A
Distance from obstacles, such as buildings (m)	14	14
Distance from furnace or incineration flues ()	N/A	N/A
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	vegetative	vegetative

Monitor Information							
	O_3	**$PM_{2.5}$**	**WS**	**WD**			
Instrument Manufacturer	TECO	Met One	RM Young	RM Young			
Model No.	49C	BAM 1020	05103VP	05103VP			
AQS Method Code	047	170	Not entered into AQS				
Date sampling began	2/81	1/1/09	-	-			
Frequency	Continuous	Continuous	Continuous	Continuous			
Probe material	Glass	N/A	N/A	N/A			
Residence Time (seconds)	No data	N/A	N/A	N/A			
Distance between co-located monitors	N/A	2.1 m	N/A	N/A			

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
4/7/06	Replaced Dasibi O_3 analyzer with TECO analyzer
1/23/08 – 3/14/08	<75% quarterly data completeness. Data invalidated during this period due to faulty design of a new inlet system installed on 1/23/08.
1/1/09	Met One BAM 1020 continuous $PM_{2.5}$ began operating. Anderson FRM 1 in 6 day was shut-down on 12/31/08.

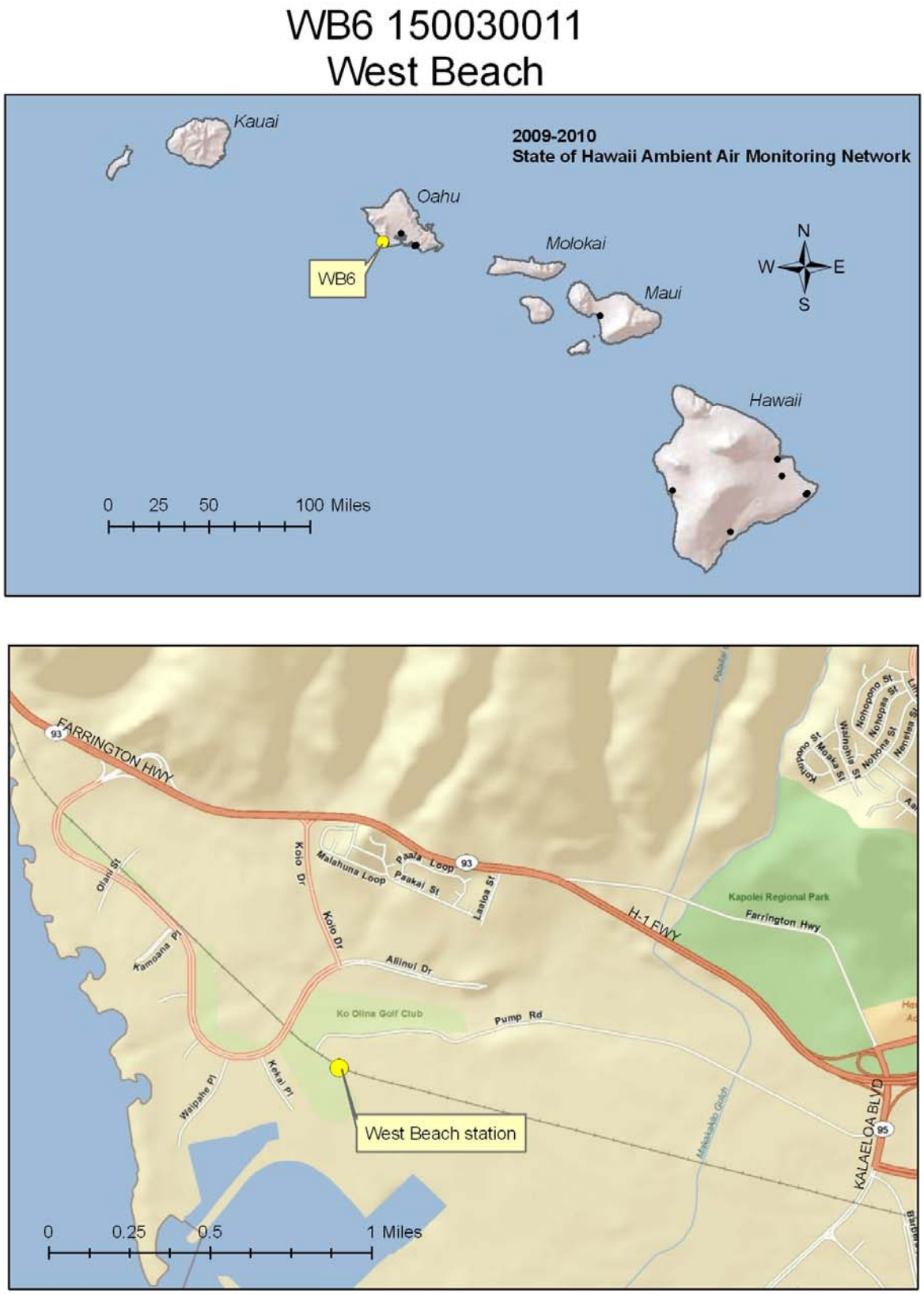
SITE REPRESENTATIVENESS

	O_3	**$PM_{2.5}$**			
Spatial Scale	Urban	Urban			
Averaging Times	1-hr; 8-hr	24-hr; annual			
Monitoring Objective	Maximum	Transport			
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	Yes			

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 3-6. WB6 150030011 West Beach Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	WB6 West Beach

Date of Report:	5/5/2009

SITE INFORMATION

City: Kapolei	**CDP:** Honolulu	**Census Tract:** 86.10	**AIRS ID:** 150030011
Address: Ko'Olina Golf Course, Kapolei (Oahu)			
UTM (NAD 83): 4N North 2359232.3 m East 591864.6 m		**Latitude (NAD 83):** 21° 19' 57.9" N **Longitude:** 158° 06' 50.9 W	**Elevation (MSL):** 15 m
Pollutants: SO_2, NO_2, PM_{10} (SLAMS)			
Name(s) of nearest intersecting street(s): Aliinui Drive			
Brief description of site location and landmarks: Located within the Ko'Olina Resort Golf Course, northwest of Campbell Industrial Park and Barber's Point Deep Draft Harbor			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Aliinui Dr.			
Freeway				
Major Street or Highway				
Local Street or Road	X			
Through Street or Highway				
Traffic Activity				
Distance of roadway from air intake (m)	315			
Direction of roadway from air inlet	NW			
Composition of roadway	asphalt			
Number of traffic lanes	4			
Average daily traffic (estimate)	No data			
Average vehicle speed (estimate, mph)	30			
Traffic one way or two	2			
Number of parking lanes	0			
Roadway paved?	Y			

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audits	Result
Last PEP Audit: Not applicable	
Last Independent (DOH) Audit: 10/6/08	PM_{10} BAMS did not meet flow rate criteria; PM_{10} High-Vol did not meet flow rate criteria. PM_{10} BAMS flow recalibrated and passed audit on 10/8/08. PM_{10} High-Vol flow rate recalibrated and passed audit on 10/29/08.
Last Flow Audit: 10/6/08	PM_{10}: See above
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

SITE AND MONITOR INFORMATION (WB6 continued)

Probe Siting		
	Gases (SO_2, NO_2)	**PM_{10}**
Location	Top of Shelter	Top of Shelter
Shelter: height (m) width (m) depth (m)	 4 2 5	 4 2 5
Horizontal distance from supporting structure (m)	N/A	N/A
Vertical distance above supporting structure (m)	1	1
Height of probe above ground (m)	4	5
Distance from tree(s) (m)	8	10
Horizontal distance from edge of nearest traffic lane (m)	315	313
Horizontal distance from nearest parking lot (m)	N/A	N/A
Horizontal distance from walls, parapets, penthouses (m)	N/A	N/A
Distance from obstacles, such as buildings (m)	N/A	N/A
Distance from furnace or incineration flues (m)	N/A	N/A
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	vegetative	vegetative

Monitor Information							
	SO_2	**NO_2**	**PM_{10}**	**WS**	**WD**		
Instrument Manufacturer	TECO	TECO	Met One	RM Young	RM Young		
Model No.	43A	42C	BAM1020	05103VP	05103VP		
AQS Method Code	060	074	122	Not entered into AQS			
Date sampling began	2/91	11/92	1/1/09	-	-		
Frequency	continuous	continuous	continuous	continuous	continuous		
Probe material	Glass	Glass	-	N/A	N/A		
Residence Time (seconds)	No data	No data	N/A	N/A	N/A		
Distance between co-located monitors	N/A	N/A	N/A	N/A	N/A		

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
1/1/09	Met One BAM continuous PM_{10} began operating; 1 in 6 day Anderson manual PM_{10} samplers discontinued. No co-location at this site. Anderson sampler operated at this site from 2/91-3/16/08

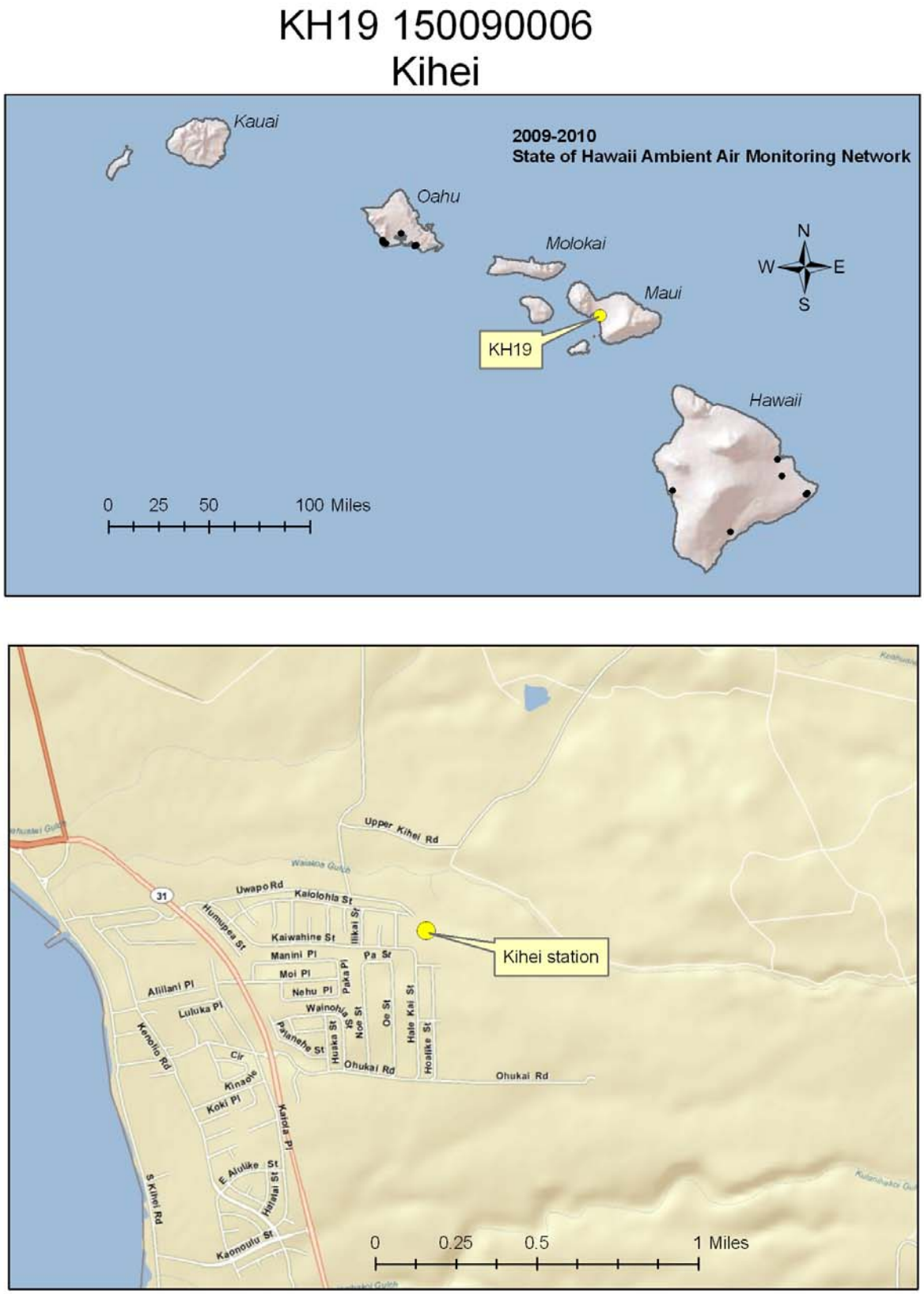
SITE REPRESENTATIVENESS

	SO_2	**NO_2**	**PM_{10}**		
Scale	Neighborhood	Neighborhood	Neighborhood		
Averaging Times	3-hr; 24-hr; annual	annual	24-hr; annual		
Monitoring Objective	Source impact	Source impact	Source impact		
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	N/A	N/A		

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 2-7. KH19 150090006 Kihei Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	KH19 Kihei

Date of Report:	5/5/2009

SITE INFORMATION

City: Kihei	**CDP:** Maui	**Census Tract:** 307.01	**AIRS ID:** 150090006
Address: Hale Piilani Park (2) 3-8-4:31			
UTM (NAD 83): 4N North 2300013.2 m East 765846.9 m		**Latitude (NAD 83):** 20° 46' 51.6 N **Longitude:** 156° 26' 46.9 W	**Elevation (MSL):** 47 m
Pollutants: $PM_{2.5}$ (SLAMS)			
Name(s) of nearest intersecting street(s): Kaiolohia, Kaiwahine			
Brief description of site location and landmarks: Located in Hale Piilani Park in the Hale Piilani subdivision of upper Kihei and surrounded to the north by agricultural land, primarily sugarcane.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Kaiolohia	Kaiwahine		
Freeway				
Major Street or Highway				
Local Street or Road	X	X		
Through Street or Highway				
Traffic Activity				
Distance of roadway from air intake (ft)	No data	No data		
Direction of roadway from air inlet	-	-		
Composition of roadway	asphalt	asphalt		
Number of traffic lanes	2	2		
Average daily traffic (estimate)	No data	No data		
Average vehicle speed (estimate, mph)	25	25		
Traffic one way or two	2	2		
Number of parking lanes	0	0		
Roadway paved?	Y	Y		

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audits	Result
Last PEP Audit:	
Last Independent (DOH) Audit: 11/6/08	Pass
Last Flow Audit: 11/6/08	PM_{10}: Pass $PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

SITE AND MONITOR INFORMATION (KH19 continued)

Probe Siting		
	PM	
Location	Top of Shelter	
Shelter: height (m) width (m) depth (m)	 4 2 5	
Horizontal distance from supporting structure (m)	N/A	
Vertical distance above supporting structure (m)	1	
Height of probe above ground (m)	5	
Distance from tree(s) (m)	-	
Horizontal distance from edge of nearest traffic lane (m)	-	
Horizontal distance from nearest parking lot (m)	-	
Horizontal distance from walls, parapets, penthouses (m)	N/A	
Distance from obstacles, such as buildings (m)	N/A	
Distance from furnace or incineration flues (m)	N/A	
Unrestricted air flow	360°	
Located in paved area or vegetative ground cover	vegetative	

Monitor Information							
	$PM_{2.5}$	**WS**	**WD**				
Instrument Manufacturer	Met One	RM Young	RM Young				
Model No.	BAM1020	05103VP	05103VP				
AQS Method Code	170	Not entered into AQS					
Date sampling began	12/1/08	-	-				
Frequency	Continuous	Continuous	Continuous				
Probe material	N/A	N/A	N/A				
Residence Time (seconds)	N/A	N/A	N/A				
Distance between co-located monitors	N/A	N/A	N/A				

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
6/1/07	The $PM_{2.5}$ sampling frequency was changed from 1 in 3 to 1 in 6 days with EPA approval
3/26/08	Met One BAM continuous $PM_{2.5}$ began operating; 1 in 6 day Anderson manual $PM_{2.5}$ sampler operated and was data of record until 11/30/08. FEMS BAMS became data of record as of 12/1/08.
12/31/08	SPM Rupprecht & Patashnick TEOM 1400B continuous PM_{10} discontinued

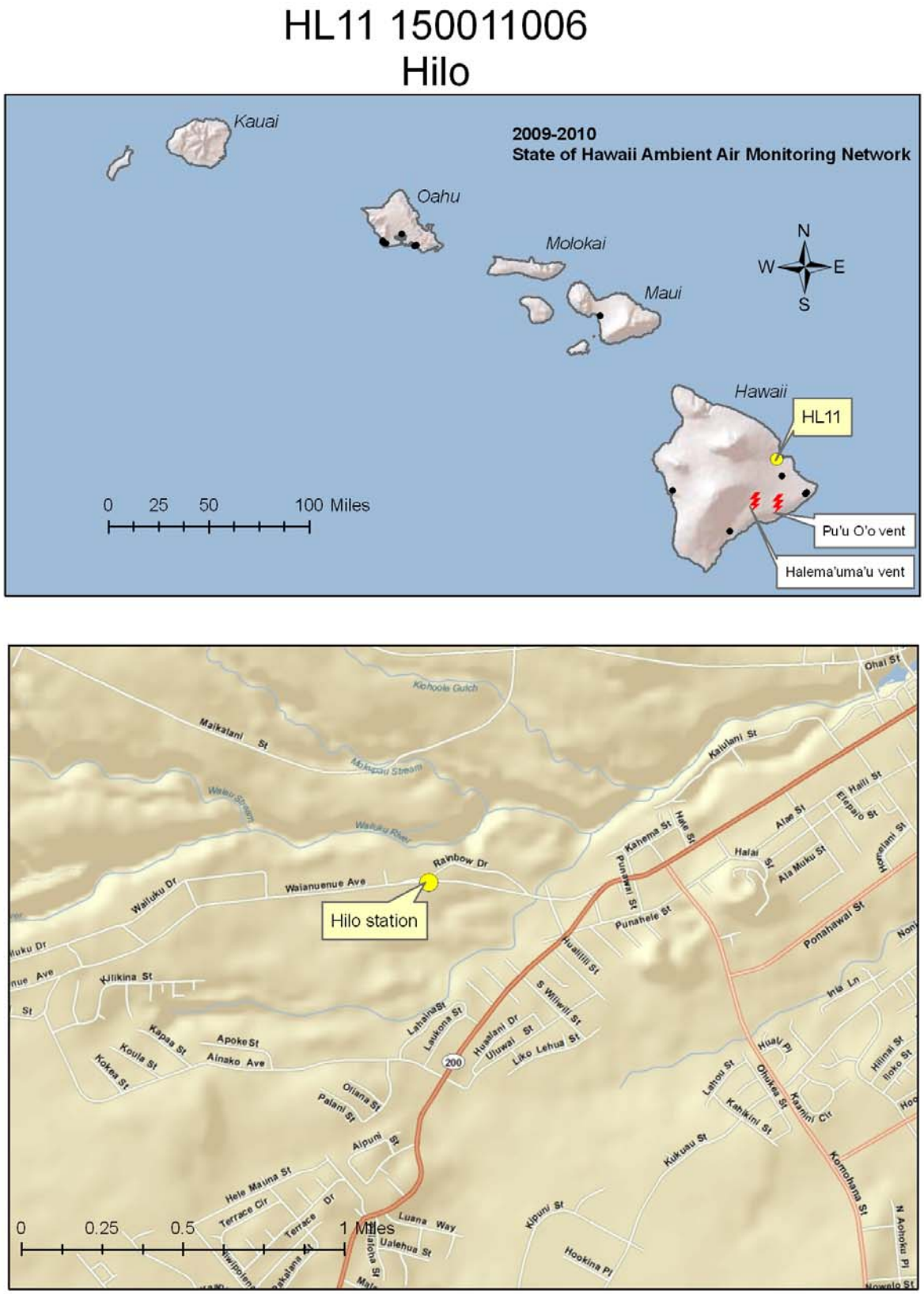
SITE REPRESENTATIVENESS

	$PM_{2.5}$				
Scale	Neighborhood				
Averaging Times	24-hr; annual				
Monitoring Objective	Source impact				
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	Yes				

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 3-8. HL11 150011006 Hilo Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	HL11 Hilo

Date of Report:	5/5/2009

SITE INFORMATION

City: Hilo	**CDP:** Hilo	**Census Tract:** 203	**AIRS ID:** 150011006
Address: 1099 Waianuenue Ave., Hilo (Hawaii)			
UTM (NAD 83): 4N North 2181602.2 m East 278797.6 m		**Latitude (NAD 83):** 19° 43' 03.3" N **Longitude:** 155° 06' 37.9" W	**Elevation (MSL):** 137 m
Pollutants: SO_2 (SLAMS); $PM_{2.5}$ (SPM until 5/1/10 then becomes SLAMS)			
Name(s) of nearest intersecting street(s): Waianuenue Ave.			
Brief description of site location and landmarks: Located on the grounds of the Adult Rehabilitation Center of Hilo near the Hilo Medical Center.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Waianuenue			
Freeway				
Major Street or Highway	X			
Local Street or Road				
Through Street or Highway				
Traffic Activity				
Distance of roadway from air intake (m)	20			
Direction of roadway from air inlet	N			
Composition of roadway	Asphalt			
Number of traffic lanes	2			
Average daily traffic (estimate)	No data			
Average vehicle speed (estimate, mph)	30			
Traffic one way or two	2			
Number of parking lanes	0			
Roadway paved?	Y			

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audit	Result
Last PEP Audit: 7/30/08	
Last Independent (DOH) Audit: 9/17/08	Pass
Last Flow Audit: 9/19/08	$PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/08

SITE AND MONITOR INFORMATION (HL11 continued)

Probe Siting		
	Gases (SO_2)	**PM**
Location	Top of shelter	Top of shelter
Shelter: height (m) width (m) depth (m)	 3 2.4 5	 3 2.4 5
Horizontal distance from supporting structure (m)	NA	NA
Vertical distance above supporting structure (m)		
Height of probe above ground (m)	4.3	
Distance from tree(s) (m)	4.6	4.6
Horizontal distance from edge of nearest traffic lane (m)	19.5	19.5
Horizontal distance from nearest parking lot (m)	24.7	24.7
Horizontal distance from walls, parapets, penthouses (m)	NA	NA
Distance from obstacles, such as buildings (m)	28.4	28.4
Distance from furnace or incineration flues (m)	29	29
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	Vegetative	Vegetative

Monitor Information							
	SO_2	**$PM_{2.5}$**	**WS**	**WD**			
Instrument Manufacturer	TECO	Met-One	RM Young	RM Young			
Model No.	43i	BAM1020	05103VP	05103VP			
AQS Method Code	060	170	Not entered into AQS				
Date sampling began	3/95	5/1/08	-	-			
Frequency	Continuous	Continuous	Continuous	Continuous			
Probe material	Glass	N/A	N/A	N/A			
Residence Time (seconds)	-	N/A	N/A	N/A			
Distance between co-located monitors	N/A	N/A	N/A	N/A			

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
5/1/08	Met One BAM continuous $PM_{2.5}$ began operating

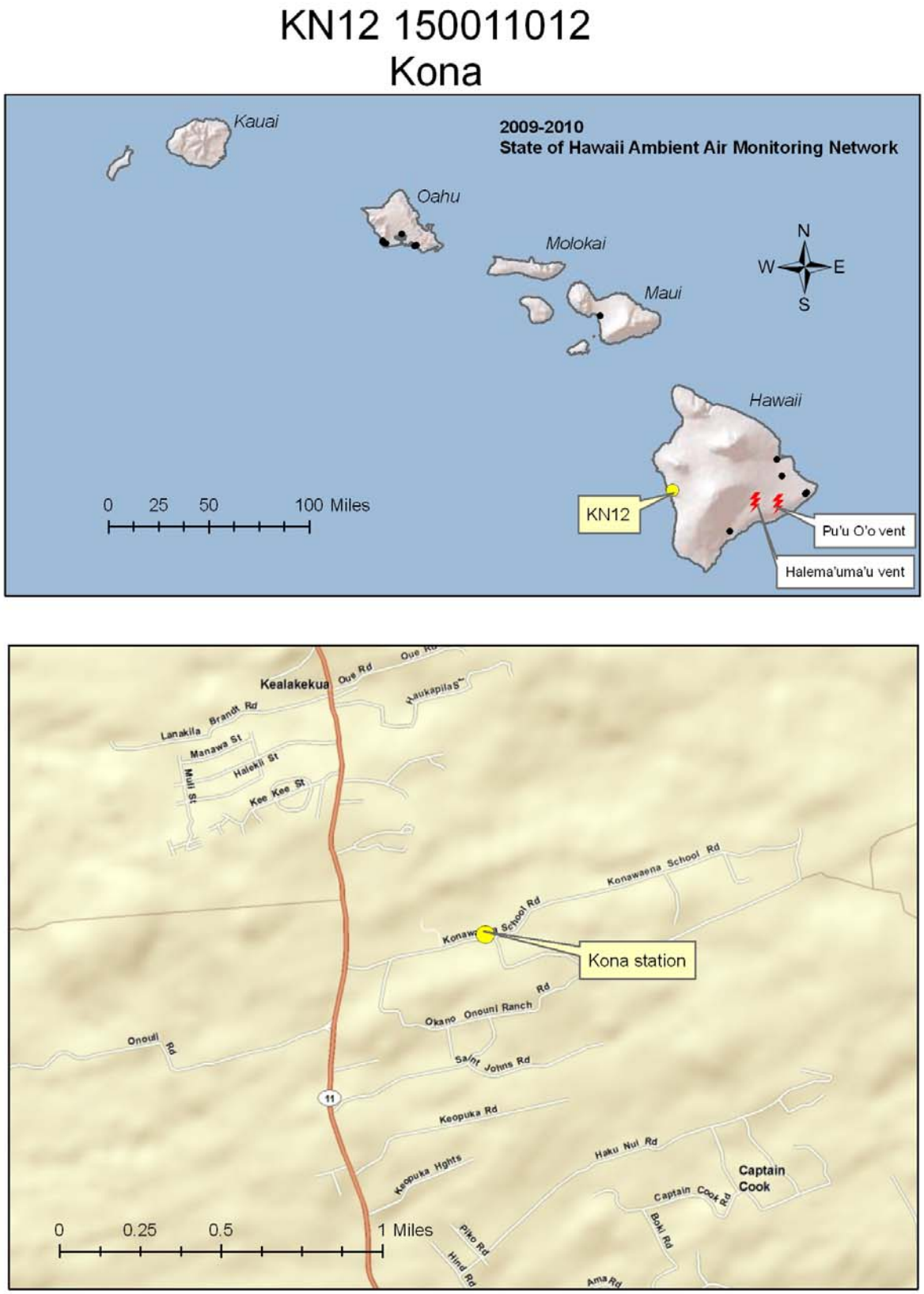
SITE REPRESENTATIVENESS

	SO_2	**$PM_{2.5}$**			
Scale	Neighborhood	Neighborhood			
Averaging Times	3-hr; 24-hr; annual	24-hr; annual			
Monitoring Objective	Population exposure	Population exposure			
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	Yes as of 5/1/10			

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 3-9. KN12 150011012 Kona Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	KN12 Kona

Date of Report:	5/5/2009

SITE INFORMATION

City: Kailua-Kona	**CDP:** Kealakekua	**Census Tract:** 214	**AIRS ID:** 150011012
Address: 81-1043 Konawaena School Rd., Kealakekua (Hawaii)			
UTM (NAD 83): North 2160151.2 m East 823983.1 m		**Latitude (NAD 83):** 19° 30' 35.2" N **Longitude:** 155° 54' 48.3" W	**Elevation (MSL):** 517 m
Pollutants: SO_2 (SLAMS); $PM_{2.5}$ (SPM until 3/15/10 then becomes SLAMS)			
Name(s) of nearest intersecting street(s): Konawaena School Road			
Brief description of site location and landmarks: Located on the upper campus of Konawaena High School in Kealakekua, Hawaii.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Konawaena School Road			
Freeway				
Major Street or Highway				
Local Street or Road				
Through Street or Highway	X			
Traffic Activity				
Distance of roadway from air intake (m)	-			
Direction of roadway from air inlet	-			
Composition of roadway	asphalt			
Number of traffic lanes	1			
Average daily traffic (estimate)	No data			
Average vehicle speed (estimate, mph)	10			
Traffic one way or two	2			
Number of parking lanes	0			
Roadway paved?	Y			

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audit	Result
Last PEP Audit: 7/30/08	
Last Independent (DOH) Audit: 9/19/08	Pass
Last Flow Audit: 9/19/08	$PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/08

SITE AND MONITOR INFORMATION (KN12 continued)

Probe Siting		
	Gases (SO_2)	**PM**
Location	Top of shelter	Top of shelter
Shelter: height (m) width (m) depth (m)	 3 2.4 5	 3 2.4 5
Horizontal distance from supporting structure (m)	NA	NA
Vertical distance above supporting structure (m)		
Height of probe above ground (m)	4.3	
Distance from tree(s) (m)		
Horizontal distance from edge of nearest traffic lane (m)	17	17
Horizontal distance from nearest parking lot (m)	NA	NA
Horizontal distance from walls, parapets, penthouses (m)	NA	NA
Distance from obstacles, such as buildings (m)	NA	NA
Distance from furnace or incineration flues (m)	NA	NA
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	Vegetative	Vegetative

Monitor Information							
	SO_2	**$PM_{2.5}$**	**WS**	**WD**	**$PM_{2.5}$**		
Instrument Manufacturer	TECO	Met-One	RM Young	RM Young	Anderson co-located		
Model No.	43C	BAM1020	05103VP	05103VP	RAAS 2.5		
AQS Method Code	060	170	Not entered into AQS		120		
Date sampling began	9/05	3/15/08	-	-	2/6/09		
Frequency	continuous	continuous	continuous	continuous	1 in 12		
Probe material	Glass	-	N/A	N/A	-		
Residence Time (seconds)	No data	N/A	N/A	N/A	N/A		
Distance between co-located monitors	N/A	N/A	N/A	N/A	7’		

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
7/27/05 – 9/12/05	Station was originally established in 1997 and was located on the bottom campus in the baseball field at a lower elevation level of 480m. Station was moved to its present location because the school was planning an expansion of the field.
3/15/08	Met One BAM continuous $PM_{2.5}$ (FEM) began operating.
2/6/09	Filters from the Anderson manual $PM_{2.5}$ to be sent to CDC for speciation analysis. Used as information gathering on the constitution of vog.

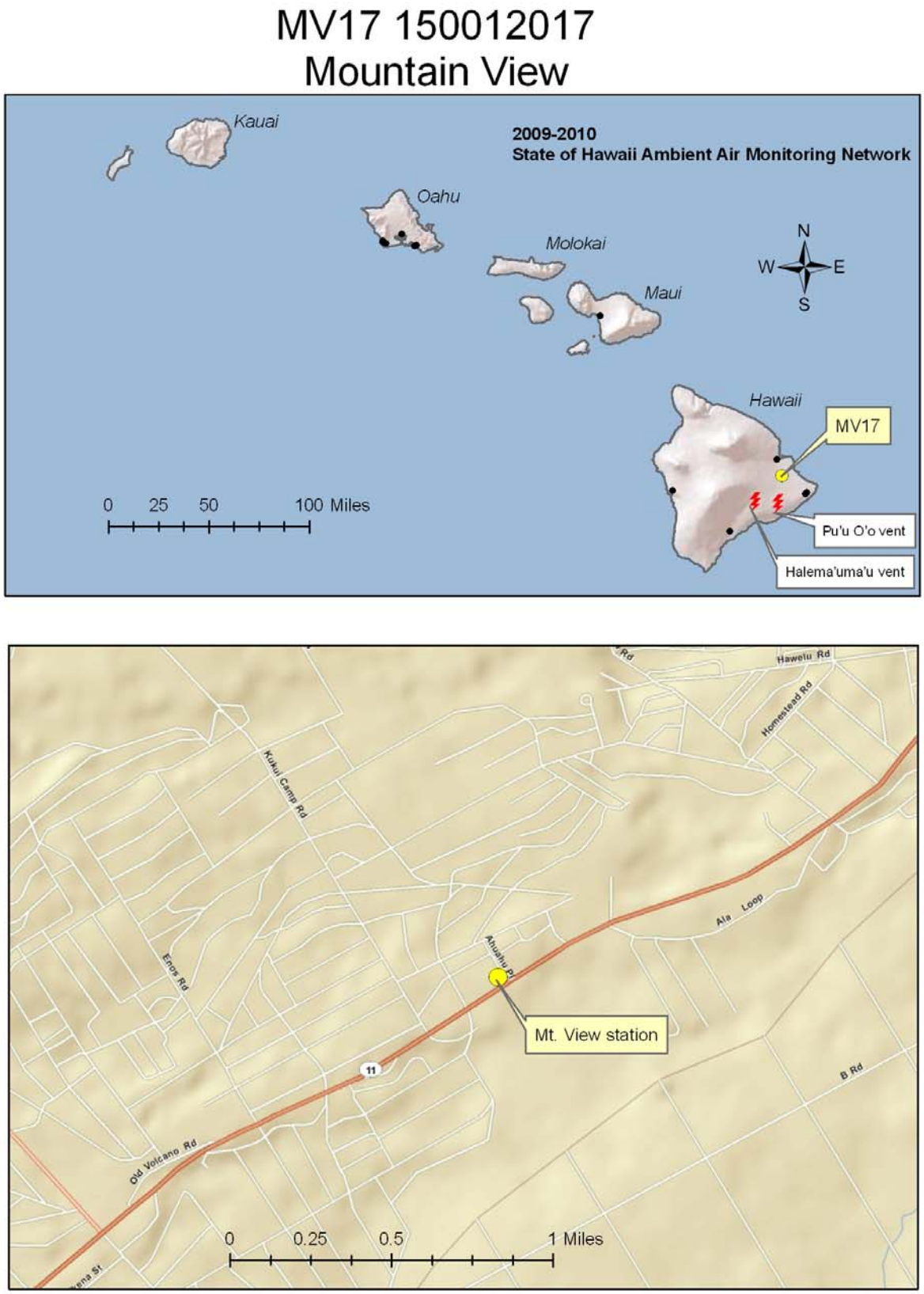
SITE REPRESENTATIVENESS

	SO_2	**$PM_{2.5}$**			
Scale	Neighborhood	Neighborhood			
Averaging Times	3-hr; 24-hr; annual	24-hr; annual			
Monitoring Objective	Population exposure	Population exposure			
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	Yes as of 3/15/10			

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 3-10. MV17 150012017 Mountain View Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	MV17 Mountain View

Date of Report:	5/5/2009

SITE INFORMATION

City: Kurtistown	**CDP:** Kurtistown	**Census Tract:** 210.02	**AIRS ID:** 150012017
Address: 17-860 Volcano Rd., Kurtistown, HI			
UTM (NAD 83): N 2165209.96 m E 239216.33 m		**Latitude (NAD 83):** 19° 34' 11.58 N **Longitude:** 155° 04' 39.84 W	**Elevation (MSL):** 354
Pollutants: SO_2 (SPM until 12/4/09 then becomes SLAMS); $PM_{2.5}$ (SPM until 4/11/10 then becomes SLAMS)			
Name(s) of nearest intersecting street(s): Volcano Rd.			
Brief description of site location and landmarks: Located in the front yard of a private residence in a residential community south of Hilo.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Volcano Rd.			
Freeway				
Major Street or Highway	X			
Local Street or Road				
Through Street or Highway				
Traffic Activity				
Distance of roadway from air intake (m)	30			
Direction of roadway from air inlet	NW			
Composition of roadway	Asphalt			
Number of traffic lanes	2			
Average daily traffic (estimate)	No data			
Average vehicle speed (estimate, mph)	40 mph			
Traffic one way or two	2			
Number of parking lanes	none			
Roadway paved?	yes			

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audit	Result
Last PEP Audit: 7/29/08	
Last Independent (DOH) Audit: 9/17/08	Pass
Last Flow Audit: 9/18/08	$PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS?	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/08

SITE AND MONITOR INFORMATION (MV17 continued)

Probe Siting		
	Gases (SO_2)	**PM**
Location	Top of shelter	Top of shelter
Shelter: height (m) width (m) depth (m)	 3 2.4 5	 3 2.4 5
Horizontal distance from supporting structure (m)	NA	NA
Vertical distance above supporting structure (m)		
Height of probe above ground (m)	4.4	
Distance from tree(s) (m)	2.4	2.4
Horizontal distance from edge of nearest traffic lane (m)	30	30
Horizontal distance from nearest parking lot (m)	NA	NA
Horizontal distance from walls, parapets, penthouses (m)	NA	NA
Distance from obstacles, such as buildings (m)	17	17
Distance from furnace or incineration flues (m)	NA	NA
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	Gravel	Gravel

Monitor Information							
	SO_2	**$PM_{2.5}$**	**WS**	**WD**			
Instrument Manufacturer	TECO	Met One	RM Young	RM Young			
Model No.	43i	BAM1020	05103VP	05103VP			
AQS Method Code	060	170	Not submitted to AQS				
Date sampling began	12/4/07	4/11/08	12/4/07	12/4/07			
Frequency	Continuous	Continuous	Continuous	Continuous			
Probe material	Glass	N/A	N/A	N/A			
Residence Time (seconds)		N/A	N/A	N/A			
Distance between co-located monitors	N/A	N/A	N/A	N/A			

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**

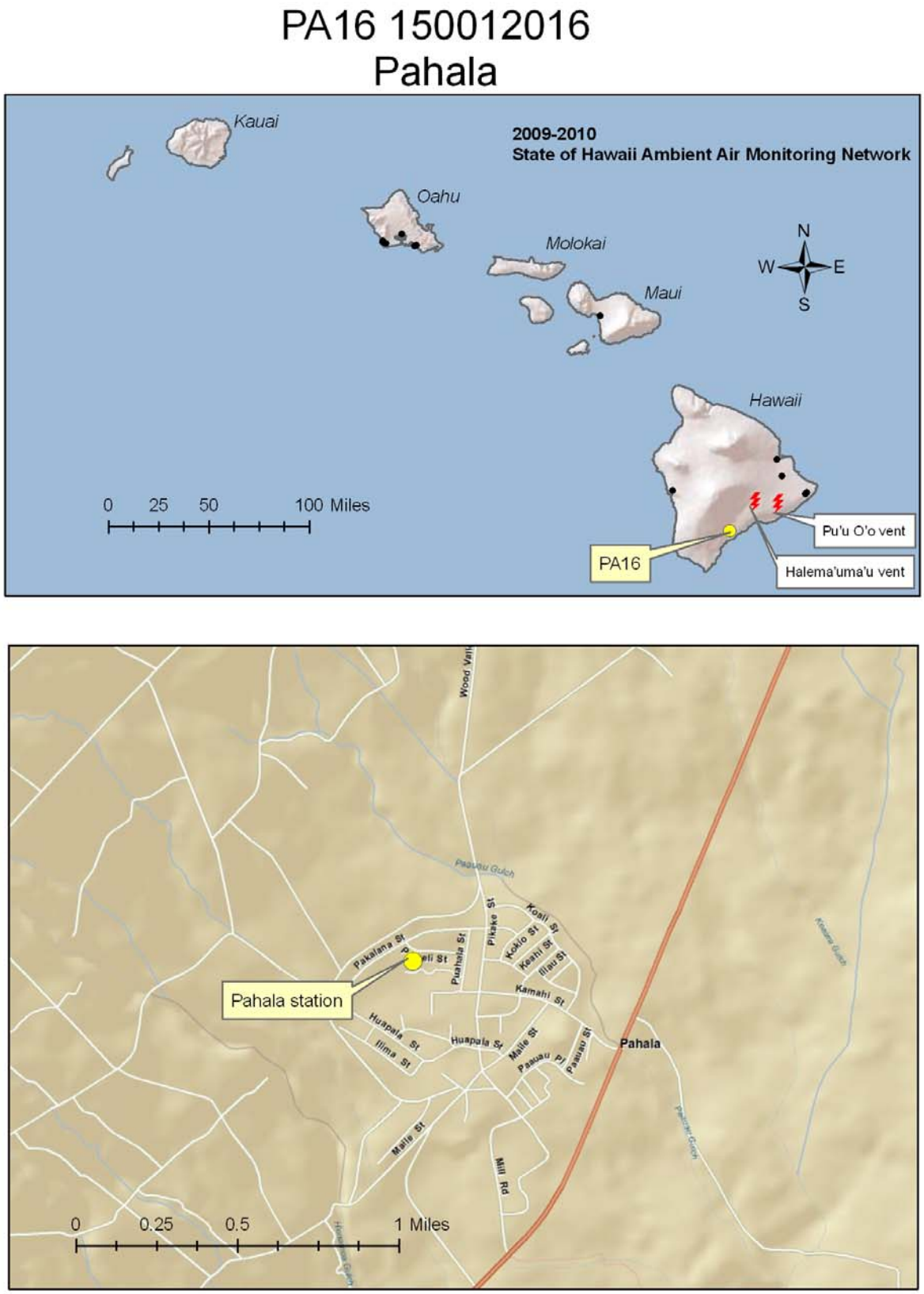
SITE REPRESENTATIVENESS

	SO_2	**$PM_{2.5}$**			
Scale	Neighborhood	Neighborhood			
Averaging Times	3-hr;24-hr; annual	24-hr; annual			
Monitoring Objective	Population exposure	Population exposure			
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	Yes as of 4/11/10			

Planned station modifications within the next 18 months:

- The lease for this station expires in February 2010. Plans are to move the station from its present location to Mt. View Elementary School, approximately 1.8 miles to the south. See Section 2.1.c. for details.

Figure 3-11. PA16 150012016 Pahala Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	PA16 Pahala

Date of Report:	5/5/2009

SITE INFORMATION

City: Pahala	**CDP:** Pahala	**Census Tract:** 212	**AIRS ID:** 150012016
Address: 96-3150 Pikake St., Pahala, HI 96777			
UTM (NAD 83): Zone 5 281730.63 E 2125246.24 N		**Latitude (NAD 83):** 19° 12' 14.04" N **Longitude:** 155° 28' 48.66" W	**Elevation (MSL):** 320 m
Pollutants: SO_2 (SPM until 8/10/09 then becomes SLAMS); $PM_{2.5}$ (SPM until 4/11/10 then becomes SLAMS)			
Name(s) of nearest intersecting street(s): Puahala, Pumeli			
Brief description of site location and landmarks: This station is located on the grounds of the Ka'u High and Pahala Elementary School.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Puahala	Pumeli		
Freeway				
Major Street or Highway				
Local Street or Road	X	X		
Through Street or Highway				
Traffic Activity				
Distance of roadway from air intake (m)	740 ft	200 ft		
Direction of roadway from air inlet	East	North		
Composition of roadway	Asphalt	Asphalt		
Number of traffic lanes	2	2		
Average daily traffic (estimate)	No data	No data		
Average vehicle speed (estimate, mph)	25 mph	25 mph		
Traffic one way or two	2	2		
Number of parking lanes	none	none		
Roadway paved?	yes	yes		

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audit	Result
Last PEP Audit: 7/29/08	
Last Independent (DOH) Audit: 9/18/08	Pass
Last Flow Audit: 9/18/08	$PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS?	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/08

SITE AND MONITOR INFORMATION (PA16 continued)

Probe Siting		
	Gases (SO_2)	**PM**
Location	Top of shelter	Top of shelter
Shelter: height (m) width (m) depth (m)	 2.4 2.4 6	 2.4 2.4 6
Horizontal distance from supporting structure (m)		
Vertical distance above supporting structure (m)		
Height of probe above ground (m)	3.4	
Distance from tree(s) (m)	11 N	11 N
Horizontal distance from edge of nearest traffic lane (m)	47.6 S	47.6 S
Horizontal distance from nearest parking lot (m)	73 S	73 S
Horizontal distance from walls, parapets, penthouses (m)	NA	NA
Distance from obstacles, such as buildings (m)	24 W	24 W
Distance from furnace or incineration flues (m)	Not applicable	Not applicable
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	Vegetative	Vegetative

Monitor Information							
	SO_2	**$PM_{2.5}$**	**WS**	**WD**			
Instrument Manufacturer	TECO	Met One	RM Young	RM Young			
Model No.	43i	BAM1020	05103VP	05103VP			
AQS Method Code	060	170	Not entered into AQS				
Date sampling began	8/10/07	4/11/08	8/10/07	8/10/07			
Frequency	Continuous	Continuous	Continuous	Continuous			
Probe material	Glass	N/A	N/A	N/A			
Residence Time (seconds)		N/A	N/A	N/A			
Distance between co-located monitors	N/A	N/A	N/A	N/A			

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
5/2/08 - 5/6/08	Station down; computer crashed

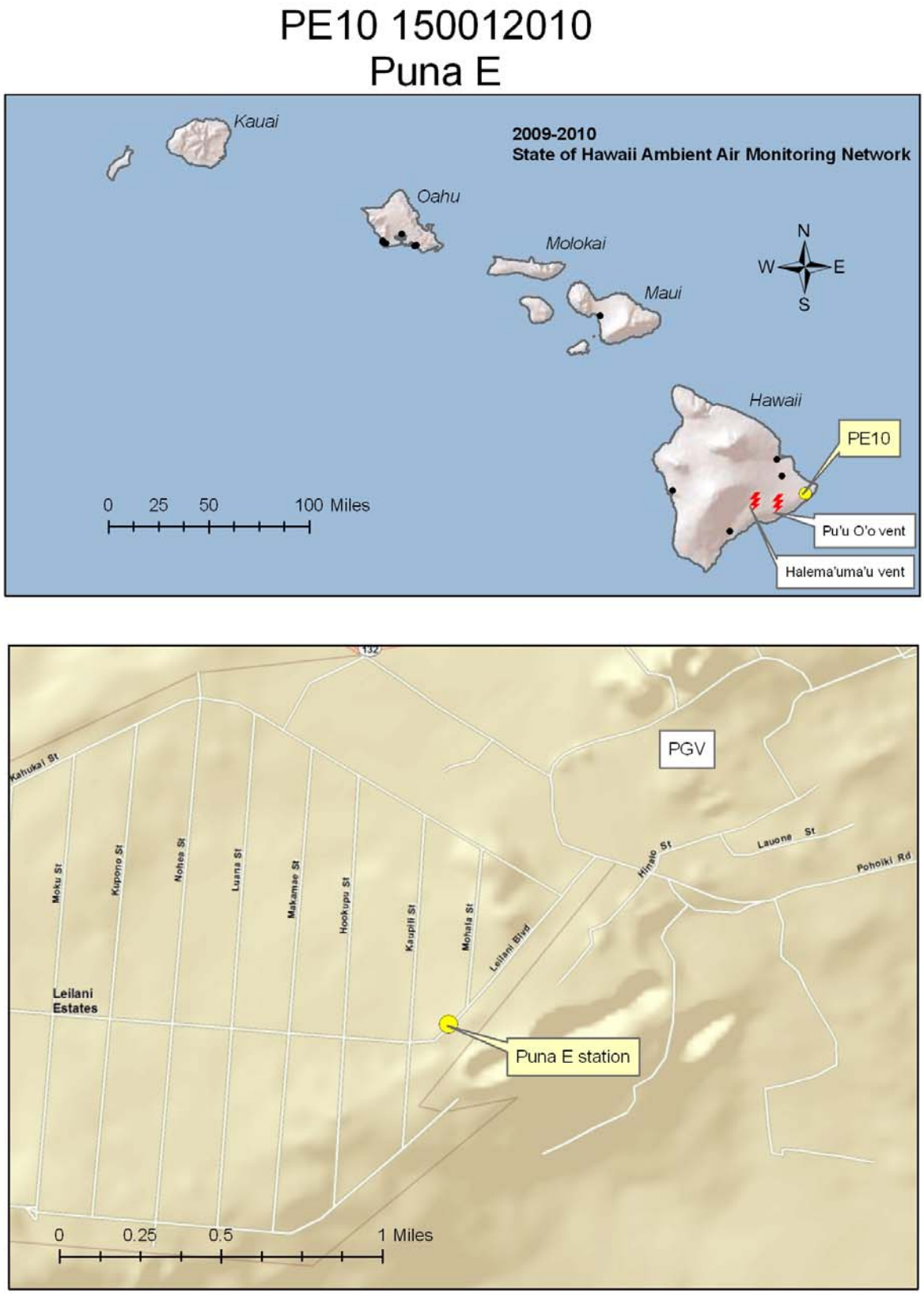
SITE REPRESENTATIVENESS

	SO_2	**$PM_{2.5}$**			
Scale	Neighborhood	Neighborhood			
Averaging Times	3-hr;24-hr; annual	24-hr; annual			
Monitoring Objective	Population exposure	Population exposure			
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	Yes as of 4/11/10			

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 3-12. PE10 150012010 Puna E Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	PE10 Puna E

Date of Report:	5/5/2009

SITE INFORMATION

City: Pahoa	**CDP:** Leilani Estates	**Census Tract:** 211	**AIRS ID:** 150012010
Address: TMK (3) 1-3-28:37, Puna (Hawaii)			
UTM (NAD 83): North 2153268.8m East 300693.3 m		**Latitude (NAD 83):** 19° 27' 50.4" N **Longitude:** 154° 53' 55.3" W	**Elevation (MSL):** 208 m
Pollutants: SO_2; H_2S (SPM)			
Name(s) of nearest intersecting street(s): Leilani Blvd.			
Brief description of site location and landmarks: Located in the Leilani Estates residential subdivision in Puna approximately 1.5 miles southwest of the Puna Geothermal Venture power plant.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Leilani Blvd.			
Freeway				
Major Street or Highway				
Local Street or Road	X			
Through Street or Highway				
Traffic Activity				
Distance of roadway from air intake (m)	25.6			
Direction of roadway from air inlet	65°			
Composition of roadway	asphalt			
Number of traffic lanes	2			
Average daily traffic (estimate)	No data			
Average vehicle speed (estimate, mph)	25			
Traffic one way or two	2			
Number of parking lanes	0			
Roadway paved?	Yes			

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audits	Result
Last PEP Audit: Not applicable	
Last Independent (DOH) Audit: 6/17/08	Pass
Last Flow Audit: Not applicable	
Precision/Accuracy reports submitted to AQS:	Yes (SO_2)
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/08

SITE AND MONITOR INFORMATION (PE10 continued)

Probe Siting		
	Gases (SO_2, H_2S)	
Location	Side of shelter ~6 ft. above ground	
Shelter: height (m) width (m) depth (m)	 2.7 5 2.4	
Horizontal distance from supporting structure (m)	1.2	
Vertical distance above supporting structure (m)	N/A (probe at breathing height)	
Height of probe above ground (m)	1.8	
Distance from tree(s) (m)	16.5	
Horizontal distance from edge of nearest traffic lane (m)	25.6	
Horizontal distance from nearest parking lot (m)	N/A	
Horizontal distance from walls, parapets, penthouses (m)	1.2 (from side of trailer)	
Distance from obstacles, such as buildings (m)	1.2 (from side of trailer)	
Distance from furnace or incineration flues (m)	N/A	
Unrestricted air flow	180°	
Located in paved area or vegetative ground cover	Vegetative	

Monitor Information							
	SO_2	**H_2S**	**WS**	**WD**			
Instrument Manufacturer	TECO	TECO	RM Young	RM Young			
Model No.	43C	43C	05103VP	05103VP			
AQS Method Code	060	008	Not entered into AQS				
Date sampling began	2/05	3/91	-	-			
Frequency	Continuous	Continuous	Continuous	Continuous			
Probe material	Teflon	Teflon	N/A	N/A			
Residence Time (seconds)	No data	No data	N/A	N/A			
Distance between co-located monitors	N/A	N/A	N/A	N/A			

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
	None

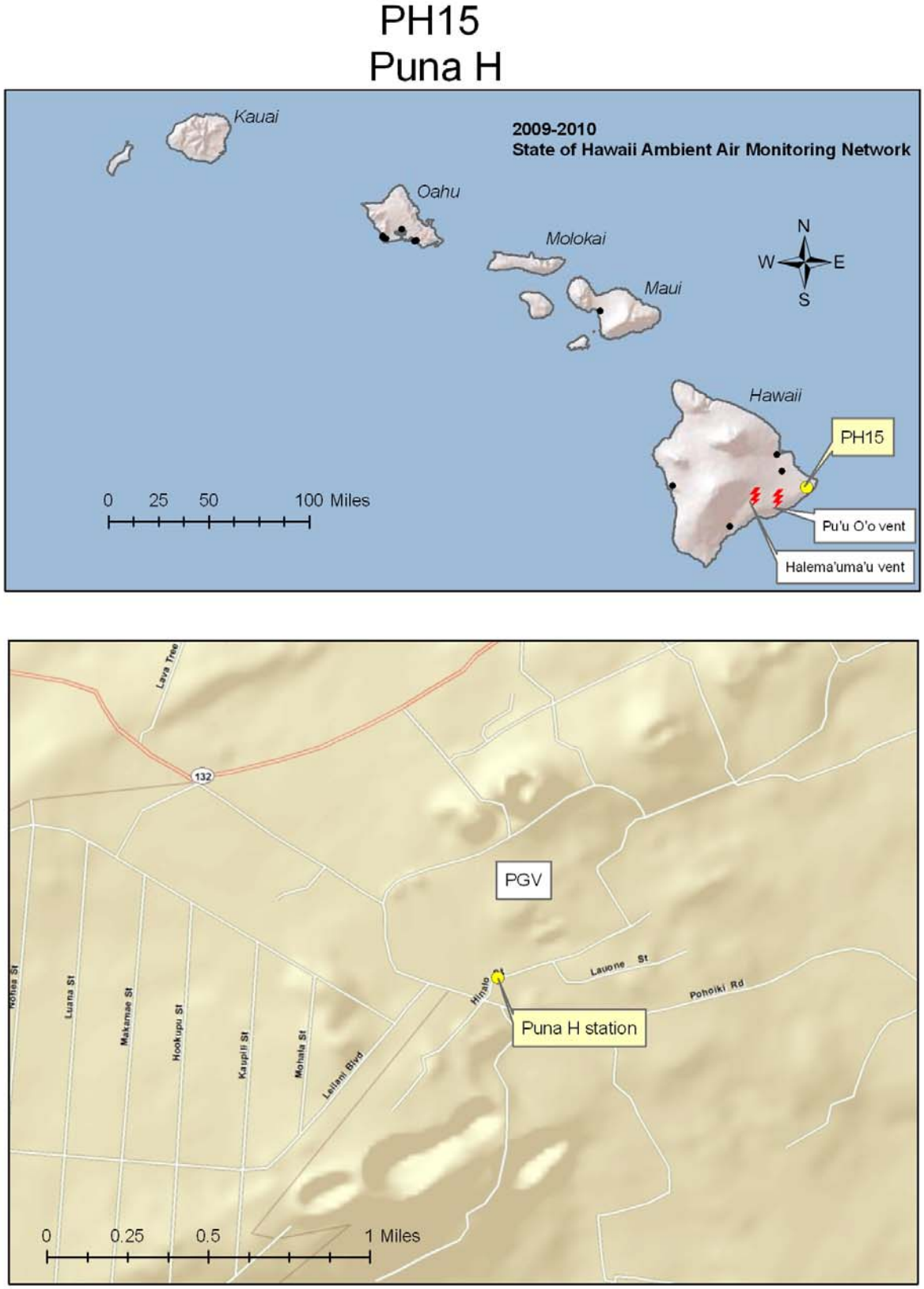
SITE REPRESENTATIVENESS

	SO_2	**H_2S**			
Scale	Neighborhood	Neighborhood			
Averaging Times	3-hr; 24-hr; annual	1-hr			
Monitoring Objective	Other	Source Impact			
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A	N/A			

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Figure 3-13. PH15 Puna H Location Map



State of Hawaii Ambient Air Monitoring Network

SITE REPORT:	PH15 Puna H

Date of Report:	5/5/2009

SITE INFORMATION

City: Pahoa	**CDP:**	**Census Tract:** 211	**AIRS ID:** None
Address: TMK (3) 1-3-46:75 Puna (Hawaii)			
UTM (NAD 83): North 2154122 m East 3001714 m		**Latitude (NAD 83):** 19° 28' 18.6" N **Longitude:** 154° 53' 20.5" W	**Elevation (MSL):** 200
Pollutants: H_2S (SPM)			
Name(s) of nearest intersecting street(s): Hinalo St., Pahoiki Rd.			
Brief description of site location and landmarks: Located in the Lanipuna Gardens residential subdivision, less than 1 mile south of the Puna Geothermal Venture plant.			
Agency preparing this report: Department of Health, Environmental Management Division, Clean Air Branch, Monitoring and Analysis Section			
Agency responsible for data collection and site maintenance: Department of Health, State Laboratories Division, Environmental Health Analytical Service Branch, Air Surveillance and Analysis Section			

GENERAL SITE DESCRIPTION

Mobile Source				
Type	Hinalo St.	Pahoiki Rd.		
Freeway				
Major Street or Highway				
Local Street or Road	X	X		
Through Street or Highway				
Traffic Activity				
Distance of roadway from air intake (m)	13			
Direction of roadway from air inlet	10°	SW		
Composition of roadway	asphalt	asphalt		
Number of traffic lanes	2	2		
Average daily traffic (estimate)	No data	No data		
Average vehicle speed (estimate, mph)	25	25		
Traffic one way or two	2	2		
Number of parking lanes	0	0		
Roadway paved?	Yes	Yes		

Obstructions			
Type	**Size**	**Direction from Site**	**Distance from Site**
None			

Meteorology and Climatology: Source of met data is site WS, WD

DATA QUALITY

Audits	Result
Last PEP Audit: Not applicable	
Last Independent (DOH) Audit: 6/17/08	Pass
Last Flow Audit: Not applicable	
Precision/Accuracy reports submitted to AQS:	N/A
Annual data certification submitted to EPA:	N/A

SITE AND MONITOR INFORMATION (PH15 continued)

Probe Siting		
	Gases (H_2S)	
Location	Side of shelter ~6 ft. above ground	
Shelter: height (m) width (m) depth (m)	 2.7 2.4 5	
Horizontal distance from supporting structure (m)	2.4	
Vertical distance above supporting structure (m)	N/A (probe at breathing height)	
Height of probe above ground (m)	1.8	
Distance from tree(s) (m)	9	
Horizontal distance from edge of nearest traffic lane (m)	12.8	
Horizontal distance from nearest parking lot (m)	N/A	
Horizontal distance from walls, parapets, penthouses (m)	2.4	
Distance from obstacles, such as buildings (m)	2.4	
Distance from furnace or incineration flues (m)	N/A	
Unrestricted air flow	180°	
Located in paved area or vegetative ground cover	Vegetative	

Monitor Information							
	H_2S	**WS**	**WD**				
Instrument Manufacturer	TECO	RM Young	RM Young				
Model No.	43C	05103VP	05103VP				
AQS Method Code	008	Not entered into AQS					
Date sampling began	11/02	-	-				
Frequency	Continuous	Continuous	Continuous				
Probe material	Teflon	N/A	N/A				
Residence Time (seconds)	No data	N/A	N/A				
Distance between co-located monitors	N/A	N/A	N/A				

Site and Data History	
Date of Occurrence	**Reasons for Invalid or Missing Data; Other site changes**
	None

SITE REPRESENTATIVENESS

	H_2S				
Scale	Neighborhood				
Averaging Times	1-hr				
Monitoring Objective	Source Impact				
Suitable for comparison against annual $PM_{2.5}$ NAAQS?	N/A				

Planned station modifications within the next 18 months:

- No additions or modifications are planned for this station.

Appendix B

2005 State of Hawaii
Lead Emissions Inventory

Emissions for Point Sources by Facility Top 10

Inventory Year: 2005
Emission Unit: [tons]
Period Class: ANNUAL (Jan 01 to Dec 31)
Emission Type: ENTIRE PERIOD - ACTUAL

Hawaii — 7439921 - LEAD

Rank	Company Name	Facility Name	FID	Location Name	Emissions	% of Total
1		HPOWER		Oahu Island	0.47	38.21%
2		HECO - Kahe Power Plant		Oahu Island	0.18	14.35%
3		AES Hawaii, Inc.		Oahu Island	0.13	10.44%
4		Kalaeloa Cogeneration Plant		Oahu Island	0.09	7.18%
5		HECO - Waiau Power Plant		Oahu Island	0.08	6.38%
6		MECO - Maalaea Generating Station		Maui Island	0.06	5.05%
7		Maui Pineapple Co.		Maui Island	0.06	4.70%
8		Chevron Hawaii Refinery		Oahu Island	0.06	4.59%
9		Tesoro - Campbell Industrial Park & Barbers		Oahu Island	0.03	2.12%
10		HELCO - Kanoelehua Hill Generating Statior		Hawaii Island	0.02	1.78%

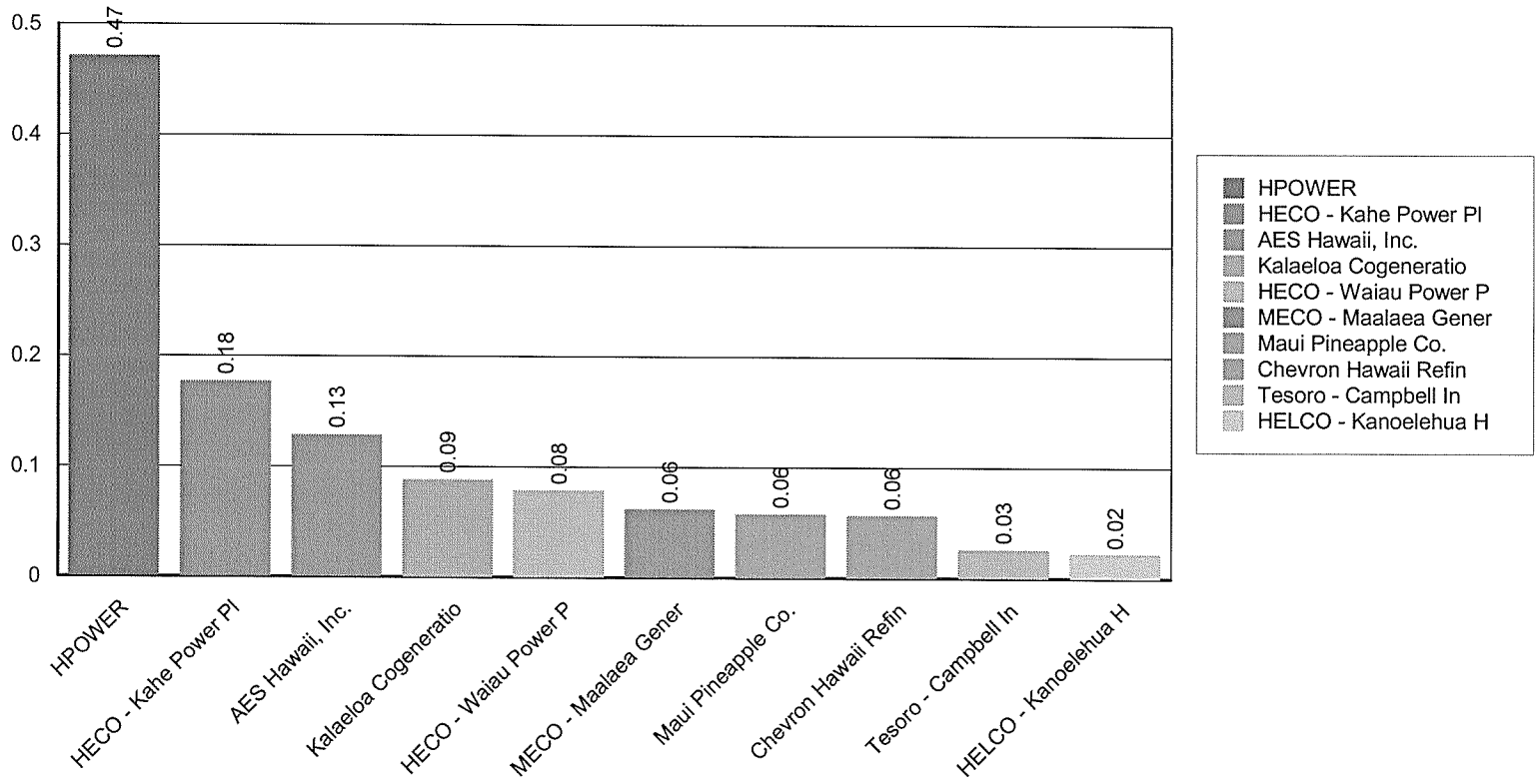
Total Emissions: 1.17 [tons] 94.79%

7439921 Emission Total: 1.23 [tons]

Emissions for Point Sources by Facility Top 10

Inventory Year: 2005
Emission Unit: [tons]
Period Class: ANNUAL (Jan 01 to Dec 31)
Emission Type: ENTIRE PERIOD - ACTUAL

Hawaii — 7439921 - LEAD



Total Emissions: 1.17 [tons]

Appendix C

NCore Monitoring Plan

State of Hawaii
NCore Monitoring Plan

Submitted to the U.S. EPA Region 9
July 1, 2009

Prepared by:
State of Hawaii
Department of Health

Environmental Management Division
Clean Air Branch

NCore Station Requirements

NCore means National Core multi-pollutant monitoring station and the U.S. EPA is requiring that each state operate at a minimum, one NCore station as codified in 40 CFR 53 and 58.

This plan details the NCore site selection for the state of Hawaii.

The NCore network objectives are:

- Timely reporting of data to the public;
- Support for emission strategy development;
- Tracking of long-term trends of pollutants and their precursors;
- Support for long-term health assessments;
- Determination of NAAQS compliance;
- Support to scientific studies;
- Support to ecosystem assessments.

Selection of the NCore station location is based, in part, on the following criteria:

- For urban sites, scale of representation should be neighborhood to urban;
- Preference given to existing stations with long-term data history and leveraged with other programs such as speciation and air toxics monitoring;
- Site should have sufficient space for NCore pollutant and meteorological monitoring equipment;
- There should be sufficient power to meet electrical needs;
- There should be communications access, such as DSL, cable modem or other high speed data transfer connections;
- Should meet siting guidance and not be unduly influenced by unique sources; and,
- The station should have a long-term location commitment.

NCore stations will measure the following parameters:

- $PM_{2.5}$ mass (filter based and continuous)
- $PM_{2.5}$ speciation
- $PM_{10\text{-}2.5}$ mass
- $PM_{10\text{-}2.5}$ speciation
- Ozone
- Carbon monoxide
- Sulfur Dioxide
- Nitrogen Oxide
- Total reactive nitrogen (NO_y)
- Surface meteorology (wind speed and direction, ambient temperature, relative humidity)

NCore stations are required to be operating and collecting data by January 1, 2011.

NCore Site Selection for the State of Hawaii

I. NCore Station Selection

All existing stations in the Honolulu MSA were evaluated and rated for suitability as an NCore station. Additionally, extensive efforts were made to find other locations in the MSA that could possibly be established as an NCore station.

Existing stations were evaluated for:

- monitoring objectives;
- siting;
- historical data;
- population;
- land use; and
- ability to accommodate NCore pollutant and meteorological monitoring.

After careful review, the state of Hawaii recommends the Kapolei air monitoring station (KA5 150030010) as the NCore site. The station meets the following selection criteria:

- scale of representation is neighborhood for all pollutants;
- the station has been at its current location since 2002 and prior to that from 1991 to 2002, was about 275 meters to the north, close enough to maintain the same AQS ID number;
- the station is currently comprised of two monitoring trailers with a meteorological tower and has adequate space for additional platforms if necessary;
- the site has adequate power for current needs and can be modified to meet any additional power requirements;
- the site is using a wireless transmitter/receiver but upgrading to a wireless broadband service is a possibility;
- there is a 360° clearance around all gas and particulate inlets and meets 40 CFR 58 siting guidance; and,
- the property is owned by the county Board of Water Supply with a long-standing agreement of use.

II. Kapolei Air Monitoring Station (150030010)

A. Objectives

The Kapolei station provides information to fulfill the following monitoring objectives:

- Compliance with the NAAQS
- Data for daily pollution index reporting and other timely public reporting
- Tracking of pollution trends
- Support for emission strategy development
- Data for scientific and health studies

B. Site Report

Site Information

City: Kapolei	MSA: Honolulu	Census Tract: 85	AIRS ID: 150030010
Address: 2052 Lauwiliwili St., Kapolei, HI 96707 (Oahu)			
UTM (NAD 83): Zone 4N 2358251.4 m North 594516.6 m East	Latitude (NAD 83): 21° 19' 25.5" N Longitude: 158° 05' 19.0" W		Elevation (MSL): 18 m
Pollutants currently monitored: CO, SO_2, NO_2, PM_{10}, $PM_{2.5}$			
Meteorological parameters currently monitored: WS, WD, ambient temperature (°F)			
Date established: July 29, 2002			

Brief Location Description

Site location and landmarks:

Located in the Kapolei Business Park, the station is in the growing "second city" of Kapolei and about 14 kilometers from the western edge of urban Honolulu. The main residential communities surrounding the station are the City and Villages of Kapolei, Makakilo and Honokai Hale. The station is also approximately 1.25 km northeast of Campbell Industrial Park.

Distance from Roadways

Type	Kalaeloa Blvd.	Lauwiliwili St.	H-1 Freeway
Freeway			X
Major Street or Highway	X		
Local Street or Road		X	
Traffic Activity			
Distance of roadway from air intake (m)	379	167	686
Direction of roadway from air inlet	NW	W	N
Composition of roadway	asphalt	asphalt	asphalt
Number of traffic lanes	4	2	6
Average daily traffic (estimate)	No data	No data	47,532 (2001)
Average vehicle speed (estimate, mph)	35	30	60
Traffic one way or two	2	2	2
Number of parking lanes	0	0	0
Roadway paved?	Y	Y	Y

Obstructions		
Type	Size (m)	Direction from Site
None		

Data Quality

The station adheres to all SLAMS quality assurance as required in 40 CFR 58.

Audits	Result
Last PEP Audit: 8/27/08	Awaiting EPA report
Last Independent (DOH) Audit: 10/7 to 10/8/08	Pass
Last Flow Audit: PM_{10}: 10/7/08; $PM_{2.5}$: 10/8/08	PM_{10}: Pass $PM_{2.5}$: Pass
Precision/Accuracy reports submitted to AQS:	Yes
Annual data certification submitted to EPA:	2008 Certification submitted 6/27/2008

The site was visited by EPA Region 9 representatives in July 2008 during the network's technical systems audit.

Siting Information

Probe Siting		
	Gases (CO, SO_2, NO_2)	PM_{10}, $PM_{2.5}$
Location	Top of shelter	Top of shelter
Shelter: height (m) width (m) depth (m)	 4 2.4 5	 4 2.4 5
Horizontal distance from supporting structure (m)	N/A	N/A
Vertical distance above supporting structure (m)	1	1
Height of probe above ground (m)	5	5
Distance from tree(s) (m)	106	106 (PM_{10} inlet) 117 ($PM_{2.5}$ inlet)
Horizontal distance from edge of nearest traffic lane (m)	167	167
Horizontal distance from nearest parking lot (m)	87	87
Horizontal distance from walls, parapets, penthouses (m)	N/A	N/A
Distance from obstacles, such as buildings (m)	170	170
Distance from furnace or incineration flues (m)	N/A	N/A
Unrestricted air flow	360°	360°
Located in paved area or vegetative ground cover	Vegetative/Barren	Vegetative/Barren

Monitor Information

	CO	**SO_2**	**NO_2**	**PM_{10}**	**$PM_{2.5}$**	**WS**	**WD**	**Ambient Temp**
Instrument Manufacturer	TECO	TECO	TECO	Met-One	Met-One	RM Young	RM Young	RM Young
Model No.	48i	43A	42C	BAM1020	BAM1020	05103VP	05103VP	41342VC
AQS Method Code	054	060	074	122	170			
FRM/FEM	FRM	FEM	FRM	FEM	FEM	-	-	-
Date sampling began	7/29/02	7/29/02	7/29/02	12/18/08	1/1/09	-	-	-
Frequency	Cont.	Cont.	Cont.	Cont.	Cont.	Cont.	Cont.	Cont.
Probe material	Glass	Glass	Glass	N/A	N/A	N/A	N/A	N/A
Residence Time	No data	No data	No data	N/A	N/A	N/A	N/A	N/A
Distance between co-located monitors	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Method	Gas Filter Correlation	Pulsed Fluor.	Chemi-luminescence	Continuous Beta-attenuation	Continuous Beta-attenuation	Propeller anemometer	Vane anemometer	thermistor

Required NCore Monitoring to be Established

Parameter	**Date Measurements Expected**	**NOTES**
Ozone	January 1, 2011	Year-round operation
SO_2 Trace level	January 1, 2011	High sensitivity to replace existing instrument
CO Trace level	January 1, 2011	High sensitivity to replace existing instrument
NO_y	January 1, 2011	
$PM_{2.5}$ Mass FRM	January 1, 2011	To be co-located with existing continuous instrument
$PM_{2.5}$ Speciation	October 1, 2009	Met One SASS currently at the Pearl City station will be relocated and installed with the URG 3000N
$PM_{10\text{-}2.5}$ Mass	January 1, 2011	Method to be determined by EPA
$PM_{10\text{-}2.5}$ Speciation	January 1, 2011	Method to be determined by EPA
Relative Humidity	January 1, 2011	

Site Representativeness

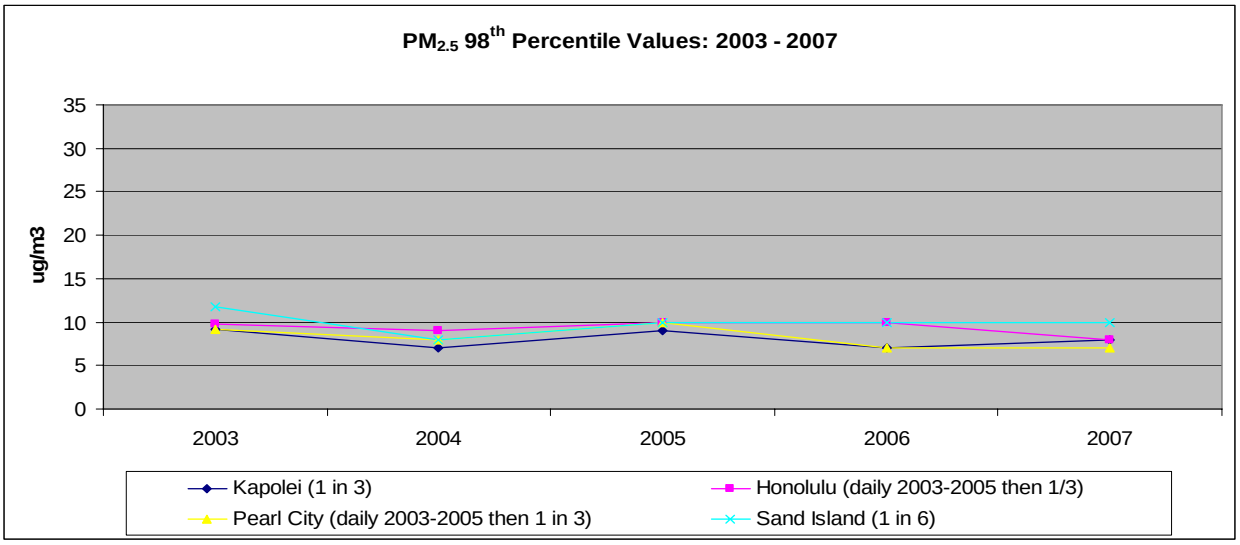
	CO	SO_2	NO_2	PM_{10}	$PM_{2.5}$
Spatial Scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Averaging Times	1-hr; 8-hr	3-hr; 24-hr; annual	annual	24-hr	24-hr; annual
Monitoring Objective	Population	Population	Population	Population	Population
Suitable for comparison against all applicable NAAQS?	Yes	Yes	Yes	Yes	Yes

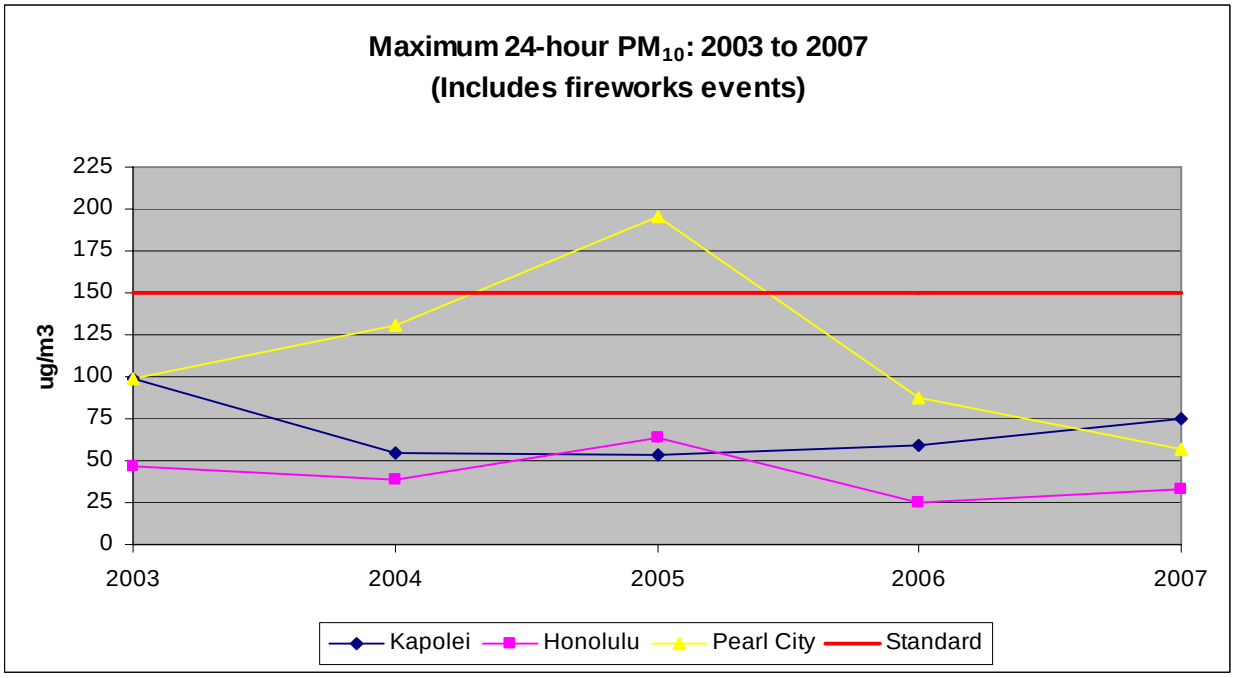
C. Historical Data

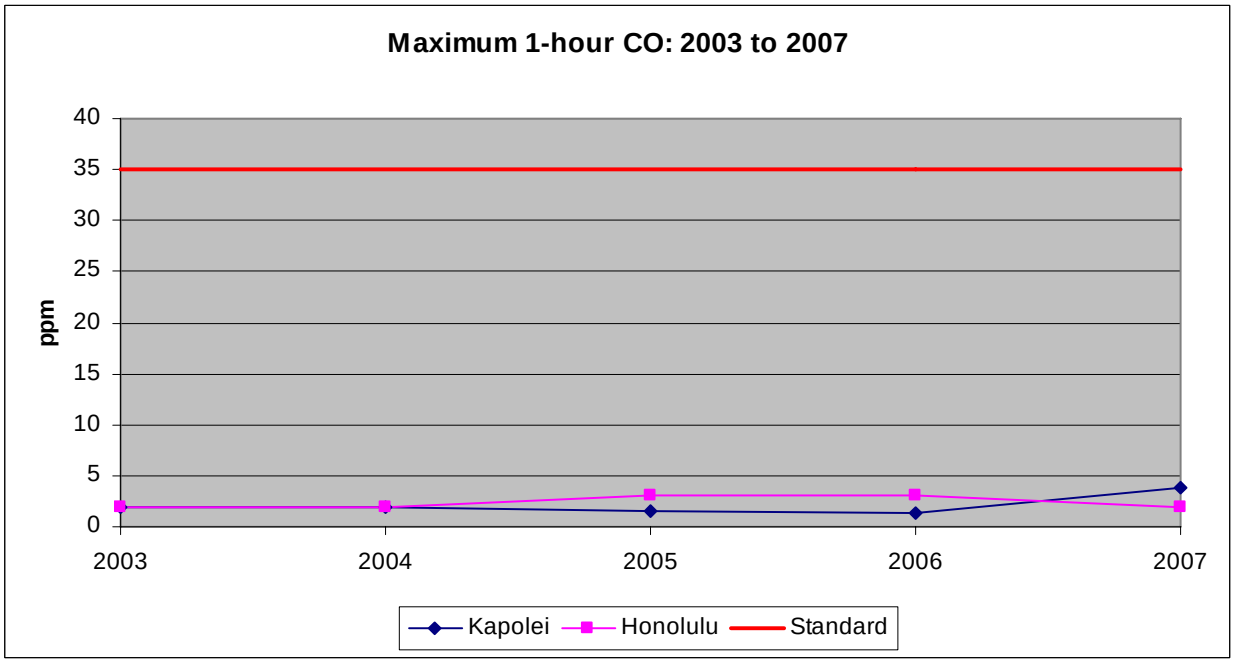
The area is comprised of commercial, government, heavy and light industrial, residential and recreational. Kapolei is the fastest growing community in the City and County of Honolulu, which encompasses the entire island of Oahu. Although the land use surrounding the station is varied, historical data shows that it is comparable to all other urban monitoring stations in the network.

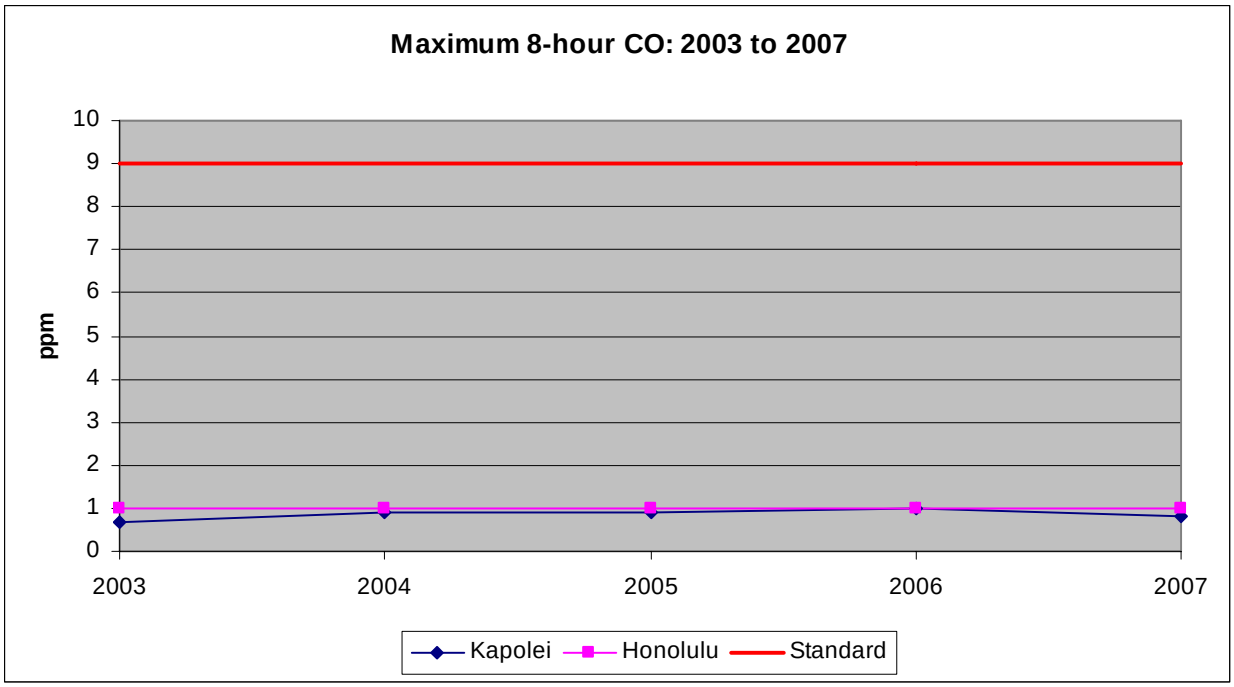
Following are 5-year data comparisons for $PM_{2.5}$, PM_{10}, SO_2, and CO between Kapolei and the other three stations in urban Honolulu collecting the same pollutant data and also considered for NCore:

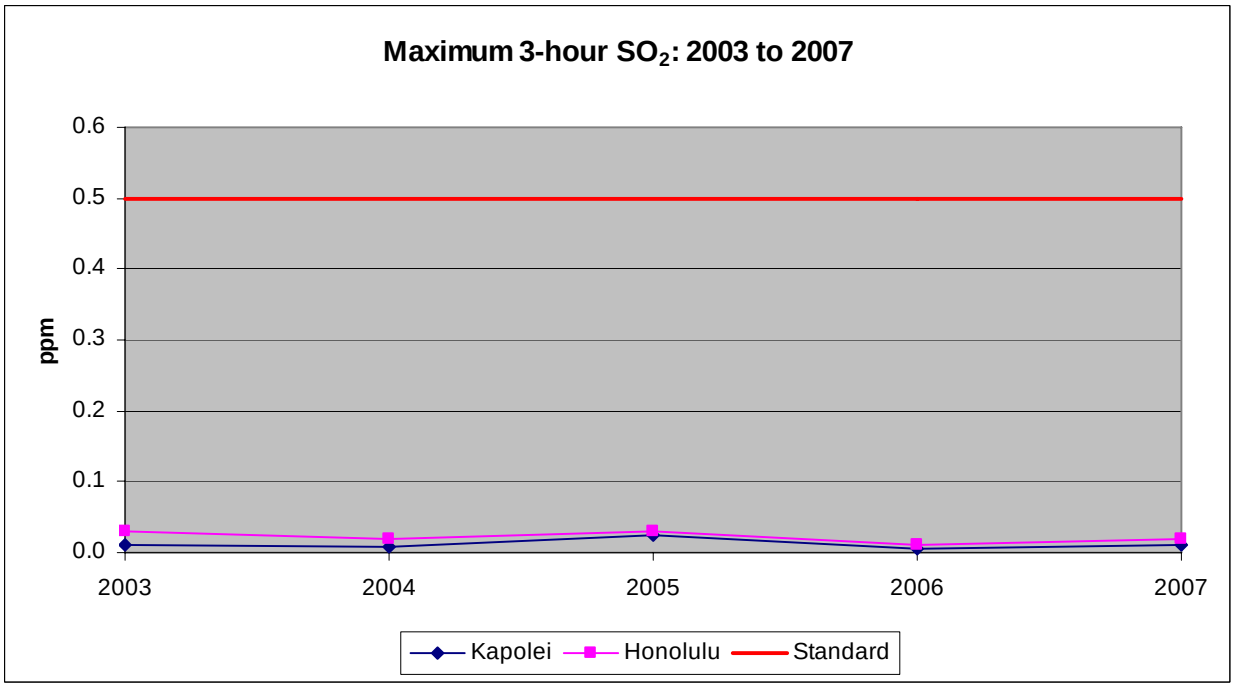
Honolulu: 150031001 ($PM_{2.5}$, PM_{10}, SO_2, CO)
Sand Island: 150031004 ($PM_{2.5}$)
Pearl City: 150032004 ($PM_{2.5}$, PM_{10})

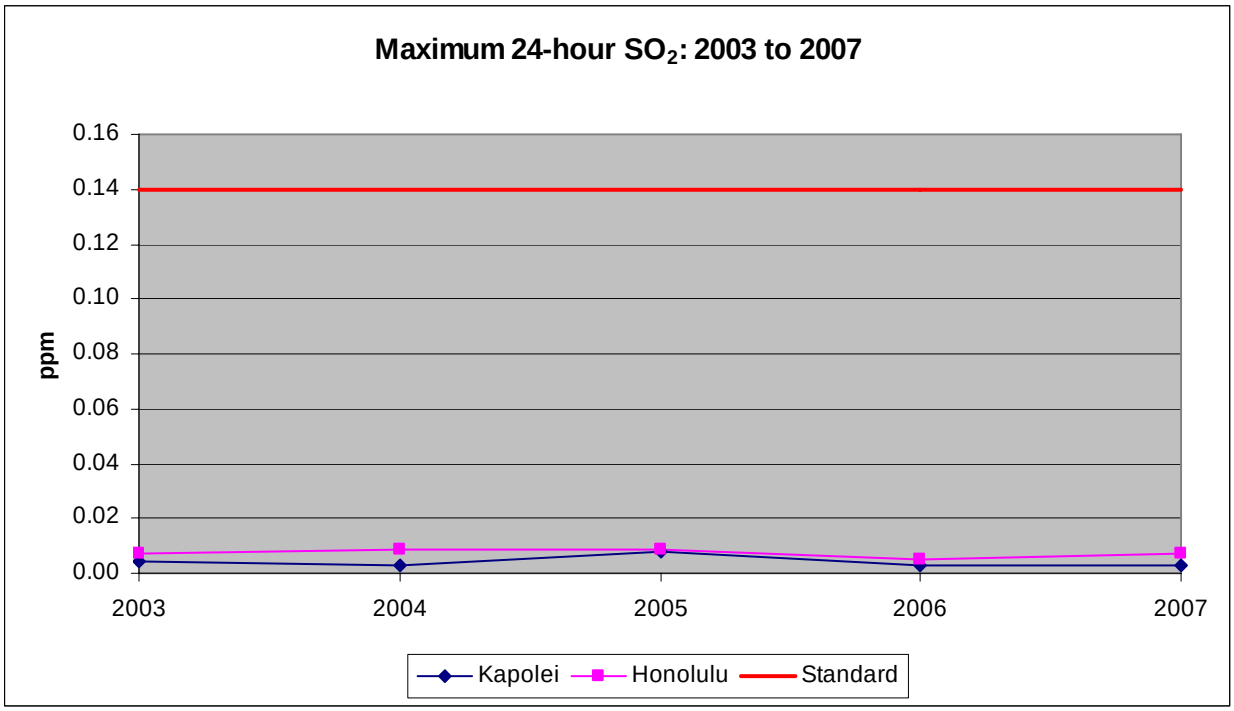



Maximum 24-hour PM10: 2003 to 2007
(Includes fireworks events)
ug/m3
225
200
175
150
125
100
75
50
25
0
2003
2004
2005
2006
2007
Kapolei
Honolulu
Pearl City
Standard


Maximum 1-hour CO: 2003 to 2007
ppm
40
35
30
25
20
15
10
5
0
2003
2004
2005
2006
2007
Kapolei
Honolulu
Standard


Maximum 8-hour CO: 2003 to 2007
ppm
10
9
8
7
6
5
4
3
2
1
0
2003
2004
2005
2006
2007
Kapolei
Honolulu
Standard


Maximum 3-hour SO2: 2003 to 2007
ppm
0.6
0.5
0.4
0.3
0.2
0.1
0.0
2003
2004
2005
2006
2007
Kapolei
Honolulu
Standard

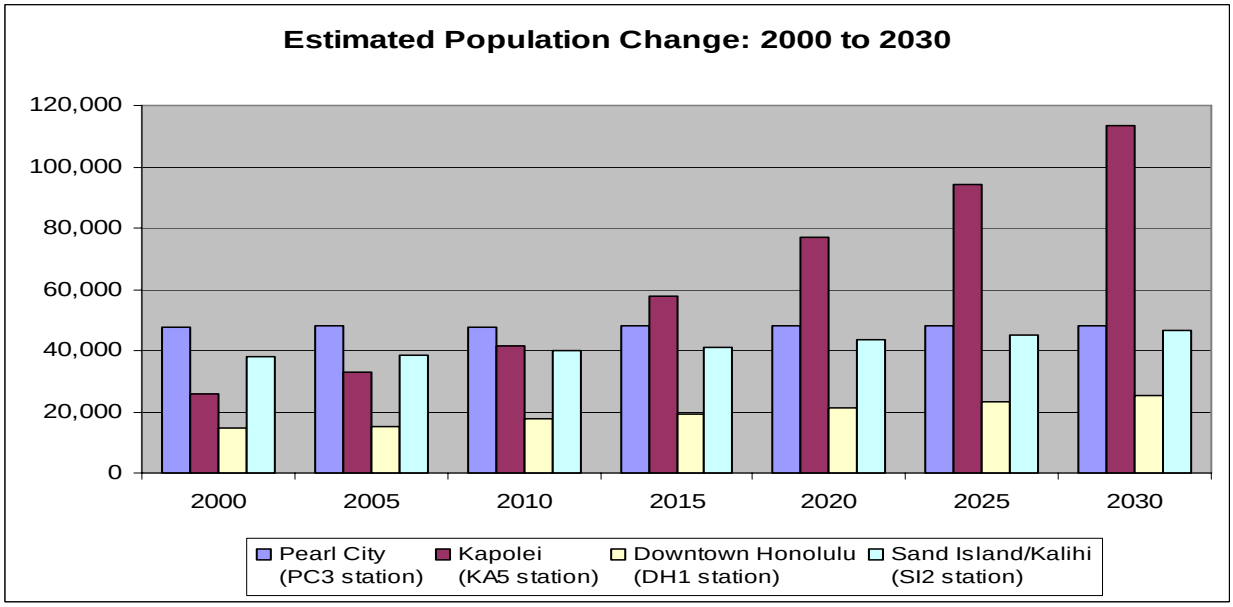


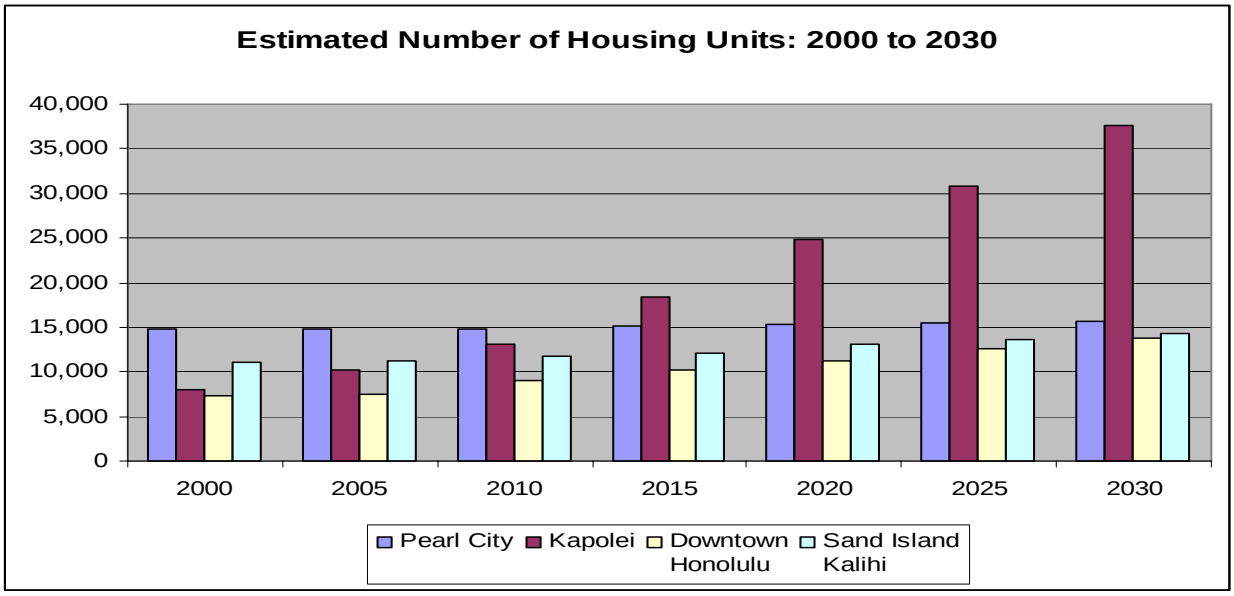
D. Population

One of the most compelling reasons for the NCore to be at Kapolei is because of the current and projected growth in population and housing, as well as business and commercial development. Kapolei is expected to be the fastest growing job center on the island.

As shown in the following graphs, estimated population and housing growth is far greater for the Kapolei area than in communities surrounding the other candidate NCore stations.

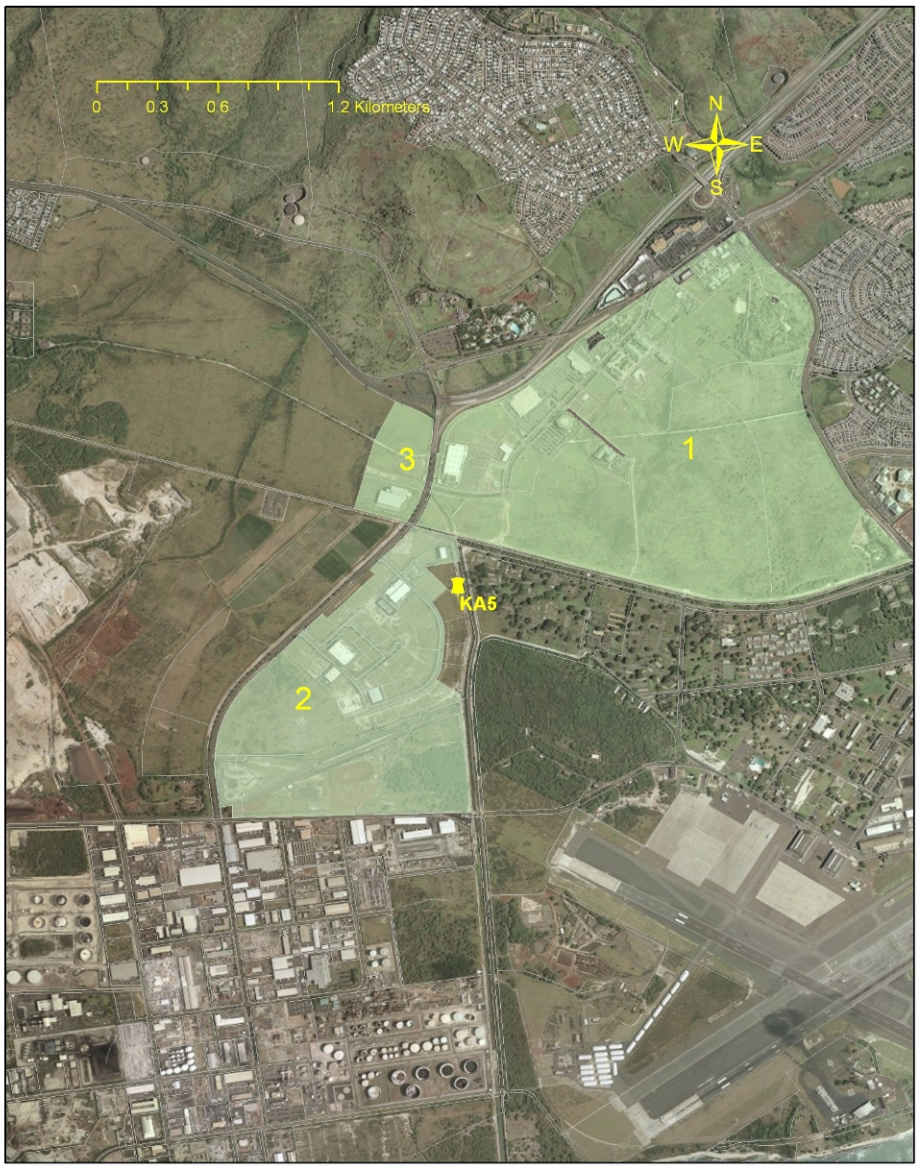
Data is provided by the City and County of Honolulu Department of Planning and Permitting.


Estimated Population Change: 2000 to 2030
120,000
100,000
80,000
60,000
40,000
20,000
0
2000
2005
2010
2015
2020
2025
2030
Pearl City (PC3 station)
Kapolei (KA5 station)
Downtown Honolulu (DH1 station)
Sand Island/Kalihi (SI2 station)

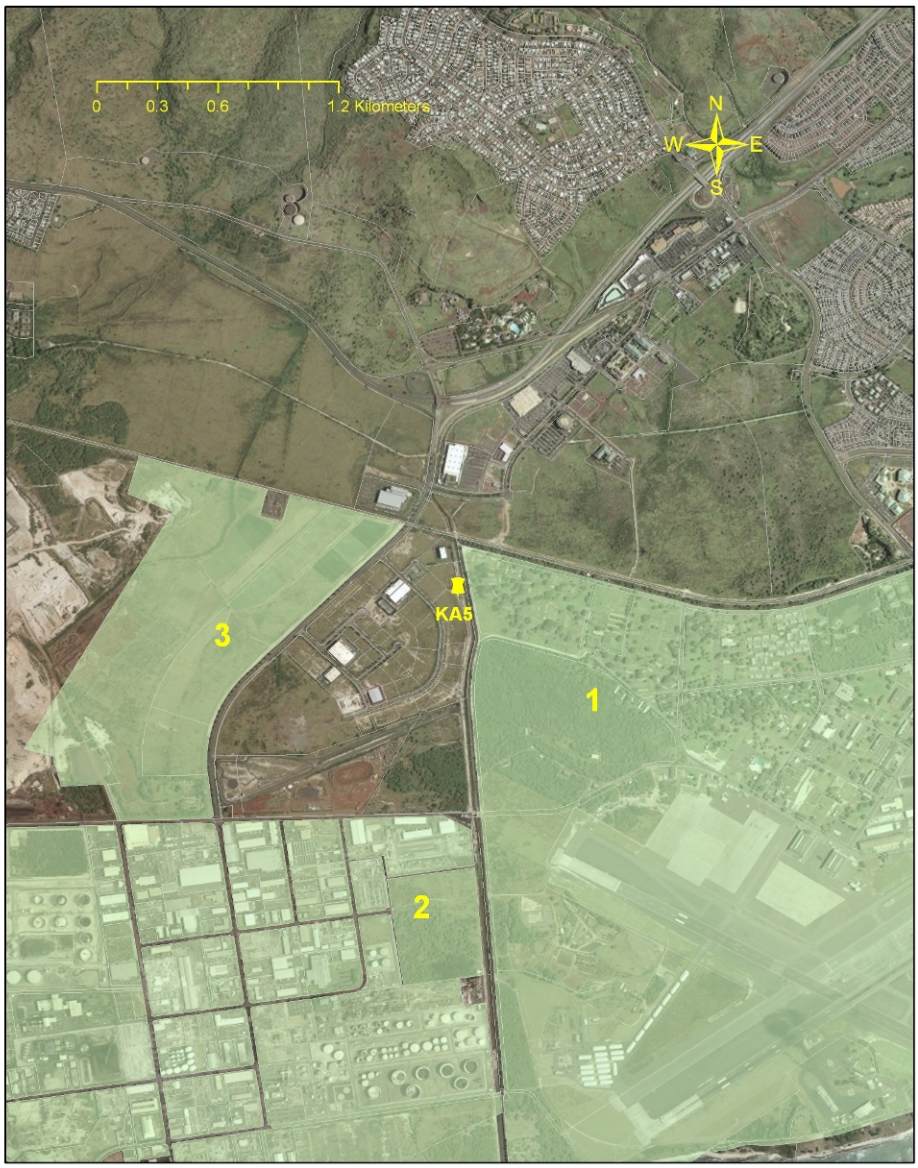

Estimated Number of Housing Units: 2000 to 2030
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2000
2005
2010
2015
2020
2025
2030
Pearl City
Kapolei
Downtown Honolulu
Sand Island Kalihi

E.Land Use and Location Description

The station is approximately 14 km from the western edge of urban Honolulu.

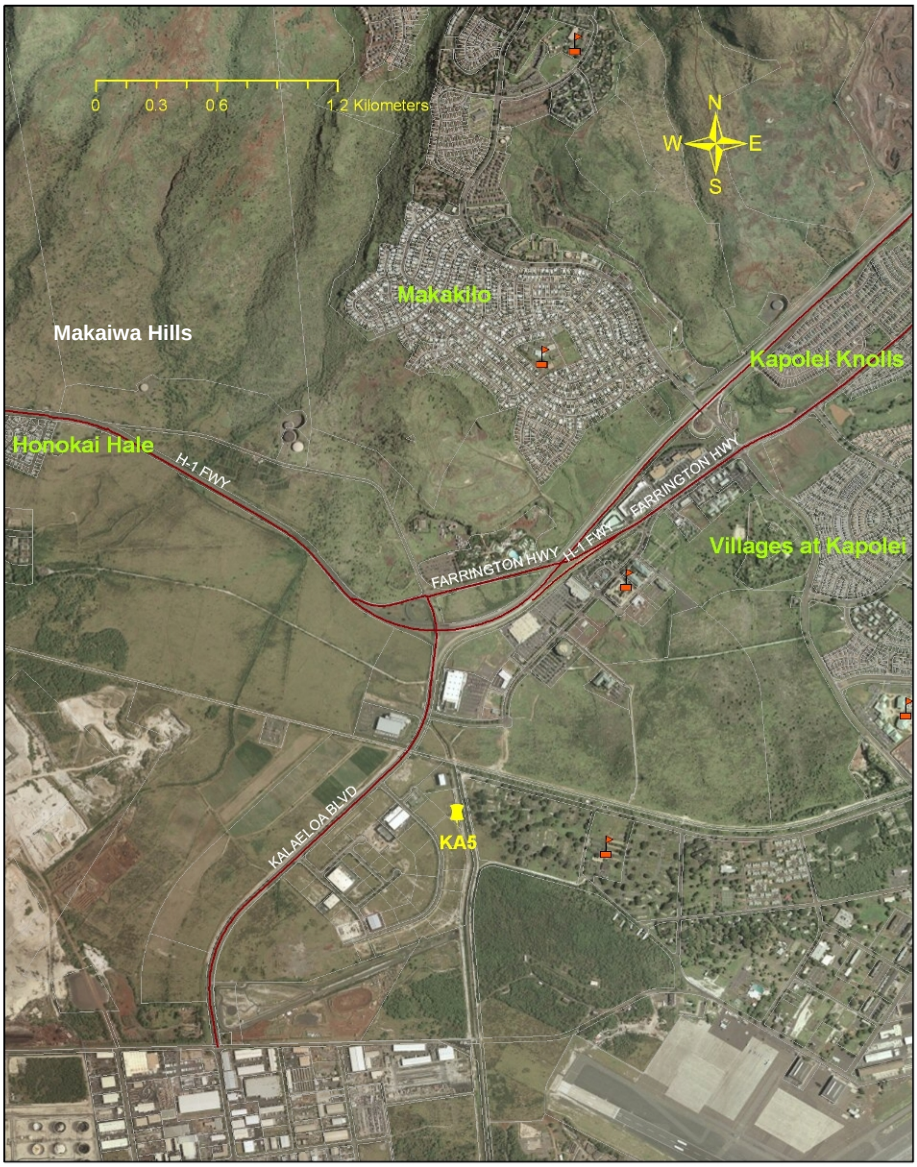


KA5 station: Area Description 1		
Area 1: City of Kapolei	Area 2: Kapolei Business Park	Area 3: Kapolei Commons
• High density residential and commercial • State and county government buildings • Large box retailers and many mini-malls with retail and food establishments • Theatres • Parks, schools, public library	• Light industrial • Commercial and business	• Honolulu Advertiser building (daily newspaper) • Various large and small retailers



KA5 station: Area Description 2		
Area 1: Kalaeloa Redevelopment Area Plan	Area 2: Campbell Industrial Park	Area 3: Business Park
• Housing and government facilities • Regional Park • Light industrial and commercial • Kalaeloa General Aviation and Commuter Airport[1]	• Heavy and light industrial	• Light industrial • Business

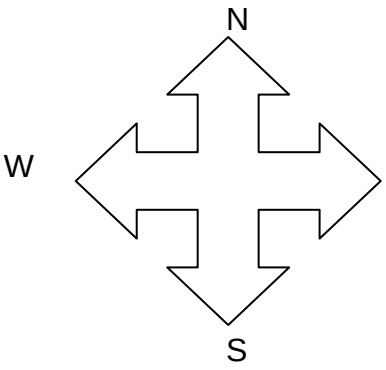
[1] Nearest runway is approximately 1.3 km SE of the station. 2008 statistics from the State Airports Division: 132,327 total and 363 average daily air operations.



Residential communities surrounding the Kapolei station:
- North: Makakilo
- Northeast: Kapolei Knolls, Villages at Kapolei
- Northwest: Honokai Hale
  - Note: Orange flags denote the location of schools

Future subdivision:
- Northwest: Makaiwa Hills

Major Roads:
- North: H-1 Freeway; Farrington Highway
- West: Kalaeloa Blvd.



Direction	Description of Area (8 compass points around the station)	Distance from Station (m)
North	Abandoned Demonstration Desalting Plant; Costco	171; 263
Northeast	Canal and Kalaeloa Redevelopment area	48
East	Canal and Kalaeloa Redevelopment area	48
Southeast	Canal and Kalaeloa Redevelopment area	48
South	Jesus Christ of Latter-Day Saints church	191
Southwest	Businesses and warehouses	185
West	Carpenters Union training center	84
Northwest	Carpenters Union training center; fire station	84; 211

KA5: Kapolei station AQS No. 150030010

- Fenced and secured area approximately 40’ x 40’
- Two air conditioned flat roofed trailers
- Attached 10 meter telescopic meteorological tower
- Enough area to accommodate additional platform if necessary
- 200 amp electrical service to the station