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GOVERNOR

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EXECUTIVE DIRECTOR

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01:DEV/2765

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
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FAX (808) 587-0600

November 26, 2001

To: Genevieve Salmonson, Director
Office of Environmental Quality Control

From: Sharyn L. Miyashiro *Sharyn Miyashiro*
Executive Director

Subject: Final Environmental Assessment for the
Pohukaina Assisted Elderly Housing Project
Honolulu, Hawaii
TMK: 2-1-51: Portion of 09

The Housing and Community Development Corporation of Hawaii has reviewed the final environmental assessment (FEA) for the subject project and has determined that a Finding of No Significant Impact (FONSI) is warranted for the project. This determination was made after extensive review of the comments received on the draft environmental assessment that was published in the September 8, 2000 issue of the Office of Environmental Quality Control (OEQC) Environmental Notice. Findings and reasons supporting this determination are attached for your record and are also included in the FEA.

Please publish a notice of availability for the FEA in the December 8, 2001 issue of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, four copies of the FEA, and the project summary on disk.

Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Enclosures

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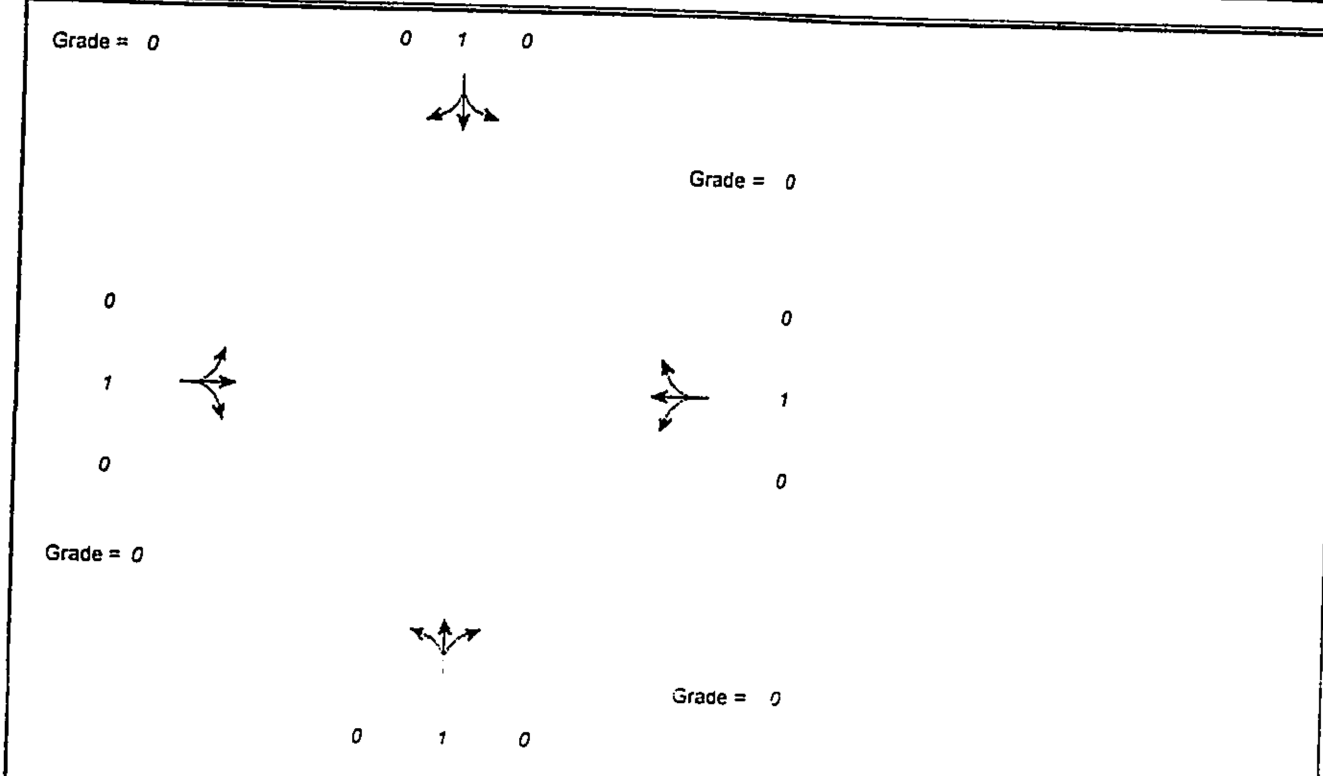
INPUT WORKSHEET

General Information		Site Information	
Analyst	SMU	Intersection	Pohukaina-Keawe PM
Agency or Co.	Parsons Brinckerhoff	Area Type	All other areas
Date Performed	9/4/2001	Jurisdiction	Honolulu
Time Period	PM Peak Hour	Analysis Year	Year 2020 without Project

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	20	325	70	160	400	90	60	125	70	75	210	90
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume	0			0			0			0		
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing	0.0			0.0			3.0			0.0		

	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 32.0	G =	G =	G =	G = 18.0	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 60.0		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *Pohukaina Sr. Housing*

Capacity Analysis

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	461		722		284		416	
Satflow rate	1777		1446		1418		1579	
Lost time	2.0		2.0		2.0		2.0	
Green ratio	0.53		0.53		0.30		0.30	
Lane group cap.	948		771		425		474	
v/c ratio	0.49		0.94		0.67		0.88	
Flow ratio	0.26		0.50		0.20		0.26	
Crit. lane group	N		Y		N		Y	
Sum flow ratios	0.76							
Lost time/cycle	10.00							
Critical v/c ratio	0.92							

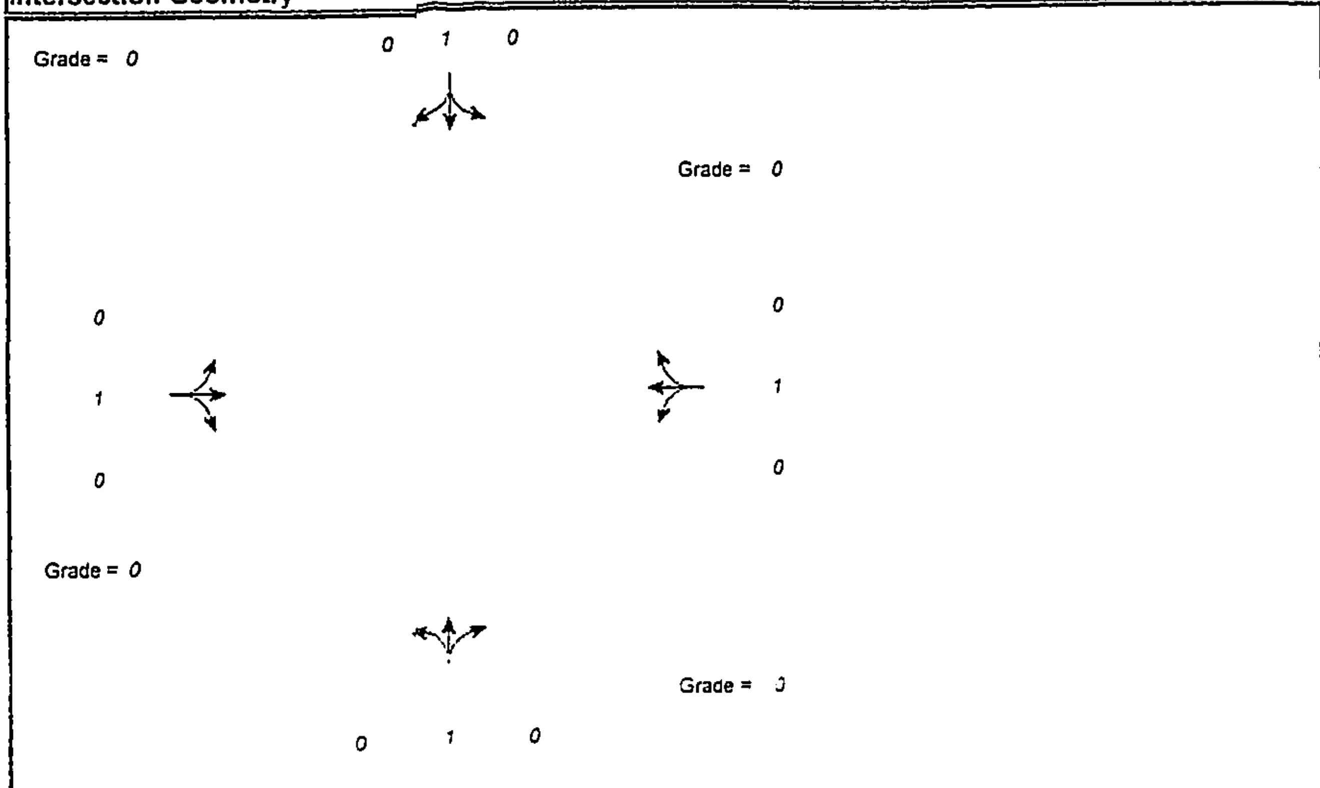
Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	461		722		284		416	
Lane group cap.	948		771		425		474	
v/c ratio	0.49		0.94		0.67		0.88	
Green ratio	0.53		0.53		0.30		0.30	
Unif. delay d1	8.8		13.1		18.4		20.0	
Delay factor k	0.50		0.50		0.50		0.50	
Increm. delay d2	1.8		27.7		8.4		24.5	
PF factor	1.000		1.000		1.000		1.000	
Control delay	10.6		40.7		26.8		44.5	
Lane group LOS	B		D		C		D	
Apprch. delay	10.6		40.7		26.8		44.5	
Approach LOS	B		D		C		D	
Intersec. delay	32.1		Intersection LOS				C	

INPUT WORKSHEET

General Information		Site Information	
Analyst	SMU	Intersection	Halekauwila-Keawe AM
Agency or Co.	Parsons Brinckerhoff	Area Type	All other areas
Date Performed	9/4/2001	Jurisdiction	Honolulu
Time Period	AM Peak Hour	Analysis Year	Year 2020 without Project

Intersection Geometry



Volume and Timing Input

	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT
Volume (vph)	20	220	80	155	215	30	35	65	35	35	165	40
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume		0			0			0			0	
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing		0.0			0.0			3.0			0.0	

Timing	EW Perm	02	03	04	NS Perm	06	07	08
	G = 30.0	G =	G =	G =	G = 20.0	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =

Duration of Analysis (hrs) = 1.00

Cycle Length C = 60.0

CAPACITY AND LOS WORKSHEET

General Information

Project Description *Pohukaina Sr Housing*

Capacity Analysis

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	355		444		150		266	
Satflow rate	1769		1384		1598		1746	
Lost time	2.0		2.0		2.0		2.0	
Green ratio	0.50		0.50		0.33		0.33	
Lane group cap.	885		692		533		582	
v/c ratio	0.40		0.64		0.28		0.46	
Flow ratio	0.20		0.32		0.09		0.15	
Crit. lane group	N		Y		N		Y	
Sum flow ratios	0.47							
Lost time/cycle	10.00							
Critical v/c ratio	0.57							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	355		444		150		266	
Lane group cap.	885		692		533		582	
v/c ratio	0.40		0.64		0.28		0.46	
Green ratio	0.50		0.50		0.33		0.33	
Unif. delay d1	9.4		11.0		14.7		15.7	
Delay factor k	0.50		0.50		0.50		0.50	
Increm. delay d2	1.4		4.6		1.3		2.6	
PF factor	1.000		1.000		1.000		1.000	
Control delay	10.7		15.7		16.0		18.3	
Lane group LOS	B		B		B		B	
Apprch. delay	10.7		15.7		16.0		18.3	
Approach LOS	B		B		B		B	
Intersec. delay	14.9		Intersection LOS				B	

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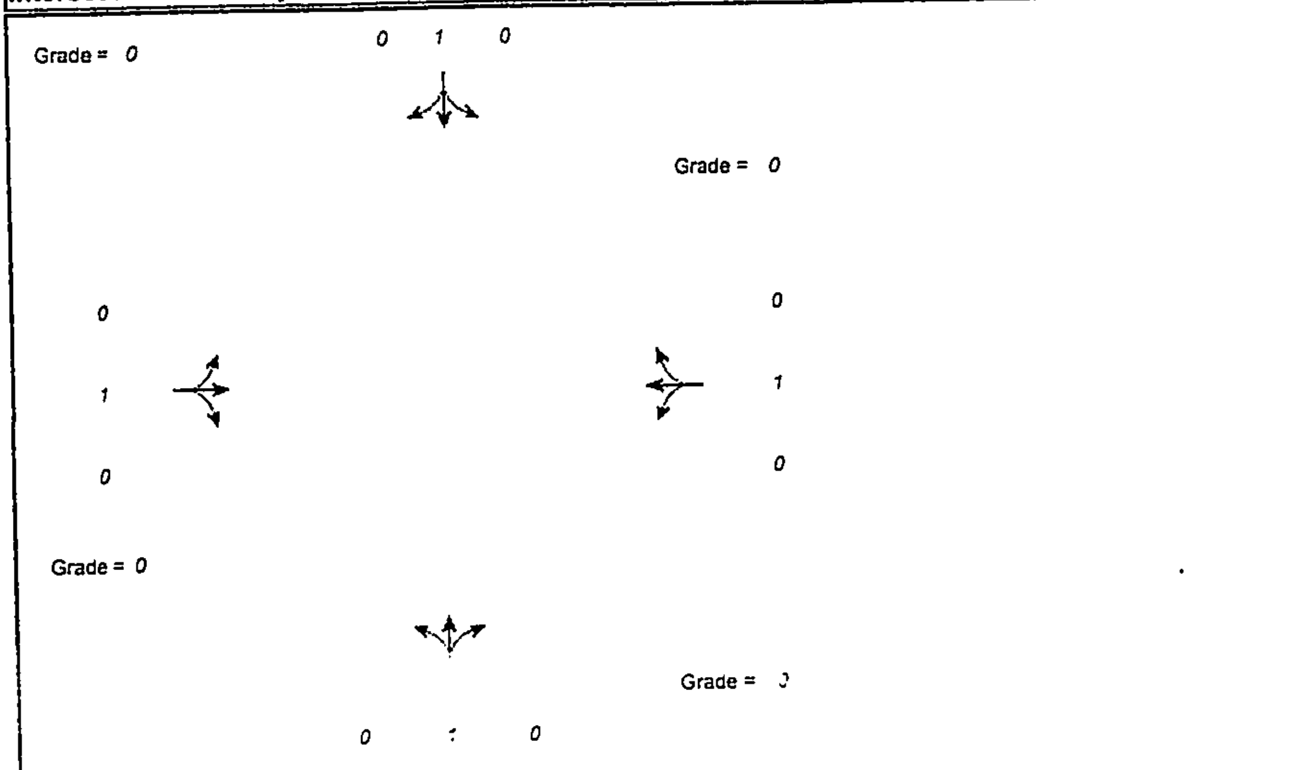
INPUT WORKSHEET

General Information		Site Information	
Analyst	*SMU*	Intersection	*Halekauwila-Keawe PM*
Agency or Co.	*Parsons Brinckerhoff*	Area Type	*All other areas*
Date Performed	*9/4/2001*	Jurisdiction	*Honolulu*
Time Period	*PM Peak Hour*	Analysis Year	*Year 2020 without Project*

Intersection Geometry



Volume and Timing Input

	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT
Volume (vph)	40	490	115	130	210	30	70	125	45	25	125	25
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume		0			0			0			0	
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing		0.0			0.0			3.0			0.0	

	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.5	G =	G =	G =	G = 19.5	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =
Duration of Analysis (hrs) = 1.00					Cycle Length C = 60.0			

CAPACITY AND LOS WORKSHEET

General Information

Project Description *Pohukaina Sr Housing*

Capacity Analysis

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	716		410		267		195	
Satflow rate	1775		1130		1589		1732	
Lost time	2.0		2.0		2.0		2.0	
Green ratio	0.51		0.51		0.32		0.32	
Lane group cap.	902		574		516		563	
v/c ratio	0.79		0.71		0.52		0.35	
Flow ratio	0.40		0.36		0.17		0.11	
Crit. lane group	Y		N		Y		N	
Sum flow ratios	0.57							
Lost time/cycle	10.00							
Critical v/c ratio	0.69							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	716		410		267		195	
Lane group cap.	902		574		516		563	
v/c ratio	0.79		0.71		0.52		0.35	
Green ratio	0.51		0.51		0.32		0.32	
Unif. delay d1	12.2		11.4		16.4		15.4	
Delay factor k	0.50		0.50		0.50		0.50	
Increm. delay d2	7.5		7.7		3.7		1.7	
PF factor	1.000		1.000		1.000		1.000	
Control delay	19.7		19.1		20.2		17.1	
Lane group LOS	B		B		C		B	
Apprch. delay	19.7		19.1		20.2		17.1	
Approach LOS	B		B		C		B	
Intersec. delay	19.3		Intersection LOS				B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	SMU	Intersection	Halekauwila-CoralAM2W
Agency/Co.	Parsons Brinckerhoff	Jurisdiction	Honolulu
Date Performed	9/4/2001	Analysis Year	Year 2020 without Project
Analysis Time Period	AM Peak Hour	Project ID	Pohukaina Sr. Housing

East/West Street: Halekauwila Street	North/South Street: Coral Street
Intersection Orientation: East-West	Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	125	0	0	355	30
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	30	125	0	0	355	30
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	55	0	45
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	0	0	0	55	0	45
Percent Heavy Vehicles	0	0	0	2	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	30						100	
C (m) (vph)	1173						552	
v/c	0.03						0.18	
95% queue length	0.08						0.66	
Control Delay	8.1						13.0	
LOS	A						B	
Approach Delay	--	--				13.0		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	SMU	Intersection	Halekauwila-CoralPM2W
Agency/Co.	Parsons Brinckerhoff	Jurisdiction	Honolulu
Date Performed	9/4/2001	Analysis Year	Year 2020 without Project
Analysis Time Period	PM Peak Hour	Project ID	Pohukaina Sr. Housing

East/West Street: Halekauwila Street	North/South Street: Coral Street
Intersection Orientation: East-West	Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	35	495	0	0	280	50
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	35	495	0	0	280	50
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	100	0	90
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	0	0	0	100	0	90
Percent Heavy Vehicles	0	0	0	2	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

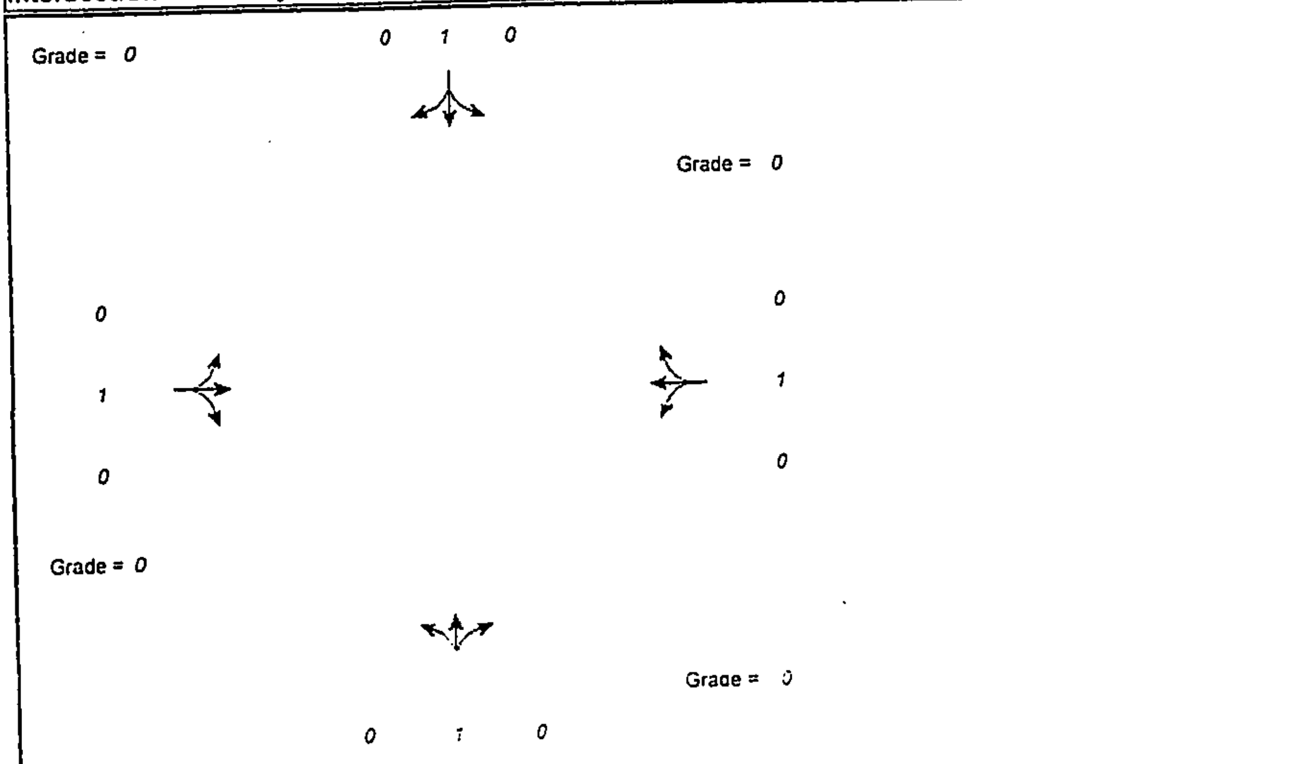
Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	35						190	
C (m) (vph)	1229						430	
v/c	0.03						0.44	
95% queue length	0.09						2.33	
Control Delay	8.0						20.0	
LOS	A						C	
Approach Delay	--	--				20.0		
Approach LOS	--	--				C		

INPUT WORKSHEET

General Information		Site Information	
Analyst	SMU	Intersection	Pohukaina-Keawe AM
Agency or Co.	Parsons Brinckerhoff	Area Type	All other areas
Date Performed	9/4/2001	Jurisdiction	Honolulu
Time Period	AM Peak Hour	Analysis Year	Year 2020 with Project

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	30	165	50	90	260	35	20	85	40	105	120	161
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume	0			0			0			0		
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing	0.0			0.0			3.0			0.0		

	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 25.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =
Duration of Analysis (hrs) = 1.00					Cycle Length C = 60.0			

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *Pohukaina Sr. Housing*

Capacity Analysis

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	272		428		160		429	
Satflow rate	1702		1619		1689		1549	
Lost time	2.0		2.0		2.0		2.0	
Green ratio	0.42		0.42		0.42		0.42	
Lane group cap.	709		675		704		645	
v/c ratio	0.38		0.63		0.23		0.67	
Flow ratio	0.16		0.26		0.09		0.28	
Crit. lane group	N		Y		N		Y	
Sum flow ratios	0.54							
Lost time/cycle	10.00							
Critical v/c ratio	0.65							

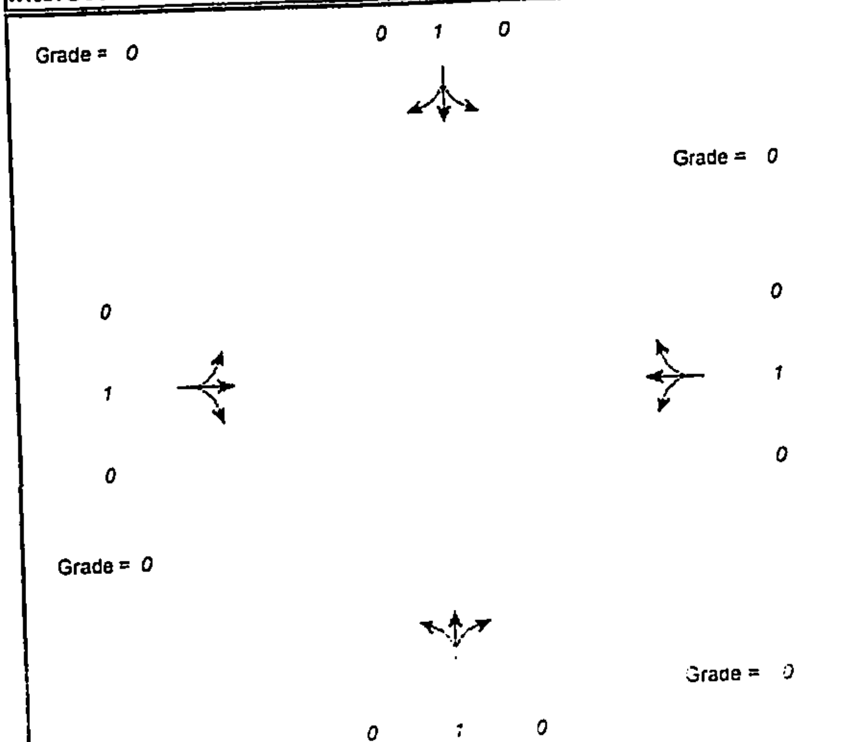
Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	272		428		160		429	
Lane group cap.	709		675		704		645	
v/c ratio	0.38		0.63		0.23		0.67	
Green ratio	0.42		0.42		0.42		0.42	
Unif. delay d1	12.2		13.9		11.3		14.1	
Delay factor k	0.50		0.50		0.50		0.50	
Increm. delay d2	1.6		4.6		0.8		5.5	
PF factor	1.000		1.000		1.000		1.000	
Control delay	13.7		18.5		12.0		19.6	
Lane group LOS	B		B		B		B	
Apprch. delay	13.7		18.5		12.0		19.6	
Approach LOS	B		B		B		B	
Intersec. delay	17.0		Intersection LOS				B	

INPUT WORKSHEET

General Information		Site Information	
Analyst	SMU	Intersection	Pohukaina-Keawe PM
Agency or Co.	Parsons Brinckerhoff	Area Type	All other areas
Date Performed	9/4/2001	Jurisdiction	Honolulu
Time Period	PM Peak Hour	Analysis Year	Year 2020 with Project

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	20	325	70	160	400	90	60	126	70	75	211	90
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume		0			0			0			0	
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing		0.0			0.0			3.0			0.0	

	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 32.0	G =	G =	G =	G = 18.0	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 60.0		

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Version 4.1

CAPACITY AND LOS WORKSHEET

General Information

Project Description *Pohukaina Sr. Housing*

Capacity Analysis

	EB	WB	NB	SB
Lane group	*LTR*	*LTR*	*LTR*	*LTR*
Adj. flow rate	*461*	*722*	*285*	*417*
Satflow rate	*1777*	*1446*	*1418*	*1578*
Lost time	*2.0*	*2.0*	*2.0*	*2.0*
Green ratio	*0.53*	*0.53*	*0.30*	*0.30*
Lane group cap.	*948*	*771*	*425*	*473*
v/c ratio	*0.49*	*0.94*	*0.67*	*0.88*
Flow ratio	*0.26*	*0.50*	*0.20*	*0.26*
Crit. lane group	*N*	*Y*	*N*	*Y*
Sum flow ratios	*0.76*			
Lost time/cycle	*10.00*			
Critical v/c ratio	*0.92*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB	WB	NB	SB
Lane group	*LTR*	*LTR*	*LTR*	*LTR*
Adj. flow rate	*461*	*722*	*285*	*417*
Lane group cap.	*948*	[illegible]	*425*	*473*
v/c ratio	*0.49*	*0.94*	*0.67*	*0.88*
Green ratio	*0.53*	*0.53*	*0.30*	*0.30*
Unif. delay d1	*8.8*	*13.1*	*18.4*	*20.0*
Delay factor k	*0.50*	*0.50*	*0.50*	*0.50*
Increm. delay d2	*1.8*	*27.7*	*8.5*	*25.3*
PF factor	*1.000*	*1.000*	*1.000*	*1.000*
Control delay	*10.6*	*40.7*	*26.9*	*45.3*
Lane group LOS	*B*	*D*	*C*	*D*
Apprch. delay	*10.6*	*40.7*	*26.9*	*45.3*
Approach LOS	*B*	*D*	*C*	*D*
Intersec. delay	*32.3*	Intersection LOS		*C*

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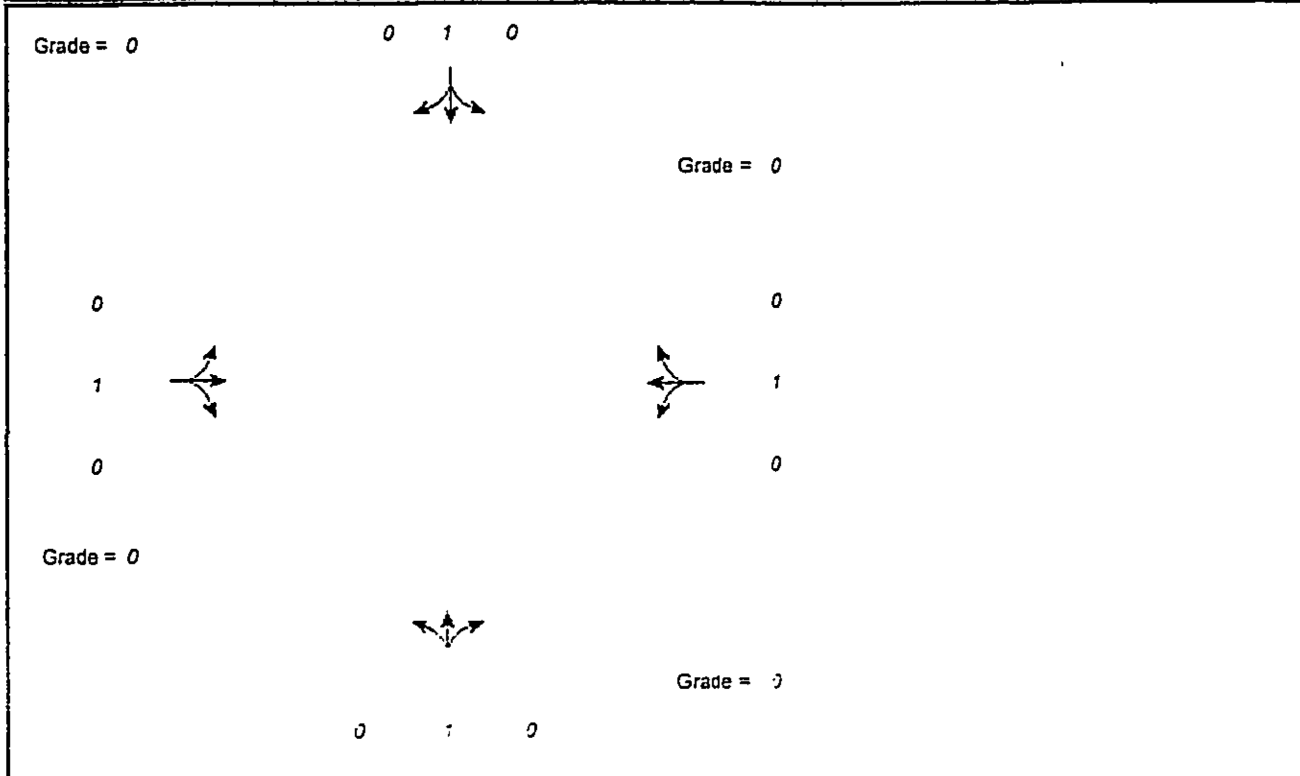
INPUT WORKSHEET

General Information		Site Information	
Analyst	*SMU*	Intersection	*Halekauwila-Keawe AM*
Agency or Co.	*Parsons Brinckerhoff*	Area Type	*All other areas*
Date Performed	*9/4/2001*	Jurisdiction	*Honolulu*
Time Period	*AM Peak Hour*	Analysis Year	*Year 2020 with Project*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	20	223	80	156	217	30	35	65	35	36	165	40
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume		0			0			0			0	
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing		0.0			0.0			3.0			0.0	

	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 20.0	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =
Duration of Analysis (hrs) = 1.00					Cycle Length C = 60.0			

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *Pohukaina Sr Housing*

Capacity Analysis

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	359		447		150		267	
Satflow rate	1770		1379		1598		1743	
Lost time	2.0		2.0		2.0		2.0	
Green ratio	0.50		0.50		0.33		0.33	
Lane group cap.	885		690		533		581	
v/c ratio	0.41		0.65		0.28		0.46	
Flow ratio	0.20		0.32		0.09		0.15	
Crit. lane group	N		Y		N		Y	
Sum flow ratios	0.48							
Lost time/cycle	10.00							
Critical v/c ratio	0.57							

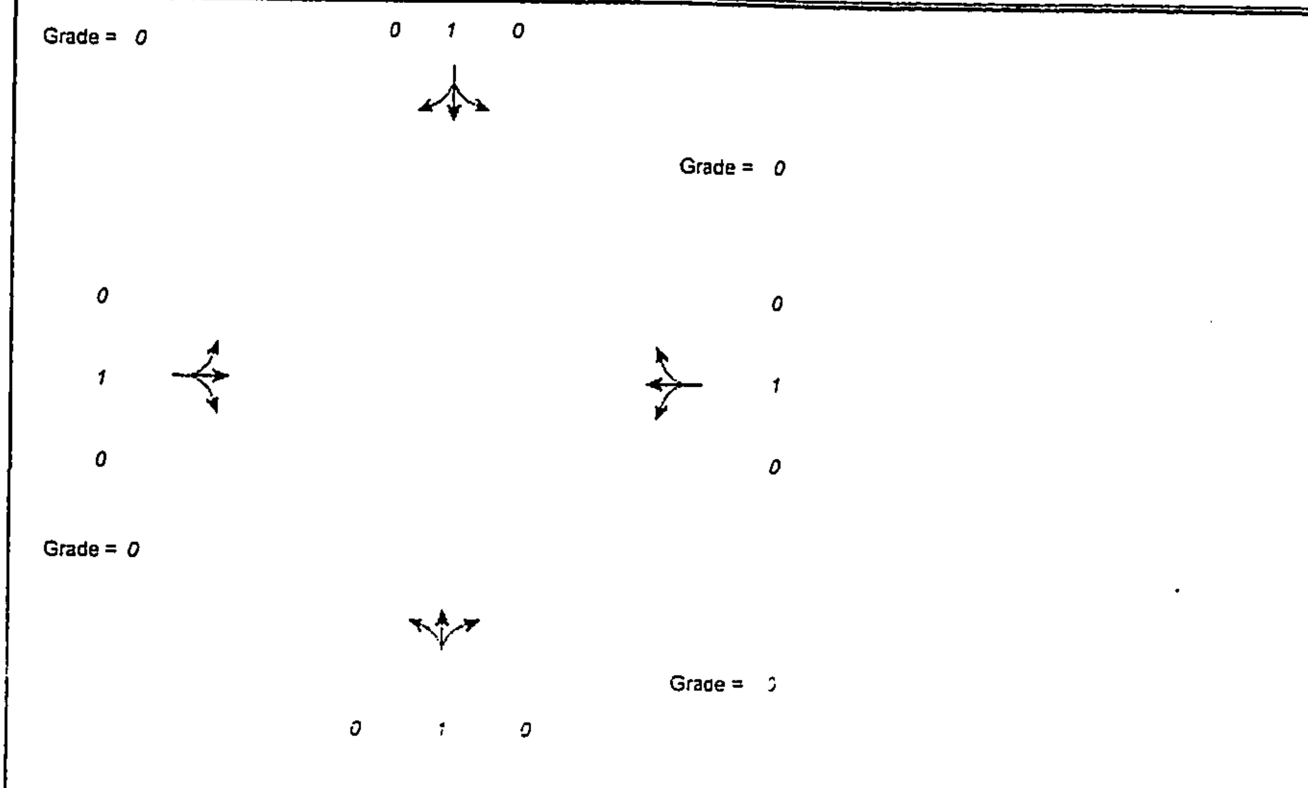
Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	359		447		150		267	
Lane group cap.	885		690		533		581	
v/c ratio	0.41		0.65		0.28		0.46	
Green ratio	0.50		0.50		0.33		0.33	
Unif. delay d1	9.4		11.1		14.7		15.7	
Delay factor k	0.50		0.50		0.50		0.50	
Increm. delay d2	1.4		4.8		1.3		2.6	
PF factor	1.000		1.000		1.000		1.000	
Control delay	10.8		15.9		16.0		18.4	
Lane group LOS	B		B		B		B	
Apprch. delay	10.8		15.9		16.0		18.4	
Approach LOS	B		B		B		B	
Intersec. delay	14.9		Intersection LOS				B	

INPUT WORKSHEET

General Information		Site Information	
Analyst	SMU	Intersection	Halekauwila-Keawe PM
Agency or Co.	Parsons Brinckerhoff	Area Type	All other areas
Date Performed	9/4/2001	Jurisdiction	Honolulu
Time Period	PM Peak Hour	Analysis Year	Year 2020 with Project

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	40	496	115	130	212	30	70	125	46	25	125	25
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume		0			0			0			0	
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing		0.0			0.0			3.0			0.0	

	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.5	G =	G =	G =	G = 19.5	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =
Duration of Analysis (hrs) = 1.00					Cycle Length C = 60.0			

CAPACITY AND LOS WORKSHEET

General Information

Project Description *Pohukaina Sr Housing*

Capacity Analysis

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	723		413		268		195	
Satflow rate	1776		1127		1589		1732	
Lost time	2.0		2.0		2.0		2.0	
Green ratio	0.51		0.51		0.32		0.32	
Lane group cap.	903		573		516		563	
v/c ratio	0.80		0.72		0.52		0.35	
Flow ratio	0.41		0.37		0.17		0.11	
Crit. lane group	Y		N		Y		N	
Sum flow ratios	0.58							
Lost time/cycle	10.00							
Critical v/c ratio	0.69							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	723		413		268		195	
Lane group cap.	903		573		516		563	
v/c ratio	0.80		0.72		0.52		0.35	
Green ratio	0.51		0.51		0.32		0.32	
Unif. delay d1	12.2		11.4		16.4		15.4	
Delay factor k	0.50		0.50		0.50		0.50	
Increm. delay d2	7.8		8.0		3.8		1.7	
PF factor	1.000		1.000		1.000		1.000	
Control delay	20.1		19.4		20.2		17.1	
Lane group LOS	C		B		C		B	
Apprch. delay	20.1		19.4		20.2		17.1	
Approach LOS	C		B		C		B	
Intersec. delay	19.6		Intersection LOS				B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	SMU	Intersection	Halekauwila-East Drwy
Agency/Co.	Parsons Brinckerhoff	Jurisdiction	Honolulu
Date Performed	9/4/2001	Analysis Year	2020
Analysis Time Period	Future AM with Project	Project ID	Pohukaina Sr. Housing

East/West Street:	Halekauwila Street	North/South Street:	Project East Driveway
Intersection Orientation:	East-West	Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	290	3	4	401	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	0	290	3	4	401	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2	0	2	0	0	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	2	0	2	0	0	0
Percent Heavy Vehicles	2	0	2	2	0	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		4		4				
C (m) (vph)		1269		524				
v/c		0.00		0.01				
95% queue length		0.01		0.02				
Control Delay		7.8		11.9				
LOS		A		B				
Approach Delay	--	--	11.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*SMU*	Intersection	*Halekauwila-East Drwy*
Agency/Co.	*Parsons Brinckerhoff*	Jurisdiction	*Honolulu*
Date Performed .	*9/4/2001*	Analysis Year	*2020*
Analysis Time Period	*Future PM with Project*	Project ID	*Pohukaina Sr. Housing*

East/West Street:	*Halekauwila Street*	North/South Street:	*Project East Driveway*
Intersection Orientation:	*East-West*	Study Period (hrs):	*1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	561	6	4	371	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	0	561	6	4	371	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2	0	4	0	0	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	2	0	4	0	0	0
Percent Heavy Vehicles	2	0	2	2	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		4		6				
C (m) (vph)		1005		413				
v/c		0.00		0.01				
95% queue length		0.01		0.04				
Control Delay		8.6		13.8				
LOS		A		B				
Approach Delay	--	--	13.8					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	SMU	Intersection	Halekauwila-West Drwy
Agency/Co.	Parsons Brinckerhoff	Jurisdiction	Honolulu
Date Performed	9/4/2001	Analysis Year	2020
Analysis Time Period	Future AM with Project	Project ID	Pohukaina Sr. Housing

East/West Street:	Halekauwila Street	North/South Street:	Project West Driveway
Intersection Orientation:	East-West	Study Period (hrs):	1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	293	1	1	402	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	0	293	1	1	402	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	1	0	1	0	0	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	1	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	2	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		1		2				
C (m) (vph)		1268		526				
v/c		0.00		0.00				
95% queue length		0.00		0.01				
Control Delay		7.8		11.9				
LOS		A		B				
Approach Delay	--	--		11.9				
Approach LOS	--	--		B				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*SMU*	Intersection	*Halekauwila-West Drwy*
Agency/Co.	*Parsons Brinckerhoff*	Jurisdiction	*Honolulu*
Date Performed	*9/4/2001*	Analysis Year	*2020*
Analysis Time Period	*Future PM with Project*	Project ID	*Pohukaina Sr. Housing*

East/West Street: *Halekauwila Street*	North/South Street: *Project West Driveway*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	566	1	1	372	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	0	566	1	1	372	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	1	0	1	0	0	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR	1	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	2	0	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		1		2				
C (m) (vph)		1005		376				
v/c		0.00		0.01				
95% queue length		0.00		0.02				
Control Delay		8.6		14.6				
LOS		A		B				
Approach Delay	--	--	14.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	SMU
Agency/Co.	Parsons Brinckerhoff
Date Performed .	9/4/2001
Analysis Time Period	Future PM with Project

Site Information

Intersection	Halekauwila-Coral
Jurisdiction	Honolulu
Analysis Year	2020
Project ID	Pohukaina Sr. Housing

East/West Street: Halekauwila Street
Intersection Orientation: East-West
North/South Street: Coral Street
Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	35	500	0	0	284	50
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	35	500	0	0	284	50
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	100	0	91
Peak-Hour Factor PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	0	0	0	100	0	91
Percent Heavy Vehicles	0	0	0	2	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	35						191	
C (m) (vph)	1225						426	
v/c	0.03						0.45	
95% queue length	0.09						2.39	
Control Delay	8.0						20.3	
LOS	A						C	
Approach Delay	--	--				20.3		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	SMU	Intersection	Halekauwila-Coral
Agency/Co.	Parsons Brinckerhoff	Jurisdiction	Honolulu
Date Performed	9/4/2001	Analysis Year	2020
Analysis Time Period	Future AM with Project	Project ID	Pohukaina Sr. Housing

East/West Street: Halekauwila Street	North/South Street: Coral Street
Intersection Orientation: East-West	Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	127	0	0	359	30
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	30	127	0	0	359	30
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	55	0	46
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	0	0	0	55	0	46
Percent Heavy Vehicles	0	0	0	2	0	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	30						101	
C (m) (vph)	1170						549	
v/c	0.03						0.18	
95% queue length	0.08						0.67	
Control Delay	8.2						13.0	
LOS	A						B	
Approach Delay	--	--				13.0		
Approach LOS	--	--				B		

Appendix C
Air Quality Impact Assessment

AIR QUALITY STUDY

FOR THE PROPOSED

POHUKAINA ASSISTED ELDERLY HOUSING PROJECT

HONOLULU, HAWAII

Prepared for:

Environmental Communications

October 2001

B.D. NEAL & ASSOCIATES

*Applied Meteorology * Air Quality * Computer Science*

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CONTENTS

FIGURES

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TABLES (cont.)

1.0 SUMMARY

The Housing and Community Development Corporation of Hawaii is proposing to develop the Pohukaina Assisted Elderly Housing Project in the Kakaako Mauka District near downtown Honolulu. The project site is located makai of Halekauwila Street between Coral Street and Keawe Street. The proposed development will consist of about 200 dwelling units and related facilities for senior citizens. Development of the project is expected to occur some time after 2002. This study examines the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities and suggests mitigative measures to reduce any potential air quality impacts where possible and appropriate.

Both federal and state standards have been established to maintain ambient air quality. At the present time, seven parameters are regulated including: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone and lead. Hawaii air quality standards are more stringent than the comparable national standards except for those pertaining to sulfur dioxide and particulate matter.

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. Winds are predominantly trade winds which are deviated somewhat from the northeast toward the east or southeast by the local terrain. During winter, occasional storms may generate strong winds from the south (kona winds) for brief periods. When the trade winds or kona winds are weak or absent, landbreeze-seabreeze circulations may develop. Wind speeds are often lower compared to more exposed coastal locations, but the trade winds still provide relatively good ventilation much of the time. Temperatures in the Oahu area leeward of the Koolaus are generally very moderate with average daily temperatures ranging from about 70°F to 84°F. Extreme temperatures range from about 53°F to about 95°F. Rainfall is relatively low with an average of about 22 inches per year.

The present air quality of the project area appears to be reasonably good based on nearby monitoring data. Air quality data from the nearest monitoring stations operated by the Hawaii Department of Health suggest that all national air quality standards are currently being met, although occasional exceedances of the more stringent state standard for ozone may occur.

If the proposed project is given the necessary approvals to proceed, it may be inevitable that some short- and/or long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan must be implemented to ensure compliance with state regulations. Fugitive dust emissions can be controlled to a large extent by watering of active work areas, using wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures could include limiting the area that can be disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

After construction, motor vehicles coming to and from the proposed development will result in a long-term increase in air pollution emissions in the project area. To assess the impact of emissions from these vehicles, an air quality modeling study was undertaken to estimate current ambient concentrations of carbon monoxide at several intersections in the project vicinity and to predict future levels both with and without the proposed project. During worst-case conditions, model results indicated that present 1-hour and 8-hour carbon monoxide concentrations are probably well within both the national and the state ambient air quality standards in the project area.

In the year 2020 without the project, carbon monoxide concentrations were predicted to increase somewhat, but they should remain at relatively low levels and well within the national and the state ambient air quality standards. With the project in the year 2020, worst-case carbon monoxide concentration levels within the project area were predicted to remain virtually unchanged compared to the without project case. Implementing any air quality mitigation measures for long-term traffic-related impacts from the proposed project is probably unnecessary and unwarranted.

Depending on the demand levels, long-term impacts on air quality are also possible due to indirect emissions associated with a development's electrical power and solid waste disposal requirements. Quantitative estimates of these potential impacts were not made, but based on the nature and size of the project, any related impacts will likely be negligible.

2.0 INTRODUCTION

The Housing and Community Development Corporation of Hawaii (HCDCH) is proposing to develop the Pohukaina Assisted Elderly Housing project on approximately 1.25 acres of land in the Kakaako Mauka District near downtown Honolulu. As indicated in Figure 1, the project site is located within the area bounded by Coral Street, Keawe Street, Halekauwila Street and Pohukaina Street. The site is identified as Tax Map Key 2-1-51, portion of 9. Presently, the project site is used for parking. The proposed development will consist of a senior housing facility with assisted living and/or healthcare support services onsite. The project will consist of approximately 200 1-bedroom and studio units configured in a 14-floor structure. The first four floors of the structure will accommodate the lobby, service areas, parking and a community center. Residential units will be located on floors 5 through 14. Approximately 87 resident and guest parking stalls will be provided within the parking levels. Ingress and egress points will be located along Halekauwila Street. Development of the project is expected to be completed after 2002.

The purpose of this study is to describe existing air quality in the project area and to assess the potential short-term and long-term direct and indirect air quality impacts that could result from construction and use of the proposed facilities. Measures to mitigate these impacts are suggested where possible and appropriate.

3.0 AMBIENT AIR QUALITY STANDARDS

Ambient concentrations of air pollution are regulated by both national and state ambient air quality standards (AAQS). National AAQS are specified in Section 40, Part 50 of the Code of Federal Regulations (CFR), while State of Hawaii AAQS are defined in Chapter 11-59 of the Hawaii Administrative Rules. Table 1 summarizes both the national and the state AAQS that are specified in the cited documents. As indicated in the table, national and state AAQS have been established for particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and lead. The state has also set a standard for hydrogen sulfide. National AAQS are stated in terms of both primary and secondary standards for most of the regulated air pollutants. National primary standards are designed to protect the public health with an "adequate margin of safety". National secondary standards, on the other hand, define levels of air quality necessary to protect the public welfare from "any known or anticipated adverse effects of a pollutant". Secondary public welfare impacts may include such effects as decreased visibility, diminished comfort levels, or other potential injury to the natural or man-made environment, e.g., soiling of materials, damage to vegetation or other economic damage. In contrast to the national AAQS, Hawaii State AAQS are given in terms of a single standard that is designed "to protect public health and welfare and to prevent the significant deterioration of air quality".

Each of the regulated air pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration for prolonged periods of time. The AAQS specify a maximum allowable concentration for a given air pollutant for one or more averaging times to prevent harmful effects. Averaging times vary from one hour to one year depending on the pollutant and type of exposure necessary to cause adverse effects. In the case of the short-term (i.e., 1- to 24-hour) AAQS, both national and state standards allow a specified number of exceedances each year.

The Hawaii AAQS are in some cases considerably more stringent than the comparable national AAQS. In particular, the Hawaii 1-hour AAQS for carbon monoxide is four times more stringent than the comparable national limit, and the state 1-hour limit for ozone is more than two times as stringent as the national 1-hour standard. The national 1-hour ozone standard will be phased out (pending court appeal) the next few years in favor of the new (and more stringent) 8-hour standard.

The Hawaii AAQS for sulfur dioxide were relaxed in 1986 to make the state standards essentially the same as the national limits. In 1993, the state also revised its particulate standards to follow those set by the federal government. During 1997, the federal government again revised its standards for particulate, but the new standards have been challenged in federal court. To date, the Hawaii Department of Health has not updated the state particulate standards.

4.0 REGIONAL AND LOCAL CLIMATOLOGY

Regional and local climatology significantly affect the air quality of a given location. Wind, temperature, atmospheric turbulence, mixing height and rainfall all influence air quality. Although the climate of Hawaii is relatively moderate throughout most of the state and most of the year, significant differences in these parameters may occur from one location to another. Most differences in regional and local climates within the state are caused by the mountainous topography.

Hawaii lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. On the island of Oahu, the Koolau and Waianae Mountain Ranges are oriented almost perpendicular to the trade winds, which accounts for much of the variation in the local climatology of the island. The Kakaako District, the site of the proposed project, is a highly urbanized district within the City of Honolulu. It is located in a coastal area leeward of the Koolau Mountains. Although large urban areas may create their own microclimates to some extent, long-term weather data available from the Honolulu International Airport, located about 4 miles to the northwest, is at least semi-representative of the project site.

Wind frequency data given in Table 2 for Honolulu International Airport show that the annual prevailing wind direction for this area of Oahu is east northeast. On an annual basis, 34.7 percent of the time the wind is from this direction, and nearly 75 percent of the time the wind is in the northeast quadrant. Winds from the south are infrequent occurring only a few days during the year and mostly in association with winter storms. Wind speeds average about 11 mph (10 knots) and mostly vary between about 4 and 18 mph (5 and 15 knots). Surface winds in the Kakaako area are similar to those recorded at the airport but are undoubtedly deviated and channeled at some locations by the many high-rise buildings.

Air pollution emissions from motor vehicles, the formation of photochemical smog and smoke plume rise all depend in part on air temperature. Colder temperatures tend to result in higher emissions of contaminants from automobiles but lower concentrations of photochemical smog and ground-level concentrations of air pollution from elevated plumes. In Hawaii, the annual and daily variation of temperature depend to a large degree on elevation above sea level, distance inland and exposure to the trade winds. Average temperatures at locations near sea level generally are warmer than those at higher elevations. Areas exposed to the trade wind tend to have the least temperature variation, while inland and leeward areas often have the most. Kakaako's coastal, leeward location results in a relatively moderate temperature profile compared to some other locations around Oahu and the state. At the airport, average annual daily minimum and maximum temperatures are 70°F and 84°F, respectively [1]. The extreme minimum temperature was 53°F during January 1998, and the extreme maximum was 95°F during September 1994. Temperatures in the project area may be slightly higher compared to the airport due to urban effects.

Small scale, random motions in the atmosphere (turbulence) cause air pollutants to be dispersed as a function of distance or time from the point of emission. Turbulence is caused by both mechanical and thermal forces in the atmosphere. It is often measured and described in terms of Pasquill-Gifford stability class. Stability class 1 is the most turbulent and class 6 the least. Thus, air pollution dissipates the best during stability class 1 conditions and the worst when stability class 6 prevails. In urbanized areas like Kakaako, stability class 4 is generally the highest stability class that occurs, developing during the nighttime and/or during cloudy daytime conditions.

Mixing height is defined as the height above the surface through which relatively vigorous vertical mixing occurs. Low mixing heights can result in high ground-level air pollution concentrations because contaminants emitted from or near the surface can become trapped within the mixing layer. In Hawaii, minimum mixing heights tend to be high because of mechanical mixing caused by the trade winds and because of the temperature moderating effect of the surrounding ocean. Low mixing heights may sometimes occur, however, at inland locations and even at times along coastal areas early in the morning following a clear, cool, windless night. Coastal areas also may experience low mixing levels during sea breeze conditions when cooler ocean air rushes in over warmer land. Mixing heights in the state typically are above 3000 feet (1000 meters). Low mixing heights in the Kakaako area will tend to be inhibited by urban effects but may occur on occasion.

Rainfall can have a beneficial affect on the air quality of an area in that it helps to suppress fugitive dust emissions, and it also may "washout" gaseous contaminants that are water soluble. Rainfall in Hawaii is highly variable depending on elevation and on location with respect to the trade wind. Kakaako being a leeward location and near sea level experiences a relatively dry climate. Average annual rainfall amounts to about 22 inches with summer months being the driest. Monthly rainfall may vary from as little as a trace to more than 20 inches.

5.0 PRESENT AIR QUALITY

Present air quality in the project area is mostly affected by air pollutants from vehicular and industrial sources and to a lesser extent by distant natural and/or agricultural sources. Table 3 presents an air pollutant emission summary for the island of Oahu for calendar year 1993. The emission rates shown in the table pertain to manmade emissions only, i.e., emissions from natural sources are not included. As suggested in the table, much of the particulate emissions on Oahu originate from area sources, such as the mineral products industry and agriculture. Sulfur oxides are emitted almost exclusively by point sources, such as power plants and refineries. Nitrogen oxides emissions emanate predominantly from industrial point sources, although area sources (mostly motor vehicle traffic) also contribute a significant share. The majority of carbon monoxide emissions occur from area sources (motor vehicle traffic), while hydrocarbons are emitted mainly from point sources. Based on previous emission inventories that have been reported for Oahu, it appears that emissions of particulate and nitrogen oxides have increased during the past ten years, while emissions of sulfur oxides, carbon monoxide and hydrocarbons have declined.

Roadways bordering the project site typically carry only light to moderate volumes of motor vehicle traffic. Heavier volumes of traffic often exist along Ala Moana Boulevard and Kapiolani Boulevard, which are located within a few blocks of the project site. Emissions from motor vehicles using these roadways, primarily nitrogen oxides and carbon monoxide, may affect air quality.

The nearest large industrial source of air pollution is the Honolulu Power Plant situated a few blocks to the west. Emissions from Honolulu Power Plant consist primarily of sulfur dioxide and nitrogen oxides from oil-burning generator units. Due to the prevailing wind pattern in the area, it is unlikely that emissions from Honolulu Power Plant significantly impact air quality in the project area.

Natural sources of air pollution emissions that also could affect the project area but cannot be quantified very accurately include the ocean (sea spray), plants (aero-allergens), wind-blown dust, and perhaps distant volcanoes on the island of Hawaii.

The State Department of Health operates a network of air quality monitoring stations at various locations on Oahu. Each station, however, typically does not monitor the full complement of air quality parameters. Table 4 shows annual summaries of air quality measurements that were made nearest to the project site for each of the regulated air pollutants for the period 1996 through 2000. These are the most recent data that are currently available.

During the 1996-2000 period, sulfur dioxide was monitored by the State Department of Health at an air quality station located at the Department of Health in downtown Honolulu. Concentrations monitored were consistently low. Annual maximum 3-hour concentrations ranged from 22 to 73 $\mu g/m^3$, while the highest annual 24-hour concentrations ranged from 7 to 18 $\mu g/m^3$. Annual average concentrations were only about 1 to 3 $\mu g/m^3$. There were no exceedances of the state/national 3-hour or 24-hour AAQS for sulfur dioxide during the 5-year period.

Particulate matter less than 10 microns in diameter (PM-10) is also measured at the downtown Honolulu monitoring station. Annual maximum 24-hour PM-10 concentrations ranged from 21 to 83 $\mu g/m^3$ between 1996 and 2000. Average annual concentrations ranged from 8 to 14 $\mu g/m^3$. All values reported were within the state and national AAQS.

Carbon monoxide measurements were also made at the downtown Honolulu monitoring station. Maximum 1-hour concentrations ranged from 4.0 to 6.7 mg/m^3. Maximum 8-hour concentrations ranged from 1.8 to 2.5 mg/m^3. Annual average concentrations were less than 1 mg/m^3. No exceedances of the state or national 1-hour or 8-hour AAQS were reported. Present concentrations of carbon monoxide in the project area are estimated later in this study based on air quality modeling of vehicular emissions.

The nearest available ozone measurements were obtained at Sand Island (about 1 mile west of the project site). The maximum 1-hour concentrations for each year from 1996 to 2000 ranged from 92 to 114 $\mu g/m^3$ while the annual averages ranged from 27 to 41 $\mu g/m^3$. Up to 13 exceedances of the state AAQS per year were recorded during the monitoring period. No specific trend is discernable, although the number of exceedances was lower during the latter half of the five-year period.

The nearest and most recent measurements of ambient lead concentrations that have been reported were made at the downtown Honolulu monitoring station between 1996 and 1997. Average quarterly concentrations were near or below the detection limit, and no exceedances of the state AAQS were recorded. Monitoring for this parameter was discontinued during 1997.

Nitrogen dioxide was monitored by the Department of Health at the Kapolei monitoring station, which is approximately 15 miles west of the project site. Annual average concentrations of this pollutant ranged from 2 to 9 $\mu g/m^3$, safely inside the state and national AAQS.

Based on the data and discussion presented above, it appears likely that the State of Hawaii AAQS for sulfur dioxide, nitrogen dioxide, particulate matter and lead are currently being met at the project site. It is likely, however, that the state AAQS for ozone may be exceeded on occasion based on the Sand Island measurements for this parameter. While carbon monoxide measurements at the downtown Honolulu monitoring station suggest that concentrations are within the state and national standards, local "hot spots" may exist near traffic-congested intersections. Maximum concentrations of existing carbon monoxide in the project area are investigated later in this report based on computer analyses.

6.0 SHORT-TERM IMPACTS OF PROJECT

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term impacts related to slow-moving construction equipment traveling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions may arise from the grading and dirt-moving activities associated with site clearing and preparation work. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately. This is because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The EPA [3] has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions in the project area would likely be somewhere near that level. In any case, State of Hawaii Air Pollution Control Regulations [4] prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase is essential.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is often a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions. Monitoring dust at the project property line could be considered to quantify and document the effectiveness of dust control measures.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Slow-moving construction vehicles traveling on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity. Thus, most potential short-term air quality impacts from project construction can be mitigated.

7.0 LONG-TERM IMPACTS OF PROJECT

7.1 Roadway Traffic

After construction is completed, use of the proposed facilities will result in increased motor vehicle traffic on nearby roadways, potentially causing long-term impacts on ambient air quality in the project vicinity. Motor vehicles with gasoline-powered engines are significant sources of carbon monoxide. They also emit nitrogen oxides and other contaminates.

Federal air pollution control regulations require that new motor vehicles be equipped with emission control devices that reduce emissions significantly compared to a few years ago. In 1990, the President signed into law the Clean Air Act Amendments. This legislation requires further emission reductions, which have been phased in since 1994. More recently, additional restrictions were signed into law during the Clinton administration, which will begin to take effect during the next decade. The added restrictions on emissions from new motor vehicles will lower average emissions each year as more and more older vehicles leave the state's roadways. Carbon monoxide emissions, for example, will go down by an average of about 10 percent per vehicle during the next 10 years due to the replacement of older vehicles with newer models.

To evaluate the potential long-term indirect ambient air quality impact of the roadway traffic associated with a project such as this, computerized emission and atmospheric dispersion models can be used to estimate ambient carbon monoxide concentrations along roadways leading to and from the project. Carbon monoxide is selected for modeling because it is both the most stable and the most abundant of the pollutants generated by motor vehicles. Furthermore, carbon monoxide air pollution is generally considered to be a microscale problem that can be addressed locally to some extent, whereas nitrogen oxides air pollution most often is a regional issue that cannot be addressed by a single new development.

For this project, three scenarios were selected for the carbon monoxide modeling study: (1) year 2001 with present conditions, (2) year 2020 without the project, and (3) year 2020 with the project. To begin the modeling study, critical receptor areas in the vicinity of the project were identified for analysis. Generally speaking, roadway intersections are the primary concern because of traffic congestion and because of the increase in vehicular emissions associated with traffic queuing. For this study, several of the same intersections identified by the project traffic engineers as being impacted by the project were selected for air quality analysis. These included the following five intersections:

- Coral Street at Halekauwila Street
- Keawe Street at Halekauwila Street
- Keawe Street at Pohukaina Street
- Project east driveway at Halekauwila Street
- Project west driveway at Halekauwila Street

Intersection configurations and traffic conditions at each of these locations are detailed in the traffic impact report for the project [5].

The main objective of the modeling study was to estimate maximum 1-hour average carbon monoxide concentrations for each of the three scenarios studied. To evaluate the significance of the estimated concentrations, a comparison of the predicted values for each scenario can be made. Comparison of the estimated values to the national and state AAQS was also used to provide another measure of significance.

Maximum carbon monoxide concentrations typically coincide with peak traffic periods. The traffic impact assessment report evaluated morning and afternoon peak traffic periods. These same periods were evaluated in the air quality impact assessment.

The EPA computer model MOBILE5A [6] was used to calculate vehicular carbon monoxide emissions for each year studied. One of the key inputs to MOBILE5A is vehicle mix. Unless very detailed information is available, national average values are typically assumed, which is what was used for the present study. Based on national average vehicle mix figures, the present vehicle mix in the project area was estimated to be 57.5% light-duty gasoline-powered automobiles, 29.6% light-duty gasoline-powered trucks and vans, 3.4% heavy-duty gasoline-powered vehicles, 0.7% light-duty diesel-powered vehicles, 8.4% heavy-duty diesel-powered trucks and buses, and 0.4% motorcycles. For the future scenarios studied, the vehicle mix was estimated to change only slightly with fewer light-duty gasoline-powered automobiles and more light-duty gasoline-powered trucks and vans.

Other key inputs to the MOBILE5A emission model are the cold/hot start fractions. Motor vehicles operating in a cold- or hot-start mode emit excess air pollution. Typically, motor vehicles reach stabilized operating temperatures after about 4 miles of driving. For traffic operating on roadways within the project area, it was assumed that about 21 percent of all vehicles would be operating in the cold-start mode and that about 27 percent would be operating in the hot-start mode. These are typical default (national average) values.

Ambient temperatures of 59 and 68 degrees F were used for morning and afternoon peak-hour emission computations, respectively. These are conservative assumptions since morning/afternoon ambient temperatures will generally be warmer than this, and emission estimates given by MOBILE5A are inversely proportional to the ambient temperature.

After computing vehicular carbon monoxide emissions through the use of MOBILE5A, these data were then input to an atmospheric dispersion model. EPA air quality modeling guidelines [7] currently recommend that the computer model CAL3QHC [8] be used to assess carbon monoxide concentrations at roadway intersections, or in areas where its use has previously been established, CALINE4 [9] may be used. Until about three years ago, CALINE4 was used extensively in Hawaii to assess air quality impacts at roadway intersections. In December 1997, the California Department of Transportation recommended that the intersection mode of CALINE4 no longer be used because it was thought the model has become outdated. Studies have shown that CALINE4 may tend to over-predict maximum concentrations in some situations. Therefore, CAL3QHC was used for the subject analysis.

CAL3QHC was developed for the U.S. EPA to simulate vehicular movement, vehicle queuing and atmospheric dispersion of vehicular emissions near roadway intersections. It is designed to predict 1-hour average pollutant concentrations near roadway intersections based on input traffic and emission data, roadway/receptor geometry and meteorological conditions.

Although CAL3QHC is intended primarily for use in assessing atmospheric dispersion near signalized roadway intersections, it can also be used to evaluate unsignalized intersections. This is accomplished by manually estimating queue lengths and then applying the same techniques used by the model for signalized intersections. Currently, none of the study intersections is signalized. In the future, in accordance with the traffic report, Keawe Street was assumed to be signalized both at Halekauwila Street and at Pohukaina Street.

Input peak-hour traffic data were obtained from the traffic study cited previously. This included vehicle approach volumes, saturation capacity estimates, intersection laneage and signal timings (where applicable). All emission factors that were input to CAL3QHC for free-flow traffic on roadways were obtained from MOBILE5A based on assumed free-flow vehicle speed of 25 mph.

Model roadways were set up to reflect roadway geometry, physical dimensions and operating characteristics. Sidewalks currently exist very close to most of the roadway intersections studied. Concentrations predicted by air quality models generally are not considered valid within the roadway mixing zone. The roadway mixing zone is usually taken to include 3 meters on either side of the traveled portion of the roadway and the turbulent area within 10 meters of a cross street. Model receptor sites were thus located at the edges of the mixing zones near all intersections that were studied. All receptor heights were placed at 1.5 meters above ground to simulate levels within the normal human breathing zone.

Input meteorological conditions for this study were defined to provide "worst-case" results. One of the key meteorological inputs is atmospheric stability category. For these analyses, atmospheric stability category 4 was assumed for both the morning and the afternoon cases. This is the most conservative stability category that is generally used for estimating worst-case pollutant dispersion within urban areas for these periods. A surface roughness length of 200 cm and a mixing height of 1000 meters were used in all cases. Worst-case wind conditions were defined as a wind speed of 1 meter per second with a wind direction resulting in the highest predicted concentration. Concentration estimates were calculated at wind directions of every 5 degrees.

Existing background concentrations of carbon monoxide in the project vicinity are believed to be at moderate to low levels. Thus, background contributions of carbon monoxide from sources or roadways not directly considered in the analysis were accounted for by adding a background concentration of 1 ppm to all predicted concentrations for 2001. Although increased traffic is expected to occur within the project area within the next several years with or without the project, background carbon monoxide concentrations may not change significantly since individual emissions from motor vehicles are forecast to decrease with time. Hence, a background value of 1 ppm was assumed to persist for the future scenarios studied.

Predicted Worst-Case 1-Hour Concentrations

Table 5 summarizes the final results of the modeling study in the form of the estimated worst-case 1-hour morning and afternoon ambient carbon monoxide concentrations. These results can be compared directly to the state and the national AAQS. Estimated worst-case carbon monoxide concentrations are presented in the table for three scenarios: year 2001 with existing traffic, year 2020 without the project and year 2020 with the project. The locations of these estimated worst-case 1-hour concentrations all occurred at or very near the indicated intersections.

As indicated in the table, the highest estimated 1-hour concentration within the project vicinity for the present (2001) case was 2.4 mg/m^3. This was projected to occur during the afternoon peak traffic hour near the intersection of Keawe Street and Halekauwila Street. The next highest value, 2.3 mg/m^3, was estimated to occur during the afternoon peak-traffic hour at the intersection of

Keawe Street and Pohukaina Street. Concentrations at other locations and times studied were 2.0 mg/m^3 or lower. All predicted worst-case 1-hour concentrations for the 2001 scenario were well within both the national AAQS of 40 mg/m^3 and the state standard of 10 mg/m^3.

In the year 2020 without the proposed project, a worst-case 1-hour concentration of 4.6 mg/m^3 was predicted to occur during the afternoon peak-traffic hour near the intersection of Keawe Street and Pohukaina Street. The next highest value for the project area was 4.0 mg/m^3 and occurred during the afternoon near the intersection of Keawe Street and Halekauwila Street. Peak-hour worst-case values at the other locations studied for the 2020 without project scenario ranged between about 2 and 4 mg/m^3. Although the predicted concentrations increased substantially compared to the existing case, the concentrations remained relatively low compared to the standards. Similar to the existing case, predicted worst-case 1-hour concentrations for the 2020 without project scenario were well within both the national and the state AAQS.

Predicted 1-hour worst-case concentrations for the 2020 with project scenario were essentially unchanged compared to the 2020 without project scenario, with the project showing virtually no impact. In the 2020 with project scenario, two additional locations were evaluated. These included the two project driveways along Halekauwila Street. Worst-case concentrations at these two locations were found to be 2.8 mg/m^3 or lower. All predicted worst-case 1-hour concentrations for the 2020 with project scenario were well within both the national and the state AAQS.

Predicted Worst-Case 8-Hour Concentrations

Worst-case 8-hour carbon monoxide concentrations were estimated by multiplying the worst-case 1-hour values by a persistence factor of 0.5. This accounts for two factors: (1) traffic volumes averaged over eight hours are lower than peak 1-hour values, and (2) meteorological conditions are more variable (and hence more favorable for dispersion) over an 8-hour period than they are for a single hour. Based on monitoring data, 1-hour to 8-hour persistence factors for most locations generally vary from 0.4 to 0.8 with 0.6 being the most typical. One recent study based on modeling [10] concluded that 1-hour to 8-hour persistence factors could typically be expected to range from 0.4 to 0.5. EPA guidelines [11] recommend using a value of 0.7 unless a locally derived persistence factor is available. Recent monitoring data for locations on Oahu reported by the Department of Health [12] suggest that this factor may range between about 0.2 and 0.6 depending on location and traffic variability. Considering the location of the project and the traffic pattern for the area, a 1-hour to 8-hour persistence factor of 0.5 will likely yield reasonable estimates of worst-case 8-hour concentrations.

The resulting estimated worst-case 8-hour concentrations are indicated in Table 6. For the 2001 scenario, the estimated worst-case 8-hour carbon monoxide concentrations for the locations studied ranged from 1.0 to 1.2 mg/m^3. The estimated worst-case concentrations were well within both the state standard of 5 mg/m^3 and the national limit of 10 mg/m^3.

For the year 2020 without project scenario, worst-case concentrations ranged between 1.5 and 2.3 mg/m^3, increasing somewhat compared to the existing concentrations but remaining somewhat compared to the existing concentrations but remaining relatively low. Worst-case concentration estimates for all locations studied met both the national and the state standards.

For the 2020 with project scenario, worst-case concentrations remained unchanged compared to the without project case, indicating no project impact. The two additional locations studied, which were the project driveways along Halekauwila Street, each had a predicted worst-case concentration of 1.4 mg/m^3. All predicted 8-hour concentrations for this scenario were within both the national and the state AAQS.

Conservativeness of Estimates

The results of this study reflect several assumptions that were made concerning both traffic movement and worst-case meteorological conditions. One such assumption concerning worst-case meteorological conditions is that a wind speed of 1 meter per second with a steady direction for 1 hour will occur. A steady wind of 1 meter per second blowing from a single direction for an hour is extremely unlikely and may occur only once a year or less. With wind speeds of 2 meters per second, for example, computed carbon monoxide concentrations would be only about half the values given above. The 8-hour estimates are also conservative in that it is unlikely that anyone would occupy the assumed receptor sites (within 3 m of the roadways) for a period of 8 hours.

7.2 Electrical Demand

The proposed project also will cause indirect air pollution emissions from power generating facilities as a consequence of electrical power usage. Electrical power for the project will most probably be provided mainly by oil-fired generating facilities located on Oahu, but some of the project power could also come from sources burning other fuels, such as H-Power and the AES coal-fired power plant at Campbell Industrial Park. In order to meet the electrical power needs of the proposed project, power generating facilities will be required to burn more fuel and hence more air pollution will be emitted at these facilities.

Estimates of project electrical demand were not available, but it is anticipated that for a project of this nature and size that any related impacts on air quality will be negligible.

7.3 Solid Waste Disposal

Solid waste generated by the proposed development will likely be hauled away and burned at the H-Power facility at Campbell Industrial Park to generate electricity. Burning of the waste to generate electricity will result in emissions of particulate, carbon monoxide and other contaminants, but these will be offset to some extent by reducing the amount of fuel oil that would be required to generate electricity for the project. Estimates of project solid waste disposal demand were not available, but it is anticipated that for a project of this nature and size that any related impacts on air quality will be negligible.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at least twice daily on days without rainfall. Use of windscreens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

During construction phases, emissions from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides) will also occur both from on-site construction equipment and from vehicles used by construction workers and from trucks traveling to and from the project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

After the proposed project is completed, any long-term impacts on air quality in the project area due to emissions from project-related motor vehicle traffic will be negligible. Worst-case concentrations of carbon monoxide should remain well within both the state and the national ambient air quality standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.

Quantitative estimates of the project's electrical and solid waste demands were not available, but given the project's nature and size, it can be anticipated that any related indirect impacts on air quality will be negligible.

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Figure 1 - Project Location Map

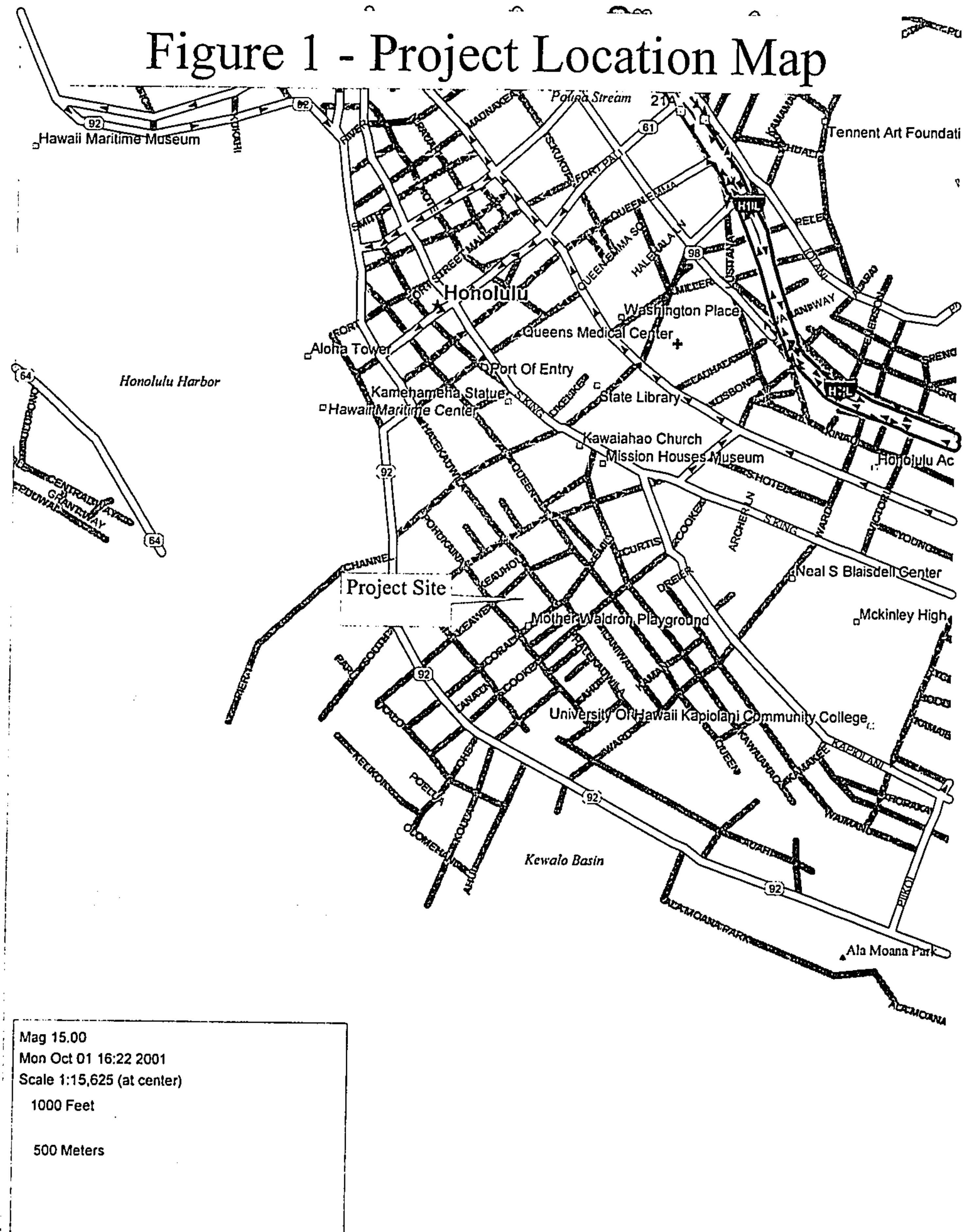

Table 1

SUMMARY OF STATE OF HAWAII AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Units	Averaging Time	Maximum Allowable Concentration		
			National Primary	National Secondary	State of Hawaii
Particulate Matter (<10 microns)	µg/m³	Annual 24 Hours	50[a] 150[b]	50[a] 150[b]	50 150[c]
Particulate Matter (<2.5 microns)	µg/m³	Annual 24 Hours	15[a] 65[d]	15[a] 65[d]	- -
Sulfur Dioxide	µg/m³	Annual 24 Hours 3 Hours	80 365[c] -	- - 1300[c]	80 365[c] 1300[c]
Nitrogen Dioxide	µg/m³	Annual	100	100	70
Carbon Monoxide	mg/m³	8 Hours 1 Hour	10[c] 40[c]	- -	5[c] 10[c]
Ozone	µg/m³	8 Hours 1 Hour	157[e] 235[f]	157[e] 235[f]	- 100[c]
Lead	µg/m³	Calendar Quarter	1.5	1.5	1.5
Hydrogen Sulfide	µg/m³	1 Hour	-	-	35[c]

[a] Three-year average of annual arithmetic mean.

[b] 99th percentile value averaged over three years.

[c] Not to be exceeded more than once per year.

[d] 98th percentile value averaged over three years.

[e] Three-year average of fourth-highest daily 8-hour maximum.

[f] Standard is attained when the expected number of exceedances is less than or equal to 1.

Note: Standards for particulate matter (<2.5 microns) and for 8-hour ozone are subject to court appeal.

Table 2

ANNUAL WIND FREQUENCY FOR HONOLULU INTERNATIONAL AIRPORT (%)

Wind Direction	Wind Speed (knots)									Total
	0-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	>40	
N	0.5	2.5	1.3	0.5	0.0	0.0	0.0	0.0	0.0	4.8
NNE	0.3	1.2	1.6	1.5	0.2	0.0	0.0	0.0	0.0	4.7
NE	0.3	2.1	6.1	11.0	3.2	0.3	0.0	0.0	0.0	23.0
ENE	0.2	2.5	10.9	16.6	4.1	0.3	0.0	0.0	0.0	34.7
E	0.1	1.0	2.5	2.8	0.5	0.0	0.0	0.0	0.0	7.0
ESE	0.0	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	1.1
SE	0.0	0.3	0.8	1.0	0.1	0.0	0.0	0.0	0.0	2.2
SSE	0.1	0.4	1.2	0.7	0.1	0.0	0.0	0.0	0.0	2.4
S	0.1	0.5	1.4	0.6	0.1	0.0	0.0	0.0	0.0	2.7
SSW	0.0	0.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	1.5
SW	0.0	0.2	0.8	0.4	0.0	0.0	0.0	0.0	0.0	1.5
WSW	0.0	0.3	0.5	0.4	0.0	0.0	0.0	0.0	0.0	1.2
W	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.1
WNW	0.2	1.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	2.0
NW	0.4	2.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0	3.8
NNW	0.5	2.3	0.8	0.2	0.0	0.0	0.0	0.0	0.0	3.8
Calm	2.5									2.5
Total	5.4	18.3	30.6	36.5	8.5	0.7	0.0	0.0	0.0	100.0

Source: Climatography of the United States No. 90 (1965-1974), Airport Climatological Summary, Honolulu International Airport, Honolulu, Hawaii, U.S. Department of Commerce, National Climatic Center, Asheville, NC, August 1978.

Table 3

AIR POLLUTION EMISSIONS INVENTORY FOR
ISLAND OF OAHU, 1993

Air Pollutant	Point Sources (tons/year)	Area Sources (tons/year)	Total (tons/year)
Particulate	25,891	49,374	75,265
Sulfur Oxides	39,230	nil	39,230
Nitrogen Oxides	92,436	31,141	123,577
Carbon Monoxide	28,757	121,802	150,559
Hydrocarbons	4,160	421	4,581

Source: Final Report, "Review, Revise and Update of the Hawaii Emissions Inventory Systems for the State of Hawaii", prepared for Hawaii Department of Health by J.L. Shoemaker & Associates, Inc., 1996

Table 4

ANNUAL SUMMARIES OF AIR QUALITY MEASUREMENTS
FOR MONITORING STATIONS NEAREST
POHUKAINA ASSISTED ELDERLY HOUSING PROJECT

Parameter / Location	1996	1997	1998	1999	2000
Sulfur Dioxide / Downtown Honolulu					
No. of 3-Hr Samples	2528	2378	2617	2757	2832
Maximum 3-Hr Concentration (µg/m3)	73	22	42	46	65
No. of State 3-Hr AAQS Exceedances	0	0	0	0	0
No. of 24-Hr Samples	335	308	335	350	357
Maximum 24-Hr Concentration (µg/m3)	18	7	8	8	9
No. of State 24-Hr AAQS Exceedances	0	0	0	0	0
Average Annual Concentration (µg/m3)	3	2	2	2	1
PM-10 / Downtown Honolulu					
No. of 24-Hr Samples	340	287	353	357	361
Maximum 24-Hr Concentration (µg/m3)	28	21	28	43	83
No. of State 24-Hr AAQS Exceedances	0	0	0	0	0
Average Annual Concentration (µg/m3)	14	8	9	14	14
Carbon Monoxide / Downtown Honolulu					
No. of 1-Hr Samples	7871	7272	8363	8610	8726
Maximum 1-Hr Concentration (mg/m3)	4.6	4.1	6.7	4.8	4.0
No. of State 1-Hr AAQS Exceedances	0	0	0	0	0
No. of 8-Hr Samples	1007	912	1047	1076	1091
Maximum 8-Hr Concentration (mg/m3)	2.1	2.1	2.5	1.8	1.8
No. of State 8-Hr AAQS Exceedances	0	0	0	0	0
Average Annual Concentration (mg/m3)	0.9	0.9	0.9	0.7	0.8
Ozone / Sand Island					
No. of 1-Hr Samples	8263	8702	8688	8566	8482
Maximum 1-Hr Concentration (ug/m3)	92	106	114	110	98
No. of State 1-Hr AAQS Exceedances	0	13	7	8	0
Average Annual Concentration (ug/m3)	27	37	41	40	32
Lead / Downtown Honolulu					
No. of 24-Hr Samples	42	24	-	-	-
Maximum Quarterly Concentration (µg/m3)	0	0	-	-	-
No. of State AAQS Exceedances	0	0	-	-	-
Average Annual Concentration (ug/m3)	0	0	-	-	-
Nitrogen Dioxide / Kapolei					
No. of 1-Hr Samples	7610	8494	7610	8227	7213
Average Annual Concentration (ug/m3)	2	8	2	7	9

Source: Hawaii Air Quality Data, Annual Summaries, 1996-2000, Hawaii Department of Health.

Table 5

ESTIMATED WORST-CASE 1-HOUR CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS NEAR POHUKAINA ASSISTED ELDERLY HOUSING PROJECT (milligrams per cubic meter)

Roadway Intersection	Year/Scenario					
	2001/Present		2020/Without Project		2020/With Project	
	AM	PM	AM	PM	AM	PM
Coral Street at Halekauwila Street	1.8	2.0	2.2	3.0	2.3	3.0
Keawe Street at Halekauwila Street	2.0	2.4	3.8	4.0	3.9	4.0
Keawe Street at Pohukaina Street	1.8	2.3	3.9	4.6	3.9	4.6
East Driveway at Halekauwila Street	-	-	-	-	2.3	2.8
West Driveway at Halekauwila Street	-	-	-	-	2.3	2.8

Hawaii State AAQS: 10
National AAQS: 40

Table 6

ESTIMATED WORST-CASE 8-HOUR CARBON MONOXIDE CONCENTRATIONS
AT SELECTED INTERSECTIONS NEAR
POHUAKINA ASSISTED ELDERLY HOUSING PROJECT
(milligrams per cubic meter)

Roadway Intersection	Year/Scenario		
	2001/Present	2020/Without Project	2020/With Project
Coral Street at Halekauwila Street	1.0	1.5	1.5
Keawe Street at Halekauwila Street	1.2	2.0	2.0
Keawe Street at Pohukaina Street	1.2	2.3	2.3
East Driveway at Halekauwila Street	-	-	1.4
West Driveway at Halekauwila Street	-	-	1.4

Hawaii State AAQS: 5
National AAQS: 10

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E-MAIL: bdneal@kona.net

July 31, 2000

Mr. Taeyong Kim
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Subject: Pohukaina Assisted Elderly Housing Project
Air Quality Impact Assessment

Dear Mr. Kim:

In response to your question concerning the change in the subject project's completion year from 2002 to 2004, this should have no affect on the conclusions that were reached in our air quality impact assessment dated July 3, 2000. Please call me if wish to discuss this matter further.

Very truly yours,

Barry D. Neal

Barry D. Neal
Certified Consulting
Meteorologist

Appendix D
Acoustic Study

ACOUSTIC STUDY FOR THE POHUKAINA PARK SENIOR ASSISTED LIVING FACILITY KAKAAKO, OAHU

Prepared for:

ENVIRONMENTAL COMMUNICATIONS, INC.

Prepared by:

Y. EBISU & ASSOCIATES
1126 12th Avenue, Room 305
Honolulu, Hawaii 96816

SEPTEMBER 2001

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CHAPTER I. SUMMARY

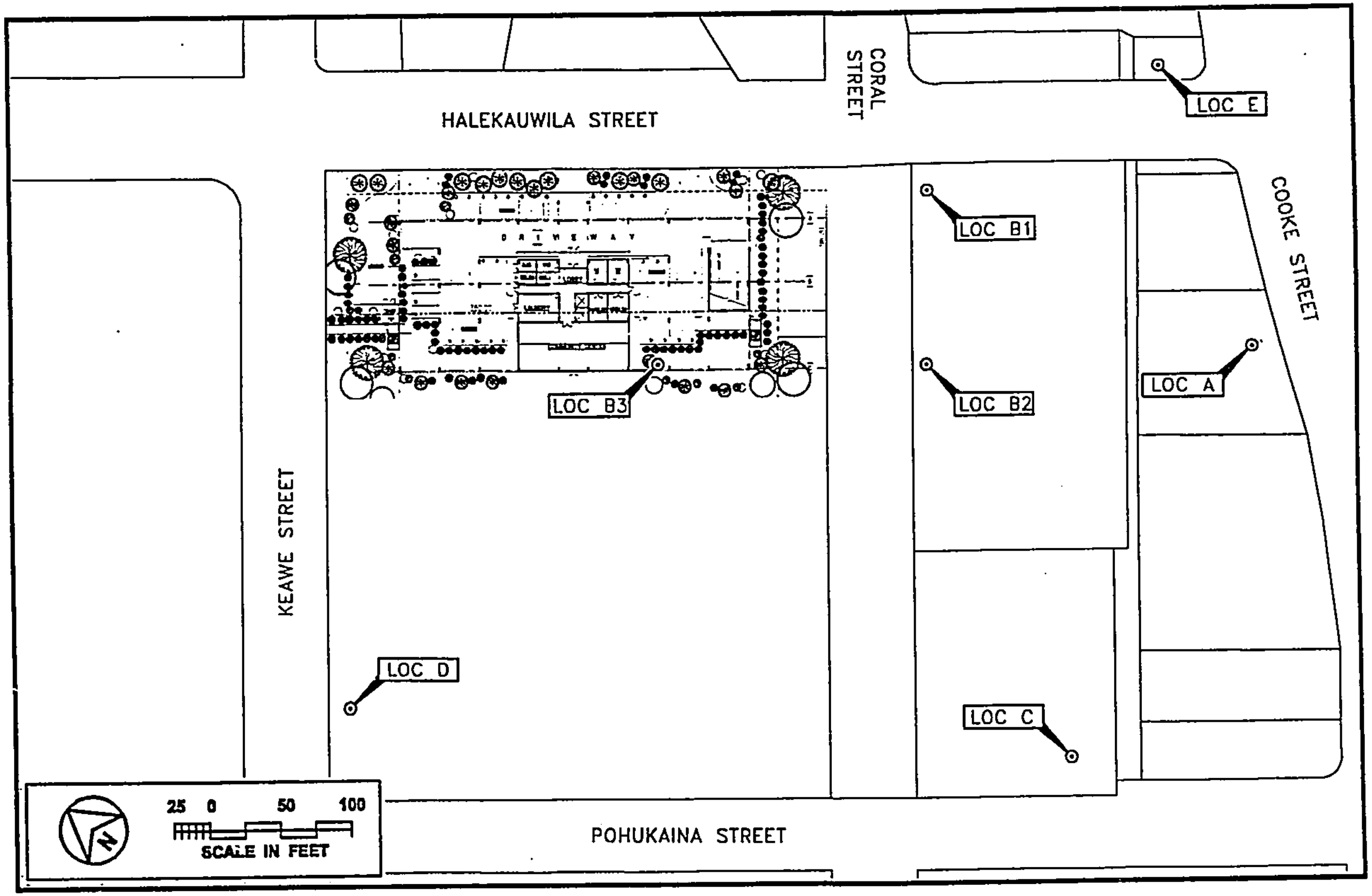
The existing and future traffic noise levels in the vicinity of the proposed Pohukaina Park Senior Assisted Living Facility in Kakaako were evaluated for their potential impacts and their relationship to current FHA/HUD noise standards. The traffic noise level increases along the 4 roadways bordering the project site (see FIGURE 1) were calculated. No significant increases in traffic noise are predicted to occur as a result of project plus non-project traffic following project build-out by CY 2002.

Along Halekauwila Street, traffic noise levels are expected to remain at 62 Ldn at 50 foot distance from the centerline in CY 2002. Along Keawe, Coral, and Pohukaina Streets, traffic noise levels are expected to increase by less than 0.5 Ldn by CY 2002 as a result of project and non-project traffic. Project traffic will add less than 0.2 Ldn additional units of noise along Halekauwila, Keawe, Coral, and Pohukaina Streets in the immediate vicinity of the project. These levels of traffic noise increases resulting from project generated traffic are not considered to be significant. The predicted increases in traffic noise levels are not expected to generate adverse noise impacts by CY 2002.

By CY 2020, relatively large increases in traffic noise levels are expected to occur in the project area, primarily due to the growth in non-project traffic. Increases in future traffic volumes in the order of 100 percent are anticipated, and traffic noise levels are expected to increase by 2 to 3 dB over current levels. In spite of these increases, the upper floor units on the southwest and northeast faces of the residential tower building will not be exposed to traffic and/or aircraft noise levels which exceed the 65 Ldn FHA/HUD noise standard. In addition, the aircraft noise component should not exceed the State Department of Transportation, Airports Division, recommended planning level of 60 Ldn for residences. Mitigation of traffic or aircraft noise levels is not required for the planned units in the residential tower.

Unavoidable, but temporary, noise impacts may occur during construction of the proposed project, particularly during the excavation and potential pile driving activities on the project site. Because construction activities are predicted to be audible within the project site and at adjoining properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases, but the use of quiet equipment is recommended as a standard mitigation measure.

Because of the presence of low and mid-rise buildings near the project site and the potential for damage to these buildings from vibration during potential pile driving operations, vibration monitoring is recommended during close-in pile driving operations where vibration levels are expected to exceed 0.2 inches/second. In addition, it is expected that the design and construction methods for the project building will be optimized to minimize risks of damage to adjacent structures from settling or heaving.



PROJECT SITE AND LOCATIONS OF SURROUNDING STREETS AND NOISE MEASUREMENTS

FIGURE 1

A vibration limit of 2.0 inches/second should not be exceeded at any of the adjacent buildings, and modifications to the project's plans prior to design and construction are recommended if these limits are expected to be exceeded.

The noise from potential playground activities at the planned elementary school makai of the project site could disturb the occupants within the living units of the project tower building. Noise levels associated with school children's playground and playcourt activities tend to be high due to the shouting and screaming which normally occur during these outdoor activities and play periods. Anticipated noise levels at the living units of the project can be expected to exceed 70 dBA during these recess and play periods, and may intermittently exceed 90 to 100 dBA at short distances of 50 to 90 feet from the children. Increasing the distance between the living units and the playing areas from 50 feet to 200 feet will reduce the noise levels at the living units by approximately 12 dBA, which is a significant reduction. If increasing the buffer distances between the outdoor play areas and the living units is not possible, closure and air conditioning of the living units will be the only remaining noise mitigation measure possible.

CHAPTER II. PURPOSE

The primary objective of this study was to describe the existing and future traffic noise environment in the environs of the proposed Pohukaina Park Senior Assisted Living Facility in Kakaako on the island of Oahu. Traffic forecasts for both 2002 and 2020 were used. Traffic noise level increases and impacts associated with the proposed development were to be determined within the project site as well as along the public roadways which are expected to service the project traffic. A specific objective was to determine future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases.

Assessments of possible future noise impacts from playground activities at a planned elementary school adjacent to the project site were also included in the study. Impacts from short term construction noise and vibration at the project site were also included as noise study objectives. Specifically, the potential risks of structural damage to adjacent buildings from pile driving operations on the project site were included in the noise and vibration impact assessment. Recommendations for minimizing identified noise and vibration impacts were also to be provided as required.

CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

The noise descriptor currently used by federal agencies (such as FHA/HUD) to assess environmental noise is the Day-Night Average Sound Level (Ldn). This descriptor incorporates a 24-hour average of instantaneous A-Weighted Sound Levels as read on a standard Sound Level Meter. By definition, the minimum averaging period for the Ldn descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the Ldn descriptor. A more complete list of noise descriptors is provided in APPENDIX B to this report.

TABLE 1, derived from Reference 1, presents current federal noise standards and acceptability criteria for residential land uses. Land use compatibility guidelines for various levels of environmental noise as measured by the Ldn descriptor system are shown in FIGURE 2. As a general rule, noise levels of 55 Ldn or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, Ldn levels generally range from 55 to 65 Ldn, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 Ldn, and as high as 75 Ldn when the roadway is a high speed freeway. In the project area, traffic noise levels associated with Cooke Street are typically greater than 65 Ldn along the Right-of-Way due to the large volume of traffic on that major thoroughfare.

For purposes of determining noise acceptability for funding assistance from federal agencies (FHA/HUD and VA), an exterior noise level of 65 Ldn or less is considered acceptable for residences. This standard is applied nationally (Reference 2), including Hawaii. Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 Ldn does not eliminate all risks of noise impacts. Because of these factors, and as recommended in Reference 3, a lower level of 55 Ldn is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 Ldn, government agencies such as FHA/HUD and VA have selected 65 Ldn as a more appropriate regulatory standard.

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 Ldn are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 Ldn.

On the island of Oahu, the State Department of Health (DOH) regulates noise from construction activities, through the issuance of permits for allowing excessive

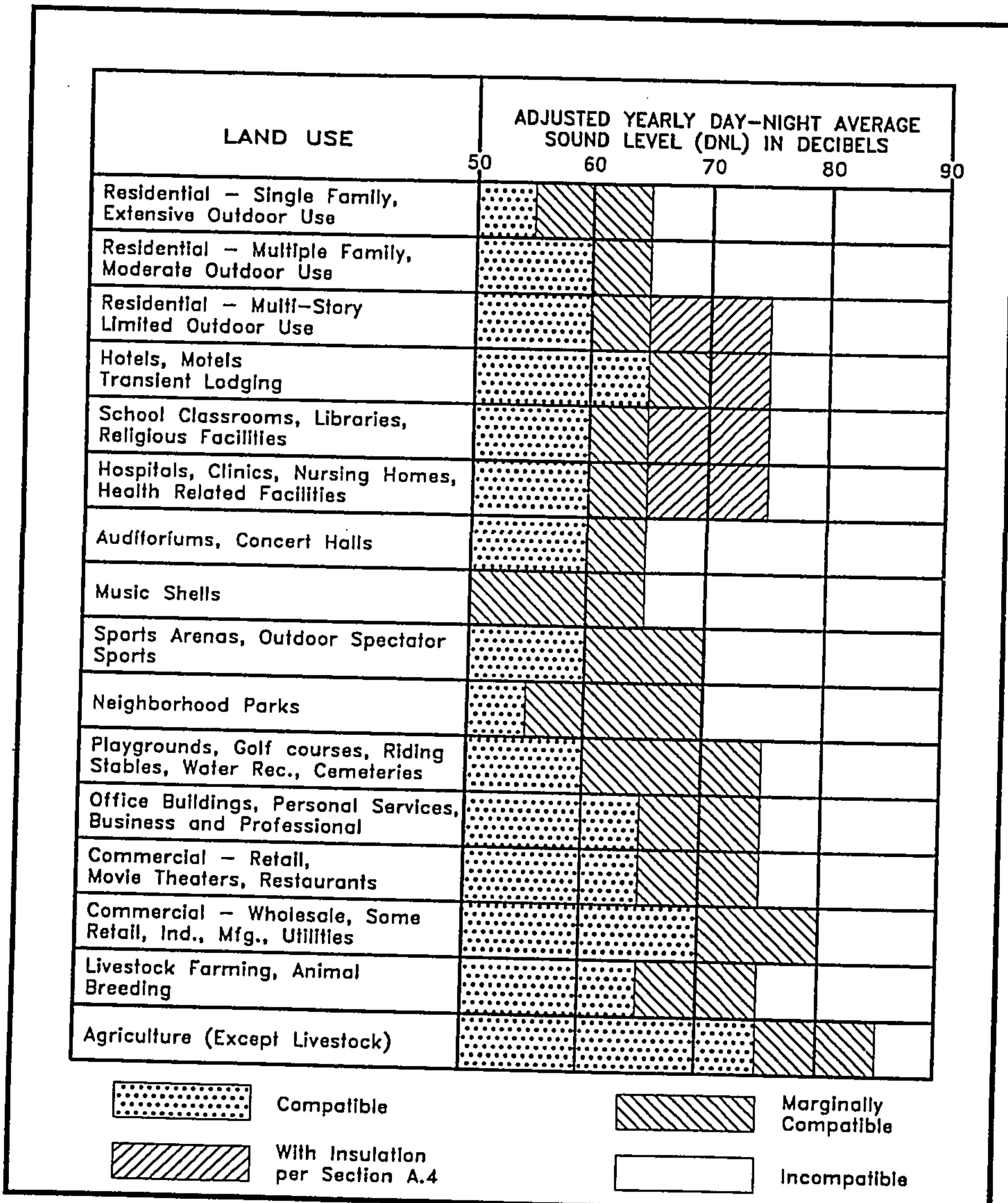
TABLE 1

EXTERIOR NOISE EXPOSURE CLASSIFICATION (RESIDENTIAL LAND USE)

NOISE EXPOSURE CLASS	DAY-NIGHT SOUND LEVEL	EQUIVALENT SOUND LEVEL	FEDERAL (1) STANDARD
Minimal Exposure	Not Exceeding 55 DNL	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 DNL But Not Above 65 DNL	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 DNL But Not Above 75 DNL	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe Exposure	Above 75 DNL	Above 75 Leq	Unacceptable

Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 Leq.



LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY-NIGHT AVERAGE SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.
(Source: American National Standards Institute S12.9-1998/Part 5)

FIGURE 2

noise during limited time periods. State DOH noise regulations are expressed in maximum allowable property line noise limits rather than Ldn (see Reference 4). Although they are not directly comparable to noise criteria expressed in Ldn, State DOH noise limits for residential, commercial, and industrial lands equate to approximately 55, 60, and 76 Ldn, respectively.

It should be noted that the noise compatibility guidelines and relationships to the Ldn noise descriptor may not be applicable to impulsive noise sources such as pile drivers. The use of penalty factors (such as adding 10 dB to measured sound levels or the use of C-Weighting filters) have been proposed. However, the relationships between levels of impulsive noise sources and land use compatibility have not been as firmly established as have the relationships for non-impulsive sources. The State DOH limits for impulsive sounds which exceed 120 impulses in any 20 minute period are 10 dB above the limits for non-impulsive sounds. If impulsive sounds do not exceed 120 impulses in any 20 minute time period, there are no regulatory limits on their sound levels under the State DOH regulations.

CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic noise levels were measured at four locations (A, B1, C, and D) in the project environs to provide a basis for developing the project's traffic noise contributions along the roadways which will service the proposed development. The locations of the measurement sites are shown in FIGURE 1. Noise measurements were performed during the months of April and May, 2000. The results of the traffic noise measurements were compared with calculations of existing traffic noise levels to validate the computer model used. The traffic noise measurement results, and their comparisons with computer model predictions of existing traffic noise levels are summarized in TABLE 2.

Traffic noise calculations for the existing conditions as well as noise predictions for the Years 2002 and 2020 were performed using the Federal Highway Administration (FHWA) Traffic Noise Model (Reference 5). Traffic data entered into the noise prediction model were: roadway and receiver locations; hourly traffic volumes, average vehicle speeds; estimates of traffic mix; and "Loose Soil" propagation loss factor. The traffic data and forecasts for the project (Reference 6), plus the spot traffic counts obtained during the noise measurement periods were the primary sources of data inputs to the model. APPENDICES C and D summarize the AM and PM peak hour traffic volumes for CY 2000, 2002, and 2020 which were used to model existing and future traffic noise along the streets surrounding the project site. For existing and future traffic along the streets surrounding the project site, it was assumed that the average noise levels, or Leq(h), during the PM peak traffic hour were approximately equal to the 24-hour Ldn along those roadways.

Traffic noise calculations for both the existing and future conditions in the project environs were developed for ground level and elevated receptors with and without the benefit of shielding from the proposed residential tower building. Traffic noise levels were also calculated for future conditions with and without the proposed project. The forecasted changes in traffic noise levels over existing levels were calculated with and without the project, and noise impact risks evaluated. The relative contributions of non-project and project traffic to the total noise levels were also calculated, and an evaluation of possible traffic noise impacts was made.

In addition to the traffic noise measurements, aircraft noise measurements were obtained at Location B2, and nighttime background ambient noise measurements were obtained at Locations B3 and E. The results of these measurements are shown in TABLES 2 and 3. The results of these measurements plus the results of the traffic noise measurements and predictions were used to determine if the proposed elderly housing units are in the acceptable noise zone of 65 Ldn or less.

Sound level measurements during playground activities at Waialae Elementary School were used to predict the potential noise levels of school children during recess and/or play periods. The potential noise levels at the living units of the project from

TABLE 2

TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume: AUTO	Hourly Traffic Volume: M.TRUCK	Hourly Traffic Volume: H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
A. 50 FT from the center-line of Cooke Street. (5/22/00)	1600 TO 1700	35	880	8	1	65.1	65.4
B1. 50 FT from the center-line of Halekauwila St. (4/13/00)	1600 TO 1700	35	466	6	1	61.5	61.6
B1. 50 FT from the center-line of Halekauwila St. (4/14/00)	0700 TO 0800	35	318	12	1	61.1	61.2
B2. 168 FT from the center-line of Halekauwila St. (4/14/00)	0838 TO 1000	N/A	N/A	N/A	N/A	58.0	N/A
B3. 159 FT from the center-line of Halekauwila St. (5/24-25/00)	2100 TO 0112	N/A	N/A	N/A	N/A	52.2	N/A

TABLE 2 (CONTINUED)

TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	-------- Hourly Traffic Volume -------- AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
C. 50 FT from the center-line of Pohukaina St. (5/22/00)	1600 TO 1700	35	557	15	2	63.3	63.3
D. 50 FT from the center-line of Keawe St. (4/14/00)	1600 TO 1700	20	145	0	1	60.7	57.0
E. 3rd Floor Stairwell at DH makai corner of 610 Cooke St. (4/14-15/00)	2315 TO 0200	N/A	N/A	N/A	N/A	58.7	N/A

TABLE 3

SUMMARY OF AIRCRAFT NOISE MEASUREMENTS AT LOCATION "B2"

AIRCRAFT TYPE	MAXIMUM SOUND LEVELS Lmax (in dB)	SOUND EXPOSURE LEVELS Lse (in dB)
B-737(200) (RWY 8L DEP.)	68.8; 70.3; 69.3; 67.2; 75.5; 66.5; 70.0; 66.0 (AVE. = 69.2)	82.1; 78.4; 80.7; 76.7; 74.8; 79.8; 77.0; 77.7; 80.2 (AVE. = 78.2)
DC-9(50) (RWY 8L DEP.)	70.5; 80.6; 73.6; 71.9; 66.1; 75.5; 72.3; 74.2; 71.6; 71.4; 76.4; 72.6 (AVE. = 73.1)	78.9; 89.2; 79.9; 78.7; 77.7; 82.1; 81.4; 82.6; 80.4; 79.9; 82.4; 81.0 (AVE. = 82.5)
F-15 (RWY 8R DEP.)	75.0; 61.4	82.3; 74.3

children shouting and screaming were calculated. Calculations of average exterior and interior noise levels from construction activities were performed for typical naturally ventilated and air conditioned dwellings. Predicted noise levels were compared with existing background ambient noise levels, and the potential for noise impacts was assessed. Potential noise and vibration impacts from pile driving operations were also discussed, and mitigation measures recommended.

V. EXISTING ACOUSTICAL ENVIRONMENT

The existing background ambient noise levels within the project area are controlled by traffic along Cooke, Pohukaina, Halekauwila, and Keawe Streets; by local traffic within the existing parking lot; and by interisland jet aircraft departures from Honolulu International Airport. Traffic, aircraft, and background ambient noise measurements were obtained at six locations (A, B1, B2, B3, C, D, and E) in the project environs. These locations are shown in FIGURE 1.

The results of the aircraft noise level measurements are shown in TABLE 3. The loudest aircraft noise events were typically associated with departures by interisland jet aircraft. Occasionally, departures by the louder military jet aircraft (such as the F-15) were also audible and measurable. Aircraft noise events were typically louder than motor vehicles, and were audible over longer periods than other noise events. Nevertheless, aircraft noise levels at the project site do not exceed 60 Ldn, which is the level above which the Hawaii State Department of Transportation, Airports Division, considers to be unacceptable for residences. The most recently published airport noise contours for Honolulu International Airport indicate that the project site is located between the 55 and 60 Ldn contours for Year 2007. This correlates with the measured aircraft noise data and the Year 2000 estimate of 56 to 57 Ldn for aircraft noise at the project site.

The existing traffic noise levels in the project environs along Cooke Street are in the "Significant Exposure, Normally Unacceptable" category and greater than 65 Ldn within 50 feet of the roadway's centerline. Along Halekauwila, Pohukaina, and Keawe Streets, existing traffic noise levels are in the "Moderate Exposure, Acceptable" category at 50 feet or greater distance from the roadways' centerlines.

The results of the traffic and background ambient noise measurements are summarized in TABLE 2, with measurement locations identified in FIGURE 1. The measurement Sites A through D were located at street level, and Location E was at the third level of the makai/Diamond Head stairs of the 610 Cooke Street building. As shown in TABLE 2, correlation between measured and predicted traffic noise levels was good. The Traffic Noise Model's "Loose Soil" propagation loss factor was used to obtain the good correlation.

The traffic, aircraft, and background ambient noise level measurements at Locations B1, B2, and B3 indicated that total noise levels are between 59 to 63 Ldn on the project site in the vicinity of the proposed residential tower. Aircraft noise levels are approximately 56 to 57 Ldn, while traffic noise levels range from approximately 55 Ldn at ground level to 61 or 62 Ldn at receptor elevations of 45 feet or more above ground level. Traffic noise levels increase with receptor elevation due to the decrease in noise shielding effects and the reduction of excess ground attenuation effects.

Results of calculations of existing (CY 2000) traffic noise levels at the future residential tower building (Location B3) on the project site are shown in TABLES 4A and 4B. The results of the calculations are shown for ground level receptors without noise shielding effects from the proposed tower building. As indicated in TABLES 4A and 4B, the existing noise levels over the project site are higher near the Halekauwila Street (as depicted by Location B1), and are lower near the proposed residential tower (as depicted by Location B3). Existing traffic and aircraft noise levels, singly and in combination, do not exceed 65 Ldn, and existing noise levels are considered to be "Acceptable" for residences by FHA/HUD and other federal agencies.

TABLE 4A

EXISTING AND 2002 TRAFFIC NOISE LEVELS
(VARIOUS ELEVATIONS, PM PEAK HOUR)

RECEPTOR LOCATION	SETBACK DIST. FROM EXIST. C/L	RECEPTOR ELEVATION	EXISTING (CY 2000) Leq or Ldn	FUTURE (CY 2002) LEVELS NO BUILD Leq or Ldn	BUILD Leq or Ldn
Location A	50 FT from Cooke St.	5 FT Above Ground	66	66	66
Location B1	50 FT from Halekauwila	5 FT Above Ground	62	62	62
Location B2	168 FT from Halekauwila	5 FT Above Ground	55	56	55
Location B3	159 FT from Halekauwila	5 FT Above Ground	55	55	N/A
Tower NE Wall	108 FT from Halekauwila	45 FT Above Ground	N/A	62	61
Tower NE Wall	108 FT from Halekauwila	95 FT Above Ground	N/A	62	61
Tower NE Wall	108 FT from Halekauwila	135 FT Above Ground	N/A	62	61
Tower SW Wall	168 FT from Halekauwila	45 FT Above Ground	N/A	61	56
Tower SW Wall	168 FT from Halekauwila	95 FT Above Ground	N/A	61	58
Tower SW Wall	168 FT from Halekauwila	135 FT Above Ground	N/A	61	59

TABLE 4B

EXISTING AND 2020 TRAFFIC NOISE LEVELS
(VARIOUS ELEVATIONS, PM PEAK HOUR)

RECEPTOR LOCATION	SETBACK DIST. FROM EXIST. C/L	RECEPTOR ELEVATION	EXISTING (CY 2000) Leq or Ldn	FUTURE (CY 2020) LEVELS NO BUILD Leq or Ldn	BUILD Leq or Ldn
Location A	50 FT from Cooke St.	5 FT Above Ground	66	67	67
Location B1	50 FT from Halekauwila	5 FT Above Ground	62	65	65
Location B2	168 FT from Halekauwila	5 FT Above Ground	55	58	57
Location B3	159 FT from Halekauwila	5 FT Above Ground	55	57	N/A
Tower NE Wall	108 FT from Halekauwila	45 FT Above Ground	N/A	64	64
Tower NE Wall	108 FT from Halekauwila	95 FT Above Ground	N/A	64	63
Tower NE Wall	108 FT from Halekauwila	135 FT Above Ground	N/A	64	64
Tower SW Wall	168 FT from Halekauwila	45 FT Above Ground	N/A	63	58
Tower SW Wall	168 FT from Halekauwila	95 FT Above Ground	N/A	63	60
Tower SW Wall	168 FT from Halekauwila	135 FT Above Ground	N/A	63	61

CHAPTER VI. FUTURE NOISE ENVIRONMENT

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 6 for CY 2002 and CY 2020 with and without the proposed project. The future projections of project plus non-project traffic noise levels on the roadways which would service the project are shown in TABLES 4A and 4B for the PM peak hour of traffic, under the Build Alternative. The corresponding non-project traffic noise contributions for the No Build Alternative are also shown in the table. Essentially no changes in traffic noise levels are expected in the project environs between CY 2000 and 2002, with or without the project. With the construction of the proposed residential tower building, traffic noise levels along the southwest face of the tower building should decrease slightly due to the shielding of the traffic noise contributions from Halekauwila Street and other streets to the northeast. By CY 2020, traffic noise levels in the project area are expected to increase by 2 to 3 dB due to the anticipated growth in non-project traffic. Except for noise shielding effects from the project's tower building, future traffic noise levels should be identical with or without the proposed housing project.

The dominant traffic noise source in the project area will continue to be traffic noise from Halekauwila, Cooke, and Pohukaina Streets, but the changes in traffic noise levels following project build-out are not expected to be significant. TABLES 4A and 4B show the predicted future traffic noise levels at the mauka and makai faces of the proposed tower building on the project site following project build-out in CY 2002 as well as in CY 2020 for elevated (above the 4th floor) receptors. The beneficial effects of shielding from the proposed high-rise structure, as well as the additive noise contributions from the adjoining streets, are included in the sound level predictions shown in TABLES 4A and 4B. As indicated in the tables, the elevated residential units in the tower building are expected to be exposed to traffic noise levels less than 65 Ldn, and are expected to be in the "Acceptable" noise exposure category in respect to the FHA/HUD noise standard for residences.

Aircraft noise levels over the project site should not change significantly between CY 2000 and 2002, and should remain at or below the current levels of 56 to 57 Ldn. Over the longer period beyond CY 2002, aircraft noise levels over the project site are expected to decrease by 2 to 3 Ldn with the anticipated replacement of Hawaiian Airlines' current DC-9(50) aircraft with new B-717(200) aircraft. With or without the replacement of its aircraft by Hawaiian Airlines, total (aircraft plus traffic) noise levels over the project site should not exceed 65 Ldn by 2020.

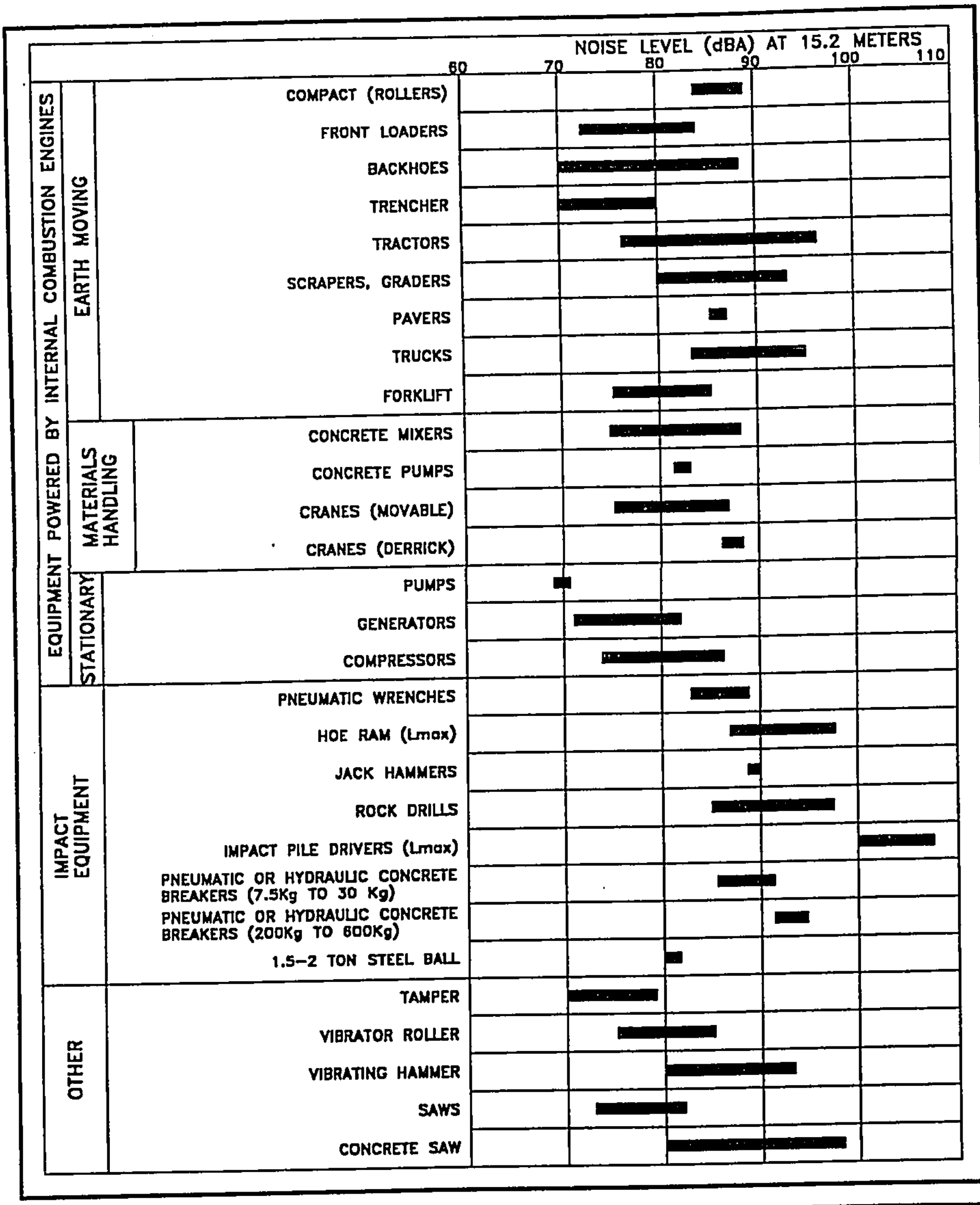
CHAPTER VII. DISCUSSION OF PROJECT-RELATED NOISE AND VIBRATION IMPACTS AND POSSIBLE MITIGATION MEASURES

Traffic Noise. For the residential units in the proposed residential tower building, traffic noise mitigation measures should not be required for traffic noise projected through CY 2020. Noise impacts from project related traffic along the surrounding roadways which are expected to service the project are not expected due to the very low levels of traffic noise associated with project traffic.

General Construction Noise. Audible construction noise will probably be unavoidable during the entire project construction period. The total time period for construction is unknown, but it is anticipated that the actual work will be moving from one location on the project site to another during that period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project. FIGURE 3 depicts the range of noise levels of various types of construction equipment when measured at 50 FT distance from the equipment. Typical levels of exterior noise from construction activity (excluding pile driving activity) at various distances from the job site are shown in FIGURE 4. The impulsive noise levels of impact pile drivers are approximately 15 dB higher than the levels shown in FIGURE 4, while the intermittent noise levels of vibratory pile drivers are at the upper end of the noise level ranges depicted in the figure.

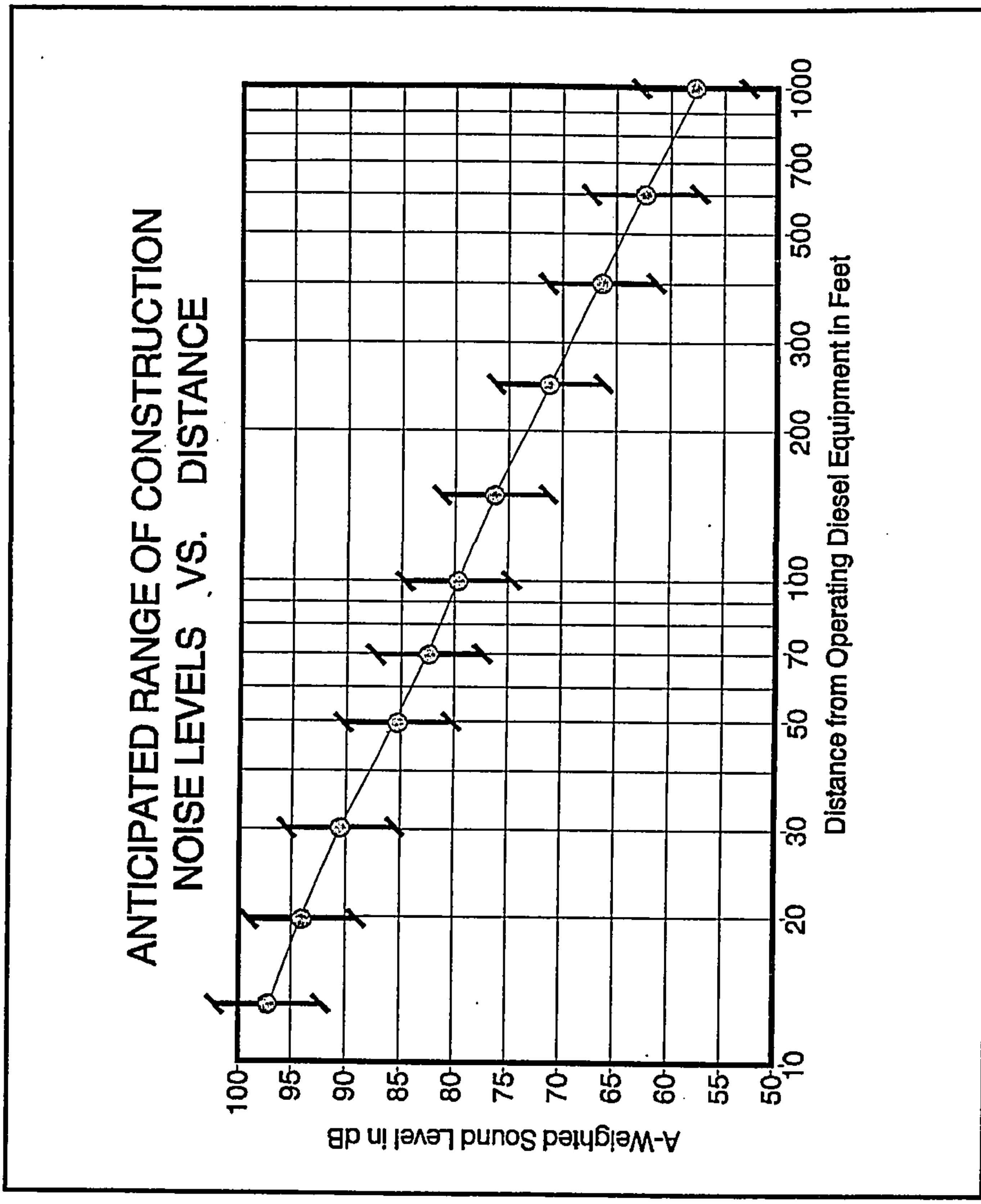
FIGURE 4 is useful for predicting exterior noise levels at short distances (within 100 FT) from the work when visual line of sight exists between the construction equipment and the receptor. Direct line-of-sight distances from the construction equipment to existing residential and commercial buildings will range from 70 FT to 450 FT, with corresponding average noise levels of 83 to 65 dBA (plus or minus 5 dBA). For receptors along a cross-street, the construction noise level vs. distance curve of FIGURE 4 should be reduced by approximately 8 dBA when the work is occurring at the intersection with the cross street, and should be reduced by 15 dBA when work is occurring at least 100 FT from the intersection (and the visual line-of-sight is blocked by intervening buildings). Typical levels of construction noise inside naturally ventilated and air conditioned structures are approximately 10 and 20 dB less, respectively, than the levels shown in FIGURE 4.

The business offices, produce business, and elderly housing facility across Halekauwila Street are predicted to experience the highest noise levels during construction activities due to their close proximity to the construction site. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work, the business/commercial character of the neighborhood, and due to the administrative controls available for regulation of construction noise. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project site.



RANGES OF CONSTRUCTION EQUIPMENT NOISE LEVELS

FIGURE 3



CONSTRUCTION NOISE LEVELS VS. DISTANCE	FIGURE 4

Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources (80 to 90+ dB at 50 FT distance), and due to the exterior nature of the work (pile driving, grading and earth moving, trenching, concrete pouring, hammering, etc.). The use of properly muffled construction equipment should be required on the job site.

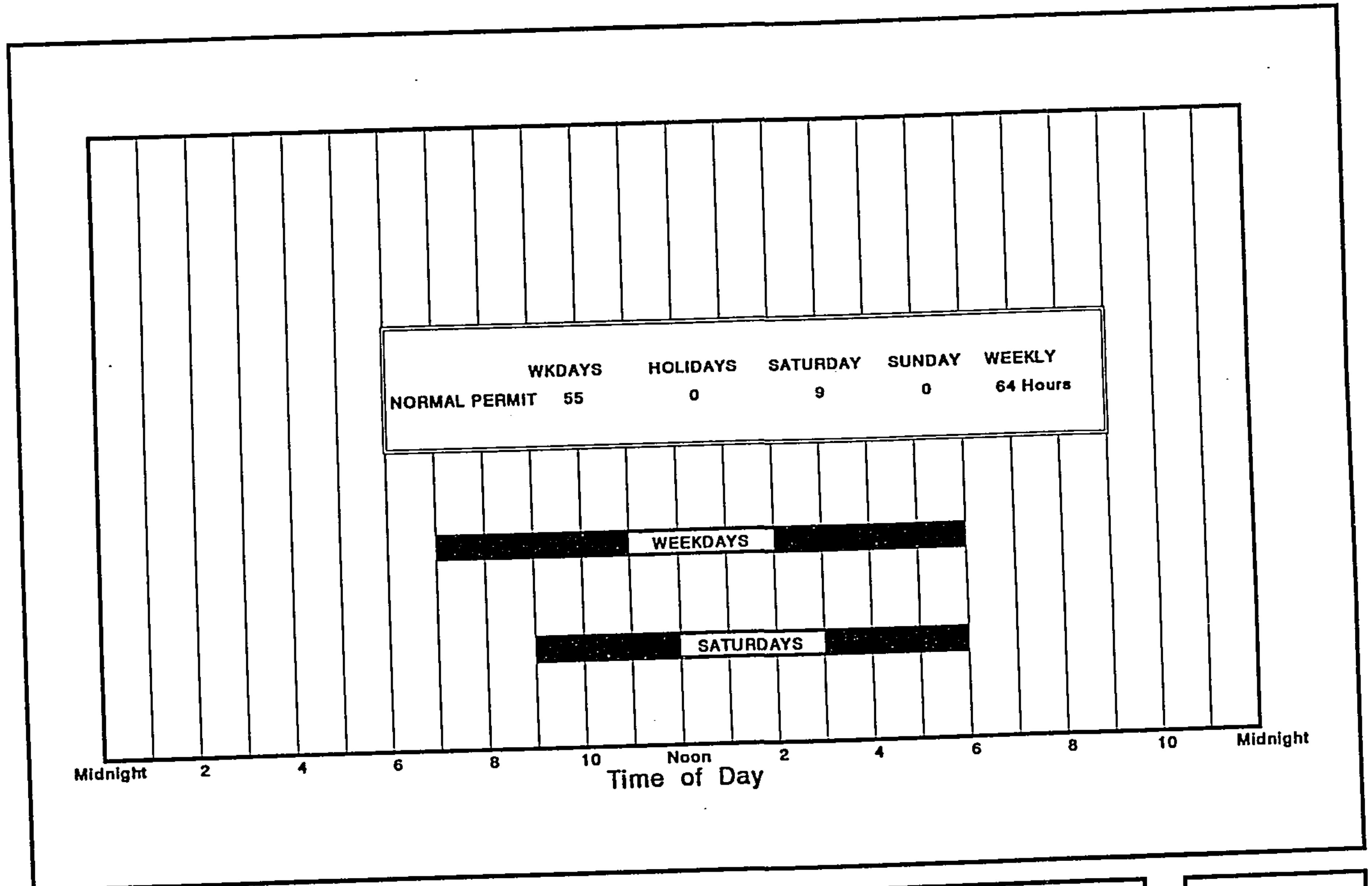
Peak airborne noise levels from pile diving may be as much as 15 dBA greater than noise levels shown in FIGURE 4 for non-impulsive (steady) construction noise sources. Although the pile driving can produce more intense noise levels, each pulse is of short individual duration (less than one second). Therefore, its impact on speech communication is not as severe as that of steady source of the same noise level.

Severe noise impacts are not expected to occur inside air conditioned structures which are within 70 to 450 FT of the project construction site. Inside naturally ventilated structures, interior noise levels (with windows or doors opened) are estimated to range between 55 to 73 dBA at 70 FT to 450 FT distances from the construction site. Closure of all doors and windows facing the construction site would generally reduce interior noise levels by an additional 5 to 10 dBA.

The incorporation of State Department of Health construction noise limits and curfew times, which are applicable throughout the State of Hawaii (Reference 4), is another noise mitigation measure which is normally applied to construction activities. FIGURE 5 depicts the normally permitted hours of construction. Noisy construction activities are not allowed on Sundays and holidays, during the early morning, and during the late evening and nighttime periods under the DOH permit procedures.

<u>Vibration from Pile Driving</u>. Pile driving will probably be necessary to implant piles into the ground over the project site. Impact driven concrete and sheet piles may both be used on the project site. Induced ground vibrations from the pile driving operations have the potential to cause architectural and structural damage to structures.

Ground vibrations generated during pile driving operations are generally described in terms of peak particle (or ground) velocity in units of inches/second. The human being is very sensitive to ground vibrations, which are perceptible at relatively low particle velocities of 0.01 to 0.04 inches/second. Damage to structures, however, occur at much higher levels of vibration as indicated in TABLE 5. The most commonly used damage criteria for structures is the 2.0 inches/second limit derived from work by the U.S. Bureau of Mines. A more conservative limit of 0.2 inches/second is also used, and is suggested for planning purposes on this project because of the repetitive nature of pile driving operations which can increase risks of damage due to fatiguing.



AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE

FIGURE 5

TABLE 5

SUMMARY OF BUILDING DAMAGE CRITERIA

PEAK GROUND VELOCITY (mm/sec)	PEAK GROUND VELOCITY (in/sec)	COMMENT
193.04	7.6	Major damage to buildings (mean of data).
137.72	5.4	Minor damage to buildings (mean of data).
101.16	4.0	'Engineer structures' safe from damage.
50.8	2.0	Safe from damage limit (probability of damage <5%).
		No structural damage.
33.02	1.3	Threshold of risk of 'architectural' damage for houses.
25.4	1.0	No data showing damage to structures for vibration <1 in./sec.
15.24	0.6	No risk of 'architectural' damage to normal buildings.
10.16	0.4	Threshold of damage in older homes.
5.08	0.2	Statistically significant percentage of structures may experience minor damage (including earthquake, nuclear event, and blast data for old and new structures).
		No 'architectural' damage.
3.81	0.5 to 0.15	Upper limits for ruins and ancient monuments.
1.0	0.04	Vertical vibration clearly perceptible to humans.
0.32	0.01	Vertical vibration just perceptible to humans.

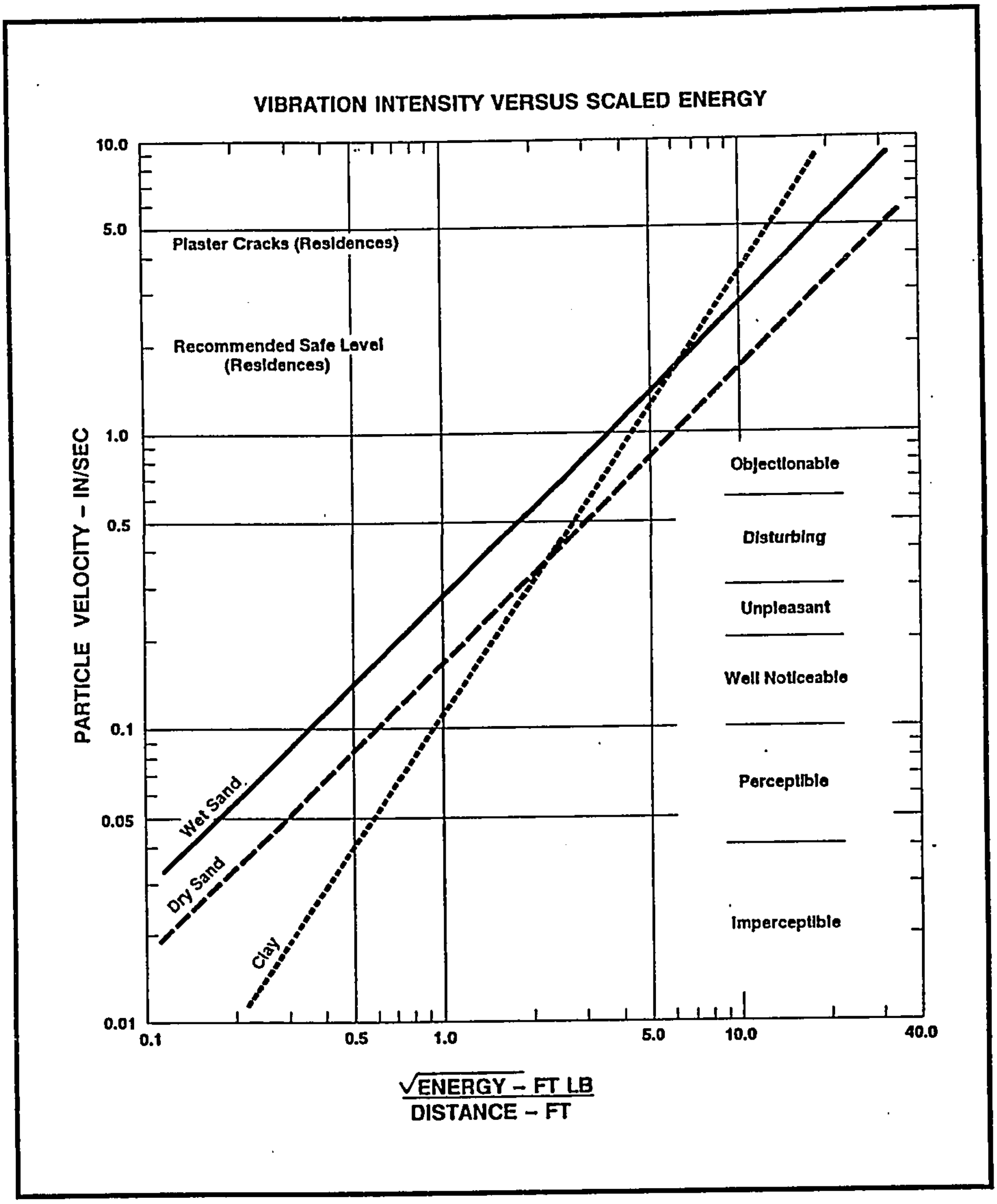
Source: 'State-of-the-Art Review: Prediction and Control of Groundborne Noise and Vibration from Rail Transit Trains'; U.S. Department of Transportation; December 1983.

Based on measured vibration levels during pile driving operations under various soil conditions and at various distances, estimates of ground vibration levels vs. distance from the pile driver have been made for various soil conditions and for various energy ratings of the pile drivers. FIGURE 6, which was extracted from Reference 7, may be used to predict vibration levels for the soil conditions indicated. When coral layers must be penetrated, vibration levels can be expected to be higher than those shown in FIGURE 6, particularly if the adjacent structures are supported by the common coral layer. From FIGURE 6, and for wet sand soil conditions, the 0.2 inches/second vibration damage criteria will be exceeded at a scaled energy distance factor of approximately 0.7. The scaled energy distance factor is equal to the square root of the energy (in foot-pounds) per blow of the hammer divided by the distance (in feet) between the pile tip and the monitoring location. For a 2,500 foot-pound small pile driver, a scaled energy distance of 0.7 equates to a required separation distance of 71 FT. Under clay soil conditions, and using the prediction procedures contained in FIGURE 6, a shorter separation distance of 47 FT is required to not exceed the 0.2 inches/second criteria when using a 2,500 foot-pound pile driver. It should be noted that 0.2 inches/second vibration levels were measured from a much larger 22,400 foot-pound pile driver at even shorter separation distances of approximately 30 FT in sandy, layered soil (Reference 8). The measurement data reported in Reference 8 are significantly lower than the vibration levels predicted by the methodology of Reference 7.

As indicated above, predictions of peak ground vibration levels vs. scaled energy distance factor from the driven pile are not precise, with initial uncertainty factor for a given location in the order of 10:1. For this reason, it is standard practice to employ seismograph monitoring of ground vibrations during pile driving operations with a 3-axis geophone or accelerometer. If sheet pile drivers of approximately 2,500 foot-pounds or smaller ratings are anticipated to be used on the job site, the initial vibration predictions indicate that there is some risk of exceeding the 0.2 inches/second vibration damage criteria at 47 to 71 FT separation distances, and monitoring during pile driving operations is warranted if pile driving are planned at those distances from any existing structures. For pile driver operations, risks of damage to the buildings across Halekauwila Street are considered to be very low.

The following preventative measures are recommended for implementation during the planning and design phases of the project:

- In addition to the normal planning and design concerns regarding potential damage due to settling and heaving during construction, consideration should also be given to risks of damage due to vibration from pile driving. A damage criteria of 0.2 inches/second should be used in conjunction with the vibration prediction method of Reference 7 to identify the potential damage risk distances to the driven piles.



MINIMUM VIBRATION INTENSITIES EXPECTED FROM PILE DRIVING

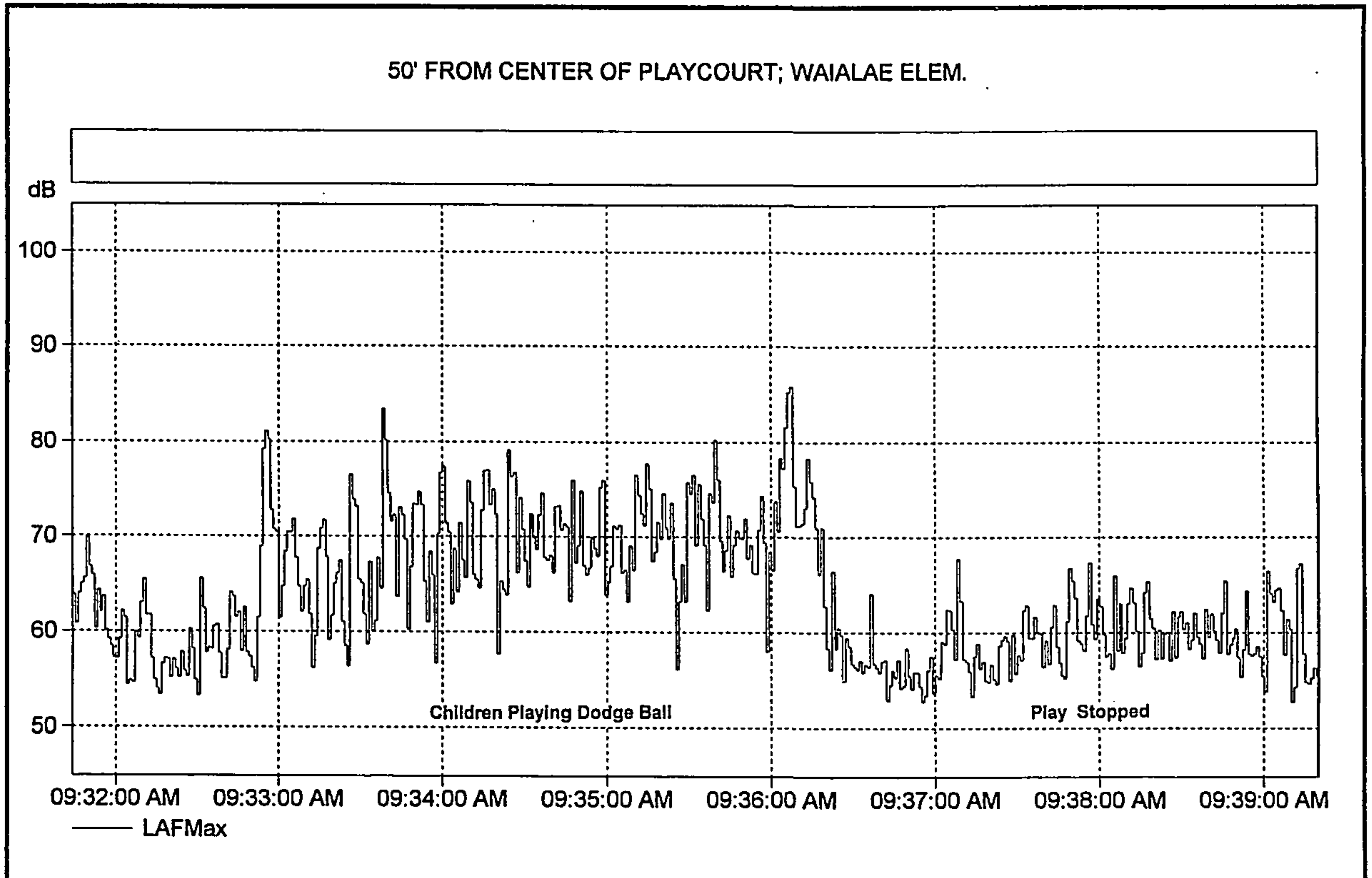
FIGURE 6

- If predicted vibration levels from pile driving exceed 0.2 inches/second at a building, and predicted levels cannot be reduced by sizing of the pile driver, test piles should be driven and their vibrations monitored and recorded prior to completion of the foundation design. The monitoring of the test piles should be designed to measure the expected peak, 3-axis vibration levels at the building. The results of the monitoring should be used to define empirical distance from the driven pile to the 0.2 inches/second damage risk location, and to evaluate the risks of structural damage to the adjacent structure during actual construction.

- If predicted vibration levels from pile driving exceed 2.0 inches/second at a building, the use of alternate types of piles or shoring should be considered for implementation during the design phase.

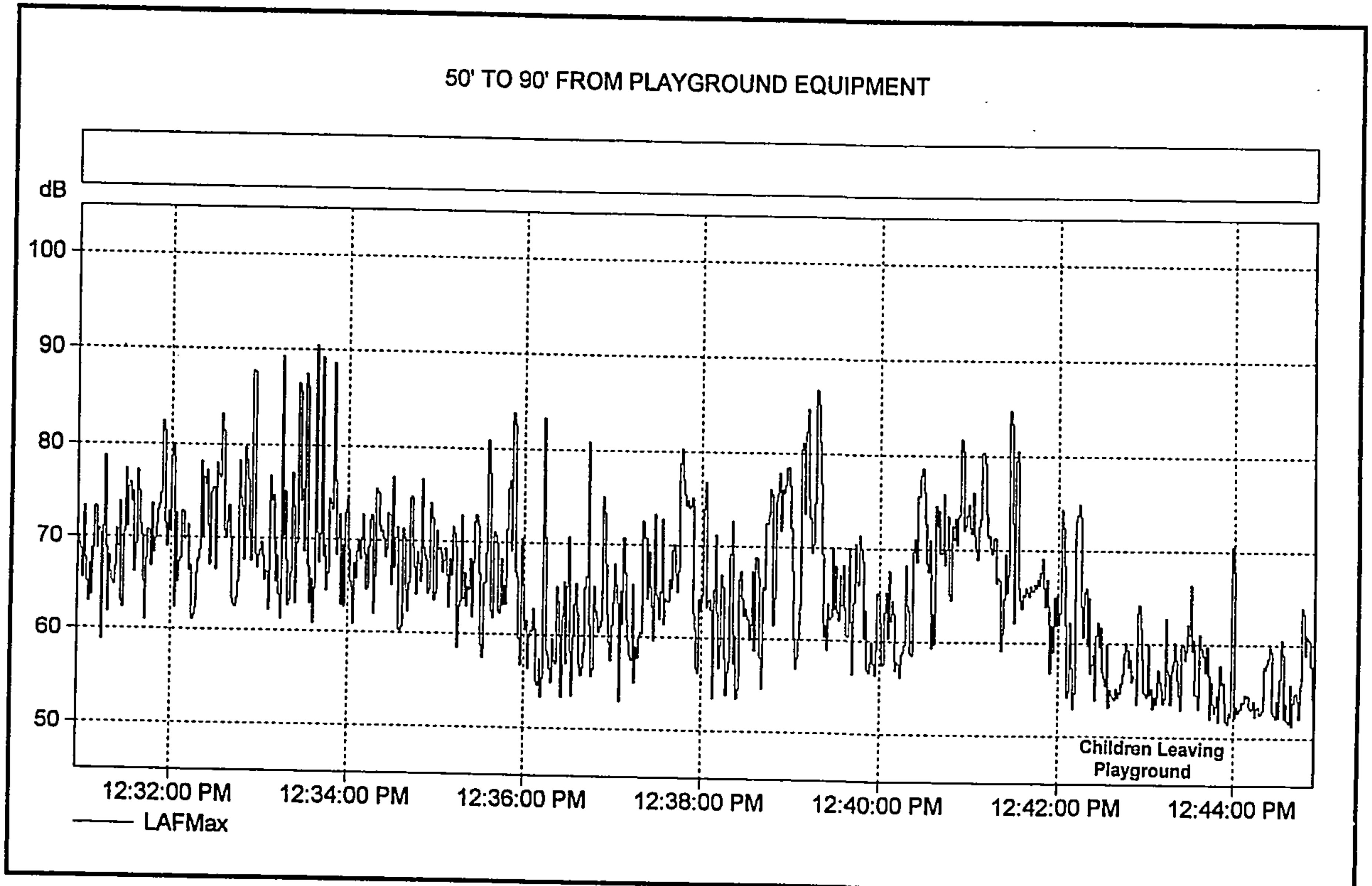
Playground Noise. A new elementary school is planned to be constructed approximately 30 feet from the location of the project tower, and within the area between the project tower and Pohukaina Street. Distances between the project's residents and the planned playground areas range between 50 and 200 feet. Measured noise levels during recess and play periods at Waialae Elementary School are shown in FIGURES 7 and 8. Distances to the children during the measurement periods ranged from 50 feet to 90 feet. As shown in the figures, noise levels during activities in the playground and playcourt areas will typically exceed 70 dBA at 50 feet, and can approach 90 dBA during shouting. Screams can exceed 100 dBA.

Potential noise impacts from student activities within the school playground and playcourt areas are possible due to the relatively high noise levels normally associated with these types of activities. The location of playground equipment and playcourts as far from the project living units as possible is a noise mitigation measure which should be considered. Increasing the distance between the living units and the playing areas from 50 feet to 200 feet will reduce the noise levels at the living units by approximately 12 dBA, which is a significant reduction. If increasing the buffer distances between the outdoor play areas and the living units is not possible, closure and air conditioning of the living units will be the only remaining noise mitigation measure possible.



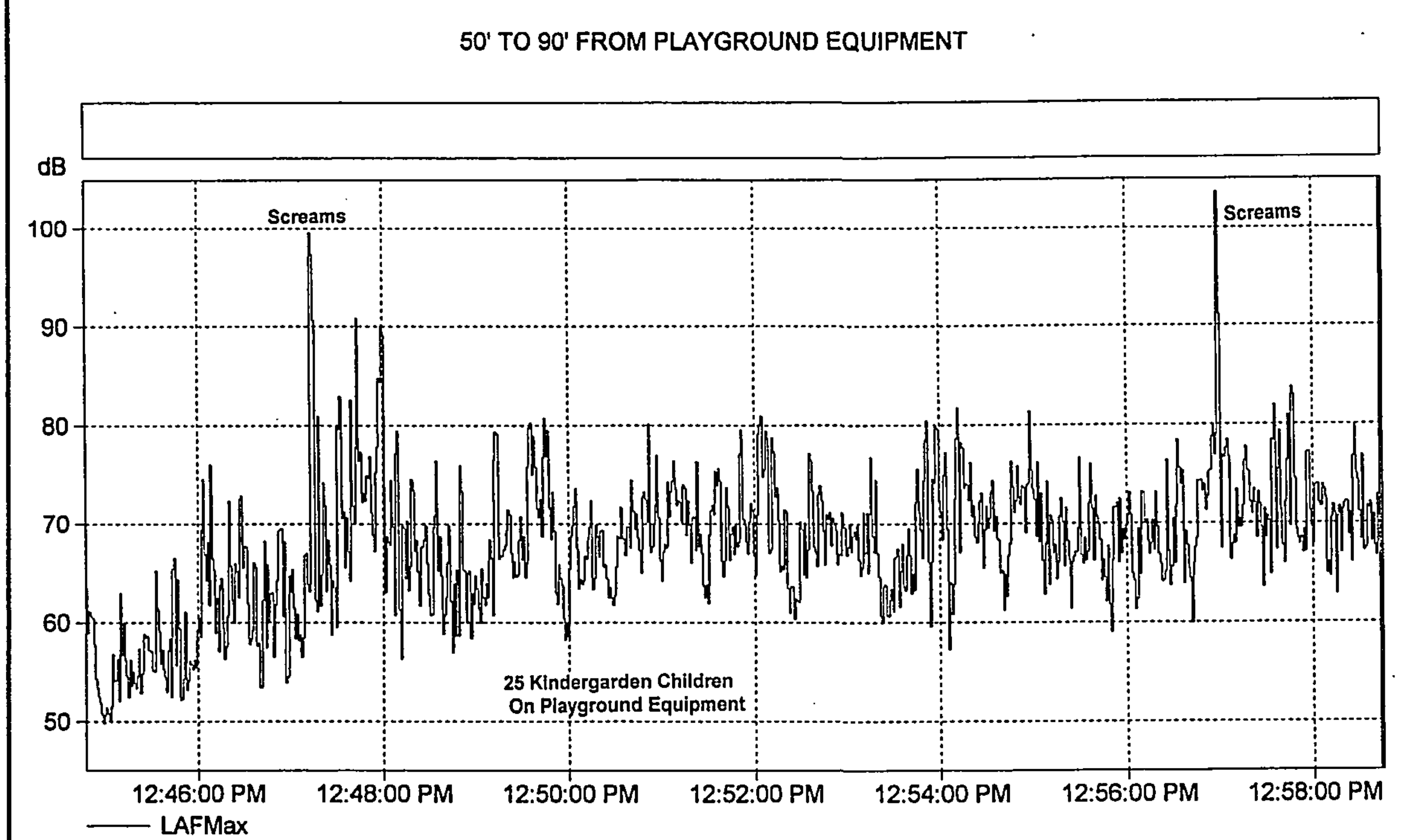
DBA VS. TIME HISTORY OF SOUND LEVELS DURING STUDENT PLAYCOURT ACTIVITIES

FIGURE 7



DBA VS. TIME HISTORY OF SOUND LEVELS DURING STUDENT USE OF PLAYGROUND EQUIPMENT

FIGURE 8



DBA VS. TIME HISTORY OF SOUND LEVELS DURING STUDENT USE OF PLAYGROUND EQUIPMENT

FIGURE 8 (CONT.)

APPENDIX A. REFERENCES

(1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.

(2) "Environmental Criteria and Standards, Noise Abatement and Control, 24 FR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, l979.

(3) "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety;" Environmental Protection Agency (EPA 550/9-74-004); March 1974.

(4) "Title 11, Administrative Rules, Chapter 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.

(5) "FHWA Traffic Noise Model User's Guide;" FHWA-PD-96-009, DOT-VNTSC-FHWA-98-1, Federal Highway Administration; Washington, D.C.; January 1998.

(6) Existing and Future AM and PM Peak Hour Traffic Turning Movements for the Pohukaina Park Senior Assisted Living Facility; Transmittals from Parsons Brinckerhoff; June 19 and 20, 2000, and September 5, 2001.

(7) Wiss, John F., Janney, Elstner and Assoc.; "Damage of Pile Driving Vibration;" Highway Research Record, Number 155.

(8) Gutowski, T.G.; Wittig, L.E.; and Dym, C.L.; "Some Aspects of the Ground Vibration Problem;" Noise Control Engineering; May-June 1978.

APPENDIX B

EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The group adopted the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E.....). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those situations in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "A". For example, a report on blast noise might wish to contrast the LCdn with the LAdn.

Although not included in the tables, it is also recommended that "Lpn" and "LepN" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB respectively.

Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ln, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DBA, PNdB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 dB. Lpn = 75 dB). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

Noise Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighed Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

APPENDIX B (CONTINUED)

TABLE I

A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

	TERM	SYMBOL
1.	A-Weighted Sound Level	L_A
2.	A-Weighted Sound Power Level	L_{WA}
3.	Maximum A-Weighted Sound Level	L_{max}
4.	Peak A-Weighted Sound Level	L_{Apk}
5.	Level Exceeded x% of the Time	L_x
6.	Equivalent Sound Level	L_{eq}
7.	Equivalent Sound Level over Time (T) (1)	$L_{eq(T)}$
8.	Day Sound Level	L_d
9.	Night Sound Level	L_n
10.	Day-Night Sound Level	L_{dn}
11.	Yearly Day-Night Sound Level	$L_{dn(Y)}$
12.	Sound Exposure Level	L_{SE}

(1) Unless otherwise specified, time is in hours (e.g. the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be specified a $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78,

APPENDIX B (CONTINUED)

TABLE II

RECOMMENDED DESCRIPTOR LIST

	TERM	A-WEIGHTING	ALTERNATIVE[1] A-WEIGHTING	OTHER[2] WEIGHTING	UNWEIGHTED
1.	Sound (Pressure)[3] Level	L_A	L_{pA}	L_B, L_{pB}	L_p
2.	Sound Power Level	L_{WA}		L_{WB}	L_W
3.	Max. Sound Level	L_{max}	L_{Amax}	L_{Bmax}	L_{pmax}
4.	Peak Sound (Pressure) Level	L_{Apk}		L_{Bpk}	L_{pk}
5.	Level Exceeded x% of the Time	L_x	L_{Ax}	L_{Bx}	L_{px}
6.	Equivalent Sound Level	L_{eq}	L_{Aeq}	L_{Beq}	L_{peq}
7.	Equivalent Sound Level Over Time(T) (4)	$L_{eq(T)}$	$L_{Aeq(T)}$	$L_{Beq(T)}$	$L_{peq(T)}$
8.	Day Sound Level	L_d	L_{Ad}	L_{Bd}	L_{pd}
9.	Night Sound Level	L_n	L_{An}	L_{Bn}	L_{pn}
10.	Day-Night Sound Level	L_{dn}	L_{Adn}	L_{Bdn}	L_{pdn}
11.	Yearly Day-Night Sound Level	$L_{dn(Y)}$	$L_{Adn(Y)}$	$L_{Bdn(Y)}$	$L_{pdn(Y)}$
12.	Sound Exposure Level	L_S	L_{SA}	L_{SB}	L_{Sp}
13.	Energy Average Value Over (Non-Time Domain) Set of Observations	$L_{eq(e)}$	$L_{Aeq(e)}$	$L_{Beq(e)}$	$L_{peq(e)}$
14.	Level Exceeded x% of the Total Set of (Non-Time Domain) Observations	$L_{x(e)}$	$L_{Ax(e)}$	$L_{Bx(e)}$	$L_{px(e)}$
15.	Average L_x Value	L_x	L_{Ax}	L_{Bx}	L_{px}

(1) "Alternative" symbols may be used to assure clarity or consistency.

(2) Only B-weighting shown. Applies also to C,D,E,.....weighting.

(3) The term "pressure" is used only for the unweighted level.

(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is Leq(1). Time may be specified in non-quantitative terms (e.g., could be specified as Leq(WASH) to mean the washing cycle noise for a washing machine.

APPENDIX C

SUMMARY OF BASE YEAR AND YEAR 2002
TRAFFIC VOLUMES

ROADWAY LANES	**** CY 2000 *****		CY 2002 (NO BUILD)		CY 2002 (BUILD)	
	AM VPH	PM VPH	AM VPH	PM VPH	AM VPH	PM VPH
Halekauwila - Ewa (EB)	156	316	166	335	169	341
Halekauwila - Ewa (WB)	139	148	148	157	150	159
Two-Way	295	464	314	492	319	500
Halekauwila - Middle (EB)	135	270	143	287	151	296
Halekauwila - Middle (WB)	190	177	201	188	201	192
Two-Way	324	447	344	475	352	488
Halekauwila - Diamond Head (EB)	139	297	148	315	150	320
Halekauwila - Diamond Head (WB)	177	155	188	164	192	168
Two-Way	316	452	336	479	342	488
Coral (NB)	31	42	33	44	33	44
Coral (SB)	50	95	53	101	54	102
Two-Way	81	137	86	145	87	146
Keawe - Mauka (NB)	47	89	50	94	50	94
Keawe - Mauka (SB)	109	81	115	86	116	86
Two-Way	156	170	165	180	166	180
Keawe - Middle (NB)	53	103	57	109	57	110
Keawe - Middle (SB)	174	166	184	176	185	177
Two-Way	227	269	241	285	242	287
Keawe - Makai (NB)	68	120	73	127	73	128
Keawe - Makai (SB)	122	209	129	222	129	223
Two-Way	190	329	202	349	202	351
Cooke (NB)	N/A	462	N/A	490	N/A	494
Cooke (SB)	N/A	463	N/A	491	N/A	495
Two-Way	N/A	925	N/A	981	N/A	990
Pohukaina - Ewa (EB)	114	204	121	216	121	216
Pohukaina - Ewa (WB)	210	271	223	287	224	287
Two-Way	324	475	344	503	345	503
Pohukaina - Diamond Head (EB)	148	227	158	241	158	241
Pohukaina - Diamond Head (WB)	188	320	200	339	200	339
Two-Way	336	547	358	580	358	580

APPENDIX D

SUMMARY OF BASE YEAR AND YEAR 2020 TRAFFIC VOLUMES (WITH NEW ELEMENTARY SCHOOL)

ROADWAY LANES	**** CY 2000 *****		CY 2020 (NO BUILD)		CY 2020 (BUILD)	
	AM VPH	PM VPH	AM VPH	PM VPH	AM VPH	PM VPH
Halekauwila - Ewa (EB)	156	316	320	645	323	651
Halekauwila - Ewa (WB)	139	148	290	305	292	307
Two-Way	295	464	610	950	615	958
Halekauwila - Middle (EB)	135	270	223	545	226	551
Halekauwila - Middle (WB)	190	177	400	370	404	374
Two-Way	324	447	623	915	630	925
Halekauwila - Diamond Head (EB)	139	297	180	595	182	600
Halekauwila - Diamond Head (WB)	177	155	385	330	389	334
Two-Way	316	452	565	925	571	934
Coral (NB)	31	42	60	85	60	85
Coral (SB)	50	95	100	190	101	191
Two-Way	81	137	160	275	161	276
Keawe - Mauka (NB)	47	89	115	195	115	195
Keawe - Mauka (SB)	109	81	240	175	241	175
Two-Way	156	170	355	370	356	370
Keawe - Middle (NB)	53	103	143	238	143	239
Keawe - Middle (SB)	174	166	373	373	394	376
Two-Way	227	269	515	610	536	614
Keawe - Makai (NB)	68	120	145	255	145	256
Keawe - Makai (SB)	122	209	260	440	260	441
Two-Way	190	329	405	695	405	697
Cooke (NB)	N/A	462	N/A	942	N/A	956
Cooke (SB)	N/A	463	N/A	945	N/A	958
Two-Way	N/A	925	N/A	1,887	N/A	1,915
Pohukaina - Ewa (EB)	114	204	245	415	245	415
Pohukaina - Ewa (WB)	210	271	440	550	441	550
Two-Way	324	475	685	965	686	965
Pohukaina - Diamond Head (EB)	148	227	310	470	310	470
Pohukaina - Diamond Head (WB)	188	320	385	650	385	650
Two-Way	336	547	695	1,120	695	1,120

Appendix E
Cultural Assessment

CULTURAL SURVEYS HAWAI`I, INC.
Archaeological Studies

Hallett H. Hammatt, Ph.D.
733 N. Kalaheo Avenue; Kailua, Hawai`i 96734
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e-mail: csh@dps.net

July 23, 2001

Mr. Taeyong Kim
Environmental Communications
1188 Bishop St., Suite 2210
Honolulu, HI 96813

SUBJECT: Cultural Assessment for the Mother Waldron Playground and the Former Pohukaina School Site (6.8 acres), Kaka`ako, Kona District, Island of O`ahu

Dear Mr. Kim:

This letter report is to inform you of the results of the Cultural Assessment for the Mother Waldron Playground and former Pohukaina School site. It describes the background for the specific scope of work, the methodology, a brief historical synopsis, results, consultations, summary and recommendations.

Project Location and Background

At the request of Environmental Communications, Cultural Surveys Hawai`i conducted a Cultural Impact Assessment for a parcel located in the Kaka`ako District of downtown Honolulu. The approximately 6.8 acre parcel comprises the block bounded by Halekauwila, Cooke, Pohukaina and Keawe streets. The parcel is the present site of a municipal parking lot, a state government building, Mother Waldron Playground and a grassy lawn area. The former site of Pohukaina Elementary School was located on the corner of Keawe and Pohukaina streets. This report presents the findings of this Cultural Impact Assessment.

This assessment is intended to be informational for the purpose of disclosing any cultural impacts the proposed development might have on native Hawaiians as it pertains to their right to practice traditional customs. The Scope of Work (SOW) was designed to meet the cultural impact assessment requirements of the Office of Environmental Quality Control (OEQC), the Office of Hawaiian Affairs (OHA), the State Historic Preservation Division (SHPD) and any other state and county agencies involved in the review process for the proposed project.

Scope of Work

Prior to determining an appropriate Scope of Work (SOW), three agencies were contacted: SHPD, OEQC and OHA. Due to the history of the project area, being a developed and previously disturbed area, and a prior archaeological assessment, SHPD concluded that no cultural impact assessment was needed for the subject parcel; OHA declined to comment without seeing previous assessments of the parcel before making a recommendation (Pers. Comm. to David Shideler; Dec., 2000); and the OEQC asked for "a reasonable attempt to find individuals with cultural knowledge of these parcels including library and archival research" (Pers. Comm to David Shideler; Dec., 2000). In light of differing opinions by the above agencies on what constitutes an appropriate Scope of Work, the following SOW was designed.

Because the specific project area has been highly urbanized for over a century, the following specific tasks were determined to constitute an appropriate Scope of Work for this project:

1. Prepare an overview of the history of the project parcel for dissemination to appropriate Hawaiian organizations.

2. Consultation in writing and by follow-up telephone calls with relevant organizations to include the State Historic Preservation Division (SHPD), Office of Hawaiian Affairs (OHA), Kamehameha Schools Bishop Estate, the O`ahu Island Burial Council, and other appropriate Hawaiian organizations to see if they have any concerns or positions over Hawaiian rights issues with the specific project parcel or if they can recommend other Hawaiian individuals or organizations that should be contacted.

3. Follow up in writing and by telephone with contacts recommended by the first Hawaiian organizations contacted.

4. Prepare a written report, less than ten pages, of the findings.

Methodology

Cultural Surveys Hawaiʻi (CSH) completed an archaeological assessment (Hammatt & Chiogioji 1998) for the former Pohukaina School parcel and Mother Waldron Playground. As part of this previous work, a thorough historical documentation of the project area was conducted. The previous historical research included: examination of documents and historic photographs at the Hawaiʻi State Archives, Hamilton Library at the University of Hawai`i, and the Archives of the Bernice Pauahi Bishop Museum; examination of historic maps at the Survey Office of the Department of Land and Natural Resources; and examination of archaeological reports in the libraries of Cultural Surveys Hawaiʻi and of the State Historic Preservation Division (DLNR). Due to the existing documentation on Mother Waldron Park, no further historical research was conducted. The historical section from the prior assessment (i.e., Hammatt & Chiogioji 1998) was synthesized for this report. Additional background research of previous archaeology was conducted to see if any new work had been done since 1998. Based on the SOW and the previous historical documentation on the subject parcel, a greater effort was put into the consultation efforts rather than replicating the existing archival and historical research.

Letters requesting (1) identification of cultural concerns and (2) referrals of knowledgeable individuals were written to the following organizations: the State Historic Preservation Division, the Office of Hawaiian Affairs, the O`ahu Island Burial Council, Hui Mālama i Nā Kūpuna o Hawai`i Nei and Kamehameha Schools Bishop Estate. An attempt was made to contact all the individuals referred by the various organizations, either by letter and/or by telephone. See Table I for a complete list of organizations and individuals contacted during the consultation period and the section of this report which discusses the results of the consultations.

Description of the Project Area

As previously noted, the subject parcel is located in an urban area in Kaka`ako. Formerly, Coral Street ran through the parcel, dividing it into two city blocks. Coral Street was closed off and, presently, the parcel is one large city block bounded by Keawe (*`ewa*), Pohukaina (*ma kai*), Cooke (Diamond Head) and Halekauwila (*ma uka*) streets. The parcel is the site of Mother Waldron Playground and a grassy lawn area on the Diamond Head side, and a state government building and a paved municipal parking lot on the *`ewa* side. Formerly, the grassy lawn area was the site of numerous tenement houses and, in later years, warehouses. The *`ewa* portion of the lot between Coral and Keawe streets was the former site of Pohukaina Elementary School grounds. There is no remaining native vegetation to speak of except that which has been replanted and maintained since the development of the park in 1937.

Brief Historical Overview of Kaka`ako

This section is meant to be only a very brief overview of Kaka`ako. The reader is referred to the well-documented report *An Archaeological Assessment of the Mother Waldron Playground/Former Pohukaina School Parcel (6.8 Acres) in the Kaka`ako District of Honolulu, Island of O`ahu* (Hammatt and Chiogioji 1998) for a more in-depth historical overview.

Early descriptions of Kaka`ako by foreign visitors describe the area as being "a large flat plain" (de Freycinet 1978:40-42). Another visitor described the general area as "forsaken", "desolate-looking", a "barren and dusty plain" (Gillman 1903:89). A native perspective given by John M. Kapena in 1879 confirms this picture and describes the general plains area of Kaka`ako as "covered with creeping thorns, sparsely dotted with grass houses, among which wound narrow lanes formed by the banks of taro patches (1905:78). Clearly, the two areas of activity during prehistoric times and early contact were centered around the harbor of Kou (downtown Honolulu) to the west and Waikīkī to the east.

Early maps depict the shoreline as bordering the *ma kai*-most edge of Ala Moana Boulevard. The plains area of Kaka`ako consisted of exposed coral flats dotted with salt pans and fish ponds. Research of Land Commission Awards (LCA) during the *Māhele* of the late 1840s confirms and give a clearer picture of the general area. Testimony recorded for LCA 387 describes the land as "embrac[ing] fishing grounds, coral flats & salt beds" (*Foreign Register*, Vol. 2:33). In testimony for LCA 1903 to Lolohi, Peka (*w*) clearly describes the general area of Kaka`ako: "I know this place. It is on the salt plains of Honolulu, used for making salt" (*Foreign Testimony*, Vol. 3:220). It is clear that at least up to the first half of the nineteenth century, traditional cultural activities such as salt-making and farming fish in fish ponds were still occurring.

Several other important factors impacted the culture, not only in the Kaka`ako area, but all of the islands as well. In 1853, a smallpox epidemic reached the Hawaiian Islands and a quarantine hospital was established in Kaka`ako, just *ma kai* of Queen Street. As a result, the Honuakaha Cemetery was created on the *`ewa* side of South Street for victims of the epidemic. Then, in response to another devastating disease, a Branch Hospital for Lepers was constructed *ma kai* of Kaka`ako in 1881.

An 1884 map (Bishop) indicates that, at least until the 1880s, much of Kaka`ako was still marsh lands. However, during subsequent decades the low-lying marshes, tidal flats, fish ponds, and reef areas of Kaka`ako would be filled – at both government and private expense –as the burgeoning Honolulu city expanded toward Diamond Head. Fill material ranged from sediments, sand, and coral dredged from the ocean (during the expansion of Honolulu Harbor), to garbage fill and soils hauled in from locations around O`ahu.

Annual reports of the Department of Public Works (DPW) document, that between 1913 and 1920, land filling and reclamation activities occurred in the Kaka`ako and Kewalo areas of Honolulu. During this time, the Kaka`ako area was filled in with coral and sand dredged from Honolulu Harbor and the reef flats along the shoreline.

A 1920 map of Honolulu (M. D. Monsarrat) indicates that with the completion of the reclamation project, the grid of streets, generally along the same alignments as today, now completely covers the Kaka`ako landscape. Not only the area encompassed by the seawall shown in a 1901 map (M. D. Monsarrat) but additional reefs off Kaka`ako have been filled *ma kai* of Ala Moana Blvd., creating the lands of Fort Armstrong at the Honolulu side and, at the Diamond Head side, ground for "proposed new Streets" extending the Kaka`ako grid.

By the 1920s, Kaka`ako had been established as a district comprising a mix of industry, small enterprise and residence, especially in "camps" associated with immigrant groups.

During recent decades and continuing into the present, the character of the area has been reshaped through guidelines of the Hawai'i Community Development Authority's Kaka`ako Community Development District Plan.

Former Pohukaina School

The former Pohukaina School site was located on the *`ewa* half of the present parcel. The land was acquired in 1910 from the Bishop Estate and the new elementary school was officially opened in 1913. The school attendance continued to grow and, in 1930, the school parcel was expanded by .773 acres to supplement the growing needs of the community. The school was an asset to the community and was heavily utilized up to the 1950s. During the 1950s and 1960s, the population in the surrounding Kaka`ako district declined due to industrial development. Class sizes were decreased and replaced with special programs for the physically handicapped and students with special needs. This change and decline in growth is reflected in the school records. Enrollment records indicate a drop from 671 students in 1955 to 177 special needs students in 1967. In 1973, the special needs programs were consolidated and moved to other schools.

Mother Waldron Playground

Much of the following information was synthesized from an unrecorded interview with Ku`ulei Horne, Mother Waldron's daughter, and Gael Gouveia; as well as personal communication with Harold Waldron Horne, Mother Waldron's grandson.

Margaret Powers (Waldron) was born in Honolulu on August 12, 1873. She was of Hawaiian-Irish ancestry. The daughter of a sea captain from Massachusetts, Margaret was orphaned at a young age. She was educated at Kawaiaha`o Seminary and looked after by the Castle and Judd families. Upon graduating from school, Margaret went to Makapala on the island of Hawai`i and lived with Doctor and Mrs. Bond. There, she taught school until she married Fred Waldron a few years later. During this time, she stopped teaching in order to raise their four children. After her husband's death, Margaret Waldron returned to teaching, where she taught fourth grade at Pohukaina School for 18 years, from 1916 to 1934, when she retired.

Mother Waldron, as she was affectionately called, was a dominant and positive influence in the Kaka`ako community. She was noted for her community service and volunteer work. In addition, she was especially credited for "transforming the so-called 'Kaka`ako gangs' into law abiding groups" (*Honolulu Star-Bulletin;* May 8, 1936:A1). Mother Waldron was mother and social worker rolled into one, effecting social change in the Kaka`ako community. Mother Waldron was the after-school Playground Director, during which time she taught the younger children games and coached the older boys in football and baseball. She also provided a free breakfast program for many of the younger children in Kaka`ako. "She had an uncanny knack for asking for help for others, but never for herself or her own family" (Ku`ulei Horne; 6/20/1978 interview). Aaron Chaney remembers Mother Waldron as a very generous person who thought of others first before thinking of herself. Not only did she teach young unwed mothers to sew, but she gave them sewing jobs for which she paid them out of her own pocket (Pers. Communication; 6/29/2001). Besides teaching basic home-making skills, Mother Waldron spent a lot of time doing personal counseling and family guidance (Harold W. Horne, Pers. Communication; 6/29/2001). She often took up causes on behalf of others. Ku`ulei Horne tells the following anecdote: "At one time, Matson Lines wanted to bar the coin divers [many of whom were Hawaiian]. Mother Waldron went to bat for the boys, obtained swim trunks for them from Davies and organized them. She even built a lean-to shack for them to change clothes in, thus preserving a source of income for the boys" (6/20/1978 interview).

Loved by all, Mother Waldron died on May 8, 1936 from a long illness. She was best remembered for her social contributions to the community at large which crossed all ethnic boundaries. Because of her outstanding community service, the new playground across Coral Street from Pohukaina Elementary School was named in her honor when the park opened September 20, 1937.

Mother Waldron Playground is listed on the State Inventory of Historic Places as Site 50-80-14-1388. In the early 1980s, the playground's structures were entered on the Hawai`i Register of Historic Places. In 1988, the playground was nominated to the National Register of Historic Places. However, the playground is not presently on the National Register. The nomination forms note:

> City and County officials erected Mother Waldron playground as a model project, and the playground was identified as , "an ideal example of the small neighborhood playground," by child welfare specialists and teachers . . .
>
> Mother Waldron is perhaps the best of Bent's playground designs and a fine example of his art deco-moderne styling. In it aesthetics and practical considerations are integrated into a design that remains appealing and useful.

In the late 1980s and early 1990s, the playground area was reconfigured when Halekauwila and Cooke streets were realigned and widened. On the Diamond Head side, the playground was expanded to Cooke Street.

Previous Archaeology

In the early 1980s, the State began redevelopment in Kaka`ako. As a result of the construction and redevelopment, a number of archaeological studies were conducted within the district. For a more in-depth review of the previous archaeology, the reader is referred to the report by Hammatt and Chiogioji (1998). Of note is the possible likelihood of burials related to the 1853 smallpox epidemic and earlier epidemics as well. Ka`akaukukui Cemetery, on the site of the old Ironworks complex, is within one block of the project area. Honuakaha Cemetery, at nearby South Street and Quinn Lane, is estimated to hold more than 1,000 human burials related to the 1853 epidemic (Griffin *et al.*, 1987). Other burials could likely exist in relation to the location of various ethnic camps and tenement houses throughout the district. Old fire insurance maps (1951) indicate the present grassy area of Mother Waldron Park, between Lana Lane and Cooke Street, was once filled with tenement houses. A review of reports currently on file at the State Historic Preservation Division (SHPD) indicates that no comprehensive archaeological studies of any portion of the present project area have been completed, other than the Hammatt and Chiogioji 1998 report. However, in 1991 and 1992, while doing improvements along Halekauwila, Keawe and Cooke streets, twelve human burials were inadvertently uncovered in close proximity to the project area. It should be noted that no human burials were found within the project area.

After consultation with the SHPD, all of the burials were reinterred at a specially constructed site within the present project area, at the corner of Halekauwila and Cooke streets. A memorandum, dated July 2, 1993, to the SHPD from the Hawai`i Community Development Authority designated a second site within the project area, at the corner of Pohukaina and Cooke street, be reserved for any future reinterments.

Consultation with Relevant Organizations

The following table below shows the results of the community consultations. In further consultation with the SHPD Culture/History Branch, it was determined that the consultation process need not be as broad as originally intended due to several factors: 1) the Kaka`ako area previously consisted of fish ponds and tidal flats and were subject to intertidal influences; 2) the soil in the project area is Fill (FL) (Foote *et al.*, 1972:Sheet #62). (The historic record confirms that in the early 20th century, the Kaka`ako area was filled in due to expansion activities.); 3) the project area is in a developed and previously disturbed area; 4) due to development of the commercial and business district, the original homes were torn down in the last 10-15 years and the once tight-knit community dispersed and relocated elsewhere. Based on SHPD's recommendations, the following organizations were consulted with and deemed to be sufficient. None of the people or organizations contacted had any knowledge of Hawaiian traditional cultural activities occurring in the project area. Two referrals (Akea family and Henry Huihui) were not contacted due to no contact phone number or forwarding address. Two people who knew Mother Waldron were contacted, Aaron Chaney and Harold W. Horne, grandson of Mother Waldron. Though they gave details on the life of Mother Waldron, they had no knowledge of specific cultural practices which might have occurred in the project area.

TABLE I: Results of Community Consultations

Key:

Affiliation
HMINK = Hui Mālama i Nā Kūpuna o Hawai`i Nei
OIBC = O`ahu Island Burial Council
OHA = Office of Hawaiian Affairs
SHPD = State Historic Preservation Division

Y = Yes
N = No
S = Some knowledge
D = Declined to comment
U = Unable to contact due to no phone or address
A = Attempted (at least 3 attempts were made to contact individual, with no response)
U = unable to contact, i.e., no known phone number or forwarding address

Name	Affiliation	Contacted (Y/N/A/U)	Personal Knowledge (Y/N/S/D)	Referral(s) (Y/N)	Comments
Akea family		U	–	–	No phone or forwarding address
Ayau, Halealoha	HMINK	Y	–	N	To his knowledge, no burials found in the project area
Chaney, Aaron		Y	Y	Y	Knew Mother Waldron. Informal talk-story.
Collins, Sarah	SHPD, archaeolo-gist	Y	D	Y	Referred to Culture/History Branch of SHPD
Diamond, A. Van Horn	OIBC Chair & Kona Rep	Y	N	Y	Consulted with SHPD burial staff
Horne, Harold Waldron		Y	Y	N	Grandson of Mother Waldron; informal talk-story
Huihui, Henry		U	–	–	No phone or forwarding address
Jourdane, Muffet	SHPD, archaeolo-gist	Y	–	Y	Referred to Culture/History Branch of SHPD
Kamehameha Schools/Bishop Est.	(Lurline Naone Salvador)	Y	N	N	OIBC rep. for KSBE
Kamehameha Schools/Bishop Est.	(Neil Hannahs)	Y	N	Y	Referred to Hammatt report (Aug. 1995) done for KSBE
Keala, Jalna	OI-Comm. Resource Coordinator	Y	N	Y	Colin Kippen's office (OHA)
Kippen, Collin 594-1888 (w)	OHA-Native Rights Div.	Y	N	Y	
Markell, Kai (692-8036) 587-0010	SHPD Burial Staff	Y	–	Y	
Mc Eldowney, Holly 692-8028 (w)	SHPD, Culture & History	Y	Y	N	
Napoka, Nathan	SHPD, History & Culture Branch Chief	Y	Y	Y	

Name	Affiliation	Contacted (Y/N/A/U)	Personal Knowledge (Y/N/S/D)	Referral(s) (Y/N)	Comments
Nihipali, Kūnani	HMINK	Y	Y	Y	Referred to Halealoha Ayau for HMINK
Oral History Ctr.	UH-Mānoa	Y	–	Y	(Kaka'ako Transcripts)
Wahilani, Kalā'au (692-8036) 587-0010	SHPD Burial staff	Y	–	Y	Communication through Van Horne Diamond

Summary and Recommendations

The historical research conducted for the project area indicates that the Mother Waldron Playground/former Pohukaina Elementary School project area once consisted of fish ponds, tidal flats, salt pans and scattered dwellings. Though not the center of activity like its neighboring counterparts of Kou (downtown Honolulu) and Waikīkī, Kaka'ako did maintain a traditional lifestyle up until the second half of the 19th century. Between 1913 and 1920, the fish ponds and tidal flats of Kaka'ako were filled in as the city of Honolulu expanded toward Waikīkī and up the adjacent valleys. The nature of the district changed to light industrial and residential use, characterized by ethnic camps and tenement houses. A portion of the present project area was the site of Pohukaina Elementary School from 1913 to 1984. Another portion of the project area has been the site of Mother Waldron Playground since 1937. Archaeological studies conducted during the 1980s and 1990s recorded the locations of archaeological sites, former land features and burial sites. Though burials were inadvertently discovered at or near the Halekauwila Street boundary of the project area, no burials were found within the project area parcel.

Consultation was conducted with the SHPD, the Office of Hawaiian Affairs, the Kamehameha Schools Bishop Estate, and others whose names were given as references (See Table I). The consultation portion of this study did not identify any traditional cultural practices occurring in the project area nor identify any cultural concerns. Nearly everyone contacted had only peripheral knowledge of the subject parcel. Two of the people consulted knew Mother Waldron and were able to add some personal information regarding her life.

This report concurs with the recommendations made in the archaeological report by Hammatt and Chiogioji (1998) that:

1) Because the park is on the State Inventory of Historic Places (Site 50-80-14-1388) and on the Hawai'i Register of Historic Places; and has been nominated for the National Register of Historic Places, the State Historic Preservation Division should be consulted to review any proposed modifications or impacts to the park and its historic structures (over 50 years old).

2) Preservation of the present reinterment site at the corner of Halekauwila and Cooke streets with an appropriate buffer to be coordinated with the SHPD Burials Program.

3) Any future plans for development at the corner of Pohukaina and Cooke streets should reserve space for a second reinterment site should the need arise for future burials inadvertently discovered in the nearby area.

4) If inadvertent discovery of human burials occur in the project area during excavations related to proposed development or improvements, all work in the immediate vicinity should stop and the SHPD burial staff and archaeologists be notified.

This concludes the Cultural Assessment for the Mother Waldron Playground and the Former Pohukaina School Site. If you have any questions, please do not hesitate to contact me at 262-9972.

Sincerely,

Ka'ohulani McGuire

Ka'ohulani Mc Guire (with Dr. Hallett H. Hammatt)

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END

CERTIFICATION

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Final Environmental Assessment

Pohukaina Assisted Elderly Housing

Kakaako Community Development District, Honolulu, Hawaii

Proposing Agency:
Housing and Community Development
Corporation of Hawaii (HCDCH)

Prepared By:
Environmental Communications, Inc.

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I. PROJECT SUMMARY

PROPOSING AGENCY:	Housing and Community Development Corporation of Hawaii (HCDCH) 677 Queen Street, Suite 300 Honolulu, Hawaii 96813
AGENT:	Environmental Communications, Inc. 1188 Bishop Street, Suite 2210 Honolulu, Hawaii 96813
PROJECT NAME:	Pohukaina Assisted Elderly Housing
PROJECT LOCATION:	The project is located at southeastern corner of the intersection of Halekauwila and Keawe Streets in Kakaako, Honolulu, Hawaii.
TAX MAP KEY:	2-1-51: portion of 9
OWNERSHIP:	State of Hawaii Dept. of Land and Natural Resources
LOT AREA:	Approximately 54,600 SF (1.25 acres)
ZONING:	The project area is designated Public on the Hawaii Community Development Authority Kakaako Community Development District (KCDD) Mauka Area Plan.
SPECIAL DISTRICT:	Kakaako Community Development District (KCDD) Mauka Area
STATE LAND USE:	Urban
EXISTING LAND USE:	The project site is located on the consolidated block within KCDD Mauka Area bounded by Halekauwila Street to the northeast (mauka), Cooke Street to the southeast (Diamond Head), Pohukaina Street to the southwest (makai), and Keawe Street to northwest (Ewa). Presently, the project area is used for parking. Other uses on the project block include the Mother Waldron Playground along Cooke Street and the

	Department of Education Library Services warehouse along Pohukaina Street. Adjacent uses include senior housing and commercial uses mauka of the block, commercial/industrial uses in the Diamond Head direction, commercial/warehouse uses in the makai area, and a vacant lot in the Ewa direction.
NATURE OF DEVELOPMENT:	The Housing and Community Development Corporation of Hawaii (HCDCH) is proposing the development of a senior housing facility with assisted living and/or healthcare support services on the project site. The project, which will be jointly developed through a Request for Proposal (RFP) process, will provide a critical housing inventory for Honolulu's growing senior citizen population. This use for the project site was selected for its central urban location, proximity to community and medical services, and availability. The project will consist of approximately 200 1-bedroom and studio units configured in a 14-floor structure. The first four floors of the structure will accommodate the lobby, service areas, parking and a community center. Residential units will be located on floors 5 through 14. Conservatively 87 resident and guest parking stalls will be provided within the parking levels. Parking of up to 195 stalls will be possible within the project program. Ingress and egress points will be located along Halekauwila Street.
PROJECT COST:	Approximately $35,000,000
PROJECT SCHEDULE:	The project is anticipated to be completed in early 2004.

II. PROPOSED PROJECT AND STATEMENT OF OBJECTIVES

A. Project Location

The project is located at the southeastern corner of the intersection of Halekauwila and Keawe Streets in Kakaako, Honolulu, Hawaii. The site is identified as Tax Map Key: 2-1-51: portion of 9. The site is owned by the State of Hawaii and also consists of ceded lands (see Figures 1, 2 and 3).

The project site is located within the Kakaako Community Development District (KCDD) Mauka Area which dictates the regulatory zoning laws for the project site. The project area is zoned for public use under the KCDD Mauka Area Plan and is subject to the KCDD Mauka Area Rules.

The project site represents a portion of a consolidated block that is presently bounded by Halekauwila Street to the northeast (mauka), Cooke Street to the southeast (Diamond Head), Pohukaina Street to the southwest (makai), and Keawe Street to northwest (Ewa).

Other uses on the project block include the Mother Waldron Playground along Cooke Street and the Department of Education Library Services warehouse along Pohukaina Street.

This use for the project site was selected for its central urban location, proximity to community and medical services, and availability.

The project block is also the subject of a master development plan which examined the revitalization and development of the entire block as a unified community core element. The master plan concept was developed by the Hawaii Community Development Authority, the Department of Education, the Housing and Community Development Corporation of Hawaii, and the Department of Parks and Recreation. Under the master plan proposal, of which the proposed housing development was an integral component, a community park and an elementary school would also be planned for development albeit at individual schedules as funding allows.

B. Project Description

1. Request for Proposal Process

The Housing and Community Development Corporation of Hawaii (HCDCH) is proposing the development of a senior housing facility with assisted living and/or healthcare support services on the project site. The project, which will be jointly

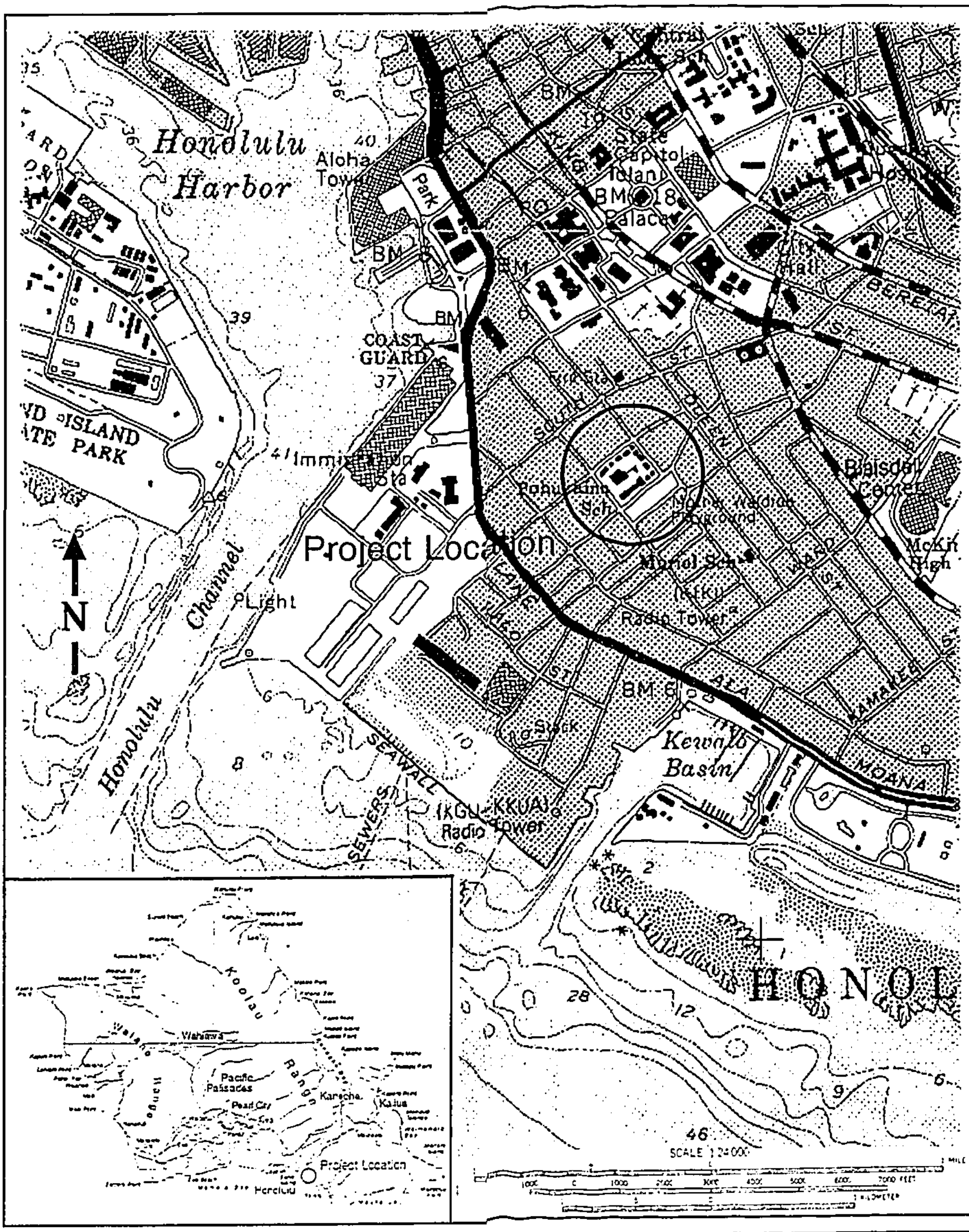
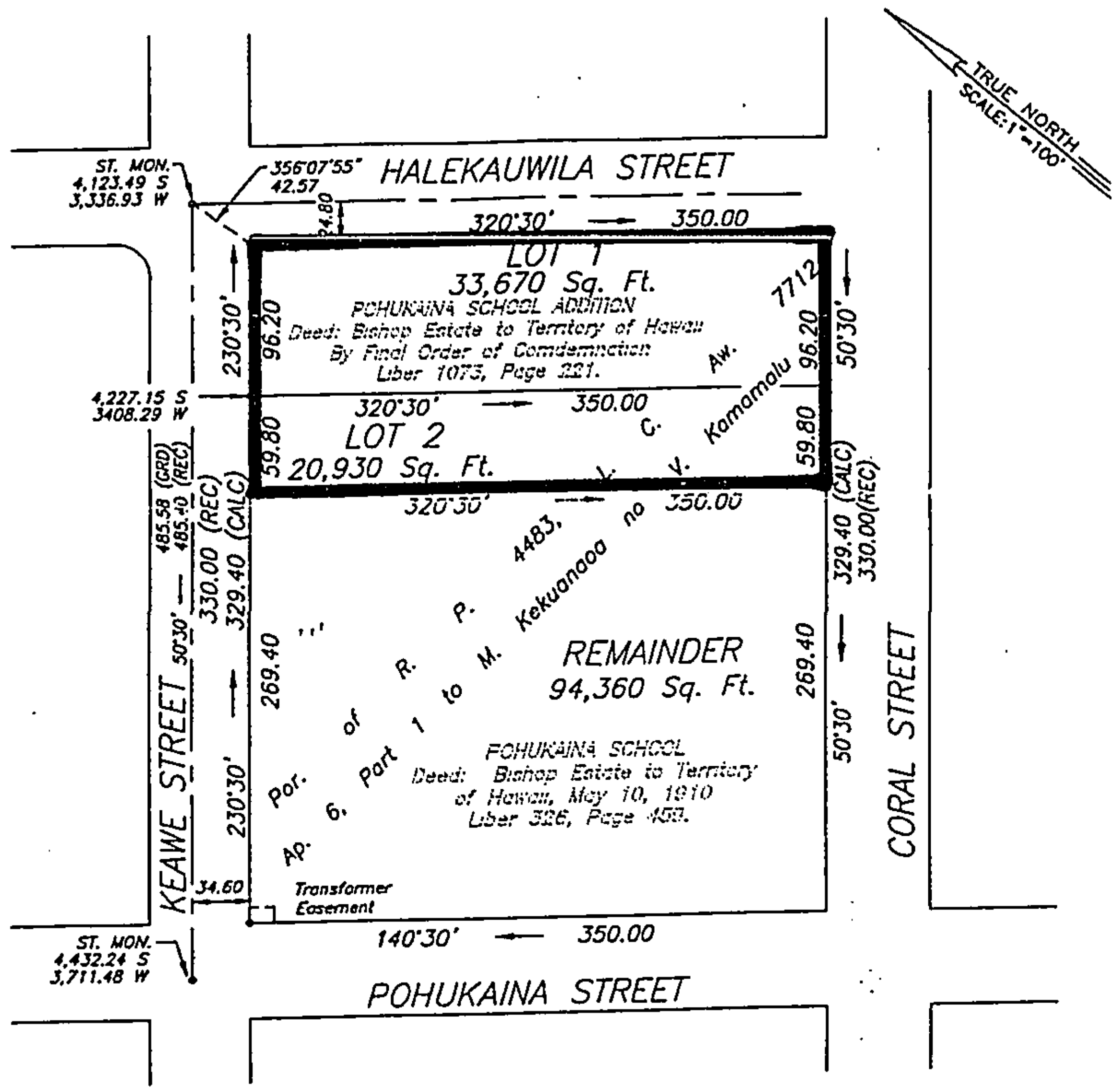


Figure 1: Location Map

Source: U. S. Geologial Survey

Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii

November 2001



MAP SHOWING POHUKAINA HOUSING SITE LOTS 1 AND 2

Being portion of R. P. 4483, L. C. Aw. 7712
Ap. 6, Part 1 to M. Kekuanaoa no V. Kamamalu
at Kaakaukukui, Honolulu, Oahu, Hawaii

Note:
Data compiled from:
CSF Map 21,480 and
C&C File No. 16-11-4-89
Coordinates referred to Punchbowl △.

Licensed Professional Land Surveyor
Certificate Number 3499-LS

Figure 2: Survey Map
Source: Control Point Surveying, Inc.

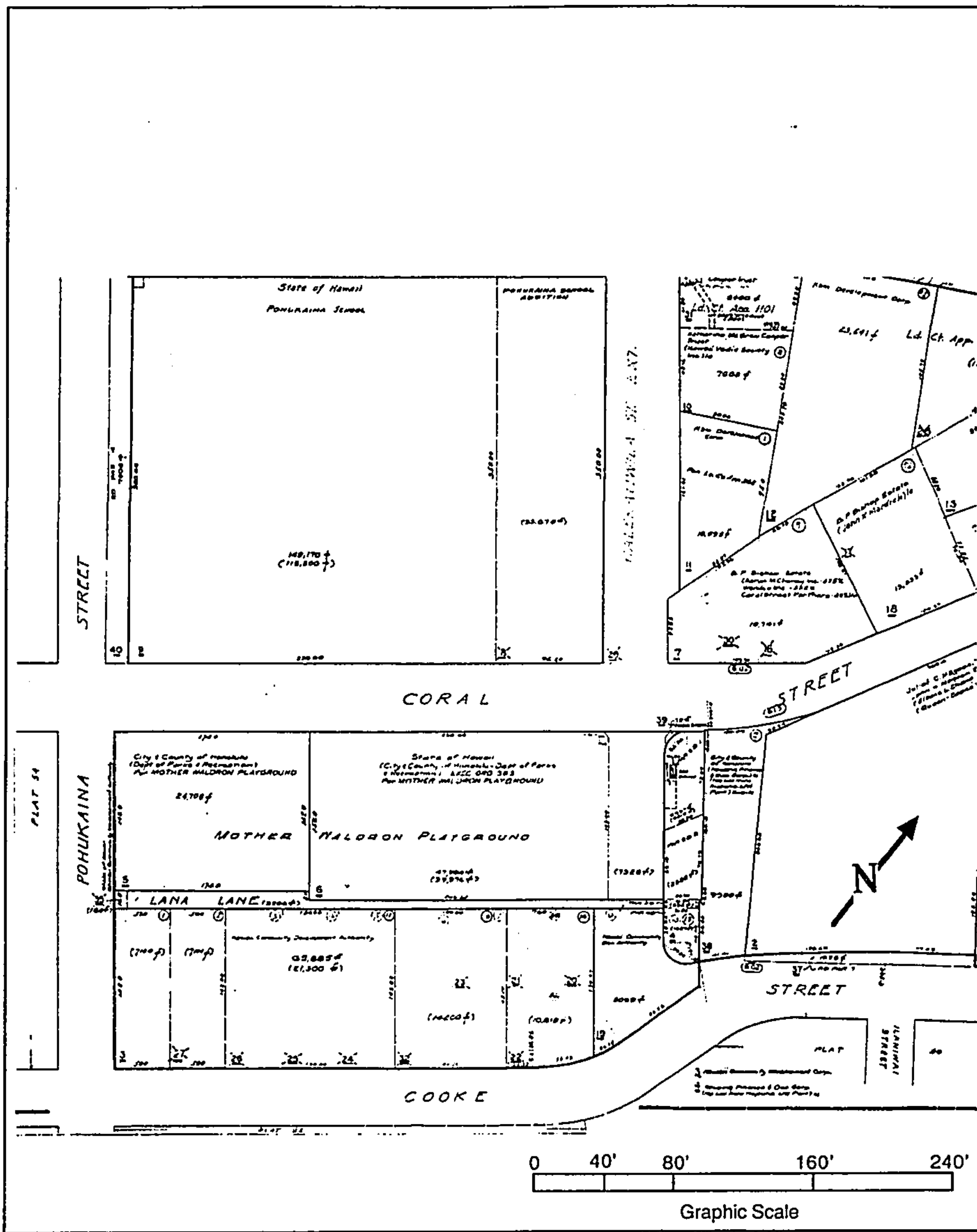


Figure 3: Tax Map
Source: City and County of Honolulu

developed through a Request for Proposal (RFP) process, will provide a critical housing inventory for Honolulu's growing senior citizen population.

Under the Request for Proposal process, project requirements will be developed by the State with general parameters addressing the target market, unit rental rate or price range, unit density, parking requirements, accessibility and service objectives, preliminary scheduling and incentives of credits, if any. Conceptual designs may also be developed to "test fit" the project design objectives. All of this information is compiled and offered to interested developers as the basis for formal development proposals. Formal proposals are then evaluated and a developer selected.

2. Conceptual Design

As a project that will be developed through the RFP process, a conceptual design was developed to provide an exploratory model for optimal density. While the final design of the project will be at the selected developer's discretion, the conceptual design was produced to 1) establish the feasibility of an optimal high density model that would serve as the basis for establishing maximum project associated impacts, and 2) determine that the siting and mass of the conceptual model is conducive to the proposed future uses of the project block. Lower density development will most likely decrease any construction or operational adverse impacts.

As presently proposed, the project will consist of approximately 147,000 square feet and will provide approximately 10,000 square feet of open space on the 54,600 square foot lot (see Figures 4 and 5).

3. Residential Units

Using the conceptual model as a basis for assessing project impacts, the project will consist of approximately 200 1-bedroom and studio units located on floors 5 to 14. These units will be arranged in a double-loaded configuration with a centrally located elevator lobby. All units will be handicap accessible and will feature mauka or makai views.

This unit program represents a high-density configuration. At the time of the RFP, unit types, sizes and counts may be altered to suit the current service market demands.

4. Parking, Vehicular Access and Public Transportation

Approximately 87 resident and guest parking stalls will be provided within the structure or adjacent to the driveway on parking levels 1 to 4. A driveway/porte-cochere located along Halekauwila Street will provide a convenient pick-up and drop-off point for the facility. A separate loading area will accommodate refuse service and heavy vehicles. Ingress and egress points will be located along Halekauwila Street.

5. Lobby Level

The lobby level of the structure will include a lobby, service and mechanical areas, parking, laundry, restrooms and a community center. The community center's location next to the park is ideally suited to serve residents of the building as well as other community groups within the project vicinity.

C. Project Objective

The HCDCH is proposing the development of a senior housing facility with assisted living and/or healthcare support services on the project site. The project, which will be jointly developed through a Request for Proposal (RFP) process, will provide critical housing inventory for Honolulu's growing senior citizen population.

This project is consistent with *Governor Cayetano's Blueprint for Affordable Housing* to increase rental housing and supportive opportunities for special needs segments of Hawaii's population. As a senior housing project, income and eligibility requirements for the project will be determined by the development and operation proposal selected at the completion of the RFP process. It should be noted that references to "senior" for this project should be defined as a person who is a resident of the State of Hawaii and has attained the age of sixty-two years, pursuant to Hawaii Revised Statutes (HRS) 201G-1.

D. Funding and Schedule

Approximately $300,000 in State funds will be involved in the proposed project through the use of State Dwelling Unit Revolving Fund (DURF). The other development costs will be borne by the developer selected through the RFP process.

The anticipated construction start date at the time of publication of this document is late 2002. The project is anticipated to be completed in early 2004.

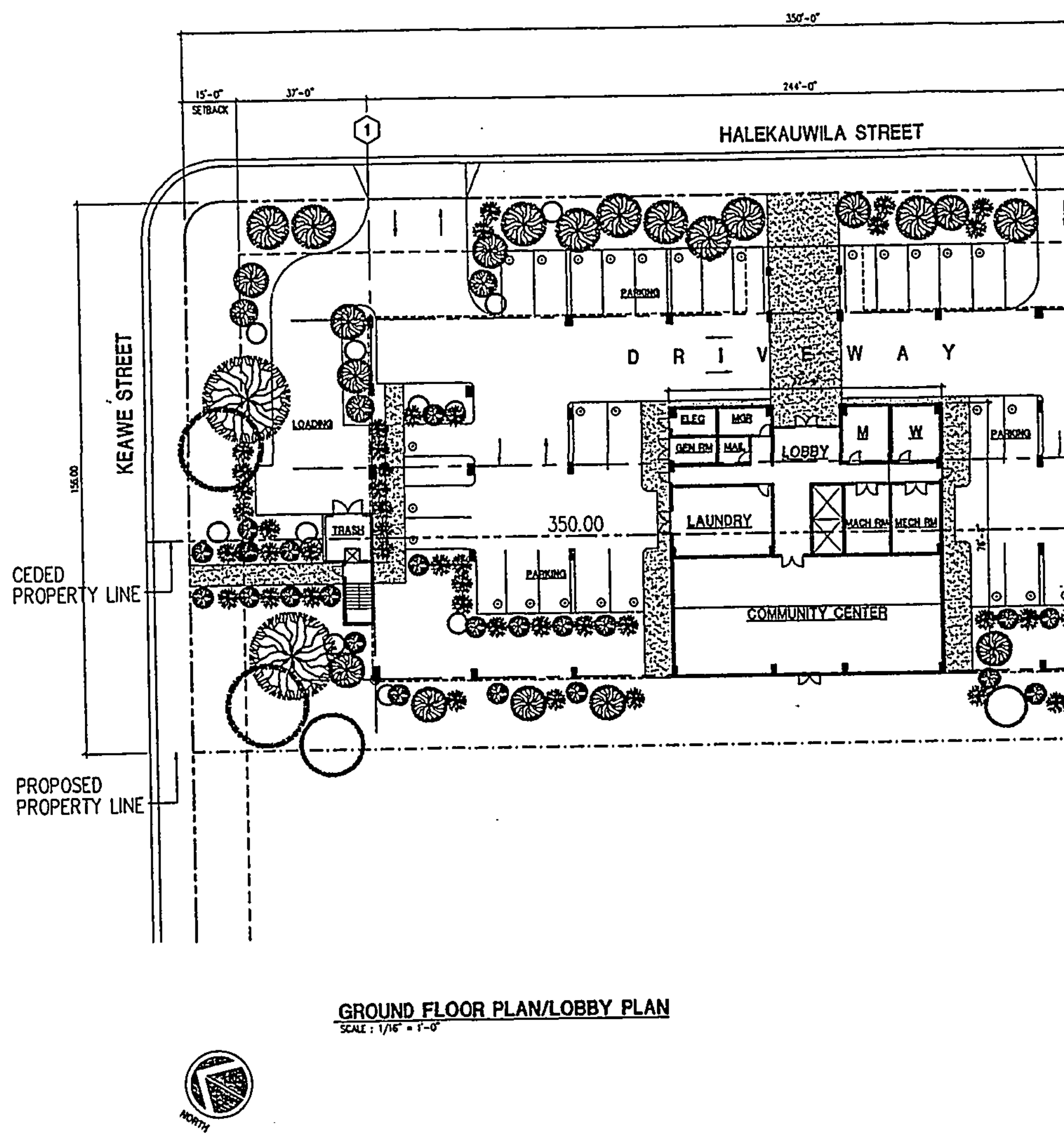
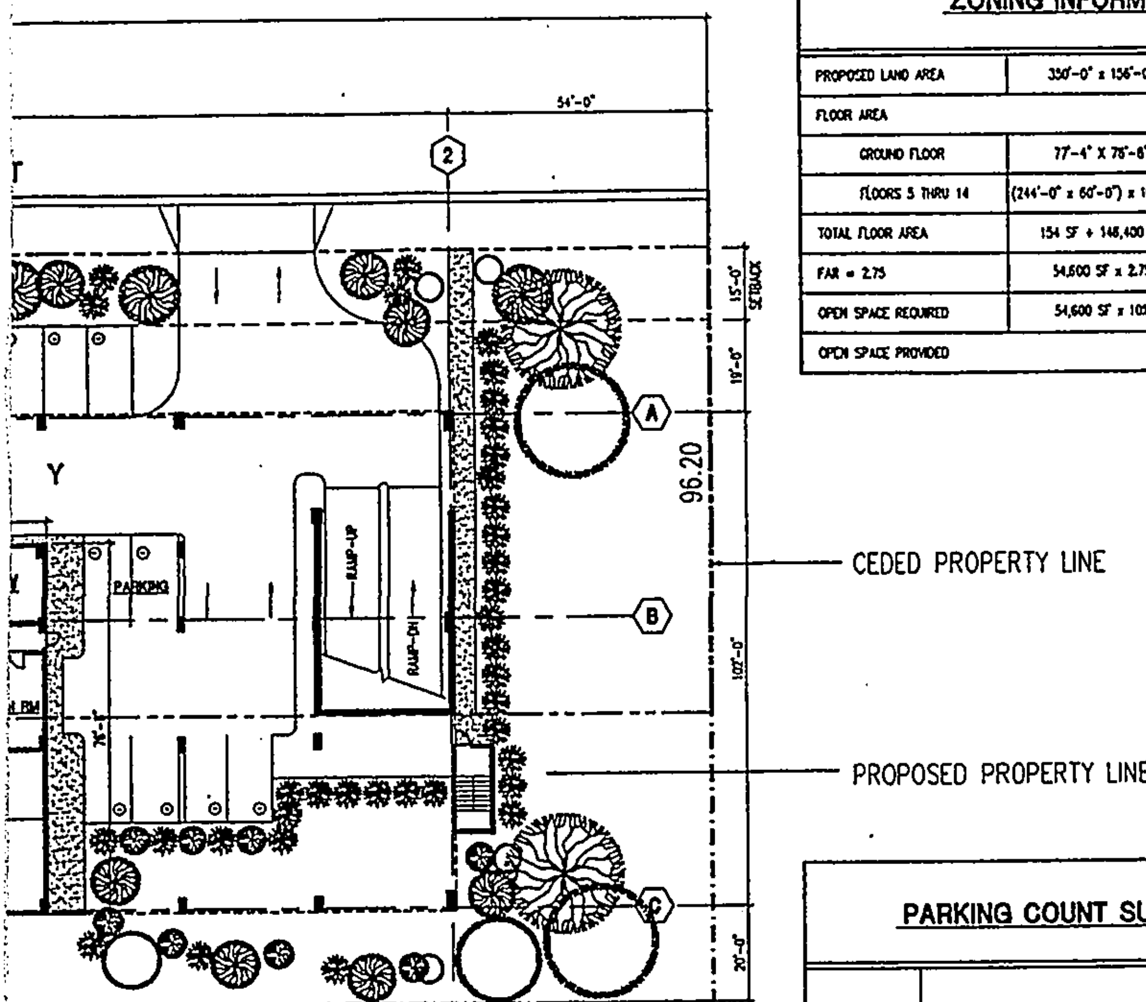


Figure 4: Ground Floor Plan/Lobby Plan
Source: AM Partners, Inc.



ZONING INFORMATION

PROPOSED LAND AREA	350'-0" x 156'-0"	54,600 SF
FLOOR AREA		
GROUND FLOOR	77'-4" X 78'-6"	154 SF
FLOORS 5 THRU 14	(244'-0" x 60'-0") x 10 Floors	146,400 SF
TOTAL FLOOR AREA	154 SF + 146,400 SF	150,150 SF
FAR = 2.75	54,600 SF x 2.75	135,564 SF
OPEN SPACE REQUIRED	54,600 SF x 10%	5,460 SF
OPEN SPACE PROVIDED		10,139 SF

PARKING COUNT SUMMARY

FLR LEVEL	NO OF PARKING		
1ST FLOOR	29	1-LOADING	29
2ND FLOOR	54		54
3RD FLOOR	54		54
4TH FLOOR	57		57
TOTAL	194	1-LOADING/UNLOADING	195
REQ PARKING	160 Units x 1.13 = 180.8 SAY = 181		

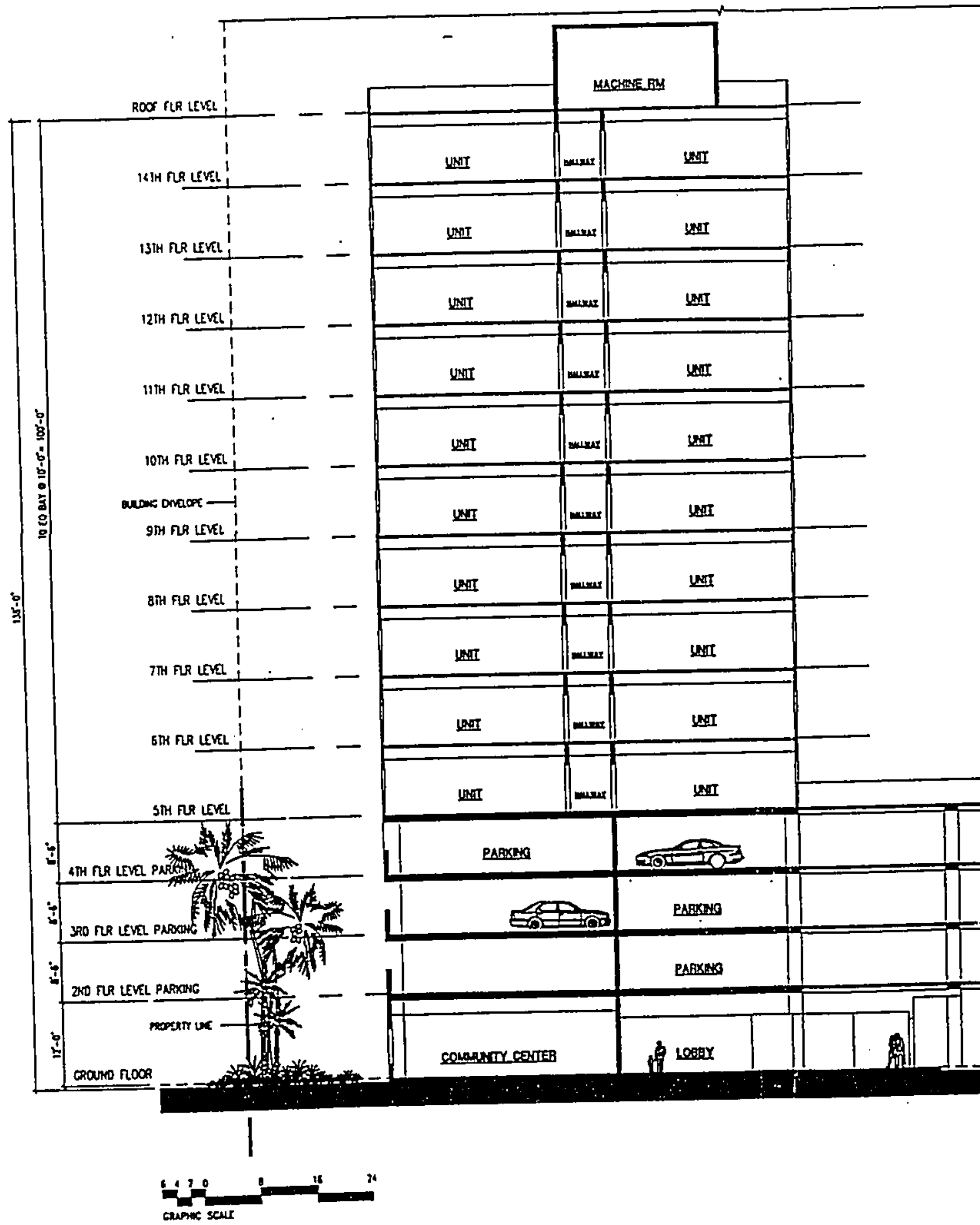
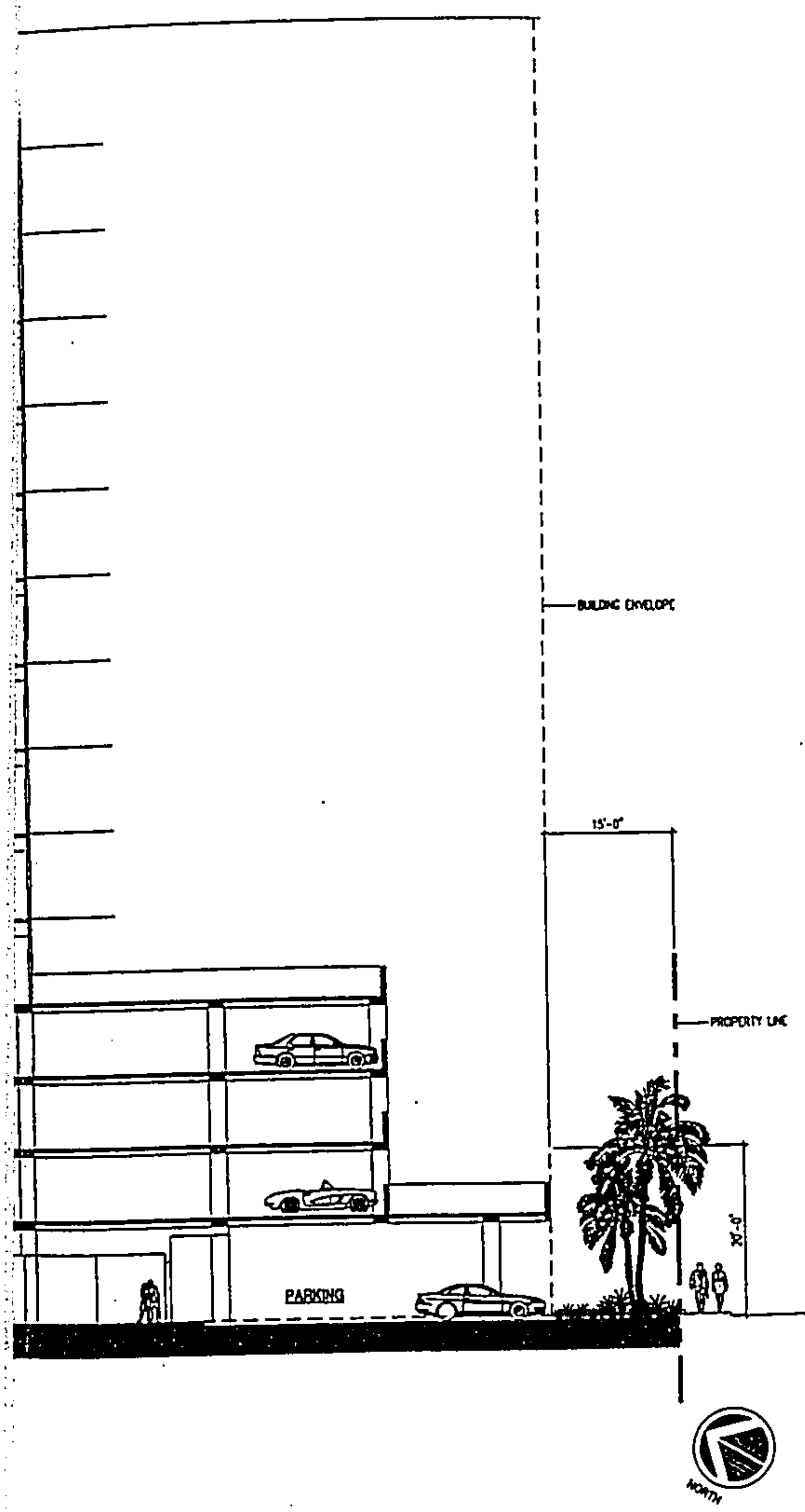


Figure 5: Building Section
Source: AM Partners, Inc.



PROPOSED RESIDENTIAL DEVELOPMENT
BUILDING SECTION (CROSS SECTION)

November 2001

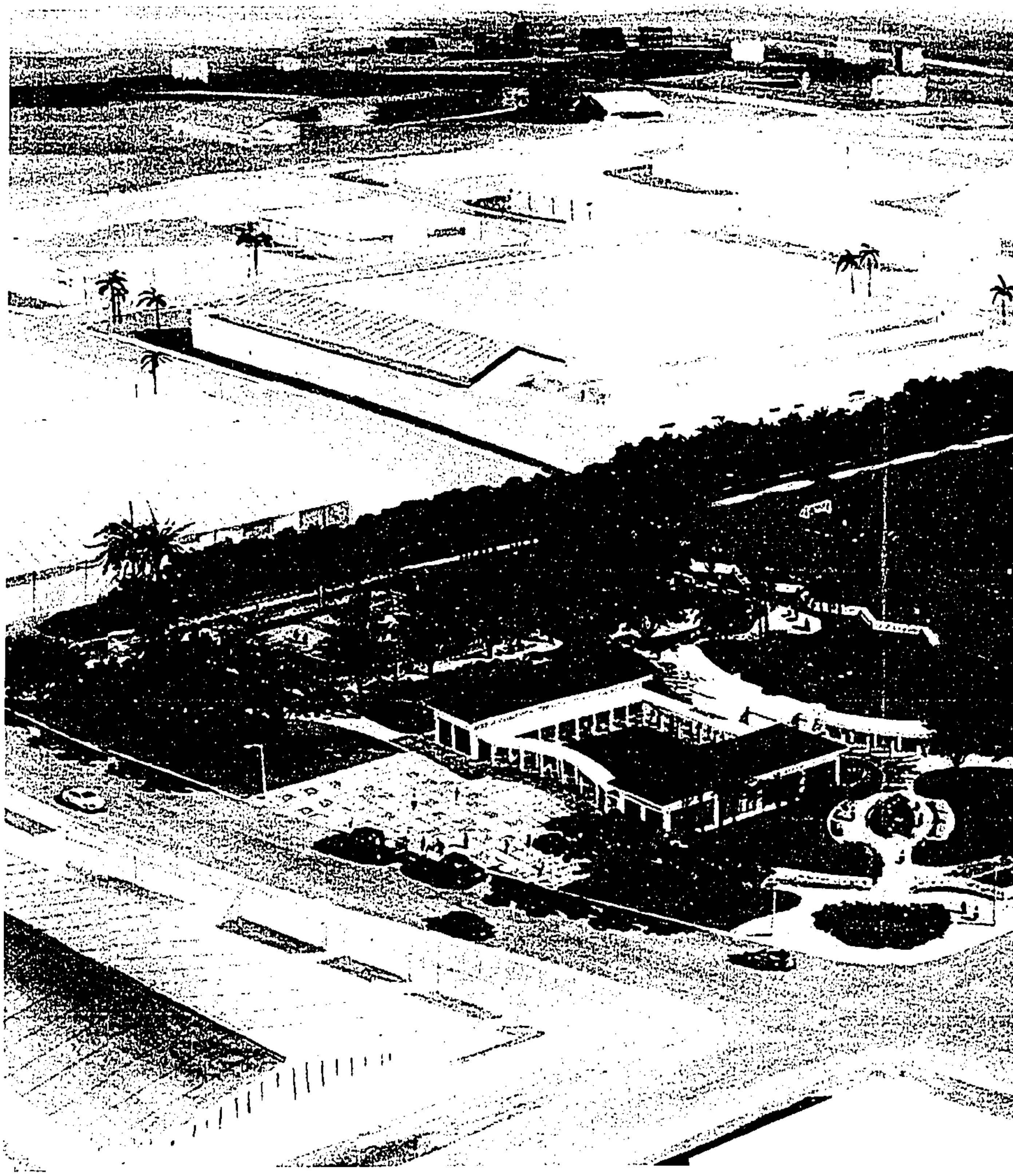
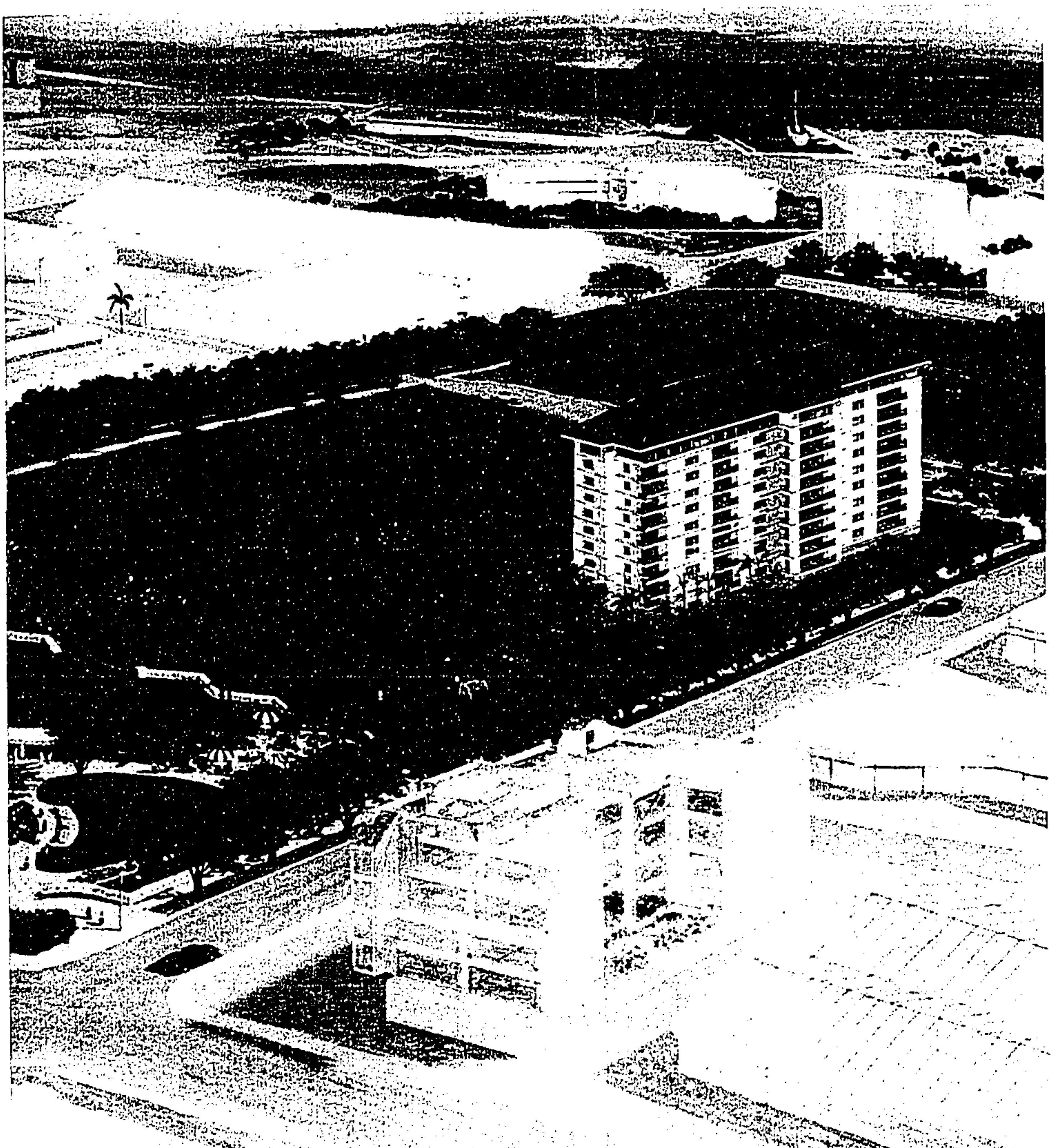


Figure 6: Aerial Rendering
Source: AM Partners, Inc.



November 2001

III. DESCRIPTION OF ENVIRONMENT, ANTICIPATED IMPACTS AND MITIGATION MEASURES

A. Environmental Setting

The project site represents a portion of a large consolidated project block that is located within a highly urbanized area located within the Primary Urban Center. A mix of high-rise residential structures, warehouses, commercial and industrial uses are located within the project vicinity. The site is also located in the core of the KCDD Mauka Area.

The project site is located on a relatively flat open urban site that is presently used as a public day-rate parking lot. The paved lot was formerly in use for warehousing and other light industrial operations. All structures were cleared from the site and the open area paved. There are minimal improvements within the site. The project lot is partially surrounded by perimeter chain-link fencing and a small wooden toll both is located at the parking lot access point off Pohukaina Street. Medium to large shade trees are located along the project boundaries however the site is otherwise devoid of any vegetation.

The project block, on which the project site is located, consists of the Mother Waldron urban park along Cooke Street, and the Department of Education Library Services warehouse along Pohukaina Street. The park consists of a comfort station, basketball courts and a low wall along the perimeter and the former Coral Street right-of-way. The Library Services complex consists of a single warehouse and appurtenant on-grade parking. An office trailer is located immediately mauka of the warehouse and was formerly used as a Police Department beat officer base. All utilities are located underground

B. Surrounding Uses

Adjacent uses include senior housing and commercial uses mauka of the block, commercial/ industrial uses in the Diamond Head direction, commercial/ warehouse uses in the makai area, and a vacant lot in the Ewa direction. All surrounding areas are or were heavily urbanized with no areas left in a natural, undisturbed condition. Roadways and infrastructure in the surrounding areas have been the subject of recent upgrades and improvements consistent with the KCDD Mauka Area Plan. All utilities have been placed underground. Many of the surrounding blocks have supported high-rise development while other blocks, such as the adjacent Ewa block were once planned for high-rise residential projects.

C. Master Plan

As summarized in the *Pohukaina School Development Master Plan* prepared for the State of Hawaii Community Development Authority by AM Partners, Inc. in November 2000, the purpose of the master plan process was to determine the feasibility of development on the project block to accommodate three proposed uses.

1) A Department of Education (DOE) Elementary School
2) An enhanced community park
3) An Elderly Housing facility planned by the HCDCH.

Through an extensive charette process by the master planning participants, numerous schemes were developed. The following scheme is used as the basis for the proposed project (Figure 7).

The scheme used as the basis of future development on the site integrates the existing historic comfort station with the other essential components of the site.

Under this plan, the elementary school is located on the corner of Pohukaina and Keawe Streets with an administrative center located on the prominent corner. A drop-off area was provided from Keawe Street and parking is provided with access from Pohukaina Street allowing for the possibility of joint use with the adjacent park. Classrooms are organized in the main building around an interior courtyard and connected to the cafeteria/multipurpose building by a covered walkway. An exterior courtyard is created between the two buildings for school gatherings and assemblies.

This scheme also located the housing facility subject of this document on the corner of Keawe and Halekauwila Streets. This location was noted by participants to be well suited due to its convenient access to the City bus system. Access to parking is provided from Halekauwila Street. An open area adjacent to the building is provided for senior activities.

The walls of the historic comfort station help define the boundaries of the park space. An open play field was provided at the corner of Cooke and Pohukaina Streets for shared use by the school and community park functions. A volleyball court and a basketball court are provided adjacent to the comfort station along Cooke Street. A recreational/community center is planned at the corner of Halekauwila and Cooke Streets with an adjacent courtyard area for the community Farmer's Market program.

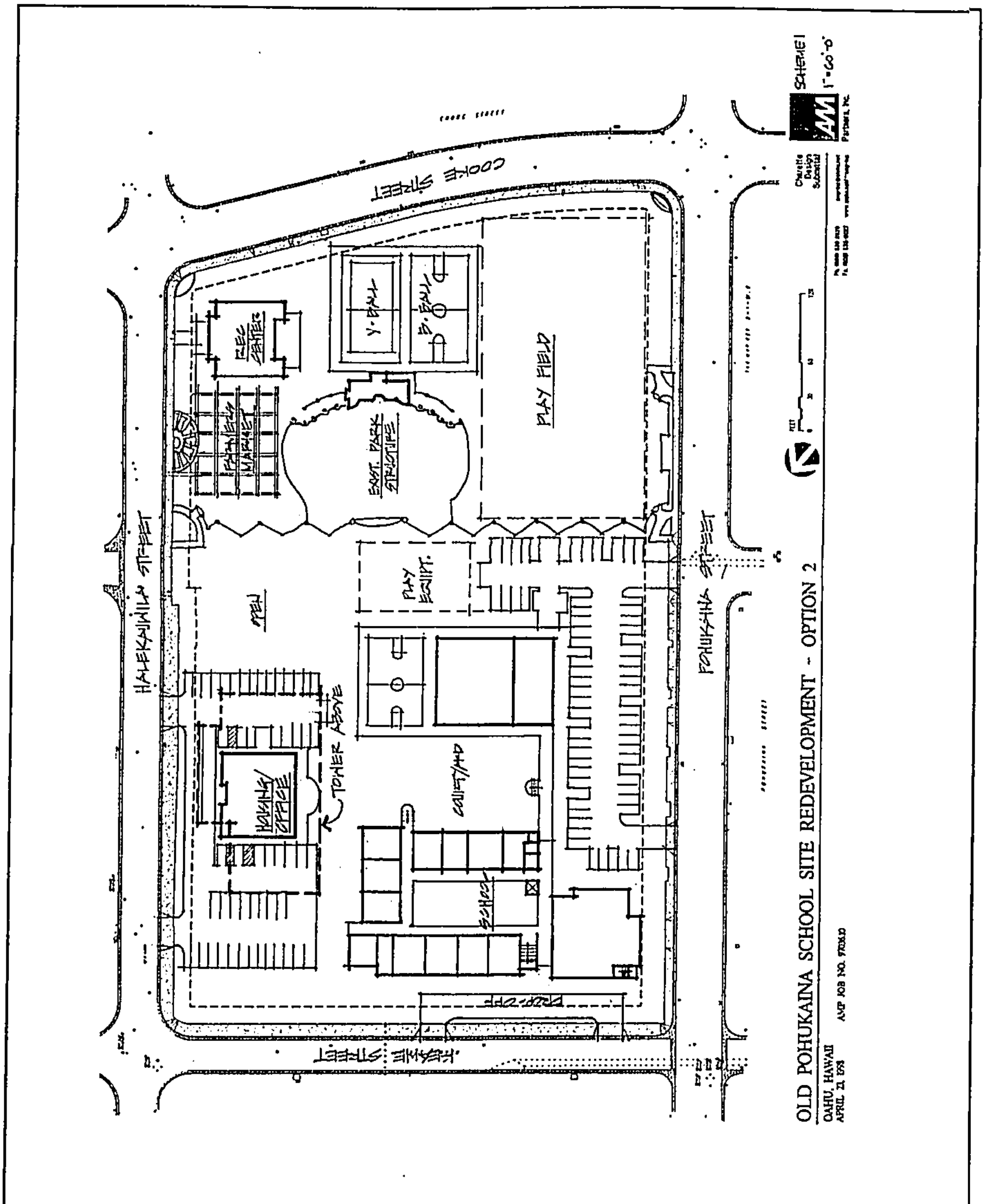


Figure 7: Old Pohukaina School Site Redevelopment Option

Source: AM Partners, Inc.

D. Environmental Considerations

1. Geological Characteristics

Topography

The project site is essentially flat and has been graded and paved to serve as a parking lot. Warehouse/industrial uses formerly occupied the site. A small tollbooth is located along the Pohukaina Street entrance to the parking lot. Vegetation is limited to a few shade trees along the perimeter and weedy species in broken paving areas.

Climate

The geography of the Honolulu District is typically warm and dry in climate. Prevailing tradewinds arrive from the northeast. According to the National Weather Service Honolulu Office, over a period of 30 years, normal monthly high temperatures range from 80 degrees in January to a high of 89 degrees in August for an average of 84 degrees. Normal month low temperatures range from a low of 65 degrees in February and a high of 74 degrees in August for a monthly average of 70 degrees. Precipitation typically ranges from 0.44 inches in August to a high of 3.8 inches in December. The annual average rainfall in Honolulu is 70 inches per year.

USDA Soil Survey Report

The project site is located on soils classified FL fill land according to the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* by the U.S. Department of Agriculture Soil Conservation Service. Fill land is typically found near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources. This land type is used for urban development including airports, housing areas, and industrial facilities.

2. Water Resources

Hydrologic Hazards and Resources

According to Panel 150001 0115 C of *the Federal Emergency Management Agency Flood Insurance Rate Map* (see Figure 6), the project site is located in Zone X an area determined to be outside the 500-year flood plain.

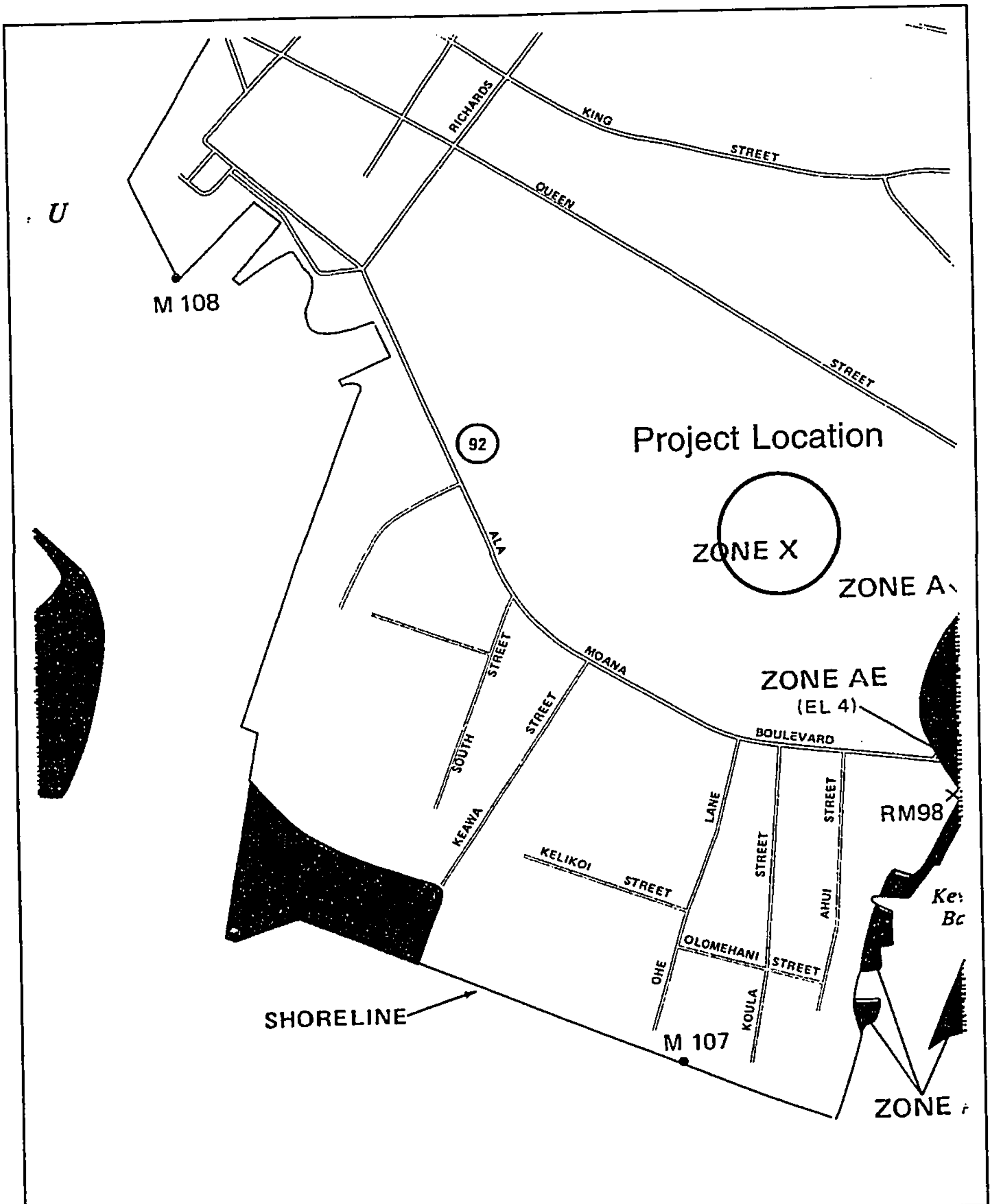


Figure 8: Flood Insurance Rate Map (FIRM)

Source: National Flood Insurance Program

Tsunami Inundation

The *Civil Defense Tsunami Inundation Maps* Panel 19 indicates that the project site is not located in an area vulnerable to tsunami inundation (Verizon Hawaii).

Special Management Area

The project site is not located within the boundaries of the Special Management Area (SMA) Map.

3. Historical and Archaeological Assessment

A study titled *An Archaeological Assessment of the Former Waldron Playground/Former Pohukaina School Parcel (6.8 Acres) in the Kaka'ako District of Honolulu, Island of O'ahu* was prepared by Cultural Surveys Hawaii in March 1998. The study, which covered the entire project block, is summarized in this section and included in its entirety as Appendix A.

a. Historical Documentation

This section begins with a review of the available documentary evidence for the general character of the present Kaka'ako area as it had evolved in the years before western contact in the later 18th century. The development of the town of Honolulu and its environs during the 19th century and into the 20th century was recorded in increasingly abundant documentation - including government records, private accounts, newspapers, maps and photographs. These documents, which allow a more precise focus on the present former Pohukaina School/Mother Waldron Playground block project area, are discussed in the remainder of this section.

Pre-contact to 1850

The area known today as Kaka'ako lies between two centers of population and activity on the southern shore of pre-contact O'ahu: Kou - the area today encompassed by downtown Honolulu - and, to the southeast, Waikiki. At Waikiki, a system of irrigated taro lo'i (the design of which was traditionally ascribed to the fifteenth-century chief Kalamakua) fed by streams descending from Makiki, Manoa, and Palolo valleys blanketed the plain extending mauka to Moiliili, and networks of fishponds dotted the shoreline. Similarly, Kou possessed shoreward fishponds and irrigated fields fed by streams descending from Nu'uanu and Pauoa valleys.

Into the 1820s, Honolulu remained more notable for its native culture than for any western-created urban structure imposed upon that culture.

Another visitor to Honolulu in the 1820s, Jacobus Boelen, hints at the possible pre-contact character of the Honolulu lands that include the present project area in Kaka'ako:

> It would be difficult to say much about Honoruru. On its southern side is the harbor or the basin of that name (which as a result of variations in pronounciation [sic] is also written as Honolulu, and on some maps, Honoonoono). The landlocked side in the northwest consists mostly of tarro fields. More to the north there are some sugar plantations and a sugar mill, worked by a team of mules. From the north toward the east, where the beach forms the bight of Whytetee [Waikiki], the soil around the village is less fertile, or at least not greatly cultivated. (Boelen 1988:62)

Boelen's description locates the present project area within a "not greatly cultivated" region of Honolulu perhaps extending from Punchbowl Crater at the north through Kaka'ako to the Kalia portion of Waikiki in the east. Confirmation of Boelen's characterization of the Kaka'ako area is presented in the accounts of other visitors cited below.

By the 1840s, western commercial and missionary interests had taken hold and impelled the growth of Honolulu. According to Gorman D. Gilman, who arrived in Honolulu in 1841, Punchbowl Street then marked the Waikiki-ward boundary of the developing city.

That the environs of the Kawaiaha'o Church and the Kaka'ako district beyond appeared, to western sensibilities at least, a "forsaken", "desolate-looking", "barren and dusty plain" is confirmed by the American missionary C.S. Stewart in his memoirs of the 1820s in Hawaii.

Arriving on Maui after living at the missionary enclave at Kawaiaha'o on O'ahu, declared Lahaina to be "like the delights of an Eden" after "four weeks' residence on the dreary plain of Honoruru" (Stewart 1970:177).

The general aptness of these reminiscences of the Kaka'ako area by foreigners is confirmed in an address given by John M. Kapena, a native Hawaiian, at the cornerstone-laying ceremony for the new 'Iolani Palace on December 31, 1879. Kapena, suggesting that the barren plain formerly extended well 'ewa of Punchbowl Street, recalled:

> When the palace which once stood on this spot was built, this was a treeless plain, covered with creeping thorns, sparsely dotted with grass houses, among which wound narrow lanes formed by the banks of taro patches. (Kapena 1906:78)

The testimonies of Kapena and the foreign visitors of the first half of the 19th century noted above all suggest that the present project area in Kaka'ako would have been situated in a less intensively-populated environment of pre-contact O'ahu: the Hawaiian settlement would have been concentrated at the well-watered lands of Kou and Waikiki, adjoining to the west and east.

Documentation associated with land awards and awardees of the Mahele of the late 1840s bring the history and life of the Kaka'ako study area into clearer focus. A portion of an 1884 map by S.E. Bishop shows the original shoreline at Kaka'ako (much different from its present configuration) and the disposition of Land Commission Awards (LCAs) and Royal Patents (RPs) granted in Kaka'ako. Testimony recorded for LCA 387 to the American Board of Commissioners for Foreign Missions (ABCFM) describes the land as "embrac[ing] fishing grounds, coral flats & salt beds" (Foreign Register, Vol.2:33). Further confirmation that Kaka'ako generally consisted of exposed coral flats dotted with salt pans and fish ponds up to the nineteenth century is provided in testimonies recorded for individual kuleana awards.

The testimonies indicate that there were other smaller fishponds in the area Waikiki-ward of the three large fishponds, shown on the 1884 map in the area named "Auwaiolimu", which were controlled by the ali'i. The LCA records help clarify both the pre-contact and mid- nineteenth century pictures of the Kaka'ako area. They suggest that the traditional Hawaiian usage of these lands was based on salt making and farming of fishponds. The characterization of the area as the "salt plains of Honolulu" itself suggests the environmental constraints that would have made the region less attractive for long-term permanent habitation during the prehistoric period.

1850s to 1900

As revealed by the LCA records, the traditional salt making and fishpond farming activities continued within Kaka'ako midway through the 19th century. These activities and the land features that supported them would be eliminated during the remainder of the 19th century as Kaka'ako experienced the full impacts of the post-contact era.

In 1853 smallpox reached the Hawaiian islands:

> By May a full epidemic was in progress in Honolulu. It did not end until January 1854. The populations on all islands were affected. No one ever knew how many people sickened, how many died. Official government figures released in 1854 declared between 5,000 and 6,000 fatalities, in a total population of about 84,000. Comparison of census counts taken in 1850 and 1855 indicates much greater losses. Estimates range from 10,000 to 15,000. (Bushnell 1993:210)

The major smallpox quarantine hospital in Honolulu was established in Kaka'ako, just makai of Queen Street. A cemetery named "Honuakaha", created solely for the victims of the epidemic, was created makai of Queen Street on the 'ewa side of South Street. (This cemetery has recently been the subject of archaeological research which is detailed in the following section of this report.)

Other developments in Kaka'ako relate to the expanding urbanization of Honolulu during the second half of the 19th century, graphically revealed in historic maps and photographs. The 1884 map and a subsequent 1887 map show the nascent traces of the future development in the grid of roads - most notably Punchbowl and Queen Streets - mauka and ewa of the Kaka'ako area encompassing the present project area. Symbols on the 1884 map also indicate that, at least until the 1880s, much of Kaka'ako was still marshlands. However, during subsequent decades the low-lying marshes, tidal flats, fishponds, and reef areas of Kaka'ako would be filled - at both government and private expense - as the burgeoning Honolulu city expanded toward Diamond Head. Fill material ranged from sediments, sand, and coral dredged from the ocean (during the expansion of Honolulu Harbor), to garbage fill and soils hauled in from locations around O'ahu.

1900 to Present

Beginning in the 1900s, annual reports of the Department of Public Works (DPW) document the land filling and reclamation activities undertaken in the Kaka'ako and Kewalo areas of Honolulu. In June of 1913 funds were made available to the DPW and work began on the Kewalo Reclamation Project within an area bounded by King Street (mauka), Ala Moana Blvd. (makai), South Street ('ewa), and Ward Avenue (Diamond Head). By June 11, 1914, the entire area from the makai side of Queen Street to Ala Moana Blvd. and from South Street to Ward Avenue had been filled in with coral and sand dredged from Honolulu Harbor and the reef flats along the shoreline. The remainder of Kaka'ako, mauka of Queen Street, was filled by 1920.

A 1901 map of Honolulu by M.D. Monsarrat shows the grid of streets now extending well into Kaka'ako. Newly established routes in the area include South, Keawe, and Coral streets (running mauka/makai) and Pohukaina St. and the present Auahi St. (running 'ewa/Diamond Head). Hinting at the future incursion of industry into Kaka'ako are the substantial buildings of the Honolulu Iron Works company between Punchbowl and South streets. The beach road following the alignment of the present Ala Moana Blvd. continues to demarcate the shoreline of Kaka'ako but a sea wall now encloses a wide area at the Diamond Head end of Honolulu Harbor, at the foot of Punchbowl and South streets.

A 1920 map of Honolulu, again surveyed by M.D. Monsarrat, indicates that, with the completion of the reclamation project, the grid of streets - generally along the same alignments as today - now completely covers the Kaka'ako landscape (Figure 7). Not only the area encompassed by the seawall shown in the 1901 map but additional reefs off Kaka'ako have been filled makai of Ala Moana Blvd., creating the lands of Fort Armstrong at the Honolulu side and, at the Diamond Head side, ground for "proposed new Streets" extending the Kaka'ako grid.

By the 1920s, Kaka'ako had been established as a district comprising a mix of industry, small enterprise and residence, especially in "camps" associated with immigrant groups:

The amalgam of industrial, commercial and residential structures that characterized Kaka'ako through most of the century is displayed on an aerial photograph of 1952. The photograph documents the complete urbanization of Kaka'ako - both on the former marsh lands mauka of the beach road (Ala Moana Blvd.) and on the created lands makai of the road.

During recent decades and continuing into the present, the character of the area has been reshaped through guidelines of the Hawaii Community Development Authority's Kaka'ako Community Development District Plan.

b. Archaeology

The Kaka'ako district of Honolulu became a focus of archaeological work during the 1980s, impelled by the construction of state and federal government buildings, and by the State-planned redevelopment of the area.

Jason Ota and Wendell Kam (1982) reported on six partial sets of human remains recovered during excavation for construction of the State Office Building #2 at the makai/Diamond Head corner of Punchbowl and Halekauwila streets. The remains were in poor to very poor condition and little could be determined from the osteological analyses performed. Two of the burials showed evidence of incisor evulsion. Tooth evulsion was practiced by the late- prehistoric Hawaiians and this may indicate the ethnicity of these two burials. All the burials were located in sand and prehistoric fill deposits (although some historic disturbance may have taken place).

J. Stephen Athens (1986) performed monitoring and excavation for the Judiciary Parking Garage at the 'ewa/mauka corner of Pohukaina and South streets (TMK 2-1-30: 3, 4, 38, 39, 41 and 43). Based on material recovered from the excavations, Athens posits that the area was an early dumping site during the historic period. Only historic bottle glass concentrations were encountered. No undisturbed sand layers were noted in the excavations and much of the area appeared to have been disturbed prior to the excavations. It is likely that the area was under water, or was intertidal in prehistoric times and, therefore, little in the way of prehistoric Hawaiian deposits would be found.

A 1987 report, Kaka'ako: Prediction of Sub-surface Archaeological Resources, detailing archival research and archaeological assessment of the Kaka'ako

Community Development District, was prepared by P. Bion Griffin, Dennis Keene, and Joseph Kennedy. The development district comprises the area bounded by Ala Moana Boulevard, and by Punchbowl, King, and Pi'ikoi streets. The report summarizes the historical import of the area:

> Kaka'ako - the Kaka'ako Community Development District - is not the center of life in greater Honolulu that is, or was, either Waikiki or 'downtown' ewa of Punchbowl. It is, however, relatively rich in the remains of nineteenth century Honolulu, of prehistoric Hawaiian life, and of the ethnic influx from the late 1800's until 1940. (Griffin et al. 1987:73)

One aspect of the area's significance is especially emphasized:

> Without doubt the single most striking archaeological deposit, and the one to which we assign the highest priority, is the 1853 Honuakaha Cemetery fronted by South Street and bisected by Quinn Lane. More than 1000 human burials are reportedly therein...
>
> Burials will be found throughout Kaka'ako. Some will be in sand remnants, others intruding into the pumice deposited from ancient Punchbowl eruptions. Most will be prehistoric or early historic. We expect that, as in the case of the Ka'akaukukui Cemetery, deaths from pre-1853 epidemics resulted in many burials throughout Kaka'ako. The chance of high status (ali'i) burials, from residences in adjacent elite locations, is high. (Ibid.:73)

The Ka'akaukukui Cemetery referred to in this report is based upon the discovery of burials - "all likely interred in the late 1700's or early 1800's" - during excavation in 1985 "on the site of the old Ironworks complex" (Ibid.:4), i.e. within Block 1 of the present study. The burials - assigned State site no. 50-80-14-2918 - were documented by Martha Yent (1985) of the Department of Land and Natural Resources Division of State Parks. The Griffin et al. Report notes:

> Many more burials are very likely to exist along the extent of the old sand beach [i.e., above the original shoreline at the present Ala Moana Blvd.]. As development proceeds in a Diamond Head direction, human burials and house sites are certain to be found. Specific locations are unknown. (Ibid.:4)

An additional concern of the report is the archaeology of 1900 to 1940, especially remnants of the former multi-ethnic residential enclaves, the general locations of which are recorded in the report:

> Sub-surface archaeological materials are likely preserved, but houses built in the 1930's and 1940's may have been largely on top of slightly earlier fill, and be evidenced only by trash pits and yard features. Examination of

> a few remaining old wooden frame houses suggests that where the ground has not been bulldozed prior to placement of warehouses, etc., some evidence of the ethnic communities may be present. Purposefully buried cherished objects, done early in WW II, may still be in the ground.
>
> ...Japanese 'camps' may be found in archaeological remains; these objects are residues should shed considerable light on pre-war life styles, including relative acculturation, ties to Japan, and quality of life. The early Filipino camps should be sought; their story is largely unknown. (Ibid.:11)

Typical - in its origin (i.e., monitoring of a construction site) and in its findings - of the archaeological work carried out within the Kaka'ako district is the 1987 report, Archaeological Monitoring of the Makai Parking Garage, Corner of Punchbowl and Halekauwila Streets (TMK 2-1-31:23), by Stephan D. Clark of the Bishop Museum. Archaeological features revealed both prehistoric and historic utilization of the site. Seven human burials - of which four were "intact burials, with well defined burial pit features, exposed and disturbed by the present construction activities" (Clark 1987:63) – were documented. One of the intact burials was the only confirmed prehistoric feature within the site area:

> Osteological analyses of the [four] mostly complete burials...indicates that these individuals were of Hawaiian ancestry. Based on lack of grave goods and on the occurrence of the burial in beach areas, it is fairly safe to assume that these Hawaiians were common people, not of the ali'i class. (Ibid.:114)

Artifacts recovered at the site ranged from basalt tools - including an adz, a hammerstone, and a poi pounder top - and a coral abrader to glass bottles, ceramic fragments, and metal objects. Clark concluded that the "nineteenth century use of the site area included primarily burying of trash and burial and animals" (Ibid.:114)

Michael T. Pfeffer et al. (1993) summarize archaeological monitoring, data recovery, and excavation services by Cultural Surveys Hawaii, commencing in 1986, during construction within the Hawaii Community Development Authority's Kaka'ako Improvement District 1. Four burial site areas were encountered: two cemeteries and two isolated burials. The cemeteries recorded on Queen Street (State site 50-80-14-4534-[A-I, 1-107]) and on South Street/Quinn Lane (State site 50-80-14-3712-[A-U1) contained 116 and 31 sets of remains, respectively. These two areas comprise the 1853 Honuakaha Cemetery established during the smallpox epidemic. The two isolated burial sites - on Punchbowl Street (State site no. 50-80- 14-4532-1) and Halekauwila Street (State site no. 50-80-14-4533-1) - each contained one set of remains. Osteological analysis was performed on as many burials as were possible at the time.

A variety of other archaeological and historical features were noted, excavated and recorded during the monitoring process, including historic trash layers, historic cultural features, and fill layers associated with the urbanization of the Kaka'ako area.

Present Project Area and Near Vicinity
A review of reports currently on file at the State Historic Preservation Division (SHPD) indicates that no comprehensive archaeological studies of any portion of the present project area have been completed. However, in 1991 and 1992, during excavations for infrastructure improvements associated with the Hawaii Community Development Agency project in Kaka'ako a total of twelve human burials were inadvertently exposed in the vicinity of the project area. The improvements included installation of a storm drain along Halekauwila Street and installation of electric lines on Keawe Street and at the intersection of Halekauwila and Cooke streets.

Following consultation with the SHPD, all the burials were disinterred and curated by Cultural Surveys Hawaii until they were returned to the SHPD in July of 1993. Subsequently, the burials were reinterred at a specially constructed site at the corner of Halekauwila and Cooke streets, within the present project area; the reinterment was coordinated by the burial administrator of the SHPD.

According to a memorandum of July 2, 1993 from the HCDA to the SHPD burial administrator (see APPENDIX A), the reinterment site at the corner of Halekauwila and Cooke streets comprised "site A [to] be utilized for Improvement Districts 1 and 3 burials." The memorandum also designates the corner of Cooke and Pohukaina streets, within the project area, as "site B [which] will be reserved for future reinterments."

c. Field Inspection Results

The project area was inspected on March 8, 1998.

All the buildings of the former Pohukaina Elementary School shown on the 1951 fire insurance map and visible on the 1952 aerial photograph have been demolished. The area of the former school presently contains a municipal parking lot and a modern state government building.

Coral Street, between Halekauwila and Pohukaina streets, has been closed and planted in grass. The buildings and walls of Mother Waldron Playground remain in place, apparently in good condition.

The portion of the project area between Mother Waldron Park and Cooke Street (formerly the site of numerous tenement houses and later warehouses) has been completely cleared of structures and is a level grass lawn. At the corner of Halekauwila and Cooke streets, within the project area, is the reinterment site for twelve burials exposed during construction activities of the HCDA project. The reinterment site comprises a raised brick-lined planting area, enclosed by a low wrought-iron fence. The only indication of the special nature of the site are discreet "KAPU" signs fastened along the top of the brick planter.

d. Archaeology Summary and Recommendations

Background research for the present archaeological assessment indicates that the Mother Waldron Playground/former Pohukaina Elementary School project area in Kaka'ako is within a portion of O'ahu which, until the second half of the 19th century, remained an expanse of scattered dwellings, fish ponds, tidal flats and salt pans, located between more densely populated areas at Honolulu (near the mouth of Nu'uanu Stream) and Waikiki. Beginning in the early 20th century, the lands of Kaka'ako were filled in as the city of Honolulu expanded toward Waikiki and up the adjacent valleys.

By the 1920s and 30s, Kaka'ako had developed into a community, tightly packed with commercial, industrial and residential (including ethnic camp) structures. A portion of the present project area was, from 1913 to 1980, the site of Pohukaina Elementary School. Since 1937 until the present, the project area has been the site of Mother Waldron Playground. During the 1980s and 1990s, archaeological studies within the Kaka'ako area have recorded locations of archaeological sites, former land features, and burial sites. Some of these burial sites have been located at or near the Halekauwila Street boundary of the present project area.

Areas of archaeological concern in the vicinity of the project area are shown in Figure 7.

During planning for and execution of any future development of the Mother Waldron Playground/former Pohukaina Elementary School project area, the following recommendations should be implemented:

1) The only historic structures (older than fifty years) presently remaining within the project area are the buildings and walls of Mother Waldron Park, which was developed in 1937. The park has been entered on the State Inventory of Historic Places as site 50-80-14-1388. It has been placed on the Hawaii Register of Historic Places. It has been nominated for, but is not currently on, the National Register of Historic Places.

Any proposed modifications or other impacts to the park and its structures should be presented to the State Historic Preservation Division (SHPD) for review and concurrence.

2) At the corner of Cooke and Halekauwila Streets is the reinterment site for Hawaiian burials inadvertently discovered during infrastructure improvements of the Kaka'ako Improvement District 3. This site was selected after lengthy

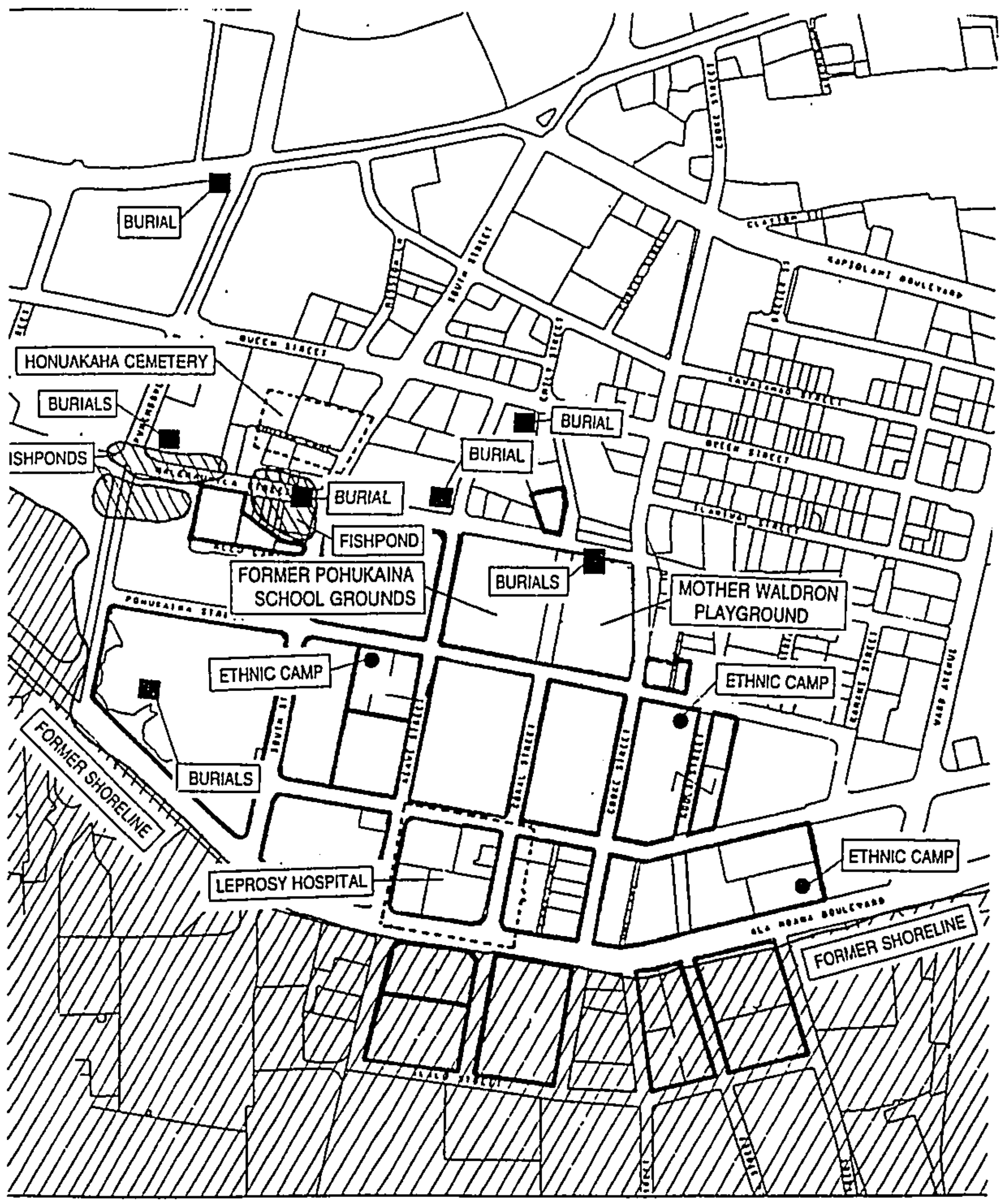
consultation between the HCDA and the SHPD burials program, which included the O'ahu Burial Council. This site must be preserved with an appropriate buffer since it contains numerous Hawaiian burials. Any modifications around this site should be coordinated with the SHPD burials program.

Additionally, a memorandum from the Hawaii Community Development Authority (see Appendix A) indicates that, as of July 2, 1992, the corner of Cooke and Pohukaina Streets within the project area has been designated by the HCDA as "reinterment site B" which "will be reserved for future reinterments." Planners for the present project should be made aware of this possible restriction in use of this portion of the project area. Clarification of the present status of this area should be obtained from HCDA. (According to personal communication with burials program staff at SHPD on March 17, 1998, the program is aware of the site B designation. However, there are no present plans for its use and there remains space for additional reinterments at the already-constructed site A at the corner of Halekauwila and Cooke streets.)

3) Previous findings of isolated human burials have occurred in areas both within and adjacent to the project area. It is entirely possible that burials and other finds could be uncovered during excavation for any proposed improvements. If massive excavations of large areas are anticipated for building foundations and infrastructure improvements as a part of this project, then, prior to construction activities, these areas should be tested by backhoe with documentation of findings and preparation of an archaeological report.

If no major ground disturbing activities are planned, and these activities will be limited to periodic excavation in specific areas, then the above testing program is not recommended.

However, during construction activities, archaeological monitoring of all excavations according to a monitoring plan, approved by the SHPD, would be an appropriate form of mitigation. If findings are uncovered during this monitoring, the archaeologist would halt work in the immediate area and contact the SHPD. All burial finds would be subject to the current state burial law. Whether or not findings are uncovered, provision should be made for preparation and submittal of an archaeological monitoring report.



Kaka'ako district showing former shoreline and areas of archaeological concern in the vicinity of the Mother Waldron Playground/former Pohukaina Elementary School project area

Figure 9: Archaeological Sites Map

Source: Cultural Surveys Hawaii

4. Cultural Assessment

A study titled *Cultural Assessment of the Former Waldron Playground/Former Pohukaina School Parcel (6.8 Acres) in the Kaka'ako District of Honolulu, Island of O'ahu* was prepared by Cultural Surveys Hawaii (CSH) in July 2001. The study, which covered the entire project block, is summarized in this section and included in its entirety as Appendix E. Portions of the previous section have been synthesized for the Cultural Assessment.

In addition to the archaeological and historic research conducted for the project, CSH placed a greater emphasis into consultation efforts rather than replicating the existing archival and historical reseach.

Letters requesting (1) identification of cultural concerns and (2) referrals of knowledgeable individuals were written to the following organizations: the State Historic Preservation Division, the Office of Hawaiian Affairs, the Oahu Island Burial Council, Hui Malama I Na Kupuna o Hawaii Nei and Kamehameha Schools Bishop Estate. An attempt was made to contact all the individuals referred by the various organizations, either by letter and/or telephone. A complete list of organizations and individuals contacted during the consultation period can be found in the appended report.

In consultation with the SHPD Culture/History Branch, it was determined that the consultation process need not be as broad as originally intended due to several factors: 1) the Kakaako area previously consisted of fish ponds and tidal flats and were not subject to intertidal influences; 2) the soil in the project area is Fill (FL); 3) the project area is in a developed and previously disturbed area; 4) due to development of the commercial and business district, the original homes were torn down in the last 10-15 years and the once tight-knit community dispersed and relocated elsewhere.

The consultation portion of the study did not identify any traditional cultural practices occurring in the project area nor identify any cultural concerns. Nearly everyone contacted had only peripheral knowledge of the subject parcel. Two of the people consulted know Mother Waldron and were able to add some personal information regarding her life.

5. Traffic

A Traffic Impact Assessment Study was conducted by Parsons Brinkerhoff Quade & Douglas for the proposed project's conceptual model. The study, titled *Traffic Impact Study Pohukaina Residential Development Kakaako, Oahu, Hawaii,* is summarized in this section and included in its entirety as Appendix B. The study, which was originally prepared in July of 2000, has been revised in November of 2001 to address long-term traffic impacts.

The traffic impact assessment study for the proposed Pohukaina Residential Development assumes that the project would be competed in the Year 2002. Future background traffic volumes not associated with the proposed development were, therefore, forecasted by factoring existing peak hour traffic volumes by a 3 percent annual rate. When added to the traffic generated by the proposed development, relatively low traffic volumes resulted, and the intersection analyzed were projected to operate at good levels of service (LOS), indicating very little delay to vehicles.

It has been recently determined that the proposed development is not likely to be completed until the Year 2004. The implication for the traffic analysis is that background traffic will grow by 3 percent annually for another two years. Given the low traffic volumes in the vicinity of the proposed development and the good projected LOS at the intersections analyzed, it is judged that this additional growth would not significantly change the findings summarized in the traffic impact assessment report.

a. Existing Conditions

The Pohukaina Senior Residential Development parcel is located on the makai-side of Halekauwila Street, Diamond Head of Keawe Street. The existing roadway conditions and intersection operations are described in the following sections.

<u>Existing Roadways</u>

Halekauwila Street generally runs in an Ewa-Diamond Head direction. It is a two-lane roadway with curb, gutter, and sidewalks. It has metered parking on both sides of the street and a posted speed limit of 25 mph. Within the study area, Halekauwila Street intersects with Coral Street and Keawe Street.

Coral Street runs in a mauka-makai direction. It is a two-lane roadway with partial curb, gutter, and sidewalks. It has no on-street parking. Coral Street intersects Halekauwila Street at a T-intersection and has STOP-sign control on the Coral Street approach.

Keawe Street provides mauka-makai circulation from Kakaako Makai to Queen Street. It intersects both Halekauwila Street and Pohukaina Street at four-way STOP-sign controlled intersections. Keawe Street is a two-lane roadway with curb, gutter, sidewalks, and on-street parking.

Pohukaina Street runs parallel to Halekauwila Street in an Ewa-Diamond Head orientation. It is a two-lane roadway with curb, gutter, and sidewalks. It has metered parking and a posted speed limit of 25 mph. Presently, access to the public, at-grade parking lot is provided via a driveway located on Pohukaina Street, Diamond Head of Keawe Street.

Existing Intersections

Within the study area, three existing intersections were evaluated. They are: 1) Halekauwila Street and Coral Street, 2) Halekauwila Street and Keawe Street, and 3) Pohukaina Street and Keawe Street. All intersections are unsignalized and controlled by STOP signs.

Existing Traffic Volumes

The peak period traffic volume counts were conducted on Wednesday and Thursday, June 14-15, 2000. Existing peak hour volumes at the study area intersections are shown in Appendix B.

Existing Intersection Operations

The intersections were analyzed using the methodologies for unsignalized and signalized intersections outlined in the 2000 Highway Capacity Manual (HCM). Operating conditions at an intersection are expressed as a qualitative measure known as Level of Service (LOS). Letter designations ranging from 'A' through 'F' are used, with LOS 'A' representing very low delay conditions and LOS 'F' representing over-saturation conditions. Appendix A provides a more detailed description of Level of Service.

The results of the analyses are shown in the Table 1. The results of the analyses indicate that the intersections operate very well, at LOS 'B' or better, with estimated delays of less than 15 seconds per vehicle on all approaches.

b. Projected Year 2020 Traffic Conditions Without Pohukaina Residential Development

The Pohukaina Senior Housing Development is projected to be completed in the year 2004. However, because the Kakaako area is expected to experience dramatic redevelopment in the future, the Year 2020 was used as the future analysis year. This would provide future background traffic conditions that would anticipate a substantial redevelopment of the surrounding Kakaako area. Two future conditions were evaluated: Year 2020 without the Pohukaina Development and Year 2020 with the Pohukaina Development. This section evaluates traffic conditions without the proposed development.

Table 1
Existing Conditions
Level of Service Summary

INTERSECTION	A.M. Peak Hour LOS	A.M. Peak Hour DELAY (sec/veh)	P.M. Peak Hour LOS	P.M. Peak Hour DELAY (sec/veh)
Halekauwila/Coral Street (Unsignalized)				
EB left	A	7.7	A	7.6
SB Approach	B	10.4	B	11.4
Halekauwila/Keawe Street (Unsignalized)				
NB Approach	A	8.2	A	9.3
SB Approach	A	8.7	A	9.1
EB Approach	A	8.7	B	11.4
WB Approach	A	9.3	A	9.7
Total Intersection	A	8.9	B	10.3
Pohukaina/Keawe Street (Unsignalized)				
NB Approach	A	8.3	A	10.0
SB Approach	A	9.1	B	10.6
EB Approach	A	8.6	B	10.7
WB Approach	A	9.5	B	13.1
Total Intersection	A	9.0	B	11.5

Copies of the analysis worksheets are included in the Appendix of the traffic report.

Year 2020 Traffic Volumes, Without Pohukaina Development

These future forecasts were adjusted based on techniques that use existing patterns to balance raw model output. These future forecasts include non-specific growth in population and employment in the Kakaako area. In addition, it was assumed that a 500-student elementary school would be constructed adjacent to the proposed elderly housing with its access on Keawe Street, between Pohukaina and Halekauwila Streets. Trip generation rates documented in the Institute of Transportation Engineers (ITE) publication entitled, Trip Generation, 6th Edition, were used to estimate traffic volumes generated by this future elementary school. These volumes, which are included in the appendix, produce the Year 2020 baseline traffic volumes.

Year 2020 Intersection Operations Without Pohukaina Development

The volumes in Figure 5 were analyzed using the 2000 Highway Capacity Manual methodologies for unsignalized and signalized intersections. Table 2 summarizes the results.

Table 2

Summary of Year 2020 Intersection Analysis Results

	Future without Project				Future with Project			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Signalized Intersections								
Pohukaina Street and Keawe Street								
Eastbound Approach	13.7	B	10.6	B	13.7	B	10.6	B
Westbound Approach	18.5	B	40.7	D	18.5	B	40.7	D
Northbound Approach	12.0	B	26.8	C	12.0	B	26.9	C
Southbound Approach	19.6	B	44.5	D	19.6	B	45.3	D
Overall Intersection	17.0	B	32.1	C	17.0	B	32.3	C
Halekauwila Street and Keawe Street								
Eastbound Approach	10.7	B	19.7	B	10.8	B	20.1	C
Westbound Approach	15.7	B	19.1	B	15.9	B	19.4	B
Northbound Approach	16.0	B	20.2	C	16.0	B	20.2	C
Southbound Approach	18.3	B	17.1	B	18.4	B	17.1	B
Overall Intersection	14.9	B	19.3	B	14.9	B	19.6	B
Unsignalized Intersections								
Halekauwila Street and East Project Driveway								
Westbound Left Turn	--	--	--	--	7.8	A	8.6	A
Northbound Approach	--	--	--	--	11.9	B	13.8	B
Overall Intersection	--	--	--	--	11.9	B	13.8	B
Halekauwila Street and West Project Driveway								
Westbound Left Turn	--	--	--	--	7.8	A	8.6	A
Northbound Approach	--	--	--	--	11.9	B	14.6	B
Overall Intersection	--	--	--	--	11.9	B	14.6	B
Halekauwila Street and Coral Street								
Eastbound Left Turn	8.1	A	8.0	A	8.2	A	8.0	A
Southbound Approach	13.0	B	20.0	C	13.0	B	20.3	B
Overall Intersection	13.0	B	20.0	C	13.0	B	20.3	B

Based on the significant growth in traffic volumes anticipated as a result of the redevelopment of Kakaako, it was assumed for the level of service analysis that the Pohukaina Street/Keawe Street and the Halekauwila Street/Keawe Street intersections would be signalized within the time frame of the future analysis year. The Halekauwila Street/Coral Street intersection is anticipated to remain unsignalized. Given these assumptions, Table 2 indicates that the project area intersections will continue to operate well at LOS C or better in Year 2020.

c. Projected Year 2020 Traffic Conditions - With Pohukaina Development

Vehicle trips generated by the proposed 200-unit senior residential development were added to the Year 2002 baseline traffic volumes and analyzed to determine the traffic impacts. Although part of the existing public parking lot would be displaced by the proposed development, traffic related to the parking lot was not removed from projected volumes. This allows for a conservative analysis, especially at the Pohukaina/Keawe Street intersection.

Vehicle Trips Generated

Trip generation was based on the ITE publication, Trip Generation, 6th Edition. The Elderly Housing - Attached (253) category was used to estimate the traffic being generated by the development during the peak hours of traffic. The trip generation rates for peak hour of adjacent street traffic were used. The following table summarizes the estimated trip generation.

Table 3
Pohukaina Senior Residential Development
Trip Generation Summary

Peak Period	In	Out	Total
Morning Peak Hour	9	5	14
Evening Peak Hour	12	8	20

The distribution of new trips generated by the Pohukaina Senior Residential Development was based on the existing directional split of traffic. Based on the parking lot layout, 20% of the traffic was assumed to utilize the west entrance and 80% was assumed to utilize the east entrance.

Year 2002 Traffic Volumes - With Pohukaina Development

Vehicle trips generated by the proposed Pohukaina Residential Development and the Year 2002 baseline traffic volumes were combined to estimate the Year 2002 Traffic Volumes with Pohukaina Development.

Year 2002 Intersection Operations With Pohukaina Development

The peak hour volumes in Figure 7 were analyzed using the 2000 Highway Capacity Manual methodologies for unsignalized and signalized intersections. The results of the analyses are shown in Table 2 on page 12 of this report. The level of service analysis indicates that the proposed elderly residential development will not significantly change the projected intersection level of service at the intersections evaluated. Project area intersections will continue to operate well with overall LOS C or better with only slight increases in delay over the baseline 2020 conditions.

d. Summary and Conclusions

Summary of Traffic Analysis

The existing year 2000, operations of the three study intersections are at Level-of-Service B or better during both the morning and afternoon peak traffic hours. All approaches operate with less than 15 seconds of delay per vehicle. The three study intersections are: Halekauwila Street/Keawe Street, Halekauwila Street/Coral Street, and Pohukaina Street/Keawe Street.

The projected Year 2020 intersection operations, both with and without the residential development, would continue to operate well, at overall LOS C or better.

Additionally, driveway access to the development is projected to operate at LOS B or better.

Traffic Impacts

Based on the traffic operations analyses, traffic impacts at the study intersections would be minimal. The estimated trips generated in the peak hours of traffic are 14 vehicles per hour (vph) during the a.m. peak hour and 20 vph during the p.m. peak hour. This represents an increase of approximately 8% of the existing traffic on Halekauwila Street.

Traffic operations on Halekauwila Street are not projected to be affected significantly by vehicles accessing the project site. Analyses indicate good levels-of-service at both driveways.

Recommendation and Conclusion

It is recommended to eliminate on-street, parallel parking on the makai-side of Halekauwila Street where the driveways from the proposed Pohukaina Senior Housing Development are to be located. It is estimated that 7 parking spaces would be affected. The elimination of the parking spaces would provide adequate sight distance for vehicle movements at the proposed driveways.

The proposed senior residential development is projected to have minimal traffic impacts on the adjacent intersections and the overall roadway system. No modifications of existing intersection configurations are needed.

6. Air Quality

B.D. Neal & Associates conducted an Air Quality Impact Assessment on the proposed project in July 2000 which was revised in October 2001. A summary from this report is provided below. The report can be found in its entirety in Appendix C. The study's findings, which were modeled for project completion in 2002, have been determined to be valid for the revised construction completion year of 2004.

a. Ambient Air Quality Standards

Ambient concentrations of air pollution are regulated by both national and state ambient air quality standards (AAQS). National AAQS are specified in Section 40, Part 50 of the Code of Federal Regulations (CFR), while State of Hawaii AAQS are defined in Chapter 11-59 of the Hawaii Administrative Rules. Table 1 summarizes both the national and the state AAQS that are specified in the cited documents. As indicated in the table, national and state AAQS have been established for particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and lead. The state has also set a standard for hydrogen sulfide.

The Hawaii AAQS are in some cases considerably more stringent than the comparable national AAQS. In particular, the Hawaii 1-hour AAQS for carbon monoxide is four times more stringent than the comparable national limit, and the state 1-hour limit for ozone is more than two times as stringent as the national 1-hour standard. The national 1-hour ozone standard will be phased out (pending court appeal) the next few years in favor of the new (and more stringent) 8-hour standard.

b. Regional and Local Climatology

Hawaii lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. On the island of Oahu, the Koolau and Waianae Mountain Ranges are oriented almost perpendicular to the trade winds, which accounts for much of the variation in the local climatology of the island. The Kakaako District, the site of the proposed project, is a highly urbanized district within the City of Honolulu. It is located in a coastal area leeward of the Koolau Mountains. Although large urban areas may create their own microclimates to some extent, long-term weather data available from the Honolulu International Airport, located about 4 miles to the northwest, is at least semi -representative of the project site.

c. Existing Air Quality Conditions

Present air quality in the project area is mostly affected by air pollutants from vehicular and industrial sources and to a lesser extent by distant natural and/or agricultural sources. Much of the particulate emissions on Oahu originate from area sources, such as the mineral products industry and agriculture. Sulfur oxides are emitted almost exclusively by point sources, such as power plants and refineries. Nitrogen oxides emissions emanate predominantly from industrial point sources, although area sources (mostly motor vehicle traffic) also contribute a significant share. The majority of carbon monoxide emissions occur from area sources (motor vehicle traffic), while hydrocarbons are emitted mainly from point sources. Based on previous emission inventories that have been reported for Oahu, it appears that emissions of particulate and nitrogen oxides have increased during the past ten years, while emissions of sulfur oxides, carbon monoxide and hydrocarbons have declined.

Roadways bordering the project site typically carry only light to moderate volumes of motor vehicle traffic. Heavier volumes of traffic often exist along Ala Moana Boulevard and Kapiolani Boulevard, which are located within a few blocks of the project site. Emissions from motor vehicles using these roadways, primarily nitrogen oxides and carbon monoxide, may affect air quality.

The nearest large industrial source of air pollution is the Honolulu Power Plant situated a few blocks to the west. Emissions from Honolulu Power Plant consist primarily of sulfur dioxide and nitrogen oxides from oil-burning generator units. Due to the prevailing wind pattern in the area, it is unlikely that emissions from Honolulu Power Plant significantly impact air quality in the project area.

Based on the data and discussion presented above and in Appendix C, it appears likely that the State of Hawaii AAQS for sulfur dioxide, nitrogen dioxide, particulate matter and lead are currently being met at the project site. It is ozone may be exceeded likely, however, that the state AAQS for on occasion based on the Sand Island measurements for this parameter. While carbon monoxide measurements at the downtown Honolulu monitoring station suggest that concentrations are within the state and national standards, local "hot spots" may exist near traffic-congested intersections. Maximum concentrations of existing carbon monoxide in the project area are investigated later in this report based on computer analyses.

d. Air Quality Impacts of Project

Short-term direct and indirect impacts on air quality could potentially occur during project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from soil excavation and vehicle movement; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term air quality impacts from the disruption of traffic on nearby roadways, from slow-moving construction equipment traveling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions may arise from the grading and dirt-moving activities associated with site preparation. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The U.S. EPA has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions from project construction would likely be somewhere near this level. In any case, State of Hawaii Air Pollution Control Regulations prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase should be prepared.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in active construction areas from becoming significant sources of dust. On days without rainfall, construction areas should be watered at least twice during the workday to help keep dust to a minimum. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials likely to give rise to airborne dust. Haul trucks tracking dirt onto paved streets from unpaved areas are oftentimes a significant source of dust in construction areas. Some means to alleviate this problem, such as tire washing, may be appropriate.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Indirectly, slow-moving construction vehicles on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions are increased. This impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity. Thus, most potential short-term air quality impacts from project construction can be mitigated.

After the period of construction, long-term impacts on air quality from motor vehicle exhausts can potentially occur at or near any project that attracts large volumes of motor vehicle traffic. Carbon monoxide emissions are usually the primary issue, and public areas near traffic-congested intersections are the main concern. Traffic associated with the proposed project will likely use the intersections of: Keawe Street at Pohukaina Street, Keawe

Street at Halekauwila Street and Halekauwila Street at Coral Street. The project traffic study indicates that existing peak-hour traffic volumes at these intersections are relatively low. Existing peak-hour approach volumes are all less than 1000 vehicles per hour. After the proposed project is completed, peak-hour traffic volumes are forecast to increase by less than 2 percent compared to the without-project scenario. Further, the traffic study found that all intersections in the vicinity of the project were found to have adequate existing level-of-service conditions and that level-of-service conditions will not be degraded by project traffic.

Based on extensive experience in assessing traffic-related air quality impacts, traffic volume increases of less than about 5 percent or about 100 vehicles per hour and traffic approach volumes of less than about 1000 vehicles per hour do not cause any significant impacts on air quality if adequate traffic level-of-service is provided. Considering the small net change in peak-hour traffic volumes that is predicted and the good level-of-service at nearby intersections that is forecast with or without the project, the proposed project should have no significant long-term impacts on maximum air pollution levels in the project area. Although a detailed air quality modeling study could be performed to predict project impacts, such an analysis is probably unwarranted. It is extremely unlikely that the added traffic associated with the proposed project will cause any significant detrimental impacts on air quality in the project area.

Short-Term Impacts Of Project

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term impacts related to slow-moving construction equipment traveling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is often a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions. Monitoring dust at the project property line could be considered to quantify and document the effectiveness of dust control measures.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Slow-moving construction vehicles traveling on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity. Thus, most potential short-term air quality impacts from project construction can be mitigated.

Long-Term Impacts Of Project

Roadway Traffic

After construction is completed, use of the proposed facilities will result in increased motor vehicle traffic on nearby roadways, potentially causing long-term impacts on ambient air quality in the project vicinity. Motor vehicles with gasoline powered engines are significant sources of carbon monoxide. They also emit nitrogen oxides and other contaminates.

To evaluate the potential long-term indirect ambient air quality impact of the roadway traffic associated with a project such as this, computerized emission and atmospheric dispersion models can be used to estimate ambient carbon monoxide concentrations along roadways leading to and from the project. Carbon monoxide is selected for modeling because it is both the most stable and the most abundant of the pollutants generated by motor vehicles. Furthermore, carbon monoxide air pollution is generally considered to be a microscale problem that can be addressed locally to some extent, whereas nitrogen oxides air pollution most often is a regional issue that cannot be addressed by a single new development.

For this project, three scenarios were selected for the carbon monoxide modeling study: (1) year 2001 with present conditions, (2) year 2020 without the project, and (3) year 2020 with the project. To begin the modeling study, critical receptor areas in the vicinity of the project were identified for analysis. Generally speaking, roadway intersections are the primary concern because of traffic congestion and because of the increase in vehicular emissions associated with traffic queuing. For this study, several of the same intersections identified by the project traffic engineers as being impacted by the project were selected for air quality analysis. These included the following five intersections:

- Coral Street at Halekauwila Street
- Keawe Street at Halekauwila Street
- Keawe Street at Pohukaina Street
- Project east driveway at Halekauwila Street
- Project west driveway at Halekauwila Street

Intersection configurations and traffic conditions at each of these locations are detailed in the traffic impact report for the project.

e. Conclusions And Recommendations

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at least twice daily on days without rainfall. Use of windscreens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

During construction phases, emissions from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides) will also occur both from on-site construction equipment and from vehicles used by construction workers and from trucks traveling to and from the project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

After the proposed project is completed, any long-term impacts on air quality in the project area due to emissions from project related motor vehicle traffic will be negligible. Worst-case concentrations of carbon monoxide should remain well within both the state and the national ambient air quality standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.

Quantitative estimates of the project's electrical and solid waste demands were not available, but given the project's nature and size, it can be anticipated that any related indirect impacts on air quality will be negligible.

7. Noise Environment

Y. Ebisu & Associates prepared a revised report titled *Acoustic Study for the Pohukaina Park Senior Assisted Living Facility Kakaako, Oahu* in September 2001. The report is summarized in the following section and is included in its entirety as Appendix D of this report. This study, which was modeled for project completion in year 2002, has been determined to remain valid for the revised construction completion year of 2004.

As stated by Y. Ebisu & Associates, future traffic noise levels at the subject facility will increase as traffic volumes increase along the streets surrounding the residential tower. However, if background traffic continues to increase at a 3 percent annual rate between years 2002 and 2004, traffic noise levels should not increase by more than 0.25 dB. This amount of increase in future traffic noise levels between 2002 and 2004 should not be significant or noticeable, and should not affect the findings of the noise study for the project.

a. Existing Acoustical Environment

The existing background ambient noise levels within the project area are controlled by traffic along Cooke, Pohukaina, Halekauwila, and Keawe Streets; by local traffic within the existing parking lot; and by interisland jet aircraft departures from Honolulu International Airport. Traffic, aircraft, and background ambient noise measurements were obtained at six locations in the project environs.

The loudest aircraft noise events were typically associated with departures by interisland jet aircraft. Occasionally, departures by the louder military jet aircraft (such as the F-15) were also audible and measurable. Aircraft noise events were typically louder than motor vehicles, and were audible over longer periods than other noise events. Nevertheless, aircraft noise levels at the project site do not exceed 60 Ldn, which is the level above which the Hawaii State Department of Transportation, Airports Division, considers to be unacceptable for residences.

The existing traffic noise levels in the project environs along Cooke Street are in the "Significant Exposure, Normally Unacceptable" category and greater than 65 Ldn within 50 feet of the roadway's centerline. Along Halekauwila, Pohukaina, and Keawe Streets, existing traffic noise levels are in the "Moderate Exposure, Acceptable" category at 50 feet or greater distance from the roadways' centerlines.

Results of calculations of existing (CY 2000) traffic noise levels at the future residential tower building (Location B3) on the project site are shown in Figure 10 and Table 4. The results of the calculations are shown for ground level receptors without noise shielding effects from the proposed tower building. As indicated in Table 4, the existing noise levels over the project site are higher near Halekauwila Street (as depicted by Location B1), and are lower near the proposed residential tower (as depicted by Location B3). Existing traffic and aircraft noise levels, singly and in combination, do not exceed 65 Ldn, and existing noise levels are considered to be "Acceptable" for residences by FHA/HUD and other federal agencies.

b. Future Noise Environment

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 6 for CY 2002 and CY 2020 with and without the proposed project. The future projections of project plus non-project traffic noise levels on the roadways which would service the project are shown in Table 4 for the PM peak hour of traffic, under the Build Alternative. The corresponding non-project traffic noise contributions for the No Build Alternative are also shown in the table. Essentially no changes in traffic noise levels are expected in the project environs between CY 2000 and 2002, with or without the project. With the construction of the proposed residential tower building, traffic noise levels along the southwest face of the tower building should decrease slightly due to the shielding of the traffic noise contributions from Halekauwila Street and other streets to the northeast. By CY 2020, traffic noise levels in the project area are expected to increase by 2 to 3 dB due to the anticipated growth in non-project traffic. Except for noise shielding effects from the project's tower building, future traffic noise levels should be identical with or without the proposed housing project.

The dominant traffic noise source in the project area will continue to be traffic noise from Halekauwila, Cooke, and Pohukaina Streets, but the changes in traffic noise levels following project build-out are not expected to be significant. Tables 4 and 5 show the predicted future traffic noise levels at the mauka and makai faces of the proposed tower building on the project site following project build-out in CY 2002 as well as in CY 2020 for elevated (above the 4th floor) receptors. The beneficial effects of shielding from the proposed high-rise structure, as well as the additive noise contributions from the adjoining streets, are included in the sound level predictions shown in Table 4. As indicated in the table, the elevated residential units in the tower building are expected to be exposed to traffic noise levels less than 65 Ldn, and are expected to be in the "Acceptable" noise exposure category in respect to the FHA/HUD noise standard for residences.

Aircraft noise levels over the project site should not change significantly between CY 2000 and 2002, and should remain at or below the current levels of 56 to 57 Ldn. Over the longer period beyond CY 2002, aircraft noise levels over the project site are expected to decrease by 2 to 3 Ldn with the anticipated replacement of Hawaiian Airlines' current DC-9(50) aircraft with new B-717(200) aircraft. With or without the replacement of its aircraft by Hawaiian Airlines, total (aircraft plus traffic) noise levels over the project site should not exceed 65 Ldn.

c. Discussion of Project-Related Noise and Vibration Impacts and Possible Mitigation Measures

Traffic Noise. For the residential units in the proposed residential tower building, traffic noise mitigation measures should not be required for traffic noise projected through CY 2020. Noise impacts from project related traffic along the surrounding roadways which are expected to service the project are not expected due to the very low levels of traffic noise associated with project traffic.

General Construction Noise. Audible construction noise will probably be unavoidable during the entire project construction period. The total time period for construction is approximately 1.5 years and it is anticipated that the actual work will be moving from one location on the project site to another during that period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project.

The business offices, produce business, and elderly housing facility across Halekauwila Street are predicted to experience the highest noise levels during construction activities due to their close proximity to the construction site. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work, the business/commercial character of the neighborhood, and due to the administrative controls available for regulation of construction noise. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project site.

Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources (80 to 90+ dB at 50 FT distance), and due to the exterior nature of the work (pile driving, grading and earth moving, trenching, concrete pouring, hammering, etc.). The use of properly muffled construction equipment should be required on the job site.

Severe noise impacts are not expected to occur inside air-conditioned structures which are within 70 to 450 FT of the project construction site. Inside naturally ventilated structures, interior noise levels (with windows or doors opened) are estimated to range between 55 to 73 dBA at 70 FT to 450 FT distances from the construction site. Closure of all doors and windows facing the construction site would generally reduce interior noise levels by an additional 5 to 10 dBA.

The incorporation of State Department of Health construction noise limits and curfew times, which are applicable throughout the State of Hawaii, is another noise mitigation measure which is normally applied to construction activities. Noisy construction activities are not allowed on Sundays and holidays, during the early morning, and during the late evening and nighttime periods under the DOH permit procedures.

<u>Vibration from Pile Driving</u>. Pile driving will probably be necessary to implant piles into the ground over the project site. Impact driven concrete and sheet piles may both be used on the project site. Induced ground vibrations from the pile driving operations have the potential to cause architectural and structural damage to structures.

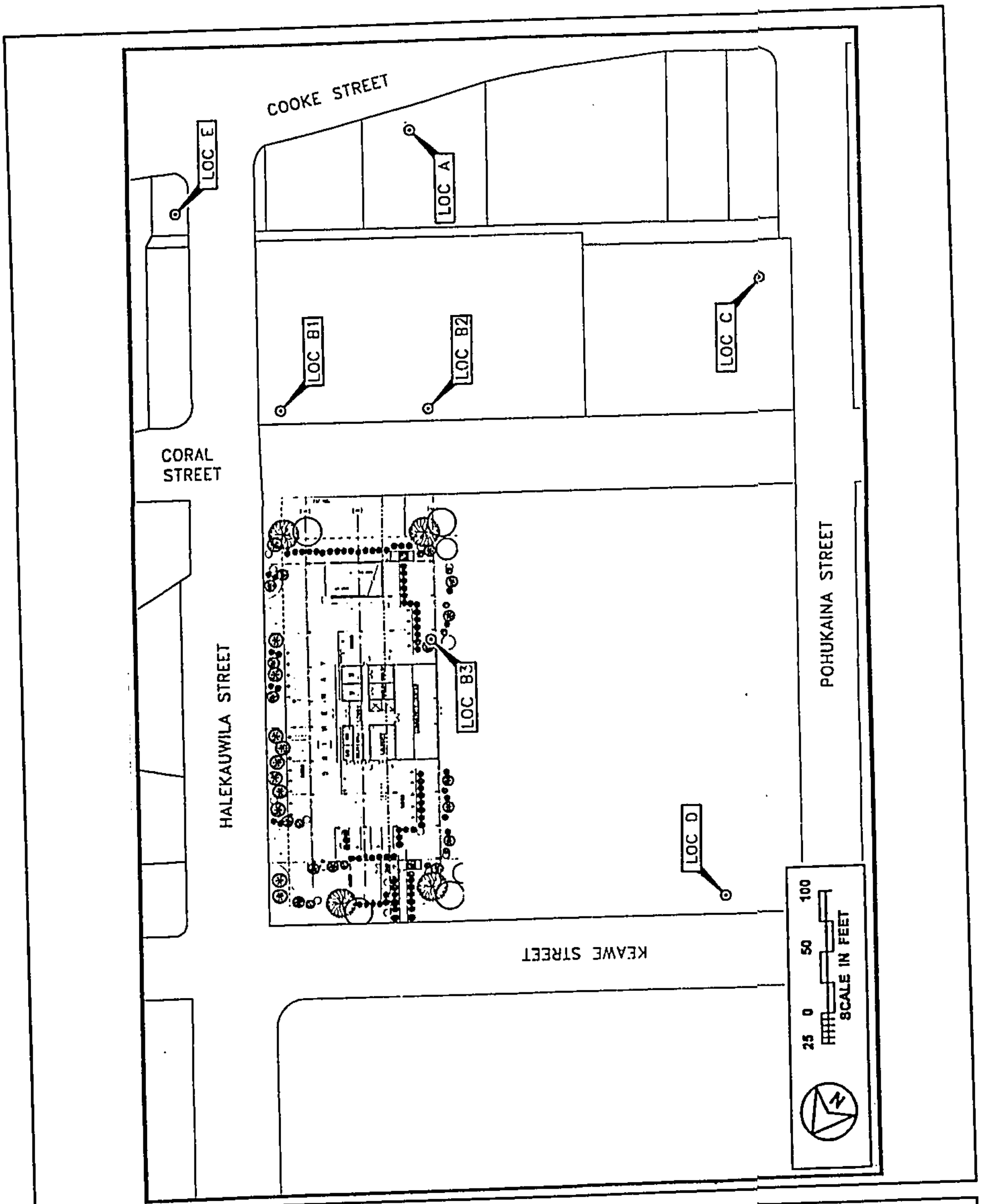


Figure 10: Project Site and Noise Measurement Locations Map
Source: Y. Ebisu & Associates

TABLE 4

EXISTING AND FUTURE TRAFFIC NOISE LEVELS
(VARIOUS ELEVATIONS, PM PEAK HOUR)

RECEPTOR LOCATION	SETBACK DIST. FROM EXIST. C/L	RECEPTOR ELEVATION	EXISTING (CY 2000) Leq or Ldn	FUTURE (CY 2002) LEVELS NO BUILD Leq or Ldn	BUILD Leq or Ldn
Location A	50 FT from Cooke St.	5 FT Above Ground	66	66	66
Location B1	50 FT from Halekauwila	5 FT Above Ground	62	62	62
Location B2	168 FT from Halekauwila	5 FT Above Ground	55	56	55
Location B3	159 FT from Halekauwila	5 FT Above Ground	55	55	N/A
Tower NE Wall	108 FT from Halekauwila	45 FT Above Ground	N/A	62	61
Tower NE Wall	108 FT from Halekauwila	95 FT Above Ground	N/A	62	61
Tower NE Wall	108 FT from Halekauwila	135 FT Above Ground	N/A	62	61
Tower SW Wall	168 FT from Halekauwila	45 FT Above Ground	N/A	61	56
Tower SW Wall	168 FT from Halekauwila	95 FT Above Ground	N/A	61	58
Tower SW Wall	168 FT from Halekauwila	135 FT Above Ground	N/A	61	59

TABLE 5

EXISTING AND 2020 TRAFFIC NOISE LEVELS (VARIOUS ELEVATIONS, PM PEAK HOUR)

RECEPTOR LOCATION	SETBACK DIST. FROM EXIST. C/L	RECEPTOR ELEVATION	EXISTING (CY 2000) Leq or Ldn	FUTURE (CY 2020) LEVELS NO BUILD Leq or Ldn	BUILD Leq or Ldn
Location A	50 FT from Cooke St.	5 FT Above Ground	66	67	67
Location B1	50 FT from Halekauwila	5 FT Above Ground	62	65	65
Location B2	168 FT from Halekauwila	5 FT Above Ground	55	58	57
Location B3	159 FT from Halekauwila	5 FT Above Ground	55	57	N/A
Tower NE Wall	108 FT from Halekauwila	45 FT Above Ground	N/A	64	64
Tower NE Wall	108 FT from Halekauwila	95 FT Above Ground	N/A	64	63
Tower NE Wall	108 FT from Halekauwila	135 FT Above Ground	N/A	64	64
Tower SW Wall	168 FT from Halekauwila	45 FT Above Ground	N/A	63	58
Tower SW Wall	168 FT from Halekauwila	95 FT Above Ground	N/A	63	60
Tower SW Wall	168 FT from Halekauwila	135 FT Above Ground	N/A	63	61

The following preventative measures are recommended for implementation during the planning and design phases of the project:

In addition to the normal planning and design concerns regarding potential damage due to settling and heaving during construction, consideration should also be given to risks of damage due to vibration from pile driving. A damage criteria of 0.2 inches/second should be used in conjunction with the vibration prediction method of Reference 7 to identify the potential damage risk distances to the driven piles.

If predicted vibration levels from pile driving exceed 0.2 inches/second at a building, and predicted levels cannot be reduced by sizing of the pile driver, test piles should be driven and their vibrations monitored and recorded prior to completion of the foundation design. The monitoring of the test piles should be designed to measure the expected peak, 3-axis vibration levels at the building. The results of the monitoring should be used to define empirical distance from the driven pile to the 0.2 inches/second damage risk location, and to evaluate the risks of structural damage to the adjacent structure during actual construction.

If predicted vibration levels from pile driving exceed 2.0 inches/second at a building, the use of alternate types of piles or shoring should be considered for implementation during the design phase.

Playground Noise. A new elementary school is planned to be constructed approximately 30 feet from the location of the project tower, and within the area between the project tower and Pohukaina Street. Distances between the project's residents and the planned playground areas range from 50 to 200 feet. Measured noise levels during recess and play periods at Waialae Elementary School were used for modeling purposes of this study. Distances to the children during the measurement periods ranged from 50 feet to 90 feet. Noise levels during activities in the playground and playcourt areas will typically exceed 70 dBA at 50 feet, and can approach 90 dBA during shouting. Screams can exceed 100 dBA.

Potential noise impacts from student activities within the school playground and playcourt areas are possible due to the relatively high noise levels normally associated with these types of activities. The location of playground equipment and playcourts as far from the project living units as possible is a noise mitigation measure which should be considered. Increasing the distance between the living units and the playing areas from 50 feet to 200 feet will reduce the noise levels at the living units by approximately 12 dBA, which is a significant reduction. If increasing the buffer distances between the outdoor play areas and the living units is not possible, closure and air conditioning of the living units will be the only remaining noise mitigation measure possible.

8. Biological Characteristics

Flora

The project lot is presently covered with asphalt paving. Seven monkey pod trees remain on-site along the perimeter of the lot. A particularly large specimen is located along the Keawe Street boundary. No rare or endangered species of flora were identified on the site. It is presently unknown whether any or all of the trees must be removed or relocated. Impact to the trees will be determined by the selected RFP proposal for the site. The RFP developer will be encouraged to retain or relocate the existing trees to a site approved by HCDCH, if feasible.

Fauna

The site does not serve as a wildlife habitat although avifauna, feral cats, dogs and rodents may be found on-site.

9. Infrastructure and Utilities

The proposed improvements are readily serviced by existing utilities located in the immediate vicinity. All utilities are presently located underground largely through the Kakaako district improvements that were recently completed.

Water

The project will continue to be serviced by the existing water system that the Board of Water Supply has determined to be adequate to accommodate the proposed project. Use of this service will increase significantly from current levels as a result of the project but can be readily accommodated by the existing water system. The Department of Land and Natural Resources has also indicated that water allocation is available for the project. Water conservation efforts are likely to be implemented by the project operator upon completion.

Stormwater

The site is presently naturally drained. The proposed project will be required to control drainage according to prevailing drainage regulations. Stormwater lines in the area were installed in 1990-1991 and are adequate to service the project site. All storm water runoff from the proposed improvements will be reviewed for conformance with City and County of Honolulu Ordinance 96-34 regarding peak runoff.

Wastewater

The Department of Planning and Permitting has determined that the municipal sewer system is adequate to accommodate the proposed project.

Solid Waste

It is expected that private refuse collection service will be used to service the project location. The project operator may implement recycling programs upon project completion. The Department of Health has indicated that recycled paving material should be used if available at acceptable prices and that solid waste generated during the project's construction should be directed to a permitted solid waste disposal, processing or recycling facility.

Telephone and Electrical Services

Telephone and electrical services are available to the site. Coordination with the local electric and telephone service providers will be expected during the design and construction phases.

10. Public Facilities

The proposed project is not expected to have any impact on any existing public facilities including schools, parks, police, and fire or emergency medical services. Accommodation for a future inner city public elementary school as part of the project block has been evaluated as part of a master plan effort by HCDA. In consultation with the Department of Education (DOE), it was determined that the conceptual design for this project can co-exist with the DOE space requirements for an "inner city" public elementary school. The DOE has indicated that the Department may have interest in the closure of Keawe Street to facilitate the future school design. This action would not have any impact on the HCDCH project.

The location of a school site adjacent to the proposed project is considered acceptable by the HCDCH. Within the highly urban Kakaako community, school, park and senior housing uses are all considered high priority items and do not require the exclusion of other uses to maintain viability of the project block. School use adjacent to the project site will result in significantly higher levels of activity including traffic, noise and use of park space in the general vicinity. The proposed housing project will remain secured from the school site and housing residents are not likely to access the school site nor is it likely that students will enter the housing site. School related noise, particularly during recesses or after school may intrude onto the housing site however design of the housing structure has not been selected. Noise attenuation measures, including air conditioning may be provided by the developer to mitigate noise intrusion.

The proposed project is also adjacent to the Mother Waldron Park, which is listed in the Hawaii Register of Historic Places. The proposed project will not have any physical impact on the park site. Residents of the project may use the site slightly increasing park activity. The project is also located next to a possible future elementary school site. The school was included in a conceptual planning process in 1998 but no commitments to the development of the school have been made. The Department of Education has indicated that it has no objections to the proposed senior housing project based on conceptual school schemes prepared for the makai portion of the block.

Kakaako Fire Station Number 9 provides fire protection service to the project area as well as emergency medical service. The station is located at 555 Queen Street and is located two blocks from the project site. Response time to the park is less than 5 minutes.

Police service is provided by the Honolulu Police Department (HPD) Beats Number 167 and 168. The project block currently houses a trailer used by beat officers as an informal substation used for report writing and communications. Response time to the site is less than 5 minutes.

Public transportation by TheBus is available along Queen Street, approximately 500-feet from the project site along either Keawe Street or Coral Street. Bus stops are located both mauka and makai of Queen Street near the Queen Street/Emily Street intersection. These stops are located along Route 6 – Pauoa Valley/UH Woodlawn. The Department of Transportation Services has noted that in the vicinity of the subject project, the alignment for the Kakaako/Waikiki branch of the proposed Primary Corridor Transportation Project Bus Rapid Transit Alternative would be located on Pohukaina Street. The nearest transit stop is envisioned to be on Pohukaina Street near Cooke Street.

E. Relationship to Plans, Codes and Ordinances

The project site is located within the Kakaako Community Development District (KCDD) Mauka Area administrated by the Hawaii Community Development Authority (HCDA). The KCDD Mauka Area Plan is part of the Hawaii Administrative Rule Title 15, Department of Business, Economic Development & Tourism: Subtitle 4, Hawaii Community Development Authority, Chapter 22, Mauka Area.

A Final Environmental Impact Statement for the Mauka Area Plan was accepted in June 1983. Under this master FEIS, impacts relating to the implementation of the Mauka Area Plan and associated rules were assessed in accordance with Chapter 343, Hawaii Revised Statutes. This FEIS document serves as the principal disclosure and impact assessment document for KCDD Mauka Area

Plan. The intent of the Final EA for the Pohukaina Assisted Elderly Housing project is to assess impacts that will result from the proposed rezoning action.

Under the KCDD Mauka Area Plan, the project site is identified as Public with surrounding Park and Residential uses (Fig. 10). It is the intent of the proposing agency to rezone the project parcel for Residential Use with the HCDA Board.

The proposed zoning change will result in a decrease in Public zoned lands based on the current inventory of State owned lands. While the Public zoning of the parcel was intended to accommodate a school site, site feasibility studies reviewed by the Department of Education indicate that the proposed residential use can also be accommodated within the Public zoned area. The proposed school is likely to be developed as an "inner city" public elementary school that accommodates multi-level classroom buildings.

The State Land Use Commission Boundary Maps identify the project site as being within the Urban area. This is consistent with the surrounding uses that include commercial uses and high-density residential development.

F. Probable Impact on the Environment

The proposed project represents a significant change from its current and former uses. The project is consistent with surrounding land uses and the intent of the prevailing KCDD Mauka Area Plan. Impacts associated with the proposed project have generally been determined to be negligible. Views will be impacted as a result of the new facility but should be considered in the context that any development of the site will result in the loss of open space. Some loss of parking will be experienced with the development of the project. This is to be expected since public parking use was not the long-term intended use for the lot.

When viewed in the cumulative with the other components proposed for the project block, impacts to the environment will be more significant. In addition to significantly higher urban density resulting from the build out of all components, traffic and noise impacts will rise significantly over the no-action alternative. These cumulative impacts are largely due to the intensive level of activity that are typically associated with school use. Traffic conditions will increase significantly as described in the Traffic section of this report. Noise impacts will also significantly rise and may require some form of mitigation, such as air conditioning, by the housing component of the master plan to keep sound levels within an acceptable level.

As previously stated these impacts are typical and unavoidable from school use. The Department of Education has determined that a school will be necessary within the project area to accommodate existing and future demand for an elementary school. The Housing and Community Development Corporation of

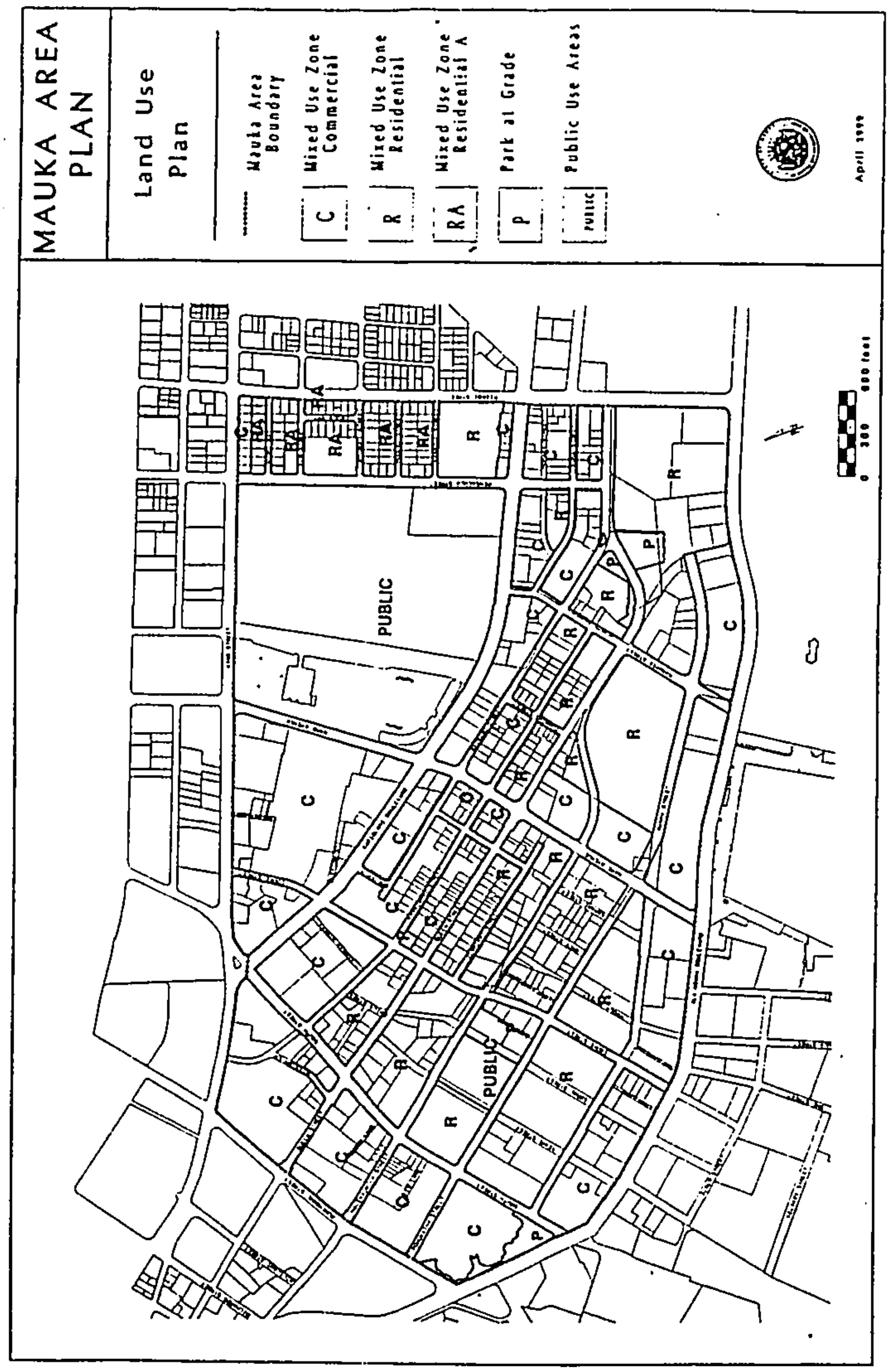


Figure 11: Land Use Plan Map
Source: HCDA Mauka Area Plan

Hawaii has also determined that need for senior housing in this highly urban environment. Both components are necessary and expected uses within this highly urban environment. Community park use is also a highly sought use that is considered a necessity within the urban Kakaako area. Finally, the Department of Land and Natural Resources has indicated that the remaining structures from the original Mother Waldron Park are historically significant and must be preserved.

All are essential elements that compete for a very important central parcel in central Kakaako. The parcel is also the only publicly owned (State of Hawaii) land available within the project vicinity which compels all competing uses to accommodate each other. The proposed master plan represents the best compromise that allows all uses to remain with the least amount of impact to the environment. Cumulatively, implementation of all components will result in greater impact. These impacts, as addressed in the specific sections of this report, are considered acceptable, especially when viewed with respect to the overall benefit provided by their implementation.

Positive environmental impacts are expected as a result of the additional assisted living residential inventory. An increase in community activity may be expected as a result of the new residents.

The school will alleviate over-crowding at Royal and Kaahumanu Elementary Schools and will provide an important public function to the rapidly growing Kakaako district.

The active park use already exist with a basketball court but the proposed improvements will provide greater accessibility and will allow increased utilization of the park facilities all while maintaining the integrity of the historic park structures.

Based on the information available at the time of this study, the collective implementation of all site components will result in significantly positive overall impacts that offset negative environmental impacts. Implementation of any single component will also yield community improvements however the specific impacts of the school and park components are beyond the scope of this study and are likely to be addressed in their own environmental reports as their planning progresses.

G. Adverse Impacts Which Cannot be Avoided

Adverse impacts that cannot be avoided are generally related to short-term construction impacts. These impacts can be minimized by sound construction practices, Best Management Practices (BMPs) adherence to applicable construction regulations as prescribed by the Department of Health, and coordination with applicable County agencies. Primary construction related impacts are discussed in greater detail in the Noise Environment and Air Quality Study appendices.

Archaeological artifacts have been uncovered in the project vicinity. Consultation with the Department of Land and Natural Resources State Historic Preservation Division concludes that an archaeological inventory survey with subsurface testing should be conducted prior to the commencement of construction. This survey will be placed as a requirement in the Request for Proposal (RFP) that is being prepared for the project. The RFP will inform proposers that findings from the survey are to be submitted to the State Historic Preservation Division for review and approval.

Increases in traffic and air and noise pollution will occur as is expected of any development of this nature. When viewed in respect to the senior housing project component only, these impacts are relatively small and do not have significant impact on the surrounding environment. When viewed cumulatively with the build out of the elementary school and park improvements, these impacts are more significant but will remain within acceptable levels, particularly with the offsetting benefits obtained by these important public uses.

It should be noted that while a master plan has been developed for the project block, cumulative impacts resulting from the implementation of all components can only be evaluated effectively with a concrete timetable and a verified program. This report is dependant upon the planning assumptions that were used in the master plan report which did not contain definitive buildout schedules. As the first component of the master plan to implemented, the subject elderly housing project can only address with any certainty the impacts that result from its direct action. Future components, when further planned and developed, will provide better measures of the cumulative impacts resulting from the full buildout of the project block. This will also apply to any future development within the project area outside of the project site.

H. Alternatives to the Proposed Action

No other use alternatives beyond the non-action alternative were considered for this project. Non-action was considered and rejected since no benefit to the community would be provided.

Within the scope of proposed improvements, alternative density configurations were considered however an optimal high-density scheme was selected to serve as the basis of impact assessment. Commercial space was not deemed consistent with HCDCH's primary objectives however the inclusion of a commercial component within the project may be considered within the RFP process.

Alternative locations were not considered because no other suitable State owned lands in the vicinity are available. Privately owned lands in the project area could accommodate the proposed project however acquisition costs would be prohibitive and would be counterproductive to the RFP process.

Open space, while also beneficial to the community, does not represent a highest and best use of the project lot. Future school use of the project site would provide greater flexibility in the school design but would be gained at the expense of senior housing inventory which does not increase demand for school facilities.

I. Mitigation Measures

Long-term impacts resulting from the proposed improvements are expected to be minimal or non-existent based upon the subject environmental assessment. Long-term traffic, air and noise impacts are not expected to change significantly after improvements are completed. Short-term construction related noise and air quality impact mitigation measures include general good housekeeping practices and scheduled maintenance to avoid a prolonged construction period. The contractor will be directed to use best management practices (BMP) wherever applicable.

J. Irreversible and Irretrievable Commitment of Resources

Implementation of the proposed project will result in the irreversible and irretrievable commitment of resources in the use of non-recyclable energy expenditure and labor. Materials used for new construction may have salvage value; however, it is unlikely that such efforts will be cost-effective. The expenditure of these resources is offset by gains in construction-related wages, increased tax base and tertiary spending.

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IV. NECESSARY PERMITS AND APPROVALS

Permits and approvals that may be required are contingent upon the actual design of the proposed project. The project will seek a change of zone which is a discretionary approval issued by the Hawaii Community Development Authority (HCDA). All other permits and approvals are generally ministerial in nature. Permits listed below represent a general list that represents permits and approvals that may or may not be required depending on the selected RFP proposal.

State Agencies

Permit or Approval	Approving Agency
Public to MUZ-R Zoning	HCDA
Kakaako Community Development District Permit	HCDA
National Pollutant Discharge Elimination System (NPDES) Permit	Dept. of Health

County Agencies

Permit or Approval	Approving Agency
Building Permits	Dept. of Planning and Permitting
Certificate of Occupancy	Dept. of Planning and Permitting
Construction Dewatering Permit	Dept. of Environmental Services
Grading and Stockpiling Permits	Dept. of Environmental Services
Sewer Connection Permit	Dept. of Environmental Services

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V. FINDNGS AND REASONS SUPPORTING DETERMINATION OF FINDING OF NO SIGNIFICANT IMPACT

As stated in Section 11-200-12, EIS Rules, Significance Criteria: in determining whether an action may have a significant effort on the environment, every phase of a proposed action shall be considered. The expected consequences of an action, both primary and secondary, and the cumulative as well as the short-term and long-term effects must be assessed in determining if an action shall have significant effect on the environment. Each of the significance criteria is listed below and is followed by the means of compliance or conflict (if extant).

- Involves an irrevocable commitment to the loss or destruction of any natural or cultural resource.

The proposed action will occur on an existing developed site and will not impact any topographical resources other than the removal or relocation of some existing trees. Subsurface archaeological artifacts are a possibility; therefore, an archaeological inventory survey will be conducted prior to commencement of construction. In the event that any archaeological remains are uncovered during the course of construction, all work will stop and the State Historic Preservation Office will be contacted for appropriate action.

The adjacent Mother Waldron Park is considered a historic site; however, none of the structures will be demolished or impacted by the proposed project.

- Curtails the range of beneficial uses of the environment.

The proposed use will result in a significant change from its existing and former uses but represents an appropriate use that will benefit the public and will be environmentally consistent with the surrounding urban area. Beneficial uses of the environment will be expanded by the proposed project by providing needed housing inventory is in a convenient urban location in central Honolulu. Recreational uses on the adjacent Mother Waldron Park will not be affected. The existing parking lot located makai of the project site is under consideration by the Department of Education (DOE) for an elementary school. Site studies conducted for the Housing and Community Development Corporation of Hawaii (HCDCH) and the DOE indicate that the adequate space remains for future school use. This was acknowledged by the DOE.

- Conflicts with the State's long-term goals or guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.

The proposed action is consistent with the goals and guidelines expressed in Chapter 344, Hawaii Revised Statutes and NEPA. The proposed action is triggered by the use of State lands and funds. The subject Environmental Assessment has been developed in compliance with the Chapter 343.

- Substantially affects the economic or social welfare of the community or state.

The proposed action will make a positive contribution to the welfare and economy of the State and City by providing desirable and needed senior assisted living housing to the State of Hawaii. The proposed use will eliminate the existing temporary daily parking use for a long-term use. The facility will also contribute positively to the community through the use of goods and services in the area, through construction related employment, and through secondary and tertiary spending and taxes.

- Substantially affects public health.

The proposed improvements are not expected to have any direct impact on public health but will provide housing for a special needs population. The provision of assisted living residences will benefit the State's senior population. No recreational resources will be impacted by the project, nor will the project increase any undesirable environmental impacts.

- Involves substantial or adverse secondary impacts, such as population changes or effects on public facilities.

The proposed action will increase the population within the community and will increase the demand for public facilities. These impacts are consistent with residential development of this nature and are not considered adverse impacts. The change in population and demand for public facilities will be readily met by existing infrastructure and services.

- Involves a substantial degradation of environmental quality.

The proposed action will not degrade environmental quality. Impacts associated with the project, such as traffic impact and air and noise quality have been assessed to be minimal. The project is located in a highly urban environment that is expected to be heavily developed in the future. In that respect, the project is consistent with the overall land use of the district.

- Is individually limited but cumulatively has a considerable effect upon the environment or involves a commitment for larger actions.

The proposed action is not a first phase of, or related to, any larger action. The cumulative effect of the project is disclosed in this document (and associated figures and charts) and does not involve any planned future actions that will cumulatively impact the environment. Other actions planned in the vicinity include an elementary school and park improvements; however, these actions are not part of the subject action and no timeframes or commitments have been provided to these possible future improvements.

- Substantially affects rare, threatened or endangered species, or their habitats.

The proposed action will not affect any rare, threatened or endangered species of flora or fauna, nor is it known to be near or adjacent to any know wildlife sanctuaries.

- Detrimentally affect air or water quality or ambient noise levels.

The proposed action will not impact air or water quality. Noise levels will change from those of an open-air parking lot to a senior residential structure.

Minimal impacts on air quality and noise are anticipated during construction, but will be limited by normal construction practices and Department of Health construction mitigation standards.

- Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach erosion prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project will not have any impact on an environmentally sensitive area.

- Substantially affects scenic vistas and viewplanes identified in County or State plans or studies.

The proposed action will not affect any scenic vistas or viewplanes. The project is located in a highly urban environment and is not located on a Kakaako Community Development District Mauka Area Plan view corridor street.

- Require substantial energy consumption.

The project will increase electrical energy consumption over the existing use. This increase will be consistent with residential use and will be typical of any high-density urban use. The RFP developer will be encouraged to consider the energy conservation guidelines suggested by DBEDT in a letter dated May 4, 2000. These general conservation goals include: meeting State energy conservation goals, using energy saving design practices and technologies, and recycling and using recycled-content products.

Based on the above stated criteria, the proposed senior housing facility will not have a significant effect on the environment. As such, a Finding of No

Significant Impact (FONSI) has been determined for the project by the Housing and Community Development Corporation of Hawaii.

VI. LIST OF PARTIES CONSULTED PRIOR TO DEVELOPMENT OF THE DRAFT ENVIRONMENTAL ASSESSMENT AND COMMENTS RECEIVED

Agencies with ministerial or specific interests regarding the proposed project were contacted for their early comments regarding the proposed project. Parties contacted are listed below.

Federal Agencies

US Environmental Protection Agency
  Region IX Administrator

State Agencies

Department of Accounting and General Services
Department of Business Economic Development & Tourism
Department of Business Economic Development & Tourism
  Energy, Resources & Technology Division
Department of Defense
Department of Education
Department of Hawaiian Home Lands
Department of Health
Department of Land and Natural Resources
Department of Land and Natural Resources
  State Historic Preservation Officer
Department of Transportation
Executive Office on Aging
Hawaii Community Development Authority
Office of Hawaiian Affairs
Office of Planning
University of Hawaii at Manoa
  Environmental Center

County Agencies

Board of Water Supply
Department of Community and Social Services
Department of Parks and Recreation
Department of Transportation Services
Fire Department
Police Department

Officials and Organizations

American Lung Association
Councilman Jon Yoshimura
Hawaiian Electric Company
Kakaako Improvement Association
Neighborhood Board No. 11
Representative Kenneth Hiraki
Senator Rod Tam

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

May 18, 2000

Mr. Taeyong M. Kim, Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Your Transmittal of April 19, 2000 Requesting Pre-Assessment Comments for the Preparation of the Draft Environmental <u>Assessment for the Pohukaina Assisted Elderly Housing Project</u>

Thank you for the opportunity to review and provide comments on the Pohukaina Assisted Elderly Housing project.

We have the following comments to offer:

1. There is an existing 3-inch compound water meter currently serving the proposed project area.

2. The existing water system is presently adequate to accommodate the proposed elderly housing project.

3. The applicant will be required to obtain a water allocation from the Department of Land and Natural Resources. After the remaining State water credits are committed, the applicant will be required to pay our Water System Facilities Charges (WSFC) for resource development.

4. The availability of water will be confirmed when the building permit application is submitted for our review and approval. When water is made available, the applicant will be required to pay our WSFC for transmission and daily storage.

5. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.

6. The proposed project is subject to Board of Water Supply cross-connection control requirements prior to the issuance of the building permit application.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 527-5311 • FAX: (808) 527-5498 • INTERNET: www.co.honolulu.hi.us

FAXED 5-11-00

JEREMY HARRIS
MAYOR

ANDREA MADRID SHAW
DIRECTOR

MANUEL T. VALBUENA
DEPUTY DIRECTOR

May 10, 2000

Ms. Taeyong M. Kim, Principal Planner
Environmental Communications, Inc.
Post Office Box 536
Honolulu, Hawaii 96809

Dear Ms. Kim:

Thank you for requesting the Elderly Affairs Division, Department of Community Services of the City and County of Honolulu to review and comment on the proposed project, Pohukaina Assisted Elderly Housing by the State of Hawaii's Housing and Community Development Corporation of Hawaii (HCDCH).

We concur that projects of this type are needed in the City and County of Honolulu. In addition to the more than 1,750 elderly currently on state and county housing wait lists on the island of Oahu, over the next 5 years it is anticipated that 2,000 of the 3,274 existing Section 8 units statewide may be converted to market rate housing units as their Section 8 rental agreements with the federal government expire. We strongly support that a major portion, if not all of this project, be reserved for these low-income individuals as the Ala Moana-Kakaako District is one of the 12 communities with large numbers of low-income seniors. Poverty rates are generally higher for women, over 75, who live alone.

Additionally, the 60 and over population is the fastest growing population segment in the nation. From 2000 to 2010 we expect to see our state's overall senior population rise by 31%. Seniors in the state of Hawaii also enjoy the longest life expectancy of any seniors in the United States, 6 years longer than seniors in the rest of the nation. This segment of our senior population, those 85 and older, will see the most dramatic increases in numbers, more than 75% during that same 10 year period.

We strongly concur with HCDCH's desire to have the developer provide either assisted living and/or healthcare support services on site. Disability increases with age. While only 5% of those 60 and older have a mobility and self-care limitation, almost 12% of those 75 and older and 22% of those 85 and older have such limitations. This makes the need for support and assisted living services much more critical as our seniors age.

This particular site is appropriate for the development of elderly housing because of its close proximity to the city center and existing healthcare services for the elderly such as doctor's offices, area hospitals and long-term care facilities. Convenient shopping and bus lines are within walking distance. As re-development of the Kakaako District continues, even more facilities should become available to service their needs.

While it is probably premature, we would like to make some "senior friendly" suggestions concerning the design which we hope you pass on as information in the Request for Proposals.

All areas should be handicap accessible as well as adaptable, not just those areas specifically designated as units built to comply with the Americans with Disability Act (ADA) requirements. With the current focus that public health services be provided in non-institutional settings, seniors are being encouraged to remain at home for as long a practicable. As they grow older, it can be reasonably anticipated that most of the seniors occupying the project will have mobility or vision impairments at some time during their residency.

We recommend that consideration be given to:

1. Flooring

   As seniors become older they may find it more difficult to lift their feet or to maintain balance. Irregularly surfaced carpet in both private as well as common areas, such as Berber, or floor tiles, such as Sautillo, may cause seniors to trip and/or fall which can lead to broken bones.

2. Lighting

   As seniors loose visual acuity, small differences, such as the labeling of floors or doors, becomes critical to their ability to remain independent. Contrast is very important, as is size and shape of lettering. Glare and low or uneven lighting are also problematic with increasing age.

3. Adaptability

   Residential Units

   While there are specific requirements as to the number of units that will require ADA accessability, we recommend that all units in your project be adaptable. It makes sense to take the time in the design of the project and to spend what will amount to a few extra dollars in the construction in order to provide adaptability in the future. Items to be considered should include blocking in bathroom walls adjacent to tubs and toilets which allow the future installation of grab bars (or install grab bars to begin with); higher toilets which aid in the ability of the senior to transfer from a wheelchair, and help those who have difficulty raising themselves from a sitting position; adequate clearance for wheelchairs in doorways, bathrooms, and kitchens; thresholds through doorways and to areas such as lanais or porches that allow easy walker and wheelchair access (often, those in wheelchairs have difficulty getting the chair over a threshold even though that threshold meets ADA requirements); height of appliances, cabinets, counters, mirrors, switches, and outlets adjusted for limited range of motion; adequate counter space to allow for transfer of dishes and cooking utensils from appliances; elimination of controls on appliances which require a senior to reach over a flame or burner; adjustability of cabinet shelves; use of lever-action closures for doors and cabinets; use of rocker wall switches; and ease of use of things such as window latches, drapery and blind closures.

Common Areas

For common areas, we suggest the elimination of low furniture which seniors find difficult to lower themselves into or raise themselves from such as sofas; elimination of furniture which seniors may trip over such as low stools and coffee tables; inclusion of front loading washers/dryers and lower folding tables in the common laundry areas; trash chutes on each floor; areas which promote socialization rather than isolation such as a community garden, meeting rooms, and lanai areas; a system of floor monitoring or buddy system so that management as well as neighbors are more aware if a senior is ill or having other difficulties; and funding for on-site case management services to coordinate the needs of seniors so they may continue living in the facility for as long as possible.

The Honolulu Committee on Aging, as well as the Mayor's Committee For People With Disabilities (MCPD), are active organizations within the City and County of Honolulu which are able and willing to assist with further discussions concerning the design, function, and furnishing of the building. Please feel free to contact either Mark Au, staff person for the MCPD at 523-4959, or Pat Tompkins of my office at 523-4546 should you require additional assistance.

Additionally, both the State Executive Office on Aging (EOA), and Catholic Charities Housing Assistance Program (CCES-HAP) have expressed interest in this project through their committee working on the revision of *A Guide to Housing Options for Elders in Hawaii*. They

have asked to be included in future requests for comments. Kiyoko Nitz of EOA can be reached at 586-7315 and Betty Lou Larson, CCES-HAP at 595-0077. We look forward to working with you on this project in the future.

Sincerely,

Karen K. Miyake

Karen K. Miyake
County Executive on Aging
Elderly Affairs Division

PT:ab

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: 523-4054

JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

MICHAEL T. AMII
DEPUTY DIRECTOR

May 30, 2000

Mr. Taeyong M. Kim, Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for the opportunity to review and comment on the preparation for the Draft Environmental Assessment relating to the Pohukaina Assisted Elderly Housing Project.

Although we have no comments regarding the development of the elderly housing project itself, we request that it be designed so that it does not adversely impact the existing adjacent park site.

Should you have any questions, please contact Mr. John Reid, Planner, at 547-7396.

Sincerely,

W. D. Balfour

WILLIAM D. BALFOUR, JR.
Director

WDB:cu
(00-10732R)

cc: Mr. Don Griffin, Department of Design and Construction

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD4/00-01966R

May 9, 2000

Mr. Taeyong M. Kim, Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Pohukaina Assisted Elderly Housing

In response to your April 19, 2000 letter, the project information provided was reviewed. The following comments are provided for your consideration as you prepare the draft environmental assessment (EA):

1. There appears to be an error in the project cost stated on Page 1.

2. The description (Page 1) of the consolidated block where the project site is located should be checked. Other text references to the block and the map provided are not consistent with this description.

3. The draft EA should discuss transit impacts. The proposed development should address transitions from the site to existing City bus stops on Queen Street. Adequate access for TheHandi-Van and other similar services should be provided.

4. The adequacy of the loading area and the relocation of the driveway further from the intersection should be reviewed.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

May 10, 2000

Mr. Taeyong M. Kim
Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii

We received your letter dated April 19, 2000, regarding the above-mentioned project. We conducted an on-site assessment and have no objections to the proposed project.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

Sincerely,

Attilio K. Leonardi

ATTILIO K. LEONARDI
Fire Chief

AKL/KS:jl

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-DL

April 25, 2000

Mr. Taeyong M. Kim
Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii

Thank you for the opportunity to review and comment on the subject proposal. Like other elderly housing developments, this project will have a significant impact on the services provided by the Honolulu Police Department.

If there are any questions, please call me at 529-3255 or Captain Paul Epstein of District 1 at 529-3386.

Sincerely,

LEE D. DONOHUE
Chief of Police

By E. Uemura
EUGENE UEMURA
Assistant Chief
Support Services Bureau

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P)1186.0

MAY - 2 2000

Mr. Taeyong M. Kim, Principal Planner
Environmental Communications, Inc.
P O Box 536
Honolulu, Hawaii 96809

Dear Mr. Kim:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii (HCDCH)

We have received your request for comments regarding the above elderly housing project. To assist us in our review, please submit a drawing showing the location of the Hawaii State Public Library System CPC Facility and Parking Lot as it relates to the above project.

If you should have any questions, please contact Mr. Alan Sanborn of the Planning Branch at 586-0499.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

LZ:mo
Attachment

Environmental Communications, Inc.

April 22, 2000

15—
5: 5/10/00

WR
LZ

RECEIVED-DAGS
DIV. OF PUBLIC WORKS
'00 APR 25 A 8:19

Mr. Alan Sanborn
Planning Branch
Dept. of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii (HCDCH)

Dear Mr. Sanborn:

The Housing and Community Development Corporation of Hawaii is proposing the development of an elderly housing project with assisted living and/or healthcare support services in the Kakaako District of Honolulu, Hawaii. This project, which is located on State lands and involves the use of State funds, is subject to Chapter 343, Hawaii Revised Statutes. As required by Title 11, Chapter 200, Hawaii Administrative Rules, early consultation with agencies is required in the preparation of an Environmental Assessment. For this reason, we are submitting a request to your Director for a review of the attached materials to assist us in scoping project needs for the Draft Environmental Assessment.

The Hawaii Community Development Authority informs us that you were a participant in the Pohukaina School/Mother Waldron Park planning process. Attached for your review is a brief narrative description of the proposed project, a site plan that shows the project in relation the project block, a ground floor building plan, and a building cross section.

We would like to request that your comments regarding the project be submitted to your Director in sufficient time so that comments from your department can be provided to us by May 10, 2000.

If you have any questions or require additional information, please call me at 528-4661. Thank you in advance for your assistance.

Sincerely,

Taeyong M. Kim
Principal Planner

Attachement

C: Raymond Sato, DAGS
Mark Tiwanak, HCDA

APR 25 2000

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P)1208.0

MAY 10 2000

Mr. Taeyong M. Kim, Planner
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Kim:

Subject: Pohukaina Assisted Elderly Housing Project
Consultation Before Draft Environmental Assessment

This is to follow up on our May 2, 2000, letter which responded to your request for comments on the proposed Pohukaina Assisted Elderly Housing project:

1. Please review and revise (as applicable) the "Project Cost" on Page 1 of the PROJECT DESCRIPTION sheet which indicates "approximately $35,000".

2. At one time, proposed developments at the former Pohukaina School site included this Housing and Community Development Corporation project (HCDCH; for elderly housing units) and proposed projects for the Hawaii Community Development Authority (HCDA); the Department of Education (DOE; for new Pohukaina Elementary School), and the existing Mother Waldron Park facilities:

   A. What is the status of the coordination/master plan for all proposed developments at the former Pohukaina School site and/or what are the plans for the remainder of the site? If available, DAGS requests a copy of the final coordination/master plan report be provided for its reference and use.

   B. Has the DOE been consulted about this project? Will this HCDCH project impact any proposed future development by the HCDA and/or DOE at this site? Previously, the proposed elderly housing development was to be on a 29,000 square feet (sf) lot size for a 7-story building (about 70-feet high) with 100 units. Your plans now

indicate a 54,600 sf lot size (88% increase), for a 14-story building (about 138-feet high) with 200 units.

   C. Will there be a traffic study at the intersections of Halekauwila/Keawe Streets and Halekauwila/Cooke Streets? Will the HCDCH traffic study also evaluate or consider the anticipated traffic impacts for proposed future developments by the HCDA and/or the DOE at this site?

   D. Will this HCDCH project evaluate or consider anticipated cumulative impacts (i.e. for all proposed developments at the site) on the surrounding off-site infrastructure system capacities (i.e. the existing roadways, potable water/irrigation/fire flow, sewer, drainage, power, telephone, CATV, data, etc)?

3. DAGS also understands the warehouse structure on the former Pohukaina School site that is currently being used by the Hawaii State Public Library System (HSPLS) for its book processing functions will not be impacted by this HCDCH project. Please confirm this DAGS understanding and revise (as applicable) the attachment maps, drawings, etc to indicate the location of the existing warehouse structure and the proposed HCDCH project development area. Also, provide the preliminary planning, design, and construction schedules for this HCDCH project.

4. The boundaries for this proposed elderly housing development indicated on the site plan (refer to "Attachment A"; 316' x 156' parcel) do not match the property map (refer to "Attachment B"; 350' x 156' parcel). Please resolve and/or clarify this matter. Also, indicate if the parcel for this proposed elderly housing development is to include all of the designated "ceded" property at this site.

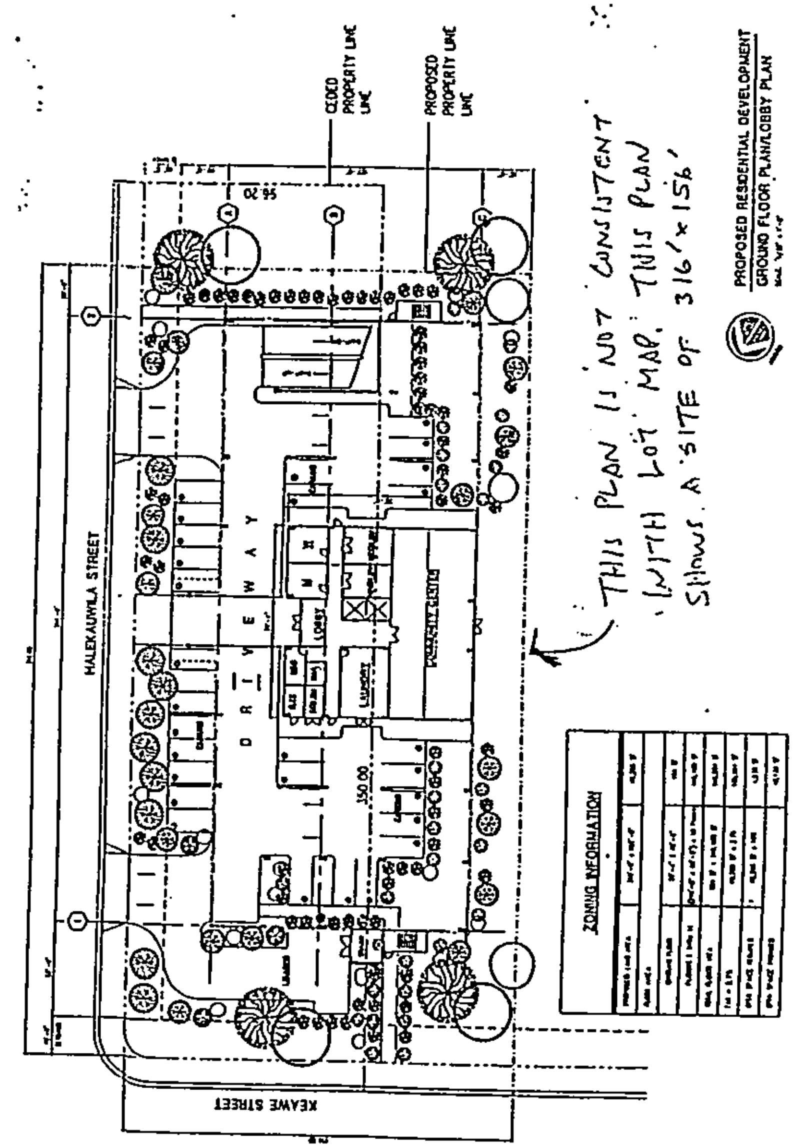
Mr. Taeyong M. Kim
Page 3

Should there be any questions, please have your staff contact Mr. Ralph Morita (586-0486) or Mr. Alan Sanborn (586-0499) of the Planning Branch.

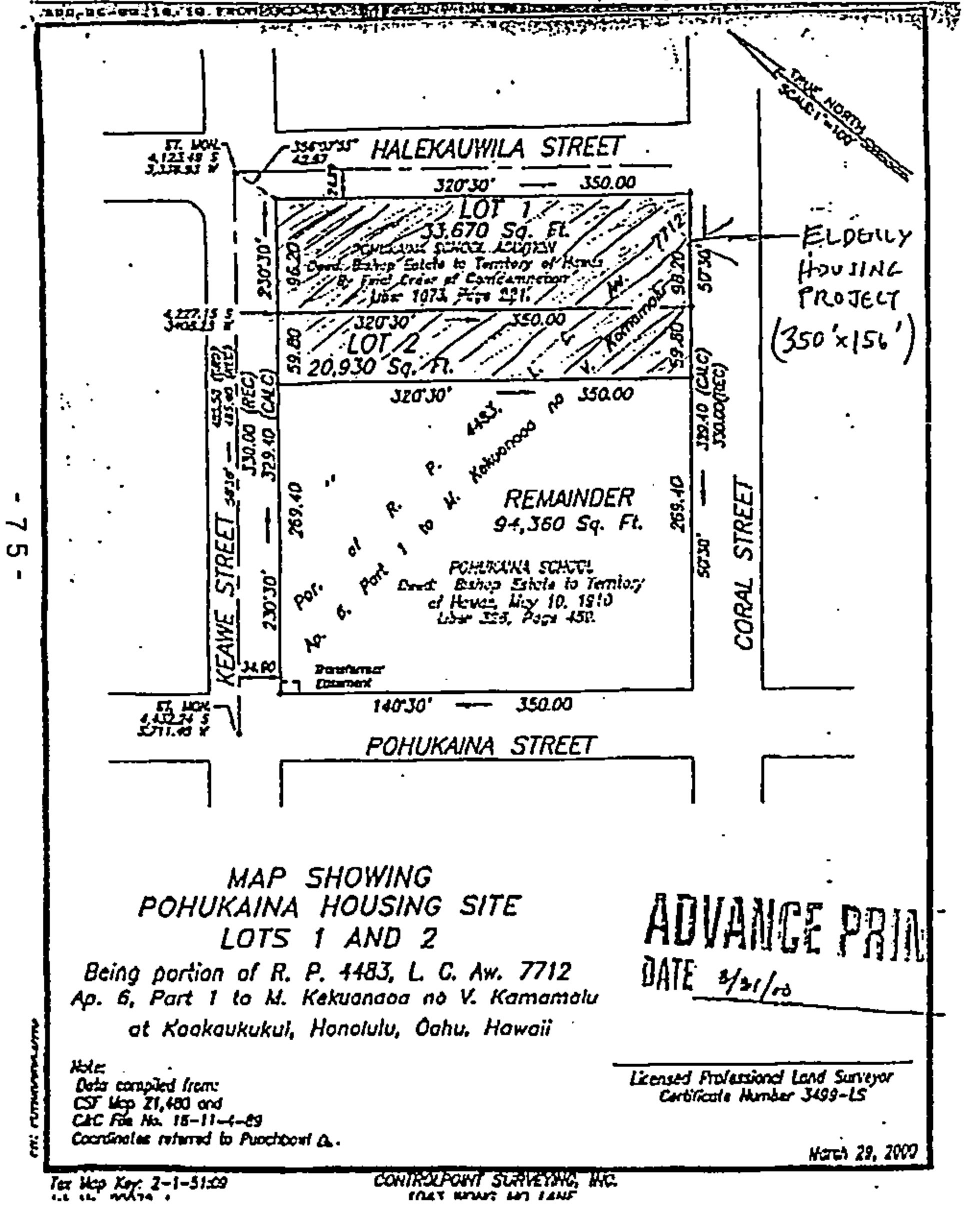
Sincerely,

GORDON MATSUOKA
Public Works Administrator

RM:mo
Attachments
c: Ms. Virginia Lowell, HSPLS w/attachments
Mr. Dean Uchida, DLNR Land Management Division
Mr. Lester Chuck, DOE w/attachments



FM Partners, Inc. Fax:808-538-0027 Apr 5 '00 15:52 P.15



ATTACHMENT B

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

ENERGY, RESOURCES, AND TECHNOLOGY DIVISION
235 South Beretania St., 5th Flr., Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

BENJAMIN J. CAYETANO
GOVERNOR
SEIJI F. NAYA
DIRECTOR
PHILIP J. BOSSERT
DEPUTY DIRECTOR

Tel.: (808) 587-3807
Fax: (808) 586-2536

May 4, 2000

Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, HI 96813

Gentlemen:

Subject: Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii (HCDCH)
Early Consultation for Environmental Assessment

Thank you for the opportunity to serve as a consulting party for the planned Pohukaina Assisted Elderly Housing project. As described, the project will consist of approximately 200 one-bedroom and studio units in a 14-floor structure of which the first four floors will accommodate a lobby, service areas, parking and a community center. Our comments are addressed to (l) State energy conservation goals, (2) energy saving design practices and technologies, and (3) recycling and recycled-content products.

1. State energy conservation goals. Project buildings, activities, and site grounds should be designed with energy saving considerations. The mandate for such consideration is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226 ("Hawaii State Planning Act"). In particular, we would like to call to your attention HRS 226 18(c)(4) which includes a State objective of promoting all cost-effective energy conservation through adoption of energy-efficient practices and technologies.

The City and County of Honolulu has adopted an Energy Code which we recommend you consult early on in your project. Hawaiian Electric Co., Inc., may also have demand-side management programs that offer rebates for installation of energy efficient technologies. One that might be of particular use to your project is window tinting.

2. Energy saving design practices and technologies. We recommend that you specifically address energy efficient design practices and technologies in this project. Some of the methods and technologies that could be considered during the design phase of the project include:
   - Use of eyebrows, window-tinting, and natural ventilation to increase comfort of occupants; maximum use of daylighting;
   - Use of high efficiency compact fluorescent lighting;
   - Use of high pressure sodium lighting for parking lots and security;
   - Exceed Energy Code requirements; and
   - Use of technologies such as efficient water heating systems, roof insulation, radiant barriers, and energy efficient windows.

3. Recycling and recycled-content products.
   - Develop a job-site recycling plan for the construction phase of the project and recycle as much construction and demolition waste as possible;
   - Incorporate provisions for recycling into the built project – a collection system and space for bins for recyclable;
   - Specify and use products with recycled-content such as: steel, concrete aggregate fill, drywall, carpet and glass tile; and
   - Specify and use locally produced products such as plastic lumber, hydromulch, soil amendment and glass tile.

We are enclosing a copy of *Guidelines for Sustainable Building Design in Hawaii* for your information.

Very truly yours,

Maurice H. Kaya
Energy, Resources, and Technology
Program Administrator

Enclosure

BENJAMIN J. CAYETANO
GOVERNOR

MAJOR GENERAL EDWARD L. CORREA, JR.
ADJUTANT GENERAL

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

PHONE (808) 733-4300
FAX (808) 733-4287

May 3, 2000

TO: Mr. Taeyong M. Kim
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

FROM: Edward T. Teixeira
Vice Director of Civil Defense

SUBJECT: PREPARATION OF DRAFT ENVIRONMENTAL ASSESSMENT, POHUKAINA ASSISTED ELDERLY HOUSING

Thank you for the opportunity to comment on the Preparation of Draft Environmental Assessment for the Pohukaina Elderly Housing, Oahu, Hawaii.

The planned elderly housing community is situated between two (2) existing outdoor warning sirens which will provide adequate outdoor warning. For indoor warning purposes, recommend that an "Emergency Alert Receiver" be purchased and installed in the nurses station, managers office or a security office. This will alert responsible parties indoors of any emergency warnings as they occur.

State Civil Defense (SCD) technicians and planners are available to assist and answer questions you may have. Please call Mr. Norman Ogasawara, SCD, at 733-4300, ext. 531, if you have any questions.

c: Major General Edward L. Correa, Jr.
Oahu Civil Defense Agency

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

XXXXXXXXXXXXXXXX
XXXXXXXXXX
Paul G. LeMahieu, Ph.D.
Superintendent

OFFICE OF THE SUPERINTENDENT

May 9, 2000

Mr. Taeyong M. Kim
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Kim:

Subject: Pohukaina Assisted Elderly Housing - Pre-Draft EA

The Department of Education (DOE) offers the following comments on the subject project:

Per the drawings you provided, it appears the housing component will occupy more of the site than proposed during the schemes developed in the charette process. The DOE's major concern is will there be sufficient land remaining on the site to meet the school needs as developed in the charette when the DOE is ready to build?

During the charette, there was always the challenge of providing appropriate space within the limited site for the major components of the project - the school, the elderly housing, the park, and the historic rest station. If elderly housing is now going to increase their site demands, then the DOE will need to utilize the areas now occupied by the historic rest station and park.

Therefore, the DOE seeks assurance that sufficient land for the school as developed during the charette will be available for the school construction. Thank you for the opportunity to respond. If you have any questions, please call Mr. Raynor Minami at 733-4862 or Mr. Theron Nichols at 733-4863.

Very truly yours,

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:el

cc: Paula Yoshioka, DAS
Jan Yokota, Executive Director, HCDA
Carol Ching, Facilities & Support Services
Theron Nichols, Facilities & Support Services
Lester Chuck, Facilities & Support Services

Ltr. No.: OSL-00-418

BENJAMIN J. CAYETANO
GOVERNOR

VIRGINIA LOWELL
[redacted]
STATE LIBRARIAN

STATE OF HAWAII
DEPARTMENT OF EDUCATION
HAWAII STATE PUBLIC LIBRARY SYSTEM
465 SOUTH KING STREET, B-1
HONOLULU, HAWAII 96813

OFFICE OF THE STATE LIBRARIAN

May 10, 2000

Environmental Communications, Inc.
1188 Bishop Street, Ste. 2210
Honolulu, HI 96813

Dear Sir:

Thank you for the opportunity to comment on the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing project. This building will be a very close neighbor to our Central Processing Center, which houses our central supply warehouse, several accounting functions, central delivery coordination, our audio-visual support, and our Friends office and workroom.

We have reviewed the HCDA proposal and make the following notes:

1. It looks as if the project boundaries extend to within 30 feet of our building. We are concerned about the construction noise and space needed for construction equipment. Specifically, we request assurance that our parking lot, the front door to our building, and the loading dock on Pohukaina Street will not be encroached upon nor obstructed in any way.
2. We currently have an agreement with the private contractor of the parking lot to park our delivery vans and truck in the adjacent parking lot. Will this agreement be continued? Will we have access to these vans if they are parked as current?
3. As construction moves forward, will there be interruptions of utility service or closure of access to our loading dock? Will contractors agree to inform us prior to such interruption with enough time so that we can prevent any service interruption?
4. What arrangements will be made with the HPD comfort station located directly behind our building? Because of their close location and long hours of operation, they have been a major deterrent to vandalism, burglary, theft, and other criminal activities for our building and surrounding areas. If this operation is moved off the premises, we may require some type of security service. Will the construction site be secured? Will there be security service for the site?

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

5. We are only temporary occupants of the building; we are aware that there are different claimants to the site. We will be most interested in your description of the part of the site to which you actually have title.

The above are issues we anticipate currently. As the project moves forward, it is our request that we be able to continue this dialog with you.

Thank you again for asking our input on your project.

Sincerely,

Virginia Lowell

Virginia Lowell
State Librarian

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

LAWRENCE MIIKE
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:

ENVIRONMENTAL PLANNING OFFICE
HAWAII STATE DEPARTMENT OF HEALTH
919 ALA MOANA BLVD., 3RD FLOOR
HONOLULU, HI 96814-4912

FACSIMILE TRANSMITTAL

DATE: 4/24/00 NO. OF PAGES (w/ cover sheet): 1

TO: Taeyong Kim
OFFICE: Environmental Communications

FAX: 528-4883 PHONE:

FROM: ART BAUCKHAM
OFFICE: EPO - DOH

PHONE: (808) 586-4337 FAX: (808) 586-4370

MESSAGE: Early Consultation
Elderly housing project, Kakaako Mauka District, TMK: 2-1-51: por of 9

We have no comments at this time

Art Bauckham

NOTE: If this transmittal was illegible or incomplete, please call the sender.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
EXECUTIVE OFFICE ON AGING
NO. 1 CAPITOL DISTRICT
250 SOUTH HOTEL STREET, SUITE 109
HONOLULU, HAWAII 96813-2831

MARILYN R. SEELY
DIRECTOR

TELEPHONE NO.
(808) 586-0100

FAX NO.
(808) 586-0185

May 8, 2000

Mr. Taeyong M. Kim
Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim:

We have reviewed the HCDCH proposed development of an elderly housing project with assisted living and/or healthcare support service in Kakaako as you requested. We offer the following comments:

We are assuming that the cost of the environmental assessment is $ 35,000; not the cost of the project as described on page 1.

We are concerned that distance to grocery and drug store shopping is a problem as well as proximity to physicians, dentists and other health professionals.

Will there be a position established and funded to offer supportive care and service coordination to residents? Will there be an onsite area for the service coordinator? Will the service coordinator be available to residents in nearby senior housing? Will there be parking for service providers who must come into the building?

Our major concern in any such development is the ongoing financing of the care needed by the residents. Once the building is completed, how are residents expected to pay for the care that they need and at what point will they be expected to leave? Are the guidelines thoroughly articulated so that residents understand that their limitations in physical and mental functioning may require that they leave when they reach a certain specified level of functioning? What happens when money runs short and they are unable to afford the care?

Will the community center be limited to use by the residents of the facility or will others be allowed to use it?

As the number of senior residences in the area grows, it seems reasonable that some form of centralized service provision be considered. Even in those facilities without assisted living, residents are growing older in place and their need for assistance is growing as well. We suggest that you contact the P.A.C.E. project which currently operates out of Maluhia for suggestions and ideas. Some form of centralized outreach assistance makes sense and perhaps this facility could house an agency or agencies that would assume this responsibility.

If you have any questions about our comments, please call me at 586-7273.

Sincerely,

Marilyn R. Seely
Director

MRS:pm

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

May 16, 2000

LD-NAV

Ref.: POHUKAINADEA.RCM

Mr. John M. Kim
Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim

SUBJECT: Pre-Consultation for Draft Environmental Assessment for Pohukaina Assisted Elderly Housing on the Island of Oahu, Hawaii

Thank you for the opportunity to review and comment on the subject matter.

The Department of Land and Natural Resources' Land Division has submitted the subject information material to our Commission on Water Resource Management, Division of: Aquatic Resources, State Parks, Forestry and Wildlife, Historic Preservation and Land Division's Planning & Technical Services, Engineering Branch and Oahu District Land Office for their review and comment on the proposed project.

The Department has no comment to offer on the proposed project. Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

C: Oahu District Land Office

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

May 19, 2000

LD-NAV

Ref.: POHUKAINADEA.RCM2

Mr. John M. Kim
Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim

SUBJECT: Pre-Consultation for Draft Environmental Assessment for Pohukaina Assisted Elderly Housing on the Island of Oahu, Hawaii

This is a follow-up to our letter to you dated May 16, 2000 (Ref.: POHUKAINADEA.RCM) regarding the subject matter.

Attached herewith is a copy of our Commission on Water Resource Management's comments related to water resources for the proposed project.

The Department has no other comment to offer on the proposed project.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

C: Oahu District Land Office

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

May 12, 2000

TO: Mr. Dean Uchida, Administrator
Land Division

FROM: Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Pre-Consultation for Preparation of Environmental Assessment
Pohukaina Assisted Elderly Housing, TMK 2-1-51:Por 9

FILE NO.: POHUKAINADEA.COM

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[X] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[X] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[X] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows which may require an instream flow standard amendment.

[ ] We recommend that no development take place affecting highly erodible slopes which drain into streams within or adjacent to the project.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER:

If the water supply for the project is to be derived from a new ground water well, well construction, pump installation, and water use permits are required.

If there are any questions, please contact the Commission staff at 587-0218.

RECEIVED
00 MAY 1 P12:17
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii
April 27, 2000

LD/NAV
Ref.: POHUKAINADEA.COM

Suspense Date: 05/10/00

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Historic Preservation Division
XXX Commission on Water Resource Management
Land Division Branches of:
XXX Planning and Technical Services
XXX Engineering Branch
XXX Oahu District Land Office
OOO Shoreline Processing Services

FROM: Dean Y. Uchida, Administrator
Land Division

SUBJECT: Pre-consultation for preparation of Environmental Assessment for Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii
Honolulu, Oahu, Hawaii TMK: 1st/2-1-51: Por. 9

Please review the attached:

Project Description - Pohukaina Assisted Elderly Housing

and submit your comments (if any) on Division letterhead within the time requested above. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

If this office does not receive your comments on or before the suspense date, we will assume there are no comments.

( ) We have no comments.

(X) Comments attached.

Signed:

Date: 5-4-00

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
STP 8.9515

May 1, 2000

Mr. Taeyong M. Kim
Principal Planner
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Pohukaina Assisted Elderly Housing
Draft Environmental Assessment

Thank you for your transmittal requesting our review of the subject project.

The proposed development will not impact our State transportation facilities.

We appreciate the opportunity to provide comments.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Director of Transportation

Kakaako Improvement Association

P.O. Box 3776 Honolulu, Hawai'i 96812

Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

July 3, 2000

Attn: Taeyong M. Kim

Re: Draft EA for Pohukaina Assisted Housing

While we missed the opportunity to comment on the preparation of the draft EA for the above-referenced project, we would like to be included in the distribution of the EA as it progresses.

Very truly yours,

Donald A. Bremner
Legislative Chairman

VII. LIST OF PARTIES COMMENTING DURING THE DRAFT ENVIRONMENTAL ASSESSMENT REVIEW PERIOD

Agencies and parties with ministerial or specific interests regarding the proposed project were provided a copy of the Draft Environmental Assessment for their comment regarding the proposed project. Parties responding with comments are indicated by an asterisk (*).

Federal Agencies

US Environmental Protection Agency *
    Region IX Administrator

State Agencies

Department of Accounting and General Services *
Department of Business Economic Development & Tourism
Department of Business Economic Development & Tourism *
    Energy, Resources & Technology Division
Department of Defense *
Department of Education *
Department of Hawaiian Home Lands *
Department of Health *
Department of Land and Natural Resources
Department of Land and Natural Resources
    State Historic Preservation Office *
Department of Transportation *
Executive Office on Aging
Hawaii Community Development Authority *
Office of Hawaiian Affairs
Office of Planning
University of Hawaii at Manoa
    Environmental Center

County Agencies

Board of Water Supply *
Department of Community and Social Services *
Department of Parks and Recreation *
Department of Planning and Permitting *
Department of Transportation Services *
Fire Department
Police Department *

Officials and Organizations

American Lung Association
B & M Investment Inc.
Councilman Jon Yoshimura
Hawaiian Electric Company *
Kakaako Improvement Association *
Kam Development Corporation *
Kamehameha Schools
Neighborhood Board No. 11
Representative Kenneth Hiraki
Senator Rod Tam
SMK Inc.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

Date: September 19, 2000

To: Taeyong M. Kim

Organization: Environmental Communications Inc.

Mail Stop:

Fax: 808-528-4883

Phone: 808-528-4661

From: Larry Woods
Federal Activities Office, CMD-2
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, California 94105

Phone: 415-744-1580
Fax: 415-744-1598

Pages: (including cover) 10

Subject: NEPA (HUD-CDBG) - Environmental Assessment: Pohukaina Assisted Elderly Housing project - construction of high density, 200 unit structure, Honolulu, Oahu, Hawaii.

Note:

The Resource Conservation & Recovery Act (RCRA) Section 6002 requires federal, state, local agencies, and their contractors, that use appropriated federal funds to purchase EPA-designated recycled materials, including EPA-designated construction and landscaping products. For further details see EPA's web site at "http://www.epa.gov/cpg". You should also incorporate pollution prevention and recycling activities into the construction, rehabilitation, and operation of the projects. See attached checklists.

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR BUILDING/HOUSING CONSTRUCTION

How Can Building/Housing Construction Affect the Environment?

Wastes associated with building/housing construction include unused and excess material generated during site excavation, site clearance, construction, and renovation activities. These wastes may be rubble (concrete, bricks, and asphalt), wood and wood products, plaster, metals, plastics, and insulation. These materials (commonly referred to as C&D debris) comprise approximately 15 to 30 percent of all waste disposed of in landfills. Further, some of these waste products may contain toxic constituents that pose a risk to human health and the environment. Many local governments have passed ordinances that restrict or prohibit the disposal of C&D debris in landfills and require the recycling of many of these materials. In addition, purchasing decisions associated with building/housing construction projects can affect the amounts of waste generated, as well future energy requirements (e.g., from lighting and heating).

Also see checklists on Ecosystem Preservation and Protection, Siting, Landscaping, Pest Management, and Energy Management.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

Ecosystem Concerns. The clearing of lands for construction can lead to the loss of wildlife habitats, erosion and sedimentation associated with the use of heavy machinery, loss of native plant life, and contamination of soils and surface and groundwater. However, proper design and planning can help reduce these impacts.

- Is the construction project necessary? Is the project over-designed? In some cases, the construction of additional structures is not needed and minor alterations to existing facilities may be sufficient.
- Have attempts been made to avoid construction in environmentally sensitive areas (such as wetlands and threatened or endangered species habitats)? *
- Are specifications for construction practices designed to control and exclude pest entry in contained habitats? *
- Does the construction contract specify that contractors should cause the least possible disturbance to the site's vegetation? For example, under certain circumstances, it may be possible to preserve individual trees or stands of old-growth that would otherwise be destroyed.
- Does the construction plan provide for erosion and sediment control during construction as well as after? Uncontrolled soil erosion can have adverse effects on local waterbodies and aquatic life.
- Will soil excavated from the construction site be reused? Topsoil can be respread in areas to be landscaped to enhance plant health. *
- Does the plan include the revegetation of areas disturbed by construction? *

* Indicates an environmental impact reduction opportunity.

- Is there a plan to reduce the use of materials containing constituents that can negatively affect the environment?
- Is there a spill control and countermeasure plan to properly address spills of hazardous construction materials?
- Will hazardous materials be stored properly at the construction site? Hazardous materials should be kept in storage buildings (with secondary containment and hard stands) located away from the active construction zone. Examples of hazardous materials typically found at construction sites are petroleum products (lubricating oils and greases), fuels (gasoline, kerosene), solvents, paints, batteries, and miscellaneous equipment maintenance supplies.

Procurement Concerns. Environmentally sound purchasing decisions are an important element of pollution prevention, helping reduce the amount of waste generated by a building/housing construction project. In addition, the purchasing of recycled-content material helps support markets for materials collected for recycling.

Executive Order 12873 directs all Federal agencies to review and revise their specifications, product descriptions, and standards to increase their purchase of environmentally preferable and recycled products.

- Will the project include the use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time?
- Are there provisions for the proper storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements?
- Will perishable construction materials (such as paints) be purchased incrementally to ensure reduced spoilage of unused materials?
- Will the project use building materials that have minimal packaging to avoid the generation of excessive packaging waste?
- Will the project use building materials that are produced locally to avoid energy use and pollution generated from transportation?
- Will the project use construction materials containing recycled content when possible and in accordance with accepted standards? Examples of recycled-content materials include concrete containing fly ash and thermal insulation containing cellulose (i.e., recovered newspaper with fire retardant).
- Does the construction plan include the use of alternative, environmentally preferable construction materials? Alternative construction materials include lumber products containing recycled plastic and/or wood, lead-free and low-VOC paints and coatings, and recycled steel for use in building frame applications.

* Indicates an environmental impact reduction opportunity.

- Does the construction plan call for the use of refurbished construction materials? Purchasing and using once-used or recovered construction materials can often save money and reduce the amount of C&D debris disposed of as waste.

Reuse and Recycling. Many of the waste materials generated as a result of building/housing construction can be reused, refurbished, or recycled into usable products. The benefit of these practices is that materials that would otherwise be disposed of from the waste stream are diverted for productive uses.

- Will the construction contract specify that construction materials left over at the end of the project be reused in other projects rather than be disposed of? *
- Will the construction contract specify that construction materials that are damaged or wasted be recovered for refurbishing and use in other construction projects? Such items as cabinets, doors, plumbing and lighting fixtures, tile, carpeting, door hinges, wall paneling, restroom mirrors, and stairway banisters can be recovered and renovated for use. Local community groups or individual homeowners may also be interested in reusing these items. *
- Is there a plan to use or sell trees cut down during construction activities as lumber or compost? *
- Will any metal, wood, or packaging wastes generated as a result of construction activities be collected for reuse or recycling into other usable products? Commonly recycled construction materials include concrete, asphalt roofing material, metals, and structural wood. *
- Will mercury-containing materials recovered in any renovations of existing structures be recycled?

Energy Efficiency. Employing energy efficient technologies and practices can have a significant positive effect on the environment. There are a number of opportunities to include energy efficiency in building/housing construction projects.

Executive Order 12902 calls on Federal agencies and facilities to increase energy conservation efforts and improve energy efficiency.

- Does the construction plan specify the use of "low-embodied energy" construction products whenever possible? The energy required to make a product should be considered in making purchasing decisions.
- Does the construction plan specify the use of energy efficient lighting systems?
- Will preference be given to purchasing energy-efficient electric products and equipment (such as appliances and heating and cooling systems)?
- Does the construction plan call for sufficient insulation to reduce heat loss and conserve energy?
- Will the proposed facility participate in the EPA Energy Star Buildings program?

* Indicates an environmental impact reduction opportunity.

Other References

"Environmental Building News: A Bimonthly Newsletter on Environmentally Sustainable Design & Construction." RR1 Box 161, Brattleboro, VT 05301. Telephone No. (802) 257-7300.

Metropolitan Council of the Twin Cities Area. "Construction Materials Recycling Guidebook - A guide to reducing and recycling construction and remodeling waste."

National Association of Home Builders. 1201 15th Street, NW; Washington, DC 20005-2800. Telephone No. (202) 822-0200/(800) 368-5242, Fax No. (202) 822-0559.

EPA

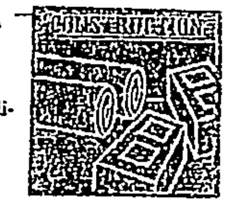
PURCHASING

United States Environmental Protection Agency

Solid Waste and Emergency Response (5306W)

EPA530-F-00-002
June 2000
www.epa.gov/cpg

2000 Buy-Recycled Series
Construction Products

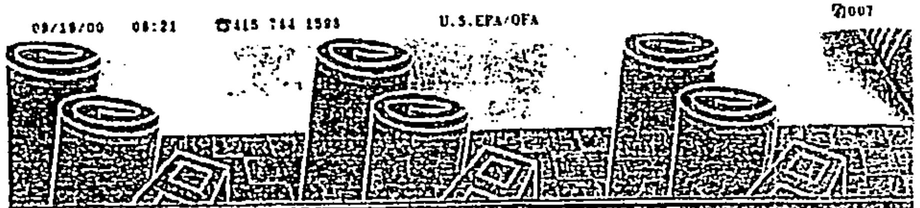


Construction project managers are learning what the U.S. Army and U.S. Navy already know—recycled construction products are cost-effective, reliable, easy to obtain, and environmentally friendly. Whether you're erecting a new building or constructing a new highway, high-quality recycled-content products can help you get your project off to a great start!

To make it easier to buy recycled, the U.S. Environmental Protection Agency (EPA) updates the Comprehensive Procurement Guidelines (CPG) every 2 years. Through the CPG, EPA designates items that must contain recycled materials when purchased by federal, state, and local agencies, or by government contractors, using appropriated federal funds. Among these items, EPA has designated several construction products, ranging from carpet made from soda bottles to insulation made from yesterday's newspaper. EPA's research shows that the items designated in the CPG are of high quality, widely available, and cost-competitive with virgin products. EPA also issues nonregulatory companion guidance—the Recovered Materials Advisory Notice (RMAN)—that recommends levels of recycled content for these items.

From small jobs to major projects, inside or out, recycled-content construction materials are the way to go. So, whether you're laying the foundation of a building, installing carpet, or constructing and painting walls, choose recycled-content products to make each job a success while doing your part to help conserve natural resources!

Printed on paper that contains at least 30 percent postconsumer fiber



How Can I Get More Information? (Continued)

- *Official Recycled Products Guide.* This directory lists more than 5,000 manufacturers and distributors of recycled-content products. Contact: Recycling Data Management Corporation, P.O. Box 577, Ogdensburg, NY 13669. Phone: 800 267-0707. Fax: 315 471-3258.
- *Recycled Plastic Products Source Book.* This booklet lists more than 1,300 plastic products from approximately 300 manufacturers. For more information, call the American Plastics Council (APC), 1801 K Street, NW., Suite 701-L, Washington, DC 20006. Phone: 202 974-5400. Fax: 202 296-7119. Web site: www.plasticsresource.com
- *Resource Guide to Recycled Construction Products.* This recycled construction products list is available from the Los Angeles Integrated Solid Waste Management Office, 433 South Spring Street, Suite 600, Los Angeles, CA 90013. Phone: 213 847-1444.
- U.S. Army Corps of Engineers (USACE). USACE has specifications for cement containing coal fly ash. Contact Greg Hughes, USACE, 20 Massachusetts Avenue, NW., Washington, DC 20314. Phone: 202 761-4140. Fax: 202 761-4139. Web site: www.usace.army.mil

Internet Sites

Government Sites

- The Comprehensive Procurement Guidelines: <www.epa.gov/cpg>. This site describes EPA's effort to facilitate the procurement of products containing recovered materials, including information on CPG, RMANs, and the Buy-Recycled Series.
- Environmentally Preferable Purchasing (EPP): <www.epa.gov/oppt/epp>. EPA's Environmentally Preferable Purchasing program encourages and assists federal agencies to purchase environmentally preferable products and services. The site explains EPA's proposed guiding principles for including environmental performance in purchasing decision-making and posts case studies of successful pilot projects in both the public and private sectors.
- Federal Trade Commission: <www.ftc.gov/bcp/grnrule/guides980427.htm>. The Federal Trade Commission issued Guides for the Use of Environmental Marketing Claims in May 1998.
- Jobs Through Recycling: <www.epa.gov/jtr>. EPA's Jobs Through Recycling program stimulates economic growth and recycling market development by assisting businesses and supporting a network of state and regional recycling contacts. This Web site provides information on financing and technical assistance for recycling businesses as well as other market development tools.
- King County Recycled Product Procurement Program: <www.metrokc.gov/oppis/recyclea.html>. This site describes the tools and techniques developed by King County, Washington, agencies for purchasing recycled products.
- Municipal Solid Waste: <www.epa.gov/msw>. This site includes information on recycling, source reduction, and reuse. Contains state municipal solid waste data and the latest facts and figures on waste generation and disposal.
- WasteWise: <www.epa.gov/wastewise>. WasteWise is a free, voluntary EPA program through which organizations eliminate costly municipal solid waste, benefiting their bottom line and the environment. The program provides hands-on assistance to members to help them purchase or manufacture recycled-content products, prevent waste, and recycle solid waste materials.

Product Information

- Recycling Data Network Information Services: <www.epa.gov/cpg/links.htm>. This commercial Web site provides access, on a subscription basis, to a recycled-content products database of over 4,500 listings in 700 product classifications. It also provides a reference library and a newsletter. Managed by the publisher of the Official Recycled Products Guide, the product database is considered to be the largest of its kind.
- Environmental Building News: <www.ebuild.com>. This site is the online version of *Environmental Building News*, the leading periodical on environmentally sustainable design and construction. It contains articles, reviews, and news stories on energy-efficient, resource-efficient, and healthy building practices.
- Oikos Green Building Source: <oikos.com>. This site contains a catalog of books, videos, and software for sustainable construction; a searchable database of companies that feature products with environmental attributes; and links to other green building sites.

EPA

PURCHASING

2000 Buy-Recycled Series

Landscaping Products

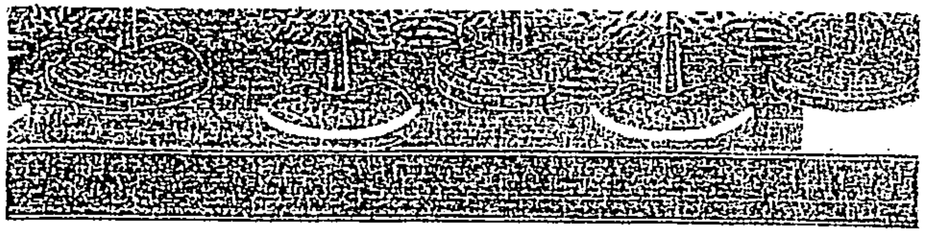
It might be easier than you think to turn garbage into gardens! Whether you're a park manager, professional landscaper, or tend a small garden bed, you'll find recycled-content products offer a quick, effective, and affordable way to make your grounds green.

To make it easier to buy recycled, the U.S. Environmental Protection Agency (EPA) updates the Comprehensive Procurement Guidelines (CPG) every 2 years. Through the CPG, EPA designates items that must contain recycled content when purchased by federal, state, and local agencies, or by government contractors, using appropriated federal funds. Several landscaping products are among these items. EPA's research shows that the items designated in the CPG are of high quality, widely available, and cost-competitive with virgin products. EPA also issues nonregulatory companion guidance—the Recovered Materials Advisory Notice (RMAN)—that recommends levels of recycled content for these items.

So the next time you need a garden hose, edging, landscaping timbers, or soil amendments, buy recycled! You'll help reduce waste, and your landscape will turn a deeper shade of green

Printed on paper that contains at least 30 percent postconsumer fiber.

DOCUMENT CAPTURED AS RECEIVED



Environmental Products Guide. This guide is designed to help procurement officials identify environmentally preferable products and services. It contains nearly 3,000 items, including many recycled-content products.

- Green Seal. Green Seal is a national nonprofit labeling organization that sets environmental standards, including those for garden hoses, and awards a Green Seal of Approval to products meeting those standards. For more information, contact Green Seal at 1001 Connecticut Avenue, NW., Suite 827, Washington, DC 20036. Phone: 202 872-6400. Fax: 202 872-4324.
  Web site: www.greenseal.org
- *Greening the Government: A Guide to Implementing Executive Order 12873.* This guide provides detailed information on establishing and implementing federal affirmative procurement plans. Updated in the summer of 1997, it is available without charge from the Office of the Federal Environmental Executive, Ariel Rios Building, Mail Code 1600S, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Phone: 202 564-1297. Fax: 202 564-1393.
  Web site: www.ofee.gov
  You can also download an electronic version on the Internet at <www.ofee.gov/html/guide.htm>.
- *Official Recycled Products Guide.* This directory lists more than 5,000 manufacturers and distributors of recycled-content products. Contact: Recycling Data Management Corporation, P.O. Box 577, Ogdensburg, NY 13669. Phone: 800 267-0707. Fax: 315 471-3758.
- *Recycled Plastic Products Source Book.* Recycled Plastic Products Source Book. This booklet lists more than 1,300 plastic products from approximately 300 manufacturers. For more information, call the American Plastics Council (APC), 1801 K Street, NW., Suite 701L, Washington, DC 20006. Phone: 202 974-5400. Fax: 202 296-7119. Visit the APC Web site at <www.plasticsresource.com>.
- *Recycled Rubber Products Catalog.* This catalog lists products manufactured from recovered rubber and provides information on how to obtain them. For more information, contact the Scrap Tire Management Council, 1400 K Street, NW., Suite 900, Washington, DC 20005. Phone: 202 682-4880. Fax: 202 682-4854. The catalog can be viewed on the Internet at <www.rma.org/recycledcatalog.htm>.
- *Products and Services Directory.* This publication lists manufacturers of erosion control products, including hydraulic mulch. For more information, contact the International Erosion Control Association, P.O. Box 774904, Steamboat Springs, CO 80477. Phone: 800 455-4322. Fax: 970 879 8563.
  Web site: www.ieca.org

Internet Sites

Government Sites

- The Comprehensive Procurement Guidelines: <www.epa.gov/cpg>. This site describes EPA's effort to facilitate the procurement of products containing recovered materials, including information on CPG, RMANs, and the Buy-Recycled Series.
- Environmentally Preferable Purchasing (EPP): <www.epa.gov/opptintr/epp>. EPA's Environmentally Preferable Purchasing program encourages and assists federal agencies to purchase environmentally preferable products and services. The site explains EPA's guiding principles for including environmental performance in purchasing decision-making, and posts case studies of successful pilot projects in both the public and private sectors.
- Federal Trade Commission: <www.ftc.gov/bcp/grnrule/guides980427.htm>. The Federal Trade Commission issued Guides for the Use of Environmental Marketing Claims in May 1998.
- Jobs Through Recycling: <www.epa.gov/jtr>. EPA's Jobs Through Recycling program stimulates economic growth and recycling market development by assisting businesses and supporting a network of state and regional recycling contacts. This Web site provides information on financing and technical assistance for recycling businesses as well as other market development tools.
- King County Recycled Product Procurement Program: <www.metrokc.gov/procure/green/recycle.htm>. This site describes the tools and techniques developed by King County, Washington, agencies for purchasing recycled products.
- Municipal Solid Waste: <www.epa.gov/msw>. This site includes information on recycling, source reduction, and reuse. Contains state municipal solid waste data and the latest facts and figures on waste generation and disposal.
- WasteWise: <www.epa.gov/wastewise>. WasteWise is a free, voluntary EPA program through which organizations eliminate costly municipal solid waste, benefiting their bottom line and the environment. The program provides hands-on assistance to members to help them purchase or manufacture recycled-content products, prevent waste, and recycle solid waste materials.

EPA

ENERGY STAR Label for Buildings

Introducing the ENERGY STAR® Label for Buildings

"The Mark of Excellence in Energy Performance"

Three principal strategies should be applied in managing building energy costs:

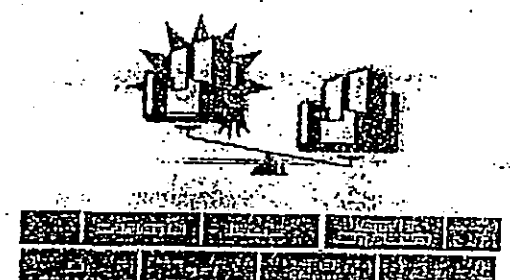
1. *Use less energy.*
2. *Buy less expensive energy.*
3. *Use energy more efficiently.*

These strategies must balance the need to maintain building services and provide for occupant comfort, health, safety, and productivity. The US Environmental Protection Agency (EPA) and the US Department of Energy (DOE) have created a tool to help you implement these strategies in your existing commercial buildings -- The *ENERGY STAR® Label for Buildings.*

By evaluating energy use, documenting performance, setting goals, and recognizing excellence, the ENERGY STAR Label helps you optimize energy management in your buildings while demonstrating compatibility with industry standards for indoor environmental criteria.

Now available for office buildings, expect the Label to be available for schools, retail stores, and other building types later this year.

- Benchmarking Energy Performance
- Documenting Building Performance
- Gaining Recognition
- Getting Started
- Enhancing Federal Partnership Programs



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Comments/Suggestions | Home

This page was last updated on 6/25/1999

BENJAMIN J. CAYETANO
GOVERNOR

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

00:DEV/2849

November 9, 2000

Mr. Larry Woods
Federal Activities Office, CMD-2
U. S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, California 94105

Dear Mr. Woods:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of September 19, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. Request For Proposal (RFP) participants will be informed that if federal funds are used, Section 6002 of the Resource Conservation and Recovery Act (RCRA) requires the purchase of Environmental Protection Agency (EPA) designated recycled materials including construction and landscaping products, and that pollution prevention and recycling activities are encouraged in the construction, rehabilitation and operation of the project.

Thank you again for your comments. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

(P)1560.0

SEP 15 2000

TO: Mr. Stan Fujimoto
Housing and Community Development Corporation of Hawaii

SUBJECT: Pohukaina Assisted Elderly Housing
Draft Environmental Assessment

Thank you for the opportunity to review the subject document. Since the project does not involve office space, we have no comments to offer at this time. We would appreciate receiving a copy of the Final EA for our files.

If there are any questions, please have your staff contact Mr. Ralph Morita (586-0486) or Mr. Alan Sanborn (586-0499) of the Planning Branch.

Gordon Matsuoka

GORDON MATSUOKA
Public Works Administrator

BI:mo
c: Taeyong Kim, Environmental Communications, Inc.
Mr. Lester Chuck, DOE
OEQC

- 88 -

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2855

November 9, 2000

To: Gordon Matsuoka, Public Works Administrator
Department of Accounting and General Services

From: Sharyn L. Miyashiro Sharyn Miyashiro
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of September 15, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We understand that your office does not have any comments at this time. A copy of the Final Environmental Assessment will be sent to you for your files.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT, AND TOURISM

BENJAMIN J. CAYETANO, Governor
SEIJI F. NAYA, Director
SHARON S. NARIMATSU, Deputy Director
DAVID W. BLANE, Director, Office of Planning

Energy, Resources, and Technology Division
235 South Beretania Street, Leiopapa A Kamehameha Bldg., 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
Web site: www.hawaii.gov/dbedt/ert

Telephone: (808) 587-3807
FAX: (808) 587-3820

September 14, 2000

Mr. Stan Fujimoto
Housing and Community
Development Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, HI 96813

Dear Mr. Fujimoto:

Subject: Pohukaina Assisted Elderly Housing
Housing and Community Development Corporation of Hawaii
Draft Environmental Assessment

Thank you for the opportunity to comment on the Draft Environmental Assessment for Pohukaina Assisted Elderly Housing Project. We have no further comments to those submitted for the Early Consultation on May 4, 2000.

Sincerely,

Maurice H. Kaya
Energy, Resources, and Technology
Program Administrator

c Environmental Communications, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

00:DEV/2851

November 9, 2000

To: Maurice H. Kaya
Energy, Resources, and Technology Program Administrator
Department of Business, Economic Development, and Tourism

From: Sharyn L. Miyashiro
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii
(HCDCH)

Thank you for your comment of September 14, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH.

As stated in your comments of May 4, 2000, State energy conservation goals, energy saving design practices and technologies, and recycling and recycled-content products will be considered for the proposed Request For Proposals (RFP). It is HCDCH's intent to comply with all applicable energy conservation guidelines and objectives to the fullest extent practicable. The final extent of meeting these goals will be the responsibility of the developer selected for the project. A copy of the *Guidelines for Sustainable Building Design in Hawaii* will be included in the RFP document.

Thank you again for your comment. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

MAJOR GENERAL EDWARD L. CORREA, JR.
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

PHONE (808) 733-4300
FAX (808) 733-4287

October 9, 2000

TO: Mr. Stan Fujimoto
Housing and Community Development
Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

FROM: Edward T. Teixeira
Vice Director of Civil Defense

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR POHUKAINA ASSISTED ELDERLY HOUSING

Thank you for the opportunity to comment on the Pohukaina Assisted Elderly Housing Draft Environmental Assessment.

Request that an Emergency Alert System (EAS) receiver be purchased and installed in a 24-hour manned office such as the telephone operator or in the security office. When installed, they could call the individual guest facilities or the complex; security officers or nurses may be able to warn or assist the elderly and disabled.

Just as parks, schools, fire hydrants, underground/overhead utilities and sidewalks are planned as integral parts of planned developments, an emergency warning system and support infrastructure must be purchased and installed by the developer for the safety and well-being of the residents and/or guests.

We appreciate your consideration and interest in this matter. Our planners and technicians are available to discuss any questions your staff may have. Please contact Mr. Norman Ogasawara, State Civil Defense, at 733-4300.

c: Mr. Taeyong Kim
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2853

November 9, 2000

To: Edward T. Teixeira, Vice Director of Civil Defense
Office of the Director of Civil Defense
Department of Defense

From: Sharyn L. Miyashiro
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 9, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We acknowledge that an Emergency Alert System (EAS) receiver should be purchased and installed in a manned office at the project. This item will be included in the Request For Proposals (RFP) materials, and the selected developer will be requested to coordinate with your office to ensure that an adequate alert system is incorporated into the project.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

PAUL G. LeMAHIEU, Ph.D.
SUPERINTENDENT

DIVISION OF ADMINISTRATIVE SERVICES
[redacted]

September 27, 2000

MEMO TO: Mr. Stanley Fujimoto, Project Manager
Housing and Community Development Corporation of Hawaii

F R O M: Lester H. T. Chuck, Director
Facilities and Support Services Branch

SUBJECT: Pohukaina Assisted Elderly Housing Draft EA

The July 13, 2000 letter (attached) from your consultant indicates that the Department of Education's (DOE) planned elementary school and the proposed elderly housing project can fit within the same site. Based on this determination, the DOE has no objection to the proposed housing project.

While we understand that the closure of Keawe Street is not part of the elderly housing project, the DOE would like to explore the possibility of closing the road in the future if doing so would improve the school's design.

Thank you for the opportunity to comment. If you have any questions, please call the Facilities Branch at 733-4862.

LHTC:SB:hy

Attachment

cc: P. Yoshioka, DAS
T. Kim, Environmental Communications, Inc.

AM Partners, Inc.
architecture
planning
interiors
graphics

July 13, 2000

MEMORANDUM

TO: Housing Community Development Corporation of Hawaii (HCDCH)
Attn: Stanley S. Fujimoto
FAX: (808) 587-0586

FROM: AM Partners, Inc.
Jennifer Wakazuru

PROJECT: Pohukaina Senior Assisted Housing EA/EIS
AMP Project No. 97036.30

SUBJECT: Housing and School Projects

Stan:

1. As requested, we have reviewed the site plan showing the proposed Housing and School Projects.

2. We recognize that the proposed housing site does encroach slightly onto the proposed School Building, however, it is still possible that the Housing and School projects can coexist on the same site. (see attachment A)

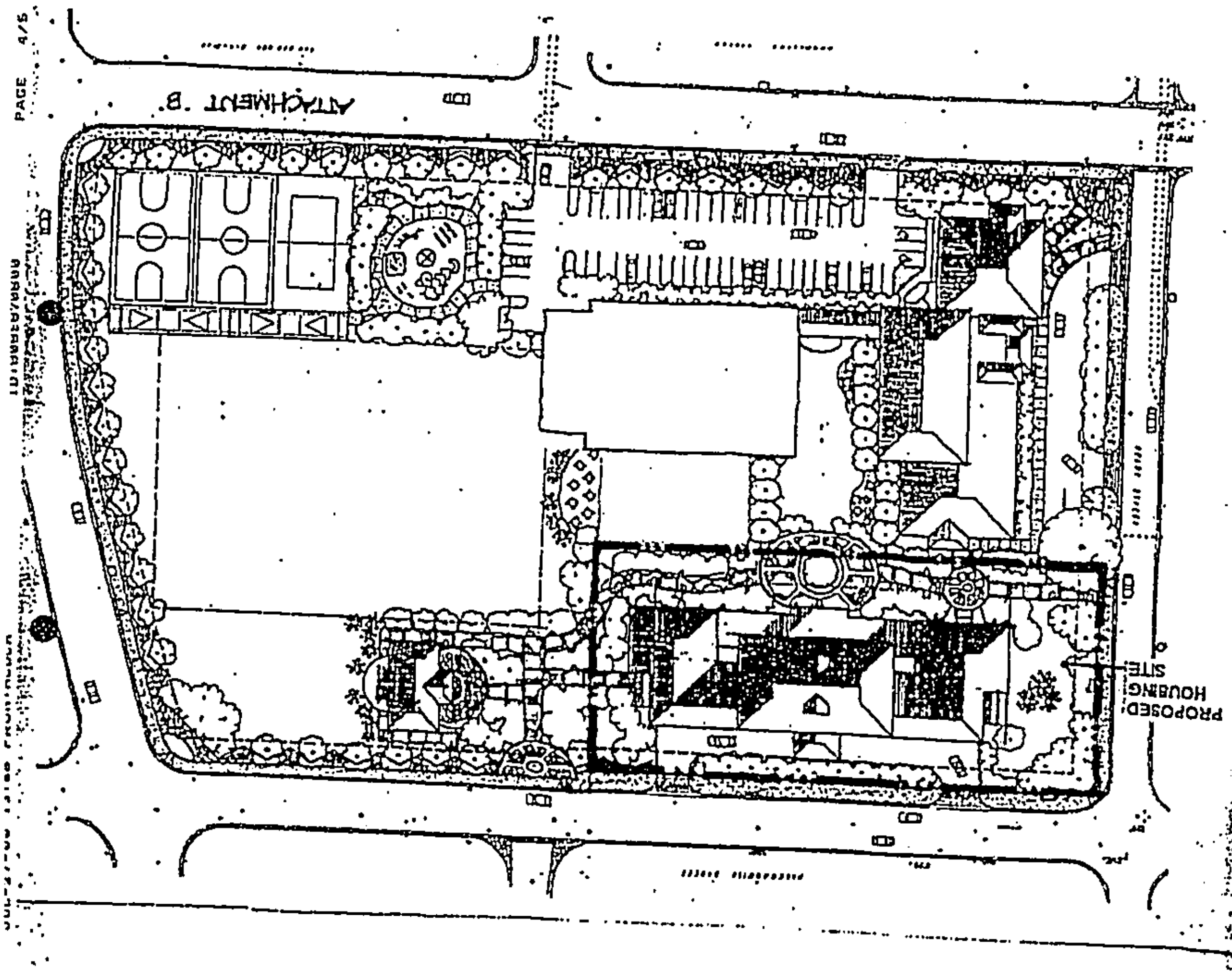
3. The School layout shown on the site plan was based on DOE space requirements.
   - It could be possible to adjust the floor plan of Cafeteria building of the School to obtain the required setbacks and still maintain the required space for the School.
   - Adjusting the floor plan could be accomplished by either a redesign of the space layout or adjusting how the floor plan is oriented on the site. (see attachment B)
   - We would also like to suggest that HCDCH indicate in the RFP that the open area currently shown on the site plan between the two projects be maintained.

   It should also be noted that several schemes for the School were developed in addition to the Scheme that is in question.
   - One scheme had a similar layout for the School that would work with the proposed Housing property, however, this option was based on the fact that Keawe Street would be closed and utilized for parking. (see attachment C)

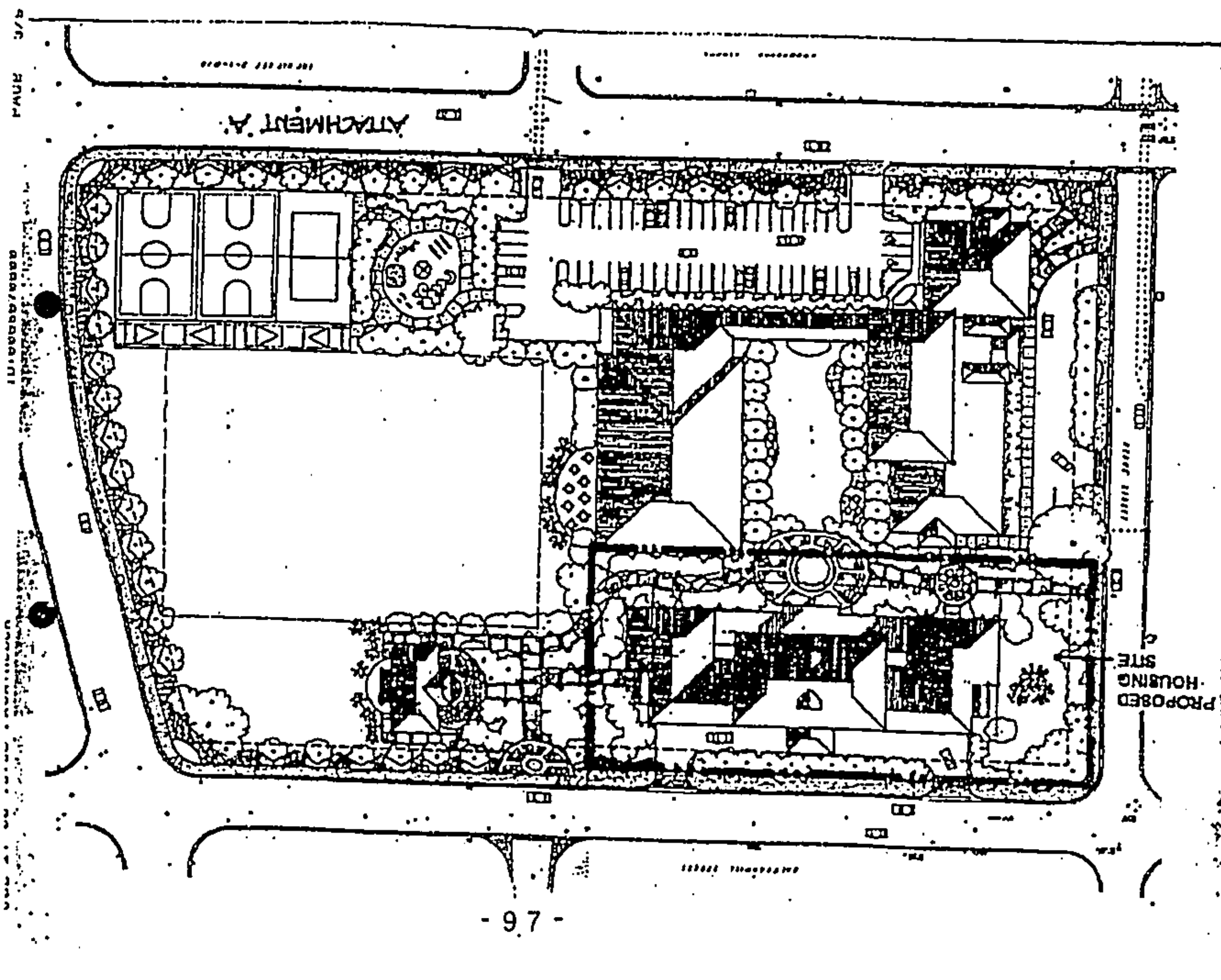
5. In summary, although the proposed Housing site currently encroaches on the School building, because of the options available for adjustment to the School design, it is possible for the Housing and School projects to coexist on the same site.

If you have any questions, please feel free to contact me at 526-2828 x304. Thank you.

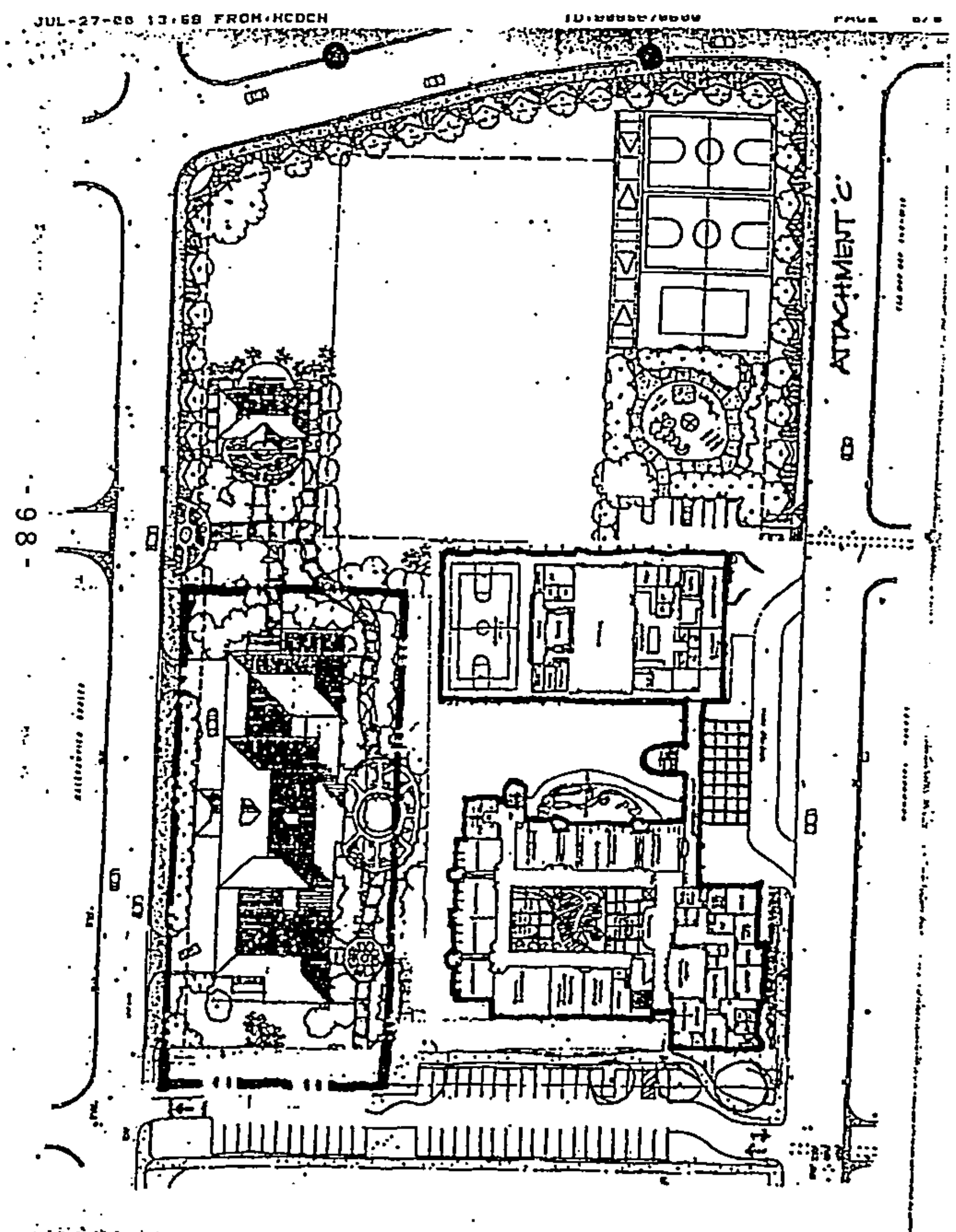
We assume that these items are stated correctly, unless we are notified otherwise within five working days.



ATTACHMENT 'B'
PAGE 4/5
PROPOSED HOUSING SITE



ATTACHMENT 'A'
PROPOSED HOUSING SITE



BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2843

November 9, 2000

To: Lester H. T. Chuck, Director
Facilities and Support Services Branch
Department of Education

From: Sharyn L. Miyashiro *Sharyn Miyashiro*
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii
(HCDCH)

Thank you for your comment of September 27, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We understand that the Department of Education does not have any objections regarding the proposed project.

We acknowledge the Department of Education's interest in exploring the possible closure of Keawe Street in the future if it improves the school's design.

Thank you again for your comment. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

October 18, 2000

Mr. Stan Fujimoto
Housing and Community Development Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, HI 96813

Dear Mr. Fujimoto:

Subject: Pohukaina Assisted Elderly Housing, Draft Environmental Assessment, TMK 2-1-51:09 por., Kakaako, Oahu, Dated August, 2000

Thank you for the opportunity to review the subject application. The Department of Hawaiian Home Lands has no comment to offer.

If you have any questions, please call Daniel Ornellas of our Planning Office at 586-3836.

Aloha,

for
Raynard C. Soon, Chairman
Hawaiian Homes Commission

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2845

November 9, 2000

To: Raynard C. Soon, Chairman
Hawaiian Homos Commission

From: Sharyn L. Miyashiro
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 18, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We understand that your office does not have any comments at this time.

Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

COPY

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

October 31, 2000

98-076A/epo

Mr. Stan Fujimoto
Housing and Community Development
Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

Subject: Draft Environmental Assessment
Pohukaina Assisted Elderly Housing
Kakaako Community Development District
Honolulu, Hawaii
TMK: 2-1-51:por. of 9

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Solid Waste

Since the development of the project will involve road and/or lot paving activities, the Department of Health reminds the developer that Hawaii Revised Statutes, Chapter 103D-407 mandates the use of glasphalt for all State and County paving projects when the glass is available to the quarry or contractor at a price no greater than that of equivalent aggregate.

In addition to this, the developer shall ensure that all solid waste generated during the project's construction be directed to a permitted solid waste disposal, processing or recycling facility.

Please contact Mr. Lane Otsu of the Office of Solid Waste Management at (808)586-4240 with any questions regarding these comments.

Fugitive Dust

Due to the nature of the project, there is a significant potential for fugitive dust to be generated during the removal of debris and during the grading, trenching, and construction activities that would impact nearby residences, businesses, and

thoroughfares. It is suggested that a dust control management plan be developed which identifies and addresses activities that have significant potential for fugitive dust to be generated. Implementation of adequate dust control measures during all phases of the project is necessary.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control", Section 11-60.1-33 on Fugitive Dust. The contractor should provide adequate means to control dust from road areas and during the various phases of construction activities. These measures include, but are not limited to:

a. planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing material transfer points and on-site vehicular traffic routes, and locating potentially dust equipment in areas of the least impact;

b. providing an adequate water source at the site prior to start-up of construction activities;

c. landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. controlling of dust from shoulders, project entrances, and access roads; and

e. providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.

If you have any questions regarding fugitive dust, please contact Mr. Calen Miyahara of the Clean Air Branch at 586-4200.

Noise

1. Activities associated with the construction of the project shall comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

   a. The contractor shall obtain a noise permit if the noise levels from the construction activities are expected to exceed the maximum permissible sound levels of the regulations as stated in Section 11-46-6(a).

   b. Construction equipment and on-site vehicles requiring an exhaust of gas or air shall be equipped with mufflers as stated in Section 11-46-6(b)(1)(A).

Mr. Stan Fujimoto
October 31, 2000
Page 3

c. The contractor shall comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit as stated in Section 11-46-7(d)(4).

2. Sound levels emanating from stationary equipment such as air conditioning systems shall comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

Should there be any questions on this matter, please call Mr. Russell S. Takata, Program Manager, Noise, Radiation and Indoor Air Quality Branch at 586-4701.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: Environmental Communications, Inc.
OSWM
CAB
NR&IAQB

BENJAMIN J. CAYETANO
GOVERNOR

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

00:DEV/2866

November 13, 2000

To: Gary Gill, Deputy Director
Environmental Health Administration
Department of Health

From: Sharyn L. Miyashiro
Acting Executive Director

Subject: Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 31, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH.

In response to your comments, we offer the following:

Solid Waste

We acknowledge that Section 103D-407, Hawaii Revised Statutes, mandates the use of glasphalt for all State and County paving projects when the glass is available to the quarry or contractor at a price no greater than that of equivalent aggregate, and that all solid waste generated during the project's construction should be directed to a permitted solid waste disposal, processing or recycling facility.

Fugitive Dust

We acknowledge that construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on fugitive dust.

<u>Noise</u>

We acknowledge that the project shall comply with Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control," relating to noise controls for construction activities and stationary equipment such as air conditioning systems.

The developer selected for the project shall be required to comply with all laws and regulations, and the requirements mentioned in your letter shall be included in the Request For Proposal materials.

Thank you again for your comments. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION

Oct 6 12 53 PM '00
RECEIVED
H.C.D.C.H.

October 5, 2000

LOG NO: 26308
DOC NO: 0009co15
Architecture

Mr. Stan Fujimoto
Housing and Community Development Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

SUBJECT: Draft Environmental Assessment
Pohukaina Assisted Elderly Housing
TMK 2-1-51:portion of 09, Kakaako, Honolulu, Oahu

Thank you for the Draft Environmental Assessment dated August 2000, received September 12, 2000. We have serious concerns regarding the proposed project and the effects it will have on the future use of the parcel and the significant historical sites known to be within and adjacent to the project area.

Archaeology Comments:
The archaeological assessment presented in Appendix A provides an adequate summary of available information on historic sites in the project area. We agree that it is highly likely that additional sites such as human burials, traditional Hawaiian cultural layers and historic-era deposits or building foundations are likely to be found in the area proposed for the Pohukaina Assisted Elderly Housing. In view of this fact, we recommend that prior to beginning construction, an archaeological inventory survey with subsurface testing should be conducted in the project area in order to locate any historic sites which may be present. Sufficient information should be gathered from the survey to evaluate site significance and to recommend mitigation, if needed. A report of the findings should be submitted to the State Historic Preservation Division for review and approval. If significant historic sites are found during the survey, a mitigation plan may need to be developed and executed. This may involve archaeological salvage (data recovery) excavations and/or archaeological monitoring of construction work at the site. In addition, if human burials are found during the survey and determined to be Native Hawaiian in ethnicity, their treatment and disposition needs to be decided in consultation with the O'ahu Island Burial Council. Treatment and disposition of burials can include preservation in place.

Mr. Stan Fujimoto
Page Two

Time should be allowed for planning for the survey, review of the report findings, agreement on mitigation commitments, the development of a scope for mitigation work, and the execution of mitigation fieldwork. Survey test excavations and report write-up can involve a number of months (three to five months). If the report needs revision before it acceptably documents the findings, a further on to three months may be needed in this step. A mitigation scope may take a month to finalize. Salvage excavations can take one to two months in the field, depending on the amount and kinds of work needed. It is important that the developer allow enough time for resolution of these matters, so that construction can begin without delays.

Architectural Comments:
We believe the development of this parcel needs to be considered in its totality, and not in a piecemeal fashion. We are aware that much effort has been put into the planning of this Public parcel. In the recent past, at a May 21, 1998, meeting of the Hawaii Review Board of Historic Places, we were presented with the proposed demolition of Mother Waldron Park. Serious concerns were expressed about the appropriateness of the proposed high intensity use of the parcel. Various plans were developed, and the location or any location of housing on this parcel jeopardizes use for the future school and the park. We believe that this project would have 'an adverse effect' on the Mother Waldron Park. As you have noted, Mother Waldron Park is a contributing property in the thematic nomination for Art Deco Parks in the City and County of Honolulu (SIHP no. 50-80-14-1388), and as such is listed on the Hawaii Register of Historic Places. The various alternatives which have been presented at various meetings indicate that the school and its playing fields require the area indicated for elderly housing. The assessment does not address how the historic Mother Waldron Park features such as walls and buildings will be impacted by this project or limit the use of the school area, possibly threatening the historic site.

Section D notes that the parcel is currently zoned as Public, not residential (per the Land Use Plan Map) and Section E determines that the 'impacts associated with the proposed project have generally been determined as negligible. 'In looking at the plans for the area this block provides an open space, low density, green park block in the center of a high density urban area. To parcel this corner off for a high rise appears counter to the overall plan for the area. This will have an adverse impact on the long term intended use of the block. While the use is compatible with the area, the use it is not compatible on this parcel with the park or the proposed school. This proposal would have a significant negative impact on Mother Waldron Park, if a school is still intended for this parcel.

VI. Findings and Reasons Supporting Determinstion, we believe that most of these do not accurately address the larger impacts. The action will have a significant impact on different phases of development for this parcel; primary, secondary and cumulative. The action severely limits the use of the parcel for the school and threatens the integrity (and features) of the Mother Waldron Park. It will curtail the beneficial uses of the immediate environment, by

Mr. Stan Fujimoto
Page Three

limiting the property dedicated for the school, a very important public benefit. The project appears inconsistent with the overall plan for the area, which has the parcel zoned as public. The action could have a negative affect on the economic and social welfare of the community, because of the limitations it puts on the future school and the park. As a high rise on a low density block the project will negatively impact the scenic vista and view planes around the parcel, and the historic site.

We believe that the project will have a significant impact and 'an adverse affect' on Mother Waldron Park and disagree with a 'Finding of No Significant Impact.'

Thank you for the opportunity to comment. If you have any questions please have your staff contact Sara Collins (Archaeologist) at 692-8026 or Carol Ogata (Architect) at 692-8032.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

CO:jk

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2841

November 9, 2000

To: Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources

From: Sharyn L. Miyashiro
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 5, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We understand that your office has concerns regarding the proposed project and assure you that it is HCDCH's intent to evaluate and mitigate all issues related to the proposed project. To address your concerns, we offer the following:

Archaeology:
We concur that an archaeological inventory survey with subsurface testing should be conducted prior to commencement of construction. HCDCH will place this requirement in the Request For Proposal (RFP) that is being prepared for the project. The RFP will inform proposers that findings from the survey are to be submitted to the State Historic Preservation Division for review and approval. If significant historic sites or human burials are uncovered during the survey, your office will be immediately contacted for development of appropriate mitigation measures. We understand that the evaluation and mitigation process can be time-consuming and will inform proposers to appropriately schedule work to allow time for this process.

Architecture:
We understand your concern regarding the historic nature of Mother Waldron Park and its existing structures. Please be assured that the proposed project will not require the demolition of any of the park structures. The portion of the project block that will be used for the proposed assisted elderly housing project is located entirely on the westerly (ewa) side of the block which is beyond the boundary of the Mother Waldron Park.

The subject assisted elderly housing project was included in a master planning process conducted by the Hawaii Community Development Authority in 1998 to determine long-term uses proposed for the project block. The master plan includes other compatible uses, however, each use is not a phase of the larger undertaking. While other uses such as an elementary school may be accommodated in the master plan, they are not in a sufficient state of planning to address potential impacts related to their development. Under these circumstances, the Final Environmental Assessment for the subject project will discuss potential impacts but cannot do so in any great detail.

We do not agree that residential use and park or school uses are incompatible. The Department of Education does not object to the proposed assisted elderly project, and the proximity of the school and the proposed project may facilitate opportunities for mutually beneficial intergenerational programs. While each of the proposed uses are of high priority, we believe that none precludes the use of the others. This is the challenge of working within a highly urban environment. HCDCH will work to ensure that the proposed project can co-exist with the other uses on the limited land available.

Findings and Determination:
Section 11-200-7, Hawaii Administrative Rules (HAR), states that, *A group of actions proposed by an agency or an applicant shall be treated as a single action when: (1) The component actions are phases or increments of a larger total undertaking; (2) An individual project is a necessary precedent for a larger project (3) An individual project represents a commitment to a larger project; or (4) The actions in question are essentially identical and a single statement will adequately address the impacts of each individual action and those of the group of actions as a whole..*

HCDCH will not be the developer of, nor is it proposing to develop the other planned uses in the project block. The proposed assisted elderly housing project is not a phase of a larger undertaking, is not a necessary precedent to the other planned uses, does not represent a commitment to undertake the other uses, and is not identical to the other uses in the project block. The proposed project is outside the boundaries and will not require the demolition nor displacement of the historic Mother Waldron Park. Therefore, a Finding of No Significant Impact for the proposed assisted elderly housing project meets the requirements of Chapter 11-200, HAR.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

LEADING HAWAII INTO THE NEW MILLENNIUM
1959 2000+

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
STP 8.9686

September 22, 2000

Mr. Stan Fujimoto
Housing and Community Development Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

Thank you for your transmittal requesting our review of the subject project.

The proposed project will not impact our State transportation facilities.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

c: Taeyong Kim, Environmental Communications, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2856

November 9, 2000

To: Kazu Hayashida
Director of Transportation
Department of Transportation

From: Sharyn L. Miyashiro
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii
(HCDCH)

Thank you for your comment of September 22, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We acknowledge that the proposed project will not impact State transportation facilities.

Thank you again for your comment. Should there by any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO

Benjamin J. Cayetano
Governor

Lori Ann C. Lum
Chair

Jan S. Yokota
Executive Director

7 Ala Moana Boulevard
Suite 1001
Honolulu, Hawaii
96813

Telephone
(808) 587-2870

Facsimile
[redacted]
(808) 587-8150
e-Mail
[redacted]
contact@hcdaweb.org
Web site
[redacted]
www.hcdaweb.org

Ref. Nos.: DEV DP 2.31.8a/
PL GEN 1.52

October 3, 2000

Ms. Sharyn L. Miyashiro
Acting Executive Director
Housing and Community Development
Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Ms. Miyashiro:

Re: <u>Draft Environmental Assessment – Pohukaina Assisted Elderly Housing</u>

Thank you for the opportunity to review the subject draft Environmental Assessment ("EA"). We have the following comments to offer:

The project site is located within the Kakaako Community Development District ("KCDD") Mauka Area and zoned for public use. In the Kakaako Community Development District Plan ("Mauka Area Plan"), future use of the property includes an elementary school and neighborhood park.

The draft EA states that the proposed project involves the development of an elderly assisted living facility on a portion of the school/park site. A change in zoning on the Mauka Area Land Use Plan will be required to accommodate the project. In previous discussions among the Office of Environmental Quality Control, Housing and Community Development Corporation of Hawaii and HCDA staff in December 1999, it was our understanding that the purpose of the EA was to assess impacts relating to the proposed change in zoning designation from "Public" to "Mixed Use Zone – Residential". The final EA should disclose the following:

- Impacts relating to the proposed zone change, including the loss of Public-zoned lands within the KCDD.
- Potential impacts of an elderly housing project located adjacent to an elementary school and neighborhood park. Potential impacts include: (1) noise generated from the school and playground area; and (2) safety issues as the site plan shows the uses in close proximity to each other.

- As mentioned in the draft EA, the site contains a historic structure and wall system. Impacts concerning the siting of the proposed elderly housing project, the elementary school and neighborhood park in relation to the existing historic structure and wall system should be addressed in the final EA.

A Final Environmental Impact Statement ("FEIS") for the Mauka Area Plan was accepted in June 1983. Under this master FEIS, impacts relating to the implementation of the Mauka Area Plan and associated rules were assessed in accordance with Chapter 343, Hawaii Revised Statutes. Information on the FEIS for the KCDD Mauka Area Plan should be provided in the final EA as background information.

For clarification purposes, the project site is located within the KCDD Mauka Area, not the HCDA Mauka Area. Likewise, the Mauka Area Plan and Rules are specific to the KCDD.

Again, thank you for the opportunity to comment on the draft EA. If you have any questions, please contact Susan Tamura of our Planning Office at 587-8180.

Sincerely,

Jan S. Yokota
Executive Director

JSY/SJT:gst
c: ✓Mr. Taeyong M. Kim (Environmental Communications, Inc.)
Office of Environmental Quality Control

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2840

November 9, 2000

To: Jan S. Yokota, Executive Director
Hawaii Community Development Authority

From: Sharyn L. Miyashiro *Sharyn Miyashiro*
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 3, 2000 regarding the Draft Environmental Assessment (EA) for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. It is our understanding the proposed project is located within the Kakaako Community Development District (KDCC) Mauka Area and is presently zoned for public use. It is also understood that the Mauka Area Plan designates the project site for "Public" use that may include an elementary school. The proposed use will require a change in zoning from "Public" to "Mixed Use Zone – Residential." It is HCDCH's intent to file for a change in zoning upon completion of the EA process.

As requested, the Final EA for the proposed project will include discussion on the following items:

- Discussion on the impacts relating to the proposed zone change including the loss of Public-zoned lands in the KCDD;
- Discussion on the impacts of locating an elderly housing project adjacent to an elementary school and park. This discussion will include noise and safety issues associated with the respective park/school and housing uses.
- Discussion regarding the adjacent historic structures will be expanded in the Final EA.

Reference to the Final Environmental Impact Statement for the Mauka Area Plan and the KCDD Mauka Area Plan will be included in the Final EA.

Thank you for clarifying that the project site is located in the KCDD Mauka Area not the HCDA Mauka Area. This clarification will be incorporated in the Final EA document.

The subject assisted elderly housing project was included in a master planning process conducted by the Hawaii Community Development Authority in 1998 to determine long-term uses proposed for the project block. The master plan includes other compatible uses, however, each use is not a phase of the entire project block. While other uses such as an elementary school may be accommodated in the master plan, they are not in a sufficient state of planning to address potential impacts related to their development. Under these circumstances, the Final Environmental Assessment for the subject project will discuss potential impacts but cannot do so in any great detail.

Section 11-200-7, Hawaii Administrative Rules (HAR), states that, *A group of actions proposed by an agency or an applicant shall be treated as a single action when: (1) The component actions are phases or increments of a larger total undertaking; (2) An individual project is a necessary precedent for a larger project (3) An individual project represents a commitment to a larger project; or (4) The actions in question are essentially identical and a single statement will adequately address the impacts of each individual action and those of the group of actions as a whole.*

HCDCH will not be the developer of, nor is it proposing to develop the other planned uses in the project block. The proposed assisted elderly housing project is not a phase of a larger undertaking, is not a necessary precedent to the other planned uses, does not represent a commitment to undertake the other uses, and is not identical to the other uses in the project block. The proposed project is outside the boundaries and will not require the demolition nor displacement of the historic Mother Waldron Park. Therefore, a Finding of No Significant Impact for the proposed assisted elderly housing project meets the requirements of Chapter 11-200, HAR.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

Sep 15 00 01:29p State of Hawaii - OEQC (808) 586-4186 p.1

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

GENEVIEVE SALMONSON
DIRECTOR

September 15, 2000

Sharyn Miyashiro, Acting Director
Housing & Community Development Corporation of HI
677 Queen Street, #300
Honolulu, Hawaii 96813

Attention: Stan Fujimoto

Dear Ms. Miyashiro:

Subject: *Draft Environmental Assessment (EA) for Pohukaina Assisted Elderly Housing Project*

We have the following comments to offer:

1. Visual impacts: In the final EA include drawings or diagrams of the proposed buildings and any proposed landscaping that show the final appearance of the project. If the final design has not yet been selected, enclose renderings of similar housing projects. For the landscaping we recommend the use of native Hawaiian trees and plants.

2. Emergencies: Will the complex include a backup generator to operate elevators during a power outage and to pump water to the upper floors? If not, how will such emergencies be handled, given that residents require assisted housing?

3. Sustainable Building Design:
Please consider applying sustainable building techniques presented in the "Guidelines for Sustainable Building Design in Hawaii," paying particular attention to section IV (*Energy Use*), #9, the use of solar water heaters. In the final EA include a description of any of the techniques you will implement.
You may contact this office if you need a paper copy of this document or access it from our homepage at *http://www.state.hi.us/health/oeqc/index.html*.

4. Contacts: Notify the nearest neighbors or neighboring landowners of the proposed project, allowing them sufficient time to review the draft EA and submit comments. Document all contacts in the final EA, including those made during the pre-consultation phase, and include copies of any correspondence.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

c: Taeyong Kim, Env. Communications

- 109 -

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
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FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2847

November 9, 2000

To: Genevieve Salmonson, Director
Office of Environmental Quality Control

From: Sharyn L. Miyashiro Sharyn Miyashiro
Acting Executive Director

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of September 15, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. In response to your comments, we offer the following:

1. The Final Environmental Assessment will include a composite photograph and drawing of a conceptual project building. This depiction, while not representative of the selected Request For Proposal (RFP) concept, will provide an approximation of the mass and scale of the proposed structure. We understand that your office recommends the use of native Hawaiian trees and plants and will include this suggestion in the RFP materials.

2. Your suggestion for a backup generator for elevator and water pump operation during a power outage will be included in the RFP materials.

3. Energy conservation measures to be incorporated into the project cannot be defined at this time. A copy of the *Guidelines for Sustainable Building Design in Hawaii* will be included in the RFP document and all RFP participants will be encouraged to consider these guidelines.

4. Neighboring landowners have been notified and provided a copy of the Draft Environmental Assessment. A list of contacted parties, including those contacted during the pre-consultation phase, and their comments will be included in the Final Environmental Assessment.

Thank you again for your comments. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

COPY

September 20, 2000

Mr. Stan Fujimoto
Housing and Community Development
Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

Subject: Your Transmittal of September 5, 2000 Regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the proposed Pohukaina Assisted Elderly Housing project.

We have the following comments to offer:

1. There is an existing 3-inch compound water meter currently serving the proposed project area.

2. The existing water system is presently adequate to accommodate the proposed elderly housing project.

3. The applicant will be required to obtain a water allocation from the Department of Land and Natural Resources.

4. The availability of water will be confirmed when the building permit application is submitted for our review and approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for transmission and daily storage.

5. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.

6. The proposed project is subject to Board of Water Supply cross-connection control requirements prior to the issuance of the building permit application.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Taeyong M. Kim, Environmental Communications, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2842

November 9, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Jamile:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of September 20, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. In response to your comments, we offer the following:

1. We acknowledge that a three-inch compound water meter currently serves the project area.

2. We acknowledge that the existing water system is presently adequate to accommodate the proposed project.

3. We understand that a water allocation will be required from the Department of Land and Natural Resources.

4. We understand that the availability of water will be confirmed when the building permit application is submitted for your review and approval, and that when water is made available, a Water System Facilities Charge will be assessed for transmission and daily storage.

5. In the event that a three-inch or larger meter is required, the construction drawings for the installation of the meter will be submitted to your agency for review and approval.

6. We understand that the proposed project is subject to your agency's cross-connection control requirements prior to the issuance of the building permit application.

Thank you again for your comments. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn L. Miyashiro
Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 527-5311 • FAX: (808) 527-5498 • INTERNET: www.co.honolulu.hi.us

FAXED 10-10-00

JEREMY HARRIS
MAYOR

ARFLINA MADALO SHAW
DIRECTOR

MANUEL T. VALBUENA
DEPUTY DIRECTOR

October 9, 2000

Ms. Taeyong M. Kim, Principal Planner
Environmental Communications, Inc.
Post Office Box 536
Honolulu, Hawaii 96809

Dear Ms. Kim:

Thank you for requesting the Elderly Affairs Division, Department of Community Services of the City and County of Honolulu to review and comment on the Draft Environmental Assessment for the proposed project, Pohukaina Assisted Elderly Housing by the State of Hawaii's Housing and Community Development Corporation of Hawaii (HCDCH).

We continue to concur that projects of this type are needed in the City and County of Honolulu. In addition to the more than 1,750 elderly currently on state and county housing wait lists on the island of Oahu, over the next 5 years it is anticipated that 2,000 of the 3,274 existing Section 8 units statewide may be converted to market rate housing units as their Section 8 rental agreements with the federal government expire. We strongly support that all of this project, be reserved for these low-income individuals as the Ala Moana-Kakaako District is one of the 12 communities with large numbers of low-income seniors.

Additionally, the 60 and over population is the fastest growing population segment in the nation. From 2000 to 2010 we expect to see our state's overall senior population rise by 31%. Seniors in the state of Hawaii also enjoy the longest life expectancy of any seniors in the United States, 6 years longer than seniors in the rest of the nation. This segment of our senior population, those 85 and older, will see the most dramatic increases in numbers, more than 75% during that same 10 year period.

We strongly concur with HCDCH's desire to have the developer provide either assisted living and/or healthcare support services on site. Disability increases with age. While only 5% of those 60 and older have a mobility and self-care limitation, almost 12% of those 75 and older and 22% of those 85 and older have such limitations. This makes the need for support and assisted living services much more critical as our seniors age.

This particular site is appropriate for the development of elderly housing because of its close proximity to the city center and existing healthcare services for the elderly such as doctor's offices, area hospitals and long-term care facilities. Convenient shopping and bus lines are within walking distance. However, since it can be anticipated that many of the projects residents will have mobility limitations, we suggest that the developer include a transportation component in the operational budget of this project. The inclusion of a transportation component would allows the residents, especially those who are mobility restricted, to get out of their apartments on a regular basis to attend to chores such as grocery shopping, doctor's appointments, and filling of prescriptions in the local area. As re-development of the Kakaako District continues, even more facilities should become available to service their needs.

We would also like to redirect you to the "senior friendly" suggestions we made in our May 2000 letter to you, on flooring, lighting, and adaptability. We look forward to being asked to review the draft of the Request for Proposals in the near future.

Sincerely,

Karen K. Miyake

Karen K. Miyake
County Executive on Aging
Elderly Affairs Division

PT:ab

BENJAMIN J. CAYETANO
GOVERNOR

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

00:DEV/2854

November 9, 2000

Ms. Karen K. Miyake, County Executive on Aging
Elderly Affairs Division
Department of Community Services
City and County of Honolulu
715 South King Street, Suite 311
Honolulu, Hawaii 96813

Dear Ms. Miyake:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comments of October 9, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We acknowledge your support of the proposed project and your belief that the project is needed and well suited for its proximity to services. Your comment regarding inclusion of a transportation services component is noted and will be forwarded to Request For Proposals (RFP) participants.

We are in receipt of your letter of May 10, 2000 and appreciate your suggestions in creating a "senior friendly" project. These suggestions will also be provided to RFP participants.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn L. Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 527-4663 • FAX: (808) 527-4675 • Website: www.co.honolulu.hi.us

JEREMY HARRIS
Mayor

KENNETH E. SPRAGUE, P.E., Ph.D.
Director

BARRY FUKUNAGA
Deputy Director

ENV 00-75

SEP 1 5 2000

Mr. Stan Fujimoto
Housing and Community Development Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

Subject: Draft Environmental Assessment (DEA)
Pohukaina Assisted Elderly Housing
TMK: 2-1-51: Por. 9

We have reviewed the subject DEA and have the following comments:

1. During construction, best management practices (BMPs) should be employed to control and reduce discharge of pollutants.

2. If possible, direct surface runoff to landscaped area or water quality inlets to minimize discharge of pollutants.

3. Section III.C.8., Infrastructure and Utilities: The "Wastewater" should be renamed as "Stormwater".

4. Under the "Wastewater", the DEA should address the availability and adequacy of existing sewer line (s) in the vicinity area.

Should you have any questions, please contact Alex Ho at 523-4150.

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Environmental Communications, Inc. - Taeyong M. Kim

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
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SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2850

November 9, 2000

Mr. Kenneth E. Sprague, Director
Department of Environmental Services
City and County of Honolulu
650 South King Street, Third Floor
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of September 15, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. In response to your comments, we offer the following:

1. Request For Proposal (RFP) participants will be informed that best management practices should be used to control and reduce discharge of pollutants during construction.

2. While a final design for the proposed project has not been prepared, RFP participants will be informed that surface runoff should be directed to landscaped areas or water quality inlets, if possible.

3. "Wastewater" will be renamed "Stormwater" in Section II.C.8 of the Draft Environmental Assessment, Infrastructure and Utilities.

4. Sewerlines in the project area consist of an 8-inch line along Halekauwila Street and a 24-inch line along Cooke Street. Both

lines were installed in 1991 and were sized to accommodate future growth in the Kakaako District.

Thank you again for your comments. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: 523-4054

JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

MICHAEL T. AMII
DEPUTY DIRECTOR

September 13, 2000

Mr. Stan Fujimoto
Housing and Community Development
  Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

Subject: Draft Environmental Assessment
Pohukaina Assisted Elderly Housing

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to Pohukaina Assisted Elderly Housing.

We have no objections to the proposed project so long as it will not adversely impact the adjacent park site or its recreational activities.

Should you have any questions, please contact Mr. John Reid, Planner, at 547-7396.

Sincerely,

W.D. Balfour Jr.

WILLIAM D. BALFOUR JR.
Director

WDB:cu
(00-24413R)

cc: ✓Mr. Taeyong Kim, Environmental Communications, Inc.
Mr. Don Griffin, Department of Design and Construction

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
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FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2852

November 9, 2000

Mr. William D. Balfour, Jr., Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street, 10th Floor
Honolulu, Hawaii 96813

Dear Mr. Balfour:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of September 13, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH.

We acknowledge that you have no objection to the proposed project if the adjacent park site or its recreational activities are not adversely impacted. We would like to confirm that the proposed project will not impact existing park uses.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us/planning

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

2000/CLOG-5075 (BA)

October 13, 2000

Mr. Taeyong M. Kim
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Kim:

Draft Environmental Assessment
Pohukaina Assisted Elderly Housing - Kakaako
Tax Map Key 2-1-051: portion of 009

The Department of Planning and Permitting appreciates the opportunity to review the Draft Environmental Assessment for the proposed project. We offer the following comments:

Community Action Plans Branch

The current Development Plan (DP) for the Primary Urban Center (PUC) designates Kakaako as a Special Area. An objective for redevelopment of this area is to preserve mauka-makai views and views of Punchbowl from within Kakaako as well as from areas beyond its boundaries. However, while a mauka-makai building orientation is desirable, the given geometry of the project site sets limitations on the siting of the tower.

Public projects, including affordable housing projects, are considered priority developments in the Primary Urban Center. The PUC DP Public Review Draft also ranks the development of housing in the proposed Heart of Honolulu as a development priority.

The continued growth of the senior population within the Kakaako community should be tempered with the availability of uses, facilities and services within walking distance to the project. The quality of life for the project inhabitants will be dependent on the mix of area housing types, commercial uses, community facilities and alternative transportation modes. In addition to the proposed community center, the State Housing and Community Development Corporation of Hawaii should consider the economic feasibility of incorporating appropriate

ground floor commercial establishments (convenience shops, professional services, food service, etc.) along the Halekauwila Street frontage. We believe the project streetscape and the residents of Kakaako would benefit by the pedestrian activity and ground level interest generated by such uses.

The property is currently DP designated as Public and Quasi-Public.

Traffic Review Branch

Based on our review, we have no objections to the proposed project and generally concur with the findings contained in the Traffic Impact Analysis Report (TIAR). However, the following issues should be addressed since project plans and proposals may need to be revised and/or adjusted accordingly during the course of the development:

1. The number of parking stalls being provided should be in accordance with the Land Use Ordinance. Although we understand that there are other developments in close proximity to this site that have a reduced number of stalls, we would recommend conducting an assessment of the actual parking demand within these buildings to use as a basis for the number of parking stalls needed for this project. The number of stalls should also take into account the age or relative activity level of the senior tenants.

2. The distribution rates for each driveway is based on the configuration of the building in relation to the ramp for the parking area. If the location of the ramp is shifted considerably, the distribution rates should be adjusted accordingly.

3. The driveway along the Halekauwila Street frontage should be constructed as a standard City dropped driveway. The driveway grade should not exceed five percent for an minimum distance of 25-feet from the existing property line along Halekauwila Street. Adequate vehicular sight distance at the driveway to pedestrians and other vehicles should be provided and maintained. Landscaping and structures in the vicinity of the driveways should be designed and located such that it provides adequate vehicular sight distance. The width of the driveway should be designed to accommodate the anticipated types of vehicles expected to access the site.

4. Roadway improvements at the corner of Halekauwila and Keawe Streets may be required.

5. Walkways within the project should direct internal pedestrian traffic to street intersections.

Mr. Taeyong M. Kim
Environmental Communications, Inc.
Page 3
October 13, 2000

6. Construction plans for all work within and affecting the road right-of-way should be submitted for review and approval. Traffic control plans during construction for work on City streets should also be submitted for approval, as required.

Civil Engineering Branch

Corner rounding and curb ramp improvements fronting the property are recommended. All frontage improvements shall be constructed to city standards and comply with the Accessibility Policies for Public Rights-of-Way.

A drainage report to address any impact to the drainage system will be required when the grading/construction plans are submitted to the Department of Planning and Permitting for approval.

Roof drains and surface runoff from paved surfaces shall be routed through vegetated filters or stormwater quality inlets prior to discharging into the municipal drainage system.

Wastewater Branch

The municipal sewer system is adequate to accommodate the proposed 200 studio and 1-bedroom units. The applicant will be required to submit a Sewer Connection Application form for sewer capacity reservation. The project is also liable for payment of a Wastewater System Facility Charge.

Should you have any questions, please feel free to contact Bonnie Arakawa of my staff at 527-5837.

Sincerely yours,

for RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:lh
pohu-dea.bka

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2844

November 9, 2000

Mr. Randall K. Fujiki, AIA
Director of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 13, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. In response to your comments, we offer the following:

Community Action Plans Branch

1. We concur that the project site does not allow for a mauka-makai orientation but will encourage designs that preserve ocean views where possible.

2. We also agree with your assessment of the need for affordable housing. Rents and income requirements for the project will be within the discretion of the Request For Proposal (RFP) proposers however, addressing the affordable market is proposed to be an evaluation criteria in the selection of proposals.

3. The project site was selected for senior housing due to its location in urban Honolulu and its proximity to services and support facilities. While commercial uses are not required to be a part of

the project, proposers may submit a project design which includes commercial areas based on their assessment of market demand and feasibility.

Traffic Review Branch

1. Thank you for your review of the Traffic Impact analysis Report. Proposers will be informed that the number of parking stalls should be in accordance with the Land Use Ordinance. The Request For Proposal (RFP) process utilizes the developer's experience and expertise in conceiving a project that will be financially and operationally feasible, including a determination of the number of parking stalls considering the age or relative activity level of the senior tenants.

2. We understand that distribution rates will be affected by a relocation of the access ramp for the parking structure, and RFP proposers will be advised that if the access ramp is shifted considerably, the distribution rates should be adjusted accordingly.

3. Your comments regarding driveway construction standards will be conveyed to proposers. We concur that the driveway design and landscaping should be designed to maximize sight distance and accommodate the anticipated types of vehicles expected to access the site.

4. RFP proposers will be informed that roadway improvements at the corner of Halekauwila and Keawe Streets may be required.

5. Proposers will be advised that walkways within the project should direct internal pedestrian traffic to street intersections.

6. Proposers will be informed that construction plans for all work within and affecting the road right-of-way, and traffic control plans during construction for work on city streets will need to be submitted to the Department of Planning and Permitting for review and approval.

Civil Engineering Branch

RFP proposers will be advised that corner rounding and curb ramp improvements fronting the property are recommended and that all

frontage improvements shall be constructed to city standards and comply with the Accessibility Policies for Public Rights-of-Way.

Proposers will be advised that a drainage report addressing impacts to the drainage system will be required when the grading/construction plans are submitted to the Department of Planning and Permitting for approval, and that drainage should be directed through vegetated filter or stormwater quality inlets prior to discharge into the municipal drainage system.

Wastewater

We understand that the municipal sewer system is adequate to accommodate the proposed project. The selected proposer will be required to submit a Sewer Connection Application form for sewer capacity reservation and to pay for the Wastewater System Facility Charge.

Thank you again for your comment. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn L. Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD9/00-04376R

November 8, 2000

Mr. Stan Fujimoto
Housing and Community Development
Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

Subject: Pohukaina Assisted Elderly Housing

In response to the September 5, 2000 letter from Environmental Communications, Inc., the draft environmental assessment (EA) for the subject project was reviewed. The following comments are the result of this review:

1. The draft EA should address public transit issues, such as:

   - Locations and distances to the nearest TheBus stops should be identified. The proposed project is not along any current City TheBus route. The nearest bus route is Route 6 – Pauoa Valley/UH Woodlawn, that operates on Queen Street. The nearest eastbound bus stop is in front of the senior housing building on Queen Street. The nearest westbound bus stop is on Queen Street farside at Emily Street. Existing TheBus ridership information shows that at least 20% of all passenger boardings are made by senior citizens age 65 and older.

   - Transitions from project to nearest bus stops. Pursuant to the Americans with Disabilities Act, the pathway from the project to the bus stops on Queen Street *must be accessible.*

   - Provisions for TheHandi-Van loading and unloading. TheHandi-Van is a curb-to-curb public paratransit service. Locations where pickups and drop offs will be made should be identified.

   - The project must submit its plans for review and comment to the State Department of Health Disability and Communication Access Board.

   - In the vicinity of the subject project, the alignment for the Kakaako/Waikiki branch of the proposed Primary Corridor Transportation Project Bus Rapid Transit Alternative would be located on Pohukaina Street. The nearest transit stop is envisioned to be on Pohukaina Street near Cooke Street.

2. On Page 31 of the draft EA, the recommendation is made to eliminate approximately seven on-street, parallel parking spaces on the makai side of Halekauwila Street where the driveways for the proposed project are to be located. The draft EA should also discuss the impact of this reduction in the number of on-street parking spaces in the area.

3. All parking and loading needs, including maneuvering areas, should be accommodated on-site.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

cc: Mr. Taeyong M. Kim
Environmental Communications, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

00:DEV/2926

November 16, 2000

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comments of November 8, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. In response to your comments, we offer the following:

1. Public transit issues mentioned in your comments will be incorporated into the Final Environmental Assessment or referred to the Request For Proposal (RFP) participants, as follows:

   a. Locations and distances to the nearest TheBus stops will be included in the Final Environmental Assessment.

   b. The selected developer will be required to comply with all Americans with Disabilities Act regulations including providing appropriate transitions from the project to the nearest bus stops.

   c. RFP participants will be informed that locations where pickups and drop offs will be made for The Handi-Vans should be identified.

   d. The selected developer will be required to submit its plans for review and comment to the State Department of Health Disability and Communication Access Board.

   e. Information concerning potential locations for the Primary Corridor Transportation Project Bus Rapid Transit Alternative alignment and transit stop will be included in the Final Environmental Assessment.

2. On-street parking will be reduced by seven stalls along the makai side of Halekauwila Street. This will have minimal impact on area parking and this information will be included in the Final Environmental Assessment.

3. RFP participants will be informed that all parking and loading needs for the project, including maneuvering areas, should be accommodated on-site.

Thank you again for your comments. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
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JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-TL

October 3, 2000

Mr. Stan Fujimoto
Housing and Community Development
Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Fujimoto:

Thank you for the opportunity to review the Draft Environmental Assessment for Pohukaina Assisted Elderly Housing project. We have the following comments.

- We would like to recommend that the principles of *Crime Prevention through Environmental Design* be used as a guide in designing this project as a means of minimizing criminal activity.
- During the construction phase of this and any other project, dust, noise, and traffic complaints are inevitable and will have an impact on calls for police service to the area.
- After the project is completed, we anticipate an increase in calls for service from the residents as a result of the "intrusion" of industrial sounds that are characteristic of the area.

If there are any questions, please call Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By Eugene Uehura

EUGENE UEHURA, Assistant Chief
Support Services Bureau

cc: Mr. Taeyong H. Kim
Environmental Communications, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2848

November 9, 2000

Mr. Lee. D. Donohue, Chief of Police
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Donohue:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 3, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. In response to your comments, we offer the following:

1. Your recommendation regarding the use of *Crime Prevention through Environmental Design* as a guide for the design of the proposed project is well taken. Request For Proposal (RFP) participants will be urged to consider the principles as a guide to minimizing criminal activity.

2. We acknowledge that noise and traffic complaints are a possibility during the construction phase of the project. The project developer will be required to follow all applicable State and County regulations regarding traffic, dust and noise mitigation.

3. We acknowledge that after the project is completed, there may be an increase in calls for service from the residents as a result of the "intrusion" of industrial sounds that are characteristic of the area.

Thank you again for your comments. Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn L. Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

Scott W.H. Seu, P.E.
Manager
Environmental Department

October 19, 2000

Mr. Stan Fujimoto
Housing and Community Development Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, HI 96813

Dear Mr. Fujimoto:

Subject: Pohukaina Assisted Elderly Housing

Thank you for the opportunity to comment on your August 2000 Draft EA for the Pohukaina Assisted Elderly Housing. We have reviewed the subject document and have no comments at this time.

HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized. Again, thank you for the opportunity to comment on this Draft EA.

Sincerely,

cc:
Taeyong Kim
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, HI 96813

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2846

November 9, 2000

Mr. Scot W. H. Seu, P. E., Manager
Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, HI 96840-0001

Dear Mr. Seu:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 19, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We understand that your office does not have any comments at this time.

Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

Kakaako Improvement Association

P.O. Box 3776 Honolulu, Hawai'i 96812

Mr. Stan Fujimoto
Housing and Community Development Corporation of Hawaii
677 Queen Street 300
Honolulu, Hawaii 96813

October 19, 2000

Re: EA, Pohukaina Assisted Elderly Housing

Dear Mr. Fujimoto:

This EA is absent of any mention of proposed additional development plans for the subject plot. Initially, the elderly housing project was just a part of the proposed development, the other major part being a new elementary school. If this is still the case, then the "cumulative" impacts of the overall development should be addressed somehow in the EA (See, Sec 11-200-7, Multiple or Phased Applicant or Agency Actions).

Without any mention whatsoever of the possible school project on the same site,the EA appears defective in complying with OEQC Regulations.

Very truly yours,

Donald A. Bremner
Legislative Chairman

cc: T. Kim, Env. Communications
Jan Yokota, HCDA

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
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SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2839

November 9, 2000

Mr. Donald A. Bremner
Legislative Chairman
Kakaako Improvement Association
P. O. Box 3776
Honolulu, Hawaii 96812

Dear Mr. Bremner:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 19, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH.

The subject assisted elderly housing project was included in a master planning process conducted by the Hawaii Community Development Authority in 1998 to determine long-term uses proposed for the project block. The master plan includes other compatible uses, however, each use is not a phase of the larger undertaking. While other uses such as an elementary school may be accommodated in the master plan, they are not in a sufficient state of planning to address potential impacts related to their development. Under these circumstances, the Final Environmental Assessment for the subject project will discuss potential impacts but cannot do so in any great detail.

Section 11-200-7, Hawaii Administrative Rules (HAR), states that, *A group of actions proposed by an agency or an applicant shall be treated as a single action when: (1) The component actions are phases or increments of a larger total undertaking; (2) An individual project is a necessary precedent for a larger project (3) An individual project represents a commitment to a larger project; or (4) The actions in question are essentially identical and a single statement will adequately address the impacts of each individual action and those of the group of actions as a whole.*

HCDCH will not be the developer of, nor is it proposing to develop the other planned uses in the project block. The proposed assisted elderly housing project is not a phase of a larger undertaking, is not a necessary precedent to the other planned uses, does not represent a commitment to undertake the other uses, and is not identical to the other uses in the project block. The proposed project is outside the boundaries and will not require the demolition nor displacement of the historic Mother Waldron Park. Therefore, a Finding of No Significant Impact for the proposed assisted elderly housing project meets the requirements of Chapter 11-200, HAR.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

Kam Development Corp.
1249 Wilder Avenue
Honolulu, HI 96822
October 5, 2000

Enviromental Communications, Inc.
1188 Bishop Street
Honolulu, HI 96813

Re: Pohukaina Assisted Elderly Housing

Dear Sir;

We are opposed to another housing project so near to our property. Please note that abutting us at Queen and Keawe Streets is a completed senior housing project. There is another housing project on Halekauwila Street, no more than 50 yards from our proprty.

It is not unreasonable for us to not want to be surrounded by three housing projects under governement control; with one abutting us, one 50 yards on the same street and your new project directly in front of our property.

We are concerned that with three senior housing developments in our immediate area, the seniors will try to restrict industrial and commercial activities in the area due to noise, pollution, aesthetics...that will inconvenience them. After all, Kaakako is first and foremost zoned industrial and commercial, not residential. If too many residential uses are allowed in this area, 1) there is less area for industrial and commercial uses, and 2) the more the residential properties will try to restrict or drive out the industrial uses. This is a clear case where residential owners will be "coming to the nuisance."

We are and intend to be good neighbors, but we can also see potentially adverse conditions appearing between residential property and industrial/business property in Kakaako if too many residential projects are built in a primarily industrial/business area.

Sincerely yours,

Allen Y. Kam
Chairman

s

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

00:DEV/2638

November 9, 2000

Mr. Allen Y. Kam, Chairman
Kam Development Corporation
1249 Wilder Avenue
Honolulu, Hawaii 96822

Dear Mr. Kam:

Subject: Preparation of Draft Environmental Assessment
Pohukaina Assisted Elderly Housing Project
Housing and Community Development Corporation of Hawaii (HCDCH)

Thank you for your comment of October 5, 2000 regarding the Draft Environmental Assessment for the Pohukaina Assisted Elderly Housing Project proposed by HCDCH. We understand that you have concerns regarding the increase in senior housing development in the vicinity of your property. We agree that Kakaako is intended for mixed uses including industrial and commercial uses and would like to note that areas around the project site are also designated as Mixed Use Zone Residential under the Hawaii Community Development Authority *Mauka Area Plan.*

We appreciate your efforts in being a good neighbor and intend to work with surrounding landowners to ensure that our respective plans and uses co-exist. Kakaako is an evolving district and its future is likely to be very different from its present use. It is also HCDCH's mission to provide housing that addresses the changing needs of Hawaii's resident population. While land uses may not appear complimentary, we believe that mixed uses can co-exist if addressed in a cooperative effort.

We appreciate your comments and will take them under advisement. You will also be kept informed of any future developments in the environmental assessment or zoning processes.

Thank you again for your comment. Should you have any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,

Sharyn L. Miyashiro

Sharyn L. Miyashiro
Acting Executive Director

c: Taeyong Kim, Environmental Communications, Inc.
Gordon Wood, AM Partners, Inc.

Appendix A
Archaeological Assessment

AN ARCHAEOLOGICAL ASSESSMENT OF THE MOTHER WALDRON PLAYGROUND/FORMER POHUKAINA SCHOOL PARCEL (6.8 ACRES) IN THE KAKA‘AKO DISTRICT OF HONOLULU, ISLAND OF O‘AHU

by

Hallett H. Hammatt, Ph.D.
and
Rodney Chiogioji, B.A.

Prepared for

AM PARTNERS, INC.

CULTURAL SURVEYS HAWAII
March 1998

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I. INTRODUCTION

At the request of AM Partners,Inc., Cultural Surveys Hawaii has completed an assessment of possible archaeological resources associated an approximately 6.8-acre land parcel located within the Kaka'ako section of downtown Honolulu, on the island of O'ahu (Figure 1). The parcel comprises the block bounded by Halekauwila, Cooke, Pohukaina and Keawe streets. At present the parcel is the site of a municipal parking lot, a state government building, Mother Waldron Playground and a lawn area. A portion of the parcel was the former site of the Pohukaina Elementary School.

The scope of work for this assessment included:

1) Historic background research for the project area, focused on previous land use and previously-recorded archaeological and historical sites. This research includes a review of historic maps, archival documents, land documents, and other historical resources. The emphasis is on identifying potential sensitive areas which could impact the design of future development.

2) Preparation of a report to document the results of the archaeological and historical research. This report is to contain maps, including one which locates potential sensitive areas. The report will also assess potential impacts of future development to archaeological resources and will provide alternatives for mitigation, if appropriate.

The project area was inspected by staff of Cultural Surveys Hawaii on March 8, 1998. Other research undertaken by Cultural Surveys Hawaii for this assessment included: examination of documents and historic photographs at the Hawai'i State Archives, Hamilton Library at the University of Hawai'i, and the Archives of the Bernice Pauahi Bishop Museum; examination of historic maps at the Survey Office of the Department of Land and Natural Resources; and examination of archaeological reports in the libraries of Cultural Surveys Hawaii and of the State Historic Preservation Division.

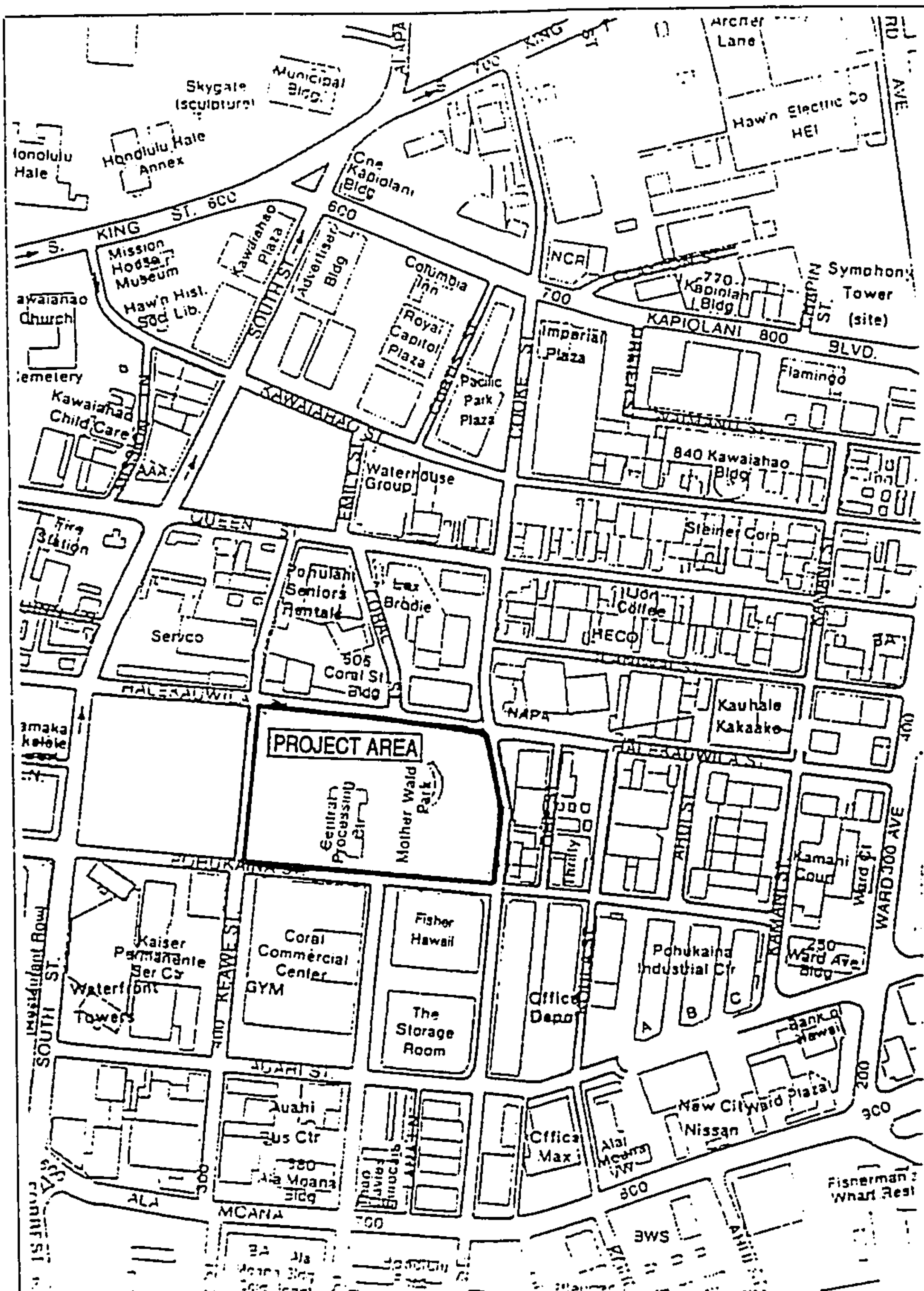

Figure 1 Mother Waldron Park/former Pohukaina School block

II. HISTORICAL DOCUMENTATION OF KAKA'AKO AND THE POHUKAINA SCHOOL/MOTHER WALDRON PLAYGROUND PARCEL

This section begins with a review of the available documentary evidence for the general character of the present Kaka'ako area as it had evolved in the years before western contact in the later 18th century. The development of the town of Honolulu and its environs during the 19th century and into the 20th century was recorded in increasingly abundant documentation - including government records, private accounts, newspapers, maps and photographs. These documents, which allow a more precise focus on the present former Pohukaina School/Mother Waldron Playground block project area, are discussed in the remainder of this section.

Pre-contact to 1850

The area known today as Kaka'ako lies between two centers of population and activity on the southern shore of pre-contact O'ahu: Kou - the area today encompassed by downtown Honolulu - and, to the southeast, Waikiki. At Waikiki, a system of irrigated taro *lo'i* (the design of which was traditionally ascribed to the fifteenth-century chief Kalamakua) fed by streams descending from Makiki, Manoa, and Palolo valleys blanketed the plain extending *mauka* to Moiliili, and networks of fishponds dotted the shoreline. Similarly, Kou possessed shoreward fishponds and irrigated fields fed by streams descending from Nu'uanu and Pauoa valleys.

The writings of early foreign visitors and settlers provide the first descriptions of Honolulu and the Kaka'ako area as they had been shaped and utilized by the Hawaiians before the changes imposed following western contact. A visitor to Honolulu in 1819 described:

> The port of Onorourou, generally frequented today by all the European vessels that come to the Islands, is without doubt the most favorable location with respect to shelter, commerce, and resources necessary for the supply of ships...
>
> The town of Onorourou is located on a large, flat plain. It is on the shores of a bay of the same name. The houses, similar to the most part to those of Owhyhi [Hawai'i] and of Mowi [Maui], are however interspersed with a certain number of houses built of stone that belong for the most part to Europeans or to Anglo-Americans. (de Freycinet 1978:40-42)

Reverend Hiram Bingham, arriving in Honolulu in 1820, described a still predominantly native Hawaiian environment - still a "village" - on the brink of western-induced transformations:

> We can anchor in the roadstead abreast of Honolulu village, on the south side of the island, about 17 miles from the eastern extremity...Passing through the irregular village of some thousands of inhabitants, whose grass thatched habitations were mostly small and mean, while some were more spacious, we walked about a mile northwardly to the opening of the valley of Pauoa, then turning southeasterly, ascending to the top of Punchbowl Hill, an extinguished crater, whose base bounds the northeast part of the village or town...Below us, on the south and west, spread the plain of Honolulu, having its fishponds and salt making pools along the seashore, the village and fort between us and the harbor, and the valley stretching a few miles north into the interior, which

presented its scattered habitations and numerous beds of *kalo* (*arum esculentum*) in its various stages of growth, with its large green leaves, beautifully embossed on the silvery water, in which it flourishes. (Bingham 1981:92-93)

Into the 1820s, Honolulu remained more notable for its native culture than for any western-created urban structure imposed upon that culture.

Another visitor to Honolulu in the 1820s, Jacobus Boelen, hints at the possible pre-contact character of the Honolulu lands that include the present project area in Kaka'ako:

> It would be difficult to say much about Honoruru. On its southern side is the harbor or the basin of that name (which as a result of variations in pronounciation [*sic*] is also written as Honolulu, and on some maps, Honoonoono). The landlocked side in the northwest consists mostly of *tarro* fields. More to the north there are some sugar plantations and a sugar mill, worked by a team of mules. From the north toward the east, where the beach forms the bight of Whytetee [Waikiki], the soil around the village is less fertile, or at least not greatly cultivated. (Boelen 1988:62)

Boelen's description locates the present project area within a "not greatly cultivated" region of Honolulu perhaps extending from Punchbowl Crater at the north through Kaka'ako to the Kalia portion of Waikiki in the east. Confirmation of Boelen's characterization of the Kaka'ako area is presented in the accounts of other visitors cited below.

By the 1840s, western commercial and missionary interests had taken hold and impelled the growth of Honolulu. According to Gorman D. Gilman, who arrived in Honolulu in 1841, Punchbowl Street then marked the Waikiki-ward boundary of the developing city. He recalled in a memoir:

> The next and last street running parallel [he had been describing the streets running *mauka-makai*] was that known as Punchbowl Street. There was on the entire length of this street, from the makai side to the slopes of Punchbowl, but one residence, the two-story house of Mr. Henry Dimond, mauka of King Street. Beyond the street was the old Kawaiahao church and burying ground. A more forsaken, desolate-looking place than the latter can scarcely be imagined. One to see it in its present attractiveness of fences, trees and shrubbery, can hardly believe its former desolation, when without enclosure, horses and cattle had free access to the whole place. (Gilman 1903:89)

Further describing the limits of Honolulu town during the early 1840s, Gilman noted:

> The boundaries of the old town may be said to have been, on the makai side, the waters of the harbor; on the mauka side, Beretania street; on the Waikiki side [*i.e.*, the area just beyond Punchbowl Street], the barren and dusty plain, and on the Ewa side, the Nuuanu Stream. (*Ibid.*:97)

That the environs of the Kawaiaha'o Church and the Kaka'ako district beyond appeared, to western sensibilities at least, a "forsaken", "desolate-looking", "barren and dusty plain" is confirmed by the American missionary C.S. Stewart in his memoirs of the 1820s in Hawaii.

Arriving on Maui after living at the missionary enclave at Kawaiaha'o on O'ahu, declared Lahaina to be "like the delights of an Eden" after "four weeks' residence on the dreary plain of Honoruru" (Stewart 1970:177).

The general aptness of these reminiscences of the Kaka'ako area by foreigners is confirmed in an address given by John M. Kapena, a native Hawaiian, at the cornerstone-laying ceremony for the new 'Iolani Palace on December 31, 1879. Kapena, suggesting that the barren plain formerly extended well *'ewa* of Punchbowl Street, recalled:

> When the palace which once stood on this spot was built, this was a treeless plain, covered with creeping thorns, sparsely dotted with grass houses, among which wound narrow lanes formed by the banks of taro patches. (Kapena 1905:78)

The testimonies of Kapena and the foreign visitors of the first half of the 19th century noted above all suggest that the present project area in Kaka'ako would have been situated in a less intensively-populated environment of pre-contact O'ahu: the Hawaiian settlement would have been concentrated at the well-watered lands of Kou and Waikiki, adjoining to the west and east.

Documentation associated with land awards and awardees of the *Mahele* of the late 1840s bring the history and life of the Kaka'ako study area into clearer focus. A portion of an 1884 map by S.E. Bishop (Figure 2) shows the original shoreline at Kaka'ako (much different from its present configuration) and the disposition of Land Commission Awards (LCAs) and Royal Patents (RPs) granted in Kaka'ako. Testimony recorded for LCA 387 to the American Board of Commissioners for Foreign Missions (ABCFM) describes the land as "embrac[ing] fishing grounds, coral flats & salt beds" (*Foreign Register*, Vol.2:33). Further confirmation that Kaka'ako generally consisted of exposed coral flats dotted with salt pans and fish ponds up to the nineteenth century is provided in testimonies recorded for individual *kuleana* awards. The locations of these awards are also found on the 1884 map.

LCA 1501 to Puaa is recorded as consisting of three fishponds and a houselot.

LCA 1604 to Pahiha (Pahika on the 1884 map) comprised a houselot, pond and salt bed.

Testimony for LCA 1903 to Lolohi (Lolopi on the 1884 map) explicitly defines the general Kaka'ako area:

> Peka W. [*wahine*] sw. I Know this place. It is on the salt plains of Honolulu, used for making salt.
>
> Mauka is a stream of salt water. Waititi is several salt ponds - Napela, Kuniae and others own them. Makai - Gov't road. Honolulu - Peka Kaula, Lilea, Bolabola, Poe.
>
> Claimant rec^{d} this land from his father who died last year and held it a long time back in Kinau's time. (*Foreign Testimony*, Vol.3:220)

LCA 0540 to Kaholomoku comprised "three ponds, a salt *mo'o*" (*Native Register*, Vol.4:477).

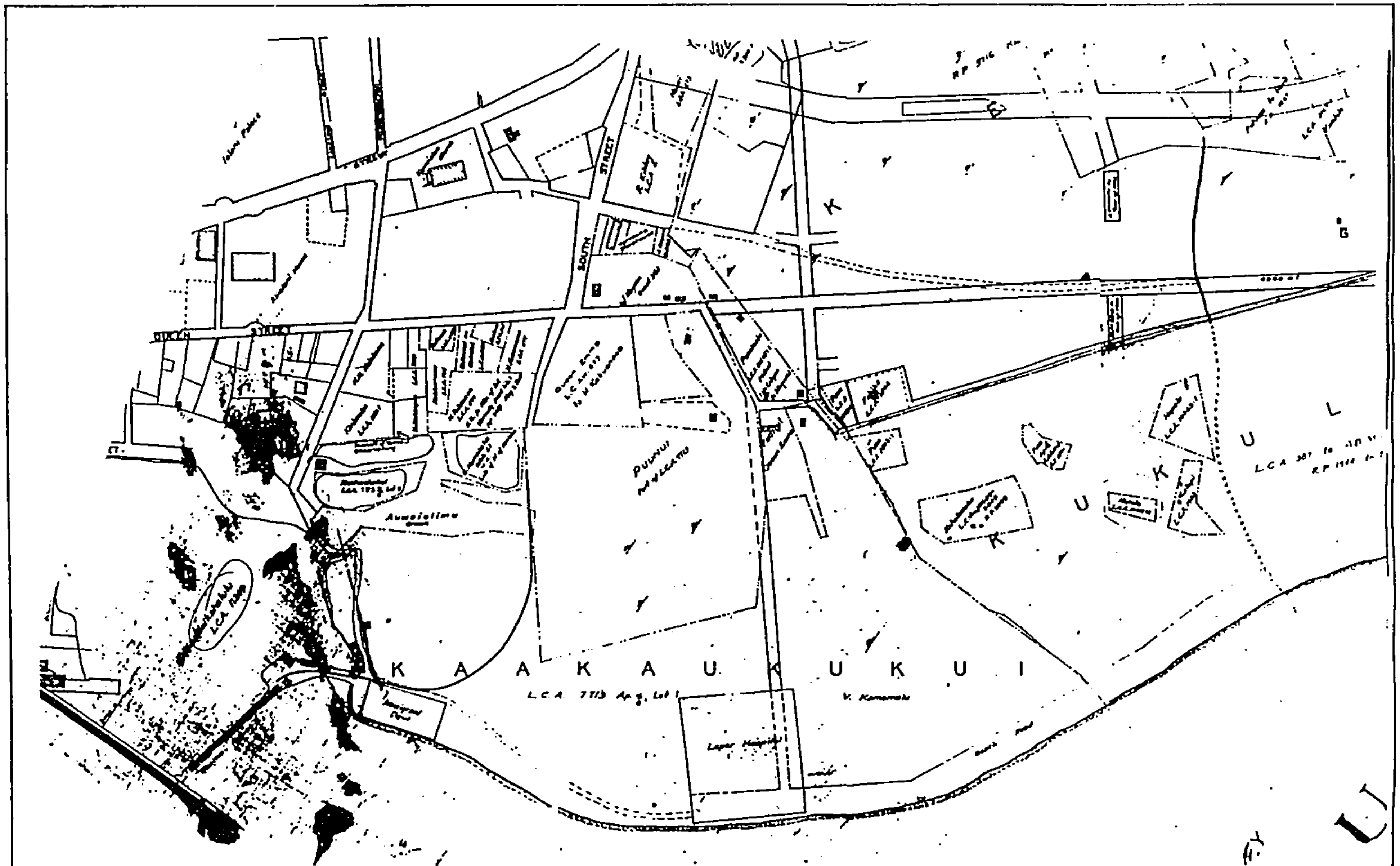

Figure 2 Portion of 1884 map by S.E. Bishop showing Kaka'ako area

LCA 10463 to Napela is recorded as consisting of "2 ponds, a ditch, 2 deposits, a house site and a salt land section in two pieces" (*Native Testimony*, Vol.10:445).

The testimonies thus indicate that there were other smaller fishponds in the area Waikiki-ward of the three large fishponds, shown on the 1884 map in the area named "Auwaiolimu", which were controlled by the *ali'i*. The LCA records help clarify both the pre-contact and mid-nineteenth century pictures of the Kaka'ako area. They suggest that the traditional Hawaiian usage of these lands was based on salt making and farming of fishponds. The characterization of the area as the "salt plains of Honolulu" itself suggests the environmental constraints that would have made the region less attractive for long-term permanent habitation during the prehistoric period.

1850s to 1900

As revealed by the LCA records, the traditional salt making and fishpond farming activities continued within Kaka'ako midway through the 19th century. These activities and the land features that supported them would be eliminated during the remainder of the 19th century as Kaka'ako experienced the full impacts of the post-contact era.

In 1853 smallpox reached the Hawaiian islands:

> By May a full epidemic was in progress in Honolulu. It did not end until January 1854. The populations on all islands were affected. No one ever knew how many people sickened, how many died. Official government figures released in 1854 declared 'between 5,000 and 6,000 fatalities," in a total population of about 84,000. Comparison of census counts taken in 1850 and 1855 indicates much greater losses. Estimates range from 10,000 to 15,000. (Bushnell 1993:210)

The major smallpox quarantine hospital in Honolulu was established in Kaka'ako, just *makai* of Queen Street. A cemetery named "Honuakaha", created solely for the victims of the epidemic, was created *makai* of Queen Street on the *'ewa* side of South Street. (This cemetery has recently been the subject of archaeological research which is detailed in the following section of this report.)

In 1881, in response to another disease that had plagued the islands since the 1830s, the Branch Hospital for Lepers was constructed just *makai* of the seashore at Kaka'ako:

> Here victims or those suspected of having the disease were detained for varying periods of time before release, transfer to Molokai, or death...
>
> Structures for patients included: a long , narrow dining hall with long benches and tables; long, narrow cottages without ceilings or furniture; and a three room structure, also long and narrow, with one end over the sea at high tide, where failing patients were moved from room to room until they reached the chamber designated for death. (Griffin 1987:51,54)

The location of the hospital is indicated on the 1884 map (see Figure 2 above).

Other developments in Kaka'ako relate to the expanding urbanization of Honolulu during the second half of the 19th century, graphically revealed in historic maps and photographs.

The 1884 map (see Figure 2 above) and a subsequent 1887 map (Figure 3) show the nascent traces of the future development in the grid of roads - most notably Punchbowl and Queen Streets - *mauka* and *ewa* of the Kaka'ako area encompassing the present project area. Symbols on the 1884 map also indicate that, at least until the 1880s, much of Kaka'ako was still marsh lands. However, during subsequent decades the low-lying marshes, tidal flats, fishponds, and reef areas of Kaka'ako would be filled - at both government and private expense - as the burgeoning Honolulu city expanded toward Diamond Head. Fill material ranged from sediments, sand, and coral dredged from the ocean (during the expansion of Honolulu Harbor), to garbage fill and soils hauled in from locations around O'ahu.

Two historic photographs, *ca.* 1900, present two views of the flat marsh plain of Kaka'ako on the brink of modern development (Figures 4 & 5).

1900 to Present

Beginning in the 1900s, annual reports of the Department of Public Works (DPW) document the land filling and reclamation activities undertaken in the Kaka'ako and Kewalo areas of Honolulu. In June of 1913 funds were made available to the DPW and work began on the Kewalo Reclamation Project within an area bounded by King Street (*mauka*), Ala Moana Blvd. (*makai*), South Street (*'ewa*), and Ward Avenue (Diamond Head). By June 11, 1914, the entire area from the *makai* side of Queen Street to Ala Moana Blvd. and from South Street to Ward Avenue had been filled in with coral and sand dredged from Honolulu Harbor and the reef flats along the shoreline. The remainder of the Kaka'ako, *mauka* of Queen Street, was filled by 1920.

A 1901 map of Honolulu by M.D. Monsarrat (Figure 6) shows the grid of streets now extending well into Kaka'ako. Newly established routes in the area include South, Keawe, and Coral streets (running *mauka/makai*) and Pohukaina St. and the present Auahi St. (running *'ewa*/Diamond Head). Hinting at the future incursion of industry into Kaka'ako are the substantial buildings of the Honolulu Iron Works company between Punchbowl and South streets. The beach road following the alignment of the present Ala Moana Blvd. continues to demarcate the shoreline of Kaka'ako but a sea wall now encloses a wide area at the Diamond Head end of Honolulu Harbor, at the foot of Punchbowl and South streets.

A 1920 map of Honolulu, again surveyed by M.D. Monsarrat, indicates that, with the completion of the reclamation project, the grid of streets - generally along the same alignments as today - now completely covers the Kaka'ako landscape (Figure 7). Not only the area encompassed by the seawall shown in the 1901 map but additional reefs off Kaka'ako have been filled *makai* of Ala Moana Blvd., creating the lands of Fort Armstrong at the Honolulu side and, at the Diamond Head side, ground for "proposed new Streets" extending the Kaka'ako grid.

By the 1920s, Kaka'ako had been established as a district comprising a mix of industry, small enterprise and residence, especially in "camps" associated with immigrant groups:

> Camps were sometimes as small as the area covered by four houses, and as large as entire blocks. In the 1920's, the Ward Family Trust leased various pieces of land in Kaka'ako to the Japanese for camps and other structures. It was here that some early, Asian immigrants developed their urban adaptations. (Griffin *et al.* 1987:62)

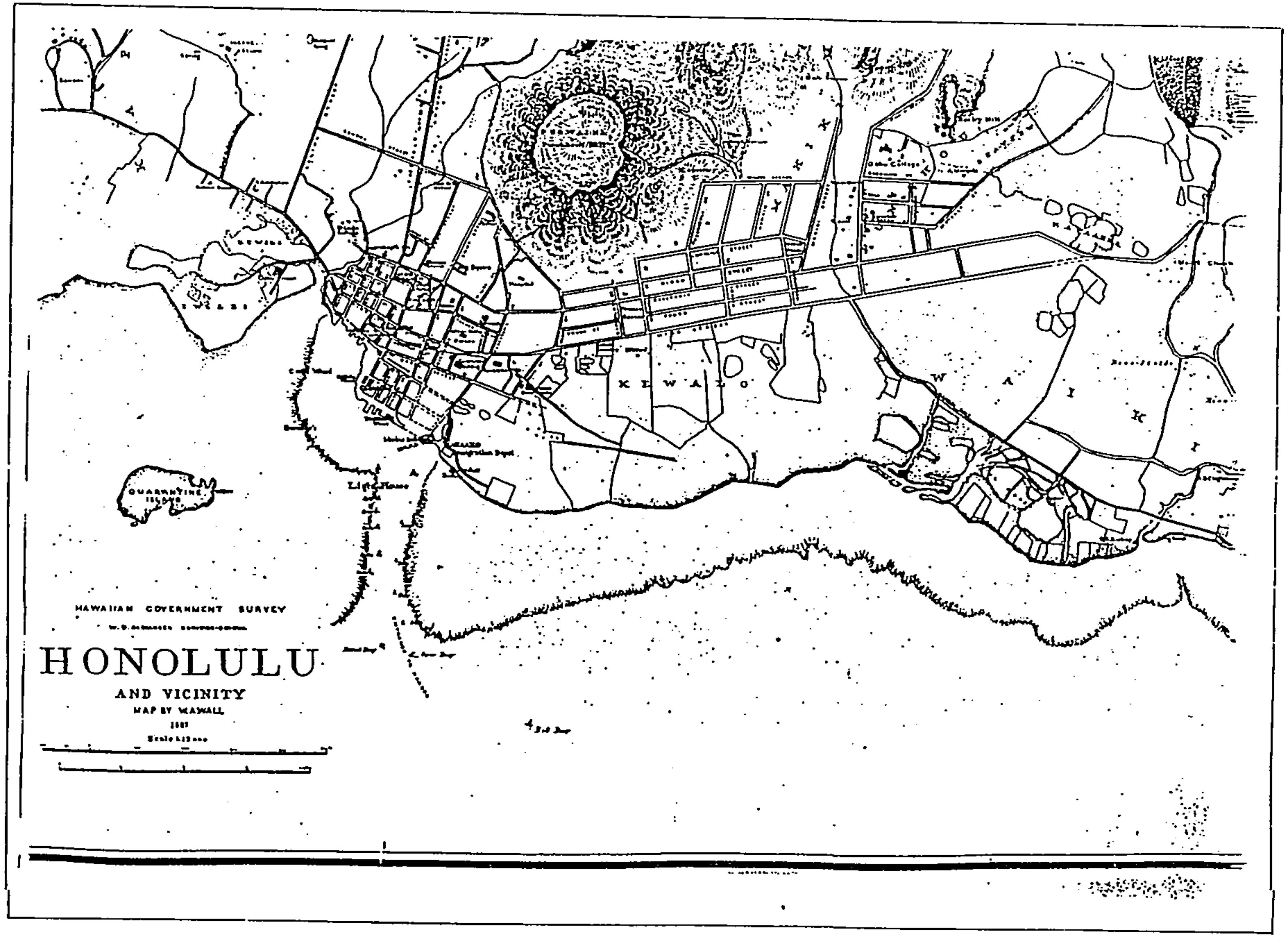

Figure 3 1887 Map of Honolulu by W.A. Wall (Bishop Museum Archives)

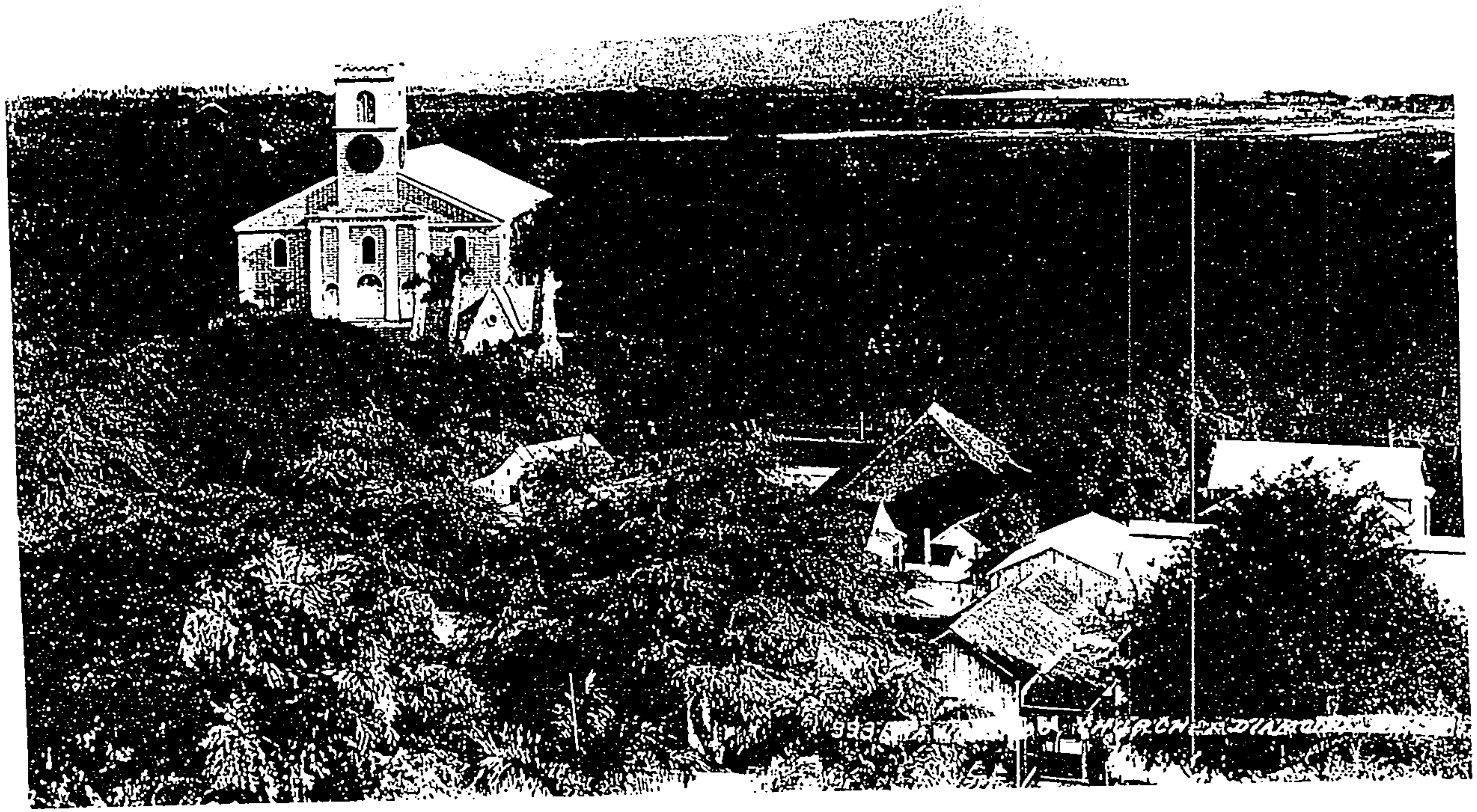

Figure 4 Plain of Kaka'ako, *ca.* 1900: view towards Diamond Head with Kawaiaha'o Church in foreground (Hawai'i State Archives)

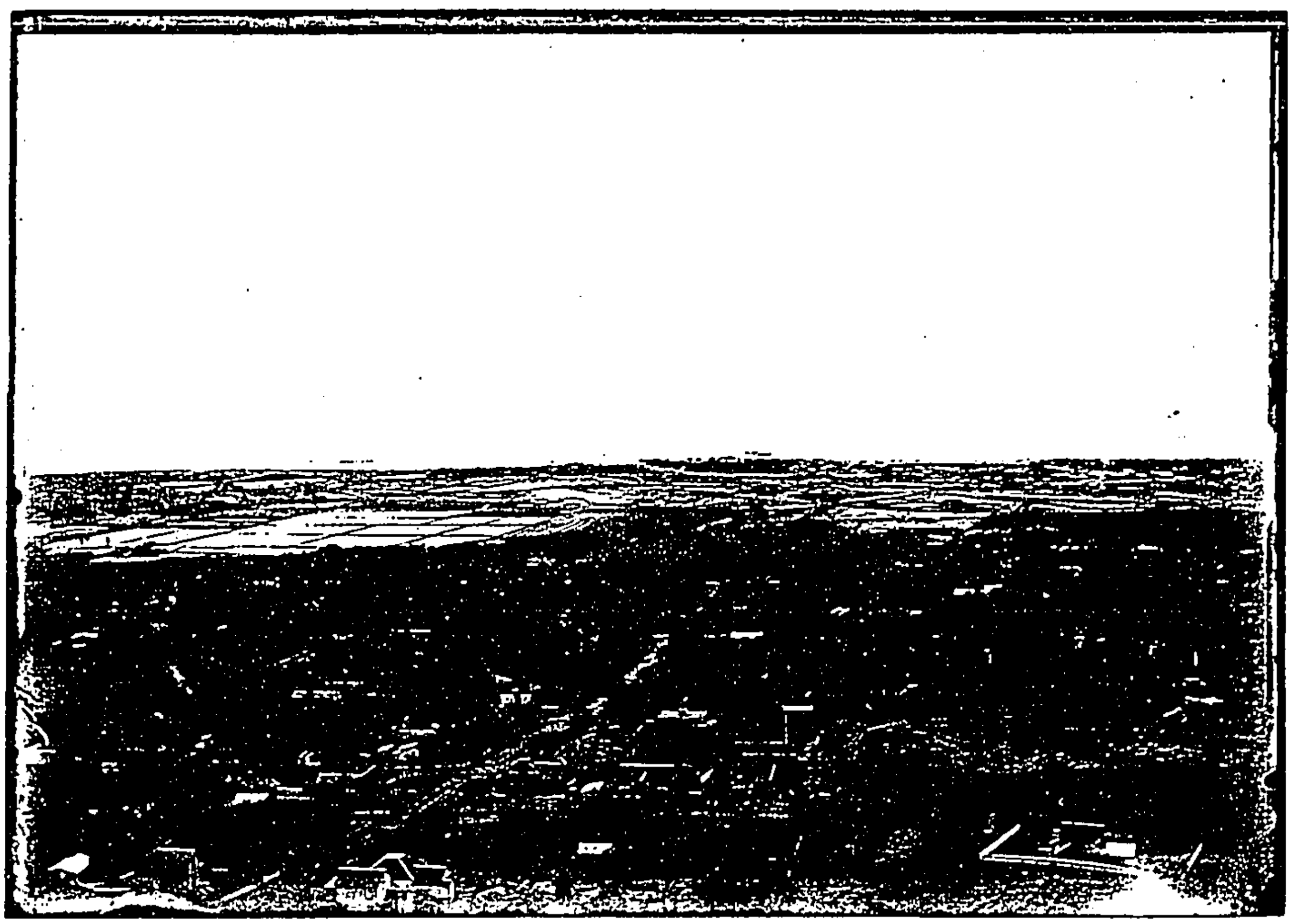

Figure 5 Plain of Kaka'ako (in right center of photograph) *ca.* 1900: view from Punchbowl Crater (Hawai'i State Archives)

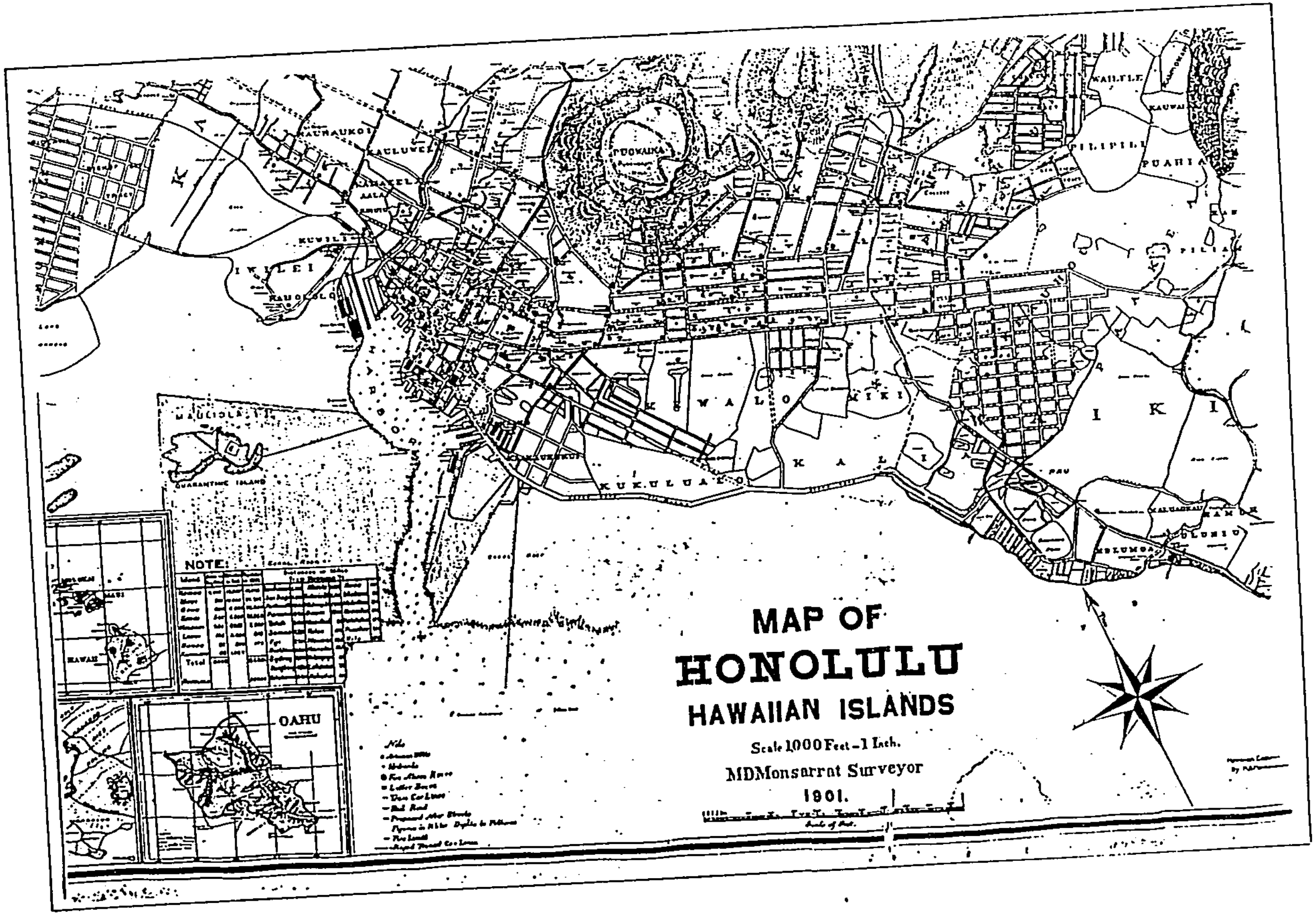

Figure 6 1901 Map of Honolulu by M.D. Monsarrat (Bishop Museum Archives)

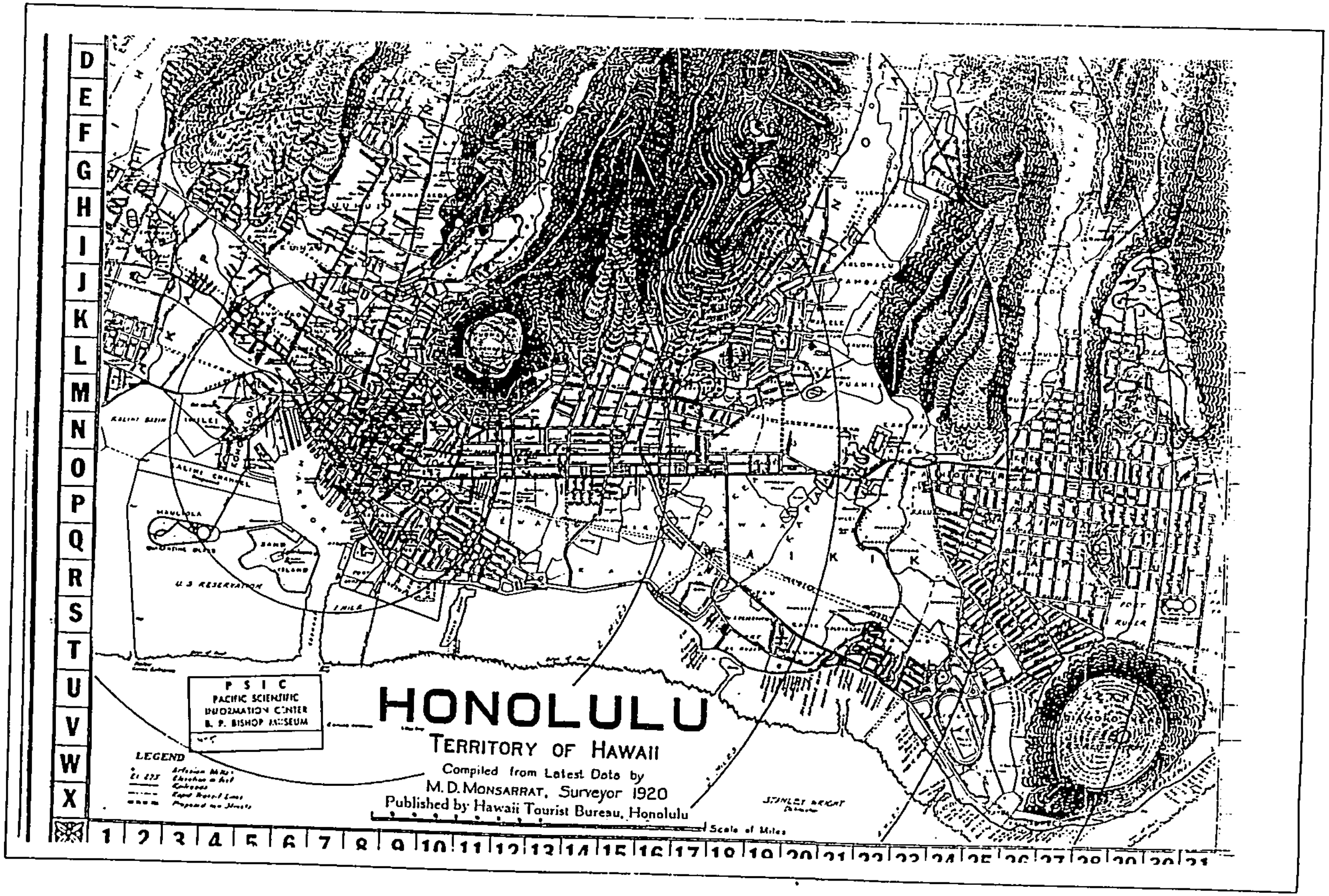

Figure 7 1920 Map of Honolulu by M.D. Monsarrat (Bishop Museum Archives)

The amalgam of industrial, commercial and residential structures that characterized Kaka'ako through most of this century is displayed on an aerial photograph of 1952 (Figure 8). The photograph documents the complete urbanization of Kaka'ako - both on the former marsh lands *mauka* of the beach road (Ala Moana Blvd.) and on the created lands *makai* of the road.

During recent decades and continuing into the present, the character of the area has been reshaped through guidelines of the Hawai'i Community Development Authority's Kaka'ako Community Development District Plan.

Former Pohukaina School/Mother Waldron Playground Project Area
As indicated on the 1952 aerial photograph (Figure 8), the present project area block - defined by Halekauwila, Cooke, Pohukaina and Keawe streets - formerly comprised two discrete areas:

1) on the *'ewa* side, the *makai* portion of a block between Keawe and Coral streets that extended from Queen Street to Pohukaina Street;

and

2) toward Diamond Head, the *makai* portion of a block between Coral and Cooke streets that extended from Queen Street to Pohukaina Street.

The extension of Halekauwila Street between Keawe and Cooke streets (defining the *mauka* boundary of the present project area block) and the closing of Coral Street between Halekauwila and Pohukaina streets are modern developments associated with implementation of the Kaka'ako Community Development District Plan. Before these changes, the most significant 20th-century developments within the project area were the Pohukaina School, on the *'ewa* side of Coral Street, and Mother Waldron Playground, on the Diamond Head side.

Pohukaina School

In the surveyor's notes for an 1873 map of land parcels at the corner of King and Punchbowl streets, the present site of the Hawai'i State Public Library, one of the parcels is identified as the "lot purchased by the Government of Prince Lunalilo in 1872, said portion now to be transferred to the control of the Board of Education". The parcel was, in 1874, to become the site of the Pohukaina School for Girls, one of three government supported schools (with instruction in English) on O'ahu during the second half of the 19th century; the other two were the Royal School for Boys and the Fort Street School.

> The Pohukaina Girls' School on King Street will suit those parents who do not care about their girls being mixed up with boys at school or in school playgrounds. Miss S.F. Corney is the Principal, and has for assistants Misses W.P. Luce and J. Dudoit. The young folks who attend this school, and through them (by reflected merit, or, rather, as the originators of the merit), their ladylike teachers, lately received a very pretty pat on the back from the Honorable Mr. Bishop, who is President of the Board of Education. "The pupils of this school are generally known out of the school room by their neat and tidy appearance," was the remark by which, in addition to some decided praise of their application to their studies, he intimated to the Legislative Assembly what benefits they conferred on the community by the Government grant to the Pohukaina Girls' School. (Bowser 1880:451)

Figure 8 Portion of 1952 aerial photograph of Honolulu showing Kaka'ako area (Bishop Museum Archives)

In 1907 the Hawai'i Territorial Legislature passed an act to establish the Library of Hawai'i. During the next two years, Governor Walter P. Frear conducted negotiations with Andrew Carnegie that led in 1909 to the philanthropist's pledging a gift of $100,000 for a new library building. In 1910, the New York architect Henry Whitfield, who was also Carnegie's brother-in-law, produced plans for the building's design. The estimated cost for the building exceeded the sum donated by Carnegie so the Territorial Legislature appropriated an additional $27,000 in 1911. The building's final location, though, was not immediately settled. Governor Frear wrote:

> Several possible sites were considered - the Bungalow site at the north corner of the Capitol grounds, the Gore site between the converging King and Merchant streets, the Bishop Estate lot opposite the Young Hotel, the old Methodist church lot at the corner of Beretania and Miller streets and Thomas Square. The Trustees [of the library] chose the Bungalow site, their second choice being the Bishop Estate lot. I then informed them that I could make available the Pohukaina school lot, and the Trustees thereupon, wisely as it turned out, changed their selection of that. I arranged to have Pohukaina school moved to Kakaako - a more central location with reference to its constituency and with much more space for buildings and playground, and by Executive (No.11) order set aside its then site for the library (Frear 1938)

The library's cornerstone was laid on October 21, 1911; the library opened on February 1, 1913.

As Gov. Frear noted, Pohukaina, an elementary school, was moved to Kaka'ako. Constructed at a cost of $28,000, the new school building opened in 1913:

> The structure which was designed by E.C. Petit of the architectural firm headed by H.L. Kerr, represents a special study in fire-proofing. It is fitted with specially designed fire walls and doors, with outside staircases.
>
> The building is of re-inforced concrete and economically planned, the rooms on the second floor being fitted with folding doors to that they may be thrown together. The design permits of the addition of a number of rooms at the rear of the building when an increase in school population makes this necessary. (*Pacific Commercial Advertiser*; June 22, 1913:A1)

A portion of a 1927 Sanborn Fire Insurance map shows the school in the decade after its opening (Figure 9). An additional school building has been constructed behind the original structure. Otherwise, the school grounds remain open, with wood tenements delineating the *mauka* boundary of the grounds. The map also shows, across Coral Street from the Pohukaina School lot, the City & County Stables on the future site of Mother Waldron Park.

The series of Sanborn Fire Insurance Maps of Honolulu was originally issued in 1927. During the ensuing decades, until 1951, the original maps were updated and maps of newly recorded and developed areas were added. The final 1951 edition of the Pohukaina School lot map shows that original building has been enlarged on its Diamond Head side (Figure 10). Additional classroom buildings and a cafeteria have been constructed along Keawe and Coral streets. The tenements on the *mauka* side of the school have been replaced by classroom

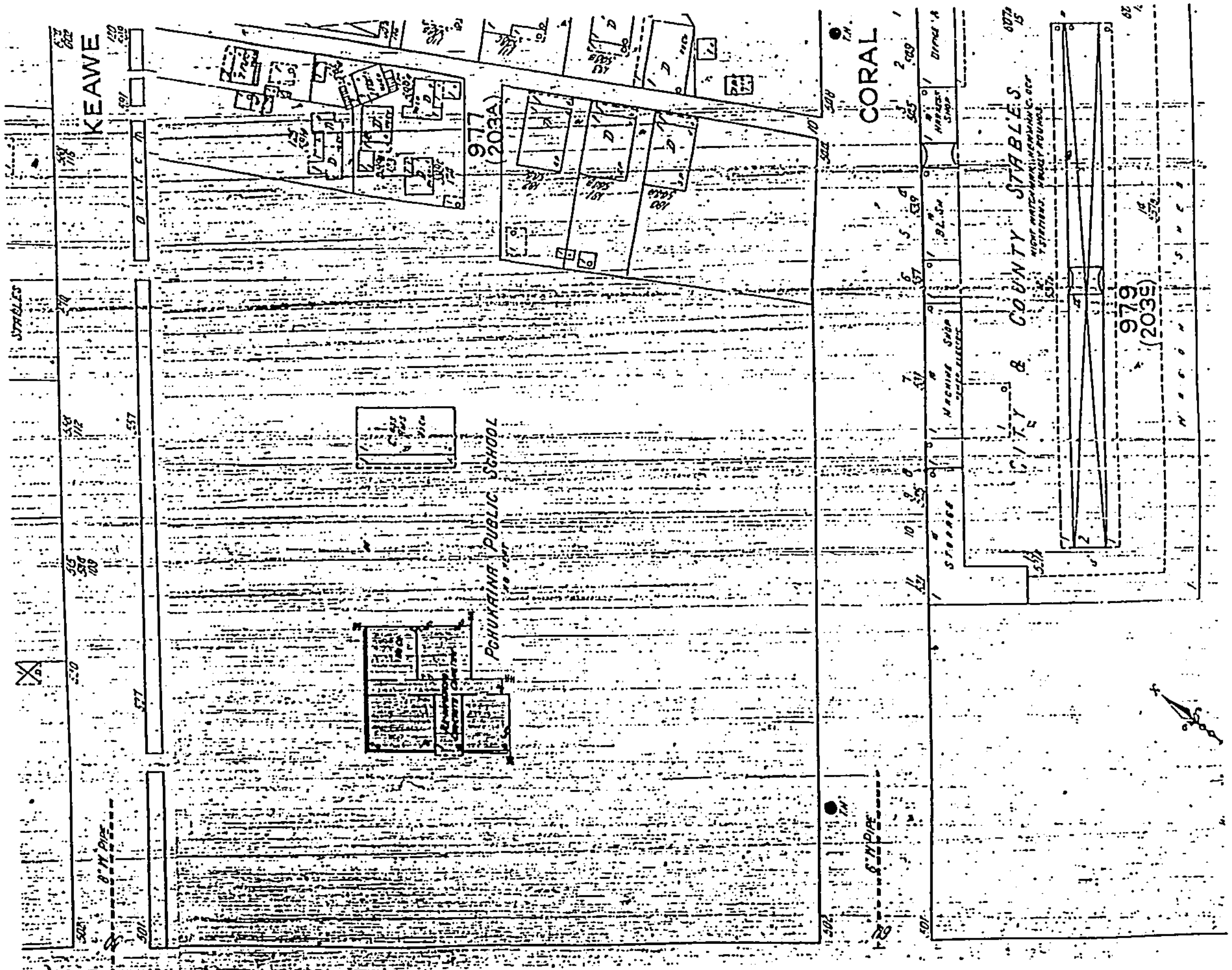

Figure 9 1927 Sanborn Fire Insurance Map showing Pohukaina School block and adjacent City & County Stables (future site of Mother Waldron Playground)

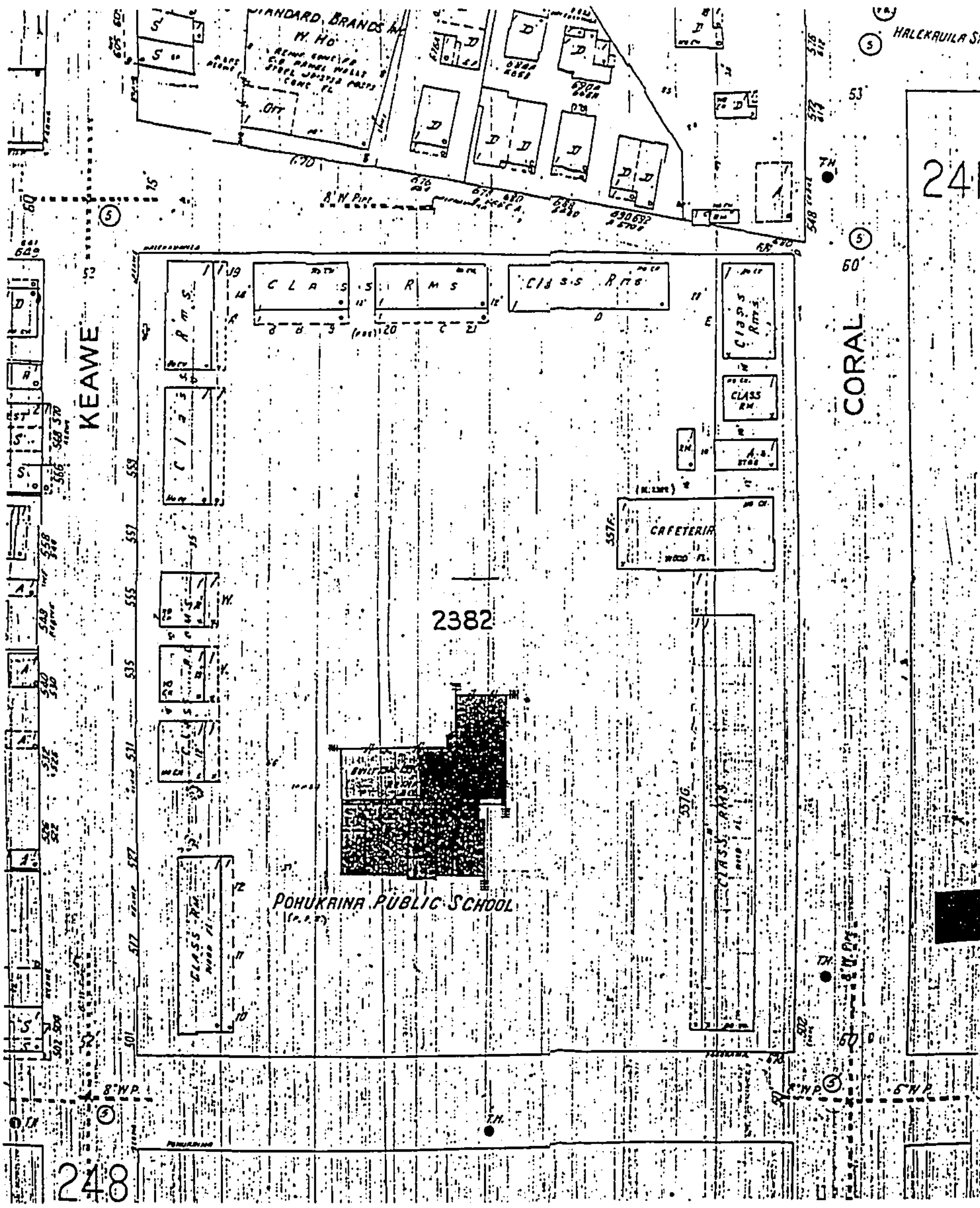

Figure 10 1951 Sanborn Fire Insurance Map showing Pohukaina School lot buildings aligned along what will become Halekauwila Street. All of these school buildings are also evident in the 1952 aerial photograph (see Figure 8 above).

Pohukaina School remained in operation in Kaka'ako until 1980, by which time it had developed into a special education facility. The buildings were demolished and, in 1981, the Pohukaina School special education program was transferred to the campus of Kaimuki Intermediate School.

Mother Waldron Playground

Margaret Waldron, of Hawaiian-Irish ancestry, was born in Honolulu on August 12, 1873. After living some years on Hawai'i Island where her husband, Fred Waldron, was the manager of the Volcano House, Mrs. Waldron returned to Honolulu where she was a teacher at Pohukaina School for 18 years until her retirement in 1934. She was noted for her volunteer work in Kaka'ako, and was "generally credited with being the individual who had most influence in transforming the so-called 'Kakaako gangs' into law abiding groups and wiping out the unsavory reputation which at one time clung to the district" (*Honolulu Star-Bulletin*; May 8, 1936:A1). Mrs. Waldron died on May 8,1936 and, the following year, when a new playground was constructed across Coral Street from Pohukaina Elementary School, the Honolulu Board of Supervisors authorized the park's designation as "Mother Waldron Playground." At the September 20, 1937 opening of the playground, designed by Harry Sims Bent and constructed on the site of the former city & county stables at a cost of $50,000,

> city-county officials expressed the hope that the park would be appreciated and enjoyed to the utmost. Reference was made to the dusty roads and barren lands that had marked the site not many years ago. (*Honolulu Advertiser*; September 21, 1937:A1)

The playground was then, in 1937, the most modern facility in the Territory. When, the following year, Lewis Mumford, the noted author and social scientist, was invited by the Honolulu Park Board to study the county's parks and playgrounds, he noted the "spirit called forth in the Mother Waldron Playground"; Mumford defined that spirit exemplified by Mother Waldron Playground and other county parks:

> That the very spirit of play is enhanced by taking place in a setting that shows order and vision often does not occur to the municipal departments concerned; hence, ugly chicken-wire fences, clay or bare asphalt surfaces, and a complete innocence of all aesthetic device. Honolulu has made a valuable departure from this stale tradition by providing, in some of its new playgrounds, structures that have none of this tawdry makeshift quality; they are rather examples of building art worthy to have a place beside the open-air gymnasiums or palestra of the Greeks. The handsome bounding wall, the judicious planting of shade trees, the retention of grass wherever possible, translate the spirit of organized play to the area itself. (Mumford 1938:42)

Mumford also reported: "The architectural treatment of Ala Moana Park and the design of the Mother Waldron playground seem to me particularly successful..." (*Ibid.*:48). The Mother Waldron Playground structures are shown in a 1951 Sanborn Fire Insurance map (Figure 11). The map indicates that, into the early 1950s, between Mother Waldron Playground and Cooke Street were Lana Lane numerous wooden tenement dwellings. Also evident on the fire insurance map is the "jog" in Halekauwila Street at the *mauka* end of the playground block.

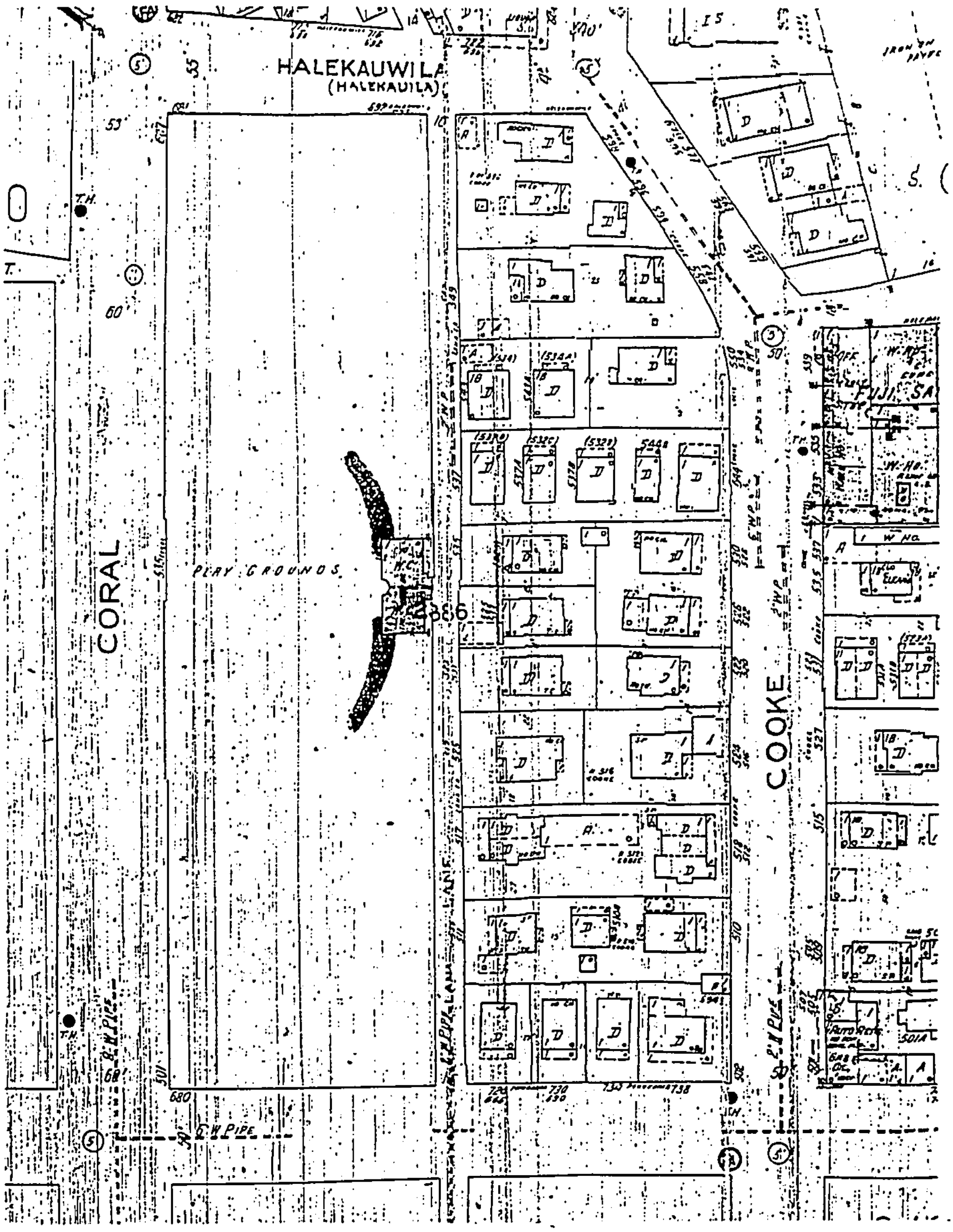

Figure 11 1951 Sanborn Fire Insurance Map showing Mother Waldron Playground lot

Mother Waldron Playground has been entered the State Inventory of Historic Places as Site 50-80-14-1388. During the early 1980s, the playground's structures were entered on the Hawai'i Register of Historic Places. In 1988, forms were prepared for nomination of the playground to the National Register of Historic Places (see APPENDIX); however, the playground is not presently on the National Register. The nomination forms note:

> City and County officials erected Mother Waldron playground as a model project, and the playground was identified as, "an ideal example of the small neighborhood playground," by child welfare specialists and teachers...Almost 60,000 people used the playground during daylight hours in 1941, and an additional 26,000 utilized its facilities for evening sports and gatherings.
>
> Mother Waldron is perhaps the best of Bent's playground designs and a fine example of his art deco-moderne styling. In it aesthetics and practical considerations are integrated into a design that remains appealing and useful.

The playground area was reconfigured when, in the late 1980s and early 1990s, Halekauwila and Cooke streets were realigned and widened, and the playground was expanded to Cooke Street during the Hawaii Community Development Authority (HCDA) project. During excavations for this project's infrasturcture improvements at Halekauwila Street along Mother Waldron Playground and in the near vicinity, remains of several human burials were inadvertently uncovered Following consultation between the HCDA and the State Historic Preservation Division's burials program, these remains were reinterred at a specially-constructed site on the corner of Halekauwila and Cooke streets, within the present project area. These burials and the reinterment site are discussed in the PREVIOUS ARCHAEOLOGICAL STUDY section below.

III. PREVIOUS ARCHAEOLOGICAL STUDY

A. Kaka'ako District

The Kaka'ako district of Honolulu became a focus of archaeological work during the 1980s, impelled by the construction of state and federal government buildings, and by the State-planned redevelopment of the area.

Jason Ota and Wendell Kam (1982) reported on six partial sets of human remains recovered during excavation for construction of the State Office Building #2 at the *makai*/Diamond Head corner of Punchbowl and Halekauwila streets. The remains were in poor to very poor condition and little could be determined from the osteological analyses performed. Two of the burials showed evidence of incisor evulsion. Tooth evulsion was practiced by the late-prehistoric Hawaiians and this may indicate the ethnicity of these two burials. All the burials were located in sand and prehistoric fill deposits (although some historic disturbance may have taken place).

J. Stephen Athens (1986) performed monitoring and excavation for the Judiciary Parking Garage at the *'ewa/mauka* corner of Pohukaina and South streets (TMK 2-1-30:3,4,38,39,41 and 43). Based on material recovered from the excavations, Athens posits that the area was an early dumping site during the historic period. Only historic bottle glass concentrations were encountered. No undisturbed sand layers were noted in the excavations and much of the area appeared to have been disturbed prior to the excavations. It is likely that the area was under water, or was intertidal in prehistoric times and, therefore, little in the way of prehistoric Hawaiian deposits would be found.

A 1987 report, *Kaka'ako: Prediction of Sub-surface Archaeological Resources*, detailing archival research and archaeological assessment of the Kaka'ako Community Development District, was prepared by P. Bion Griffin, Dennis Keene, and Joseph Kennedy. The development district comprises the area bounded by Ala Moana Boulevard, and by Punchbowl, King, and Pi'ikoi streets. The report summarizes the historical import of the area:

> Kaka'ako - the Kaka'ako Community Development District - is not the center of life in greater Honolulu that is, or was, either Waikiki or 'downtown' ewa of Punchbowl. It is, however, relatively rich in the remains of nineteenth century Honolulu, of prehistoric Hawaiian life, and of the ethnic influx from the late 1800's until 1940. (Griffin *et al.* 1987:73)

One aspect of the area's significance is especially emphasized:

> Without doubt the single most striking archaeological deposit, and the one to which we assign the highest priority, is the 1853 Honuakaha Cemetery fronted by South Street and bisected by Quinn Lane. More than 1000 human burials are reportedly therein...
>
> Burials will be found throughout Kaka'ako. Some will be in sand remnants, others intruding into the pumice deposited from ancient Punchbowl eruptions. Most will be prehistoric or early historic. We expect that, as in the case of the Ka'akaukukui Cemetery, deaths from pre-1853 epidemics resulted in many burials throughout Kaka'ako. The chance of high status (ali'i) burials, from residences in adjacent elite locations, is high. (*Ibid.*:73)

The Ka'akaukukui Cemetery referred to in this report is based upon the discovery of burials - "all likely interred in the late 1700's or early 1800's" - during excavation in 1985 "on the site of the old Ironworks complex" (*Ibid.*:4), *i.e.* within Block 1 of the present study. The burials - assigned State site no. 50-80-14-2918 - were documented by Martha Yent (1985) of the Department of Land and Natural Resources Division of State Parks. The Griffin *et al.* report notes:

> Many more burials are very likely to exist along the extent of the old sand beach [*i.e.*, above the original shoreline at the present Ala Moana Blvd.]. As development proceeds in a Diamond Head direction, human burials and house sites are certain to be found. Specific locations are unknown. (*Ibid.*:4)

An additional concern of the report is the archaeology of 1900 to 1940, especially remnants of the former multi-ethnic residential enclaves, the general locations of which are recorded in the report:

> Sub-surface archaeological materials are likely preserved, but houses built in the 1930's and 1940's may have been largely on top of slightly earlier fill, and be evidenced only by trash pits and yard features. Examination of a few remaining old wooden frame houses suggests that where the ground has not been bulldozed prior to placement of warehouses, etc., some evidence of the ethnic communities may be present...Purposefully buried cherished objects, done early in WW II, may still be in the ground.
>
> ...Japanese 'camps' may be found in archaeological remains; these objects are residues should shed considerable light on pre-war life styles, including relative acculturation, ties to Japan, and quality of life. The early Filipino camps should be sought; their story is largely unknown. (*Ibid.*:11)

Typical - in its origin (*i.e.*, monitoring of a construction site) and in its findings - of the archaeological work carried out within the Kaka'ako district is the 1987 report, *Archaeological Monitoring of the Makai Parking Garage, Corner of Punchbowl and Halekauwila Streets (TMK 2-1-31:23)*, by Stephan D. Clark of the Bishop Museum. Archaeological features revealed both prehistoric and historic utilization of the site. Seven human burials - of which four were "intact burials, with well defined burial pit features, exposed and disturbed by the present construction activities" (Clark 1987:63) - were documented. One of the intact burials was the only confirmed prehistoric feature within the site area:

> Osteological analyses of the [four] mostly complete burials...indicates that these individuals were of Hawaiian ancestry. . .Based on lack of grave goods and on the occurrence of the burial in beach areas, it is fairly safe to assume that these Hawaiians were common people, not of the ali'i class. (*Ibid.*:114)

Artifacts recovered at the site ranged from basalt tools - including an adz, a hammerstone, and a poi pounder top - and a coral abrader to glass bottles, ceramic fragments, and metal objects. Clark concluded that the "nineteenth century use of the site area included primarily burying of trash and burial and animals" (*Ibid.*:114)

Michael T. Pfeffer *et al.* (1993) summarize archaeological monitoring, data recovery, and excavation services by Cultural Surveys Hawaii, commencing in 1986, during construction within the Hawai'i Community Development Authority's Kaka'ako Improvement District 1. Four burial site areas were encountered: two cemeteries and two isolated burials. The cemeteries recorded on Queen Street (State site 50-80-14-4534-[A-I, 1-107]) and on South Street/Quinn Lane (State site 50-80-14-3712-[A-U]) contained 116 and 31 sets of remains, respectively. These two areas comprise the 1853 Honuakaha Cemetery established during the smallpox epidemic. The two isolated burial sites - on Punchbowl Street (State site no. 50-80-14-4532-1) and Halekauwila Street (State site no. 50-80-14-4533-1) - each contained one set of remains. Osteological analysis was performed on as many burials as was possible at the time.

A variety of other archaeological and historical features were noted, excavated and recorded during the monitoring process, including historic trash layers, historic cultural features, and fill layers associated with the urbanization of the Kaka'ako area.

B. Present Project Area and Near Vicinity

A review of reports currently on file at the State Historic Preservation Division (SHPD) indicates that no comprehensive archaeological studies of any portion of the present project area have been completed. However, in 1991 and 1992, during excavations for infrastructure improvements associated with the Hawai'i Community Development Agency project in Kaka'ako a total of twelve human burials were inadvertently exposed in the vicinity of the project area. The improvements included installation of a storm drain along Halekauwila Street, and installation of electric lines on Keawe Street and at the intersection of Halekauwila and Cooke streets.

Following consultation with the SHPD, all the burials were disinterred and curated by Cultural Surveys Hawaii until they were returned to the SHPD in July of 1993. Subsequently, the burials were reinterred a specially-constructed site at the corner of Halekauwila and Cooke streets, within the present project area; the reinterment was coordinated by the burial administrator of the SHPD.

According to a memorandum of July 2, 1993 from the HCDA to the SHPD burial administrator (see APPENDIX), the reinterment site at the corner of Halekauwila and Cooke streets comprised "site A [to] be utilized for Improvement Districts 1 and 3 burials." The memorandum also designates the corner of Cooke and Pohukaina streets, within the project area, as "site B [which] will be reserved for future reinterments."

IV. FIELD INSPECTION RESULTS

The project area was inspected on March 8, 1998.

All the buildings of the former Pohukaina Elementary School shown on the 1951 fire insurance map and visible on the 1952 aerial photograph have been demolished. The area of the former school presently contains a municipal parking lot and a modern state government building (Figures 12 & 13).

Coral Street, between Halekauwila and Pohukaina streets, has been closed and planted in grass. The buildings and walls of Mother Waldron Playground remain in place, apparently in good condition (Figures 14 & 15).

The portion of the project area between Mother Waldron Park and Cooke Street (formerly the site of numerous tenement houses and later warehouses) has been completely cleared of structures and is a level grass lawn. At the corner of Halekauwila and Cooke streets, within the project area, is the reinterment site for twelve burials exposed during construction activities of the HCDA project (Figures 16 & 17). The reinterment site comprises a raised brick-lined planting area, enclosed by a low wrought-iron fence. The only indication of the special nature of the site are discreet "KAPU" signs fastened along the top of the brick planter.

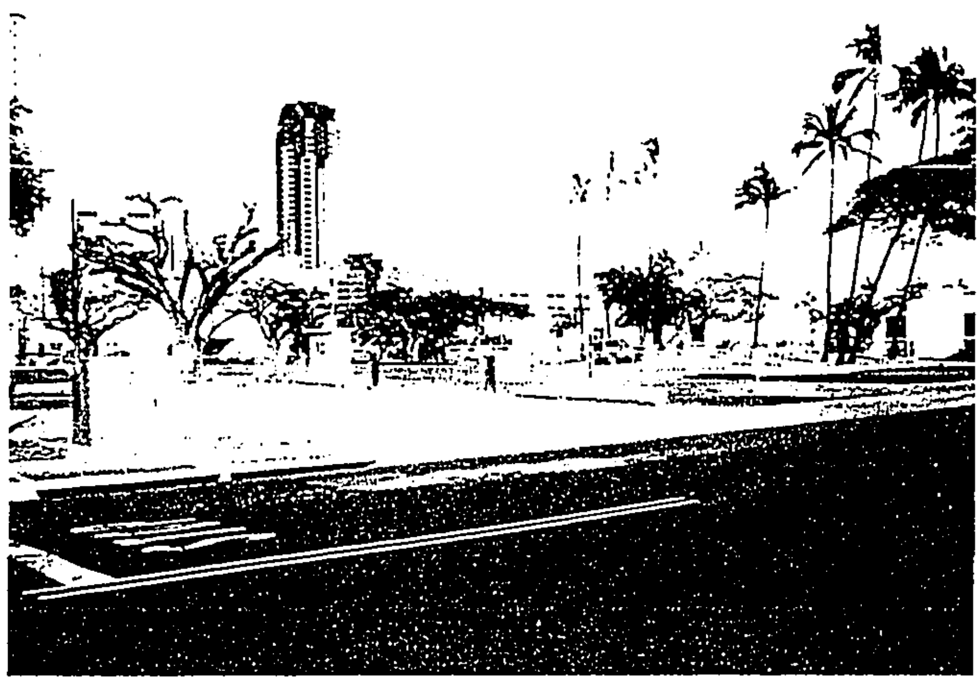

Figure 12 Municipal parking lot on the former site of Pohukaina Elementary School; view *mauka* from the corner of Pohukaina and Keawe streets

Figure 13 State government building - "Central Processing Center" - on the Diamond Head side of the former site of Pohukaina Elementary School; view *mauka* from Pohukaina Street

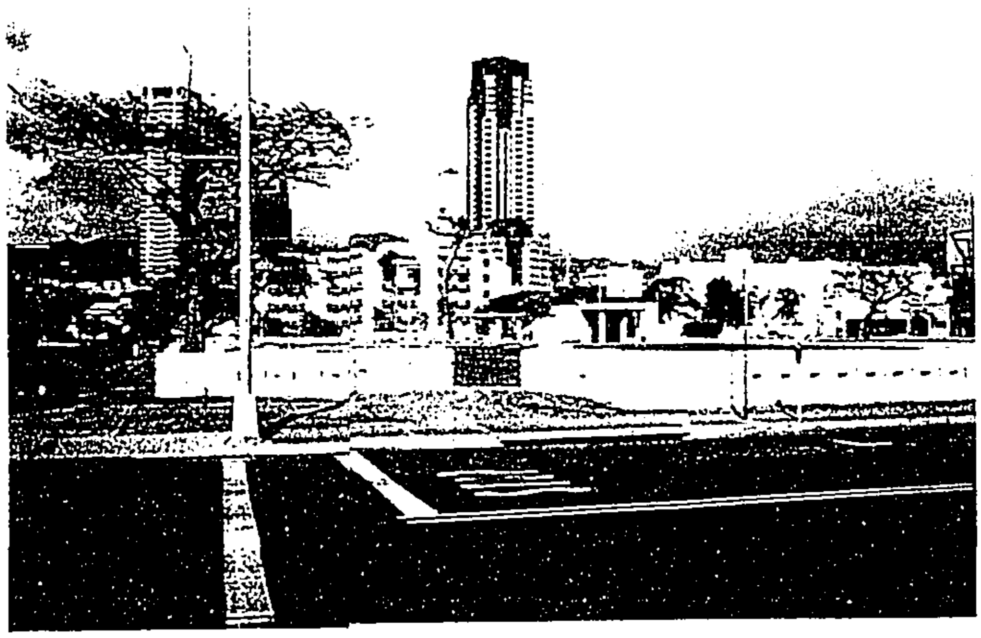

Figure 14 Walls and restrooms building of Mother Waldron Playground with grassed-over Coral Street to left; view *mauka* from Pohukaina Street

Figure 15 Restrooms building and arcade of Mother Waldron Playground; view *mauka* from the grassed-over Coral Street portion of the project area

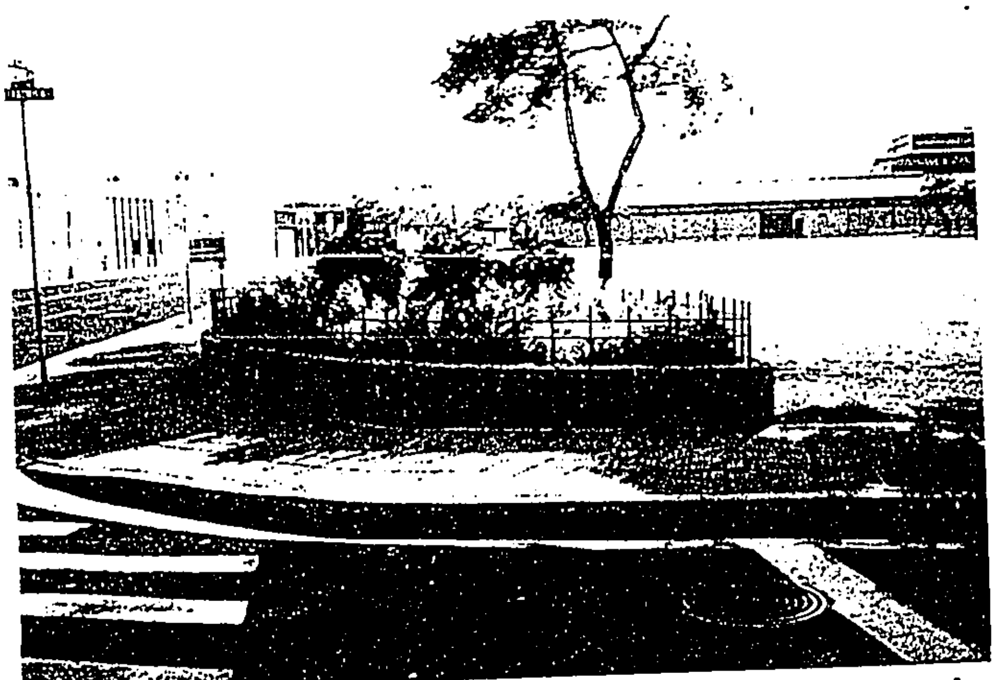

Figure 16 Reinterment site at the corner of Halekauwila and Cooke streets showing the lawn extension of Mother Waldron Playground to Cooke Street; view *makai* from Halekauwila Street

Figure 17 One of several *kapu* signs installed along the top of the brick wall of the reinterment site

V. SUMMARY AND RECOMMENDATIONS

Background research for the present archaeological assessment indicates that the Mother Waldron Playground/former Pohukaina Elementary School project area in Kaka'ako is within a portion of O'ahu which, until the second half of the 19th century, remained an expanse of scattered dwellings, fish ponds, tidal flats and salt pans, located between more densely populated areas at Honolulu (near the mouth of Nu'uanu Stream) and Waikiki. Beginning in the early 20th century, the lands of Kaka'ako were filled in as the city of Honolulu expanded toward Waikiki and up the adjacent valleys.

By the 1920s and 30s, Kaka'ako had developed into a community, tightly-packed with commercial, industrial and residential (including ethnic camp) structures. A portion of the present project area was, from 1913 to 1980, the site of Pohukaina Elementary School. Since 1937 until the present, the project area has been the site of Mother Waldron Playground. During the 1980s and 1990s, archaeological studies within the Kaka'ako area have recorded locations of archaeological sites, former land features, and burial sites. Some of these burial sites have been located at or near the Halekauwila Street boundary of the present project area.

Areas of archaeological concern in the vicinity of the project area are shown in Figure 18.

During planning for and execution of any future development of the Mother Waldron Playground/former Pohukaina Elementary School project area, the following recommendations should be implemented:

1) The only historic structures (older than fifty years) presently remaining within the project area are the buildings and walls of Mother Waldron Park, which was developed in 1937. The park has been entered on the State Inventory of Historic Places as site 50-80-14-1388. It has been placed on the Hawai'i Register of Historic Places. It has been nominated for, but is not currently on, the National Register of Historic Places.

   Any proposed modifications or other impacts to the park and its structures should be presented to the State Historic Preservation Division (SHPD) for review and concurrence.

2) At the corner of Cooke and Halekauwila Streets is the reinterment site for Hawaiian burials inadvertently discovered during infrastructure improvements of the Kaka'ako Improvement District 3. This site was selected after lengthy consultation between the HCDA and the SHPD burials program, which included the O'ahu Burial Council. This site must be preserved with an appropriate buffer since it contains numerous Hawaiian burials.Any modifications around this site should be coordinated with the SHPD burials program.

   Additionally, a memorandum from the Hawaii Community Development Authority (see APPENDIX), indicates that, as of July 2, 1992, the corner of Cooke and Pohukaina Streets within the project area has been designated by the HCDA as "reinterment site B" which "will be reserved for future reinterments." Planners for the present project should be made aware of this

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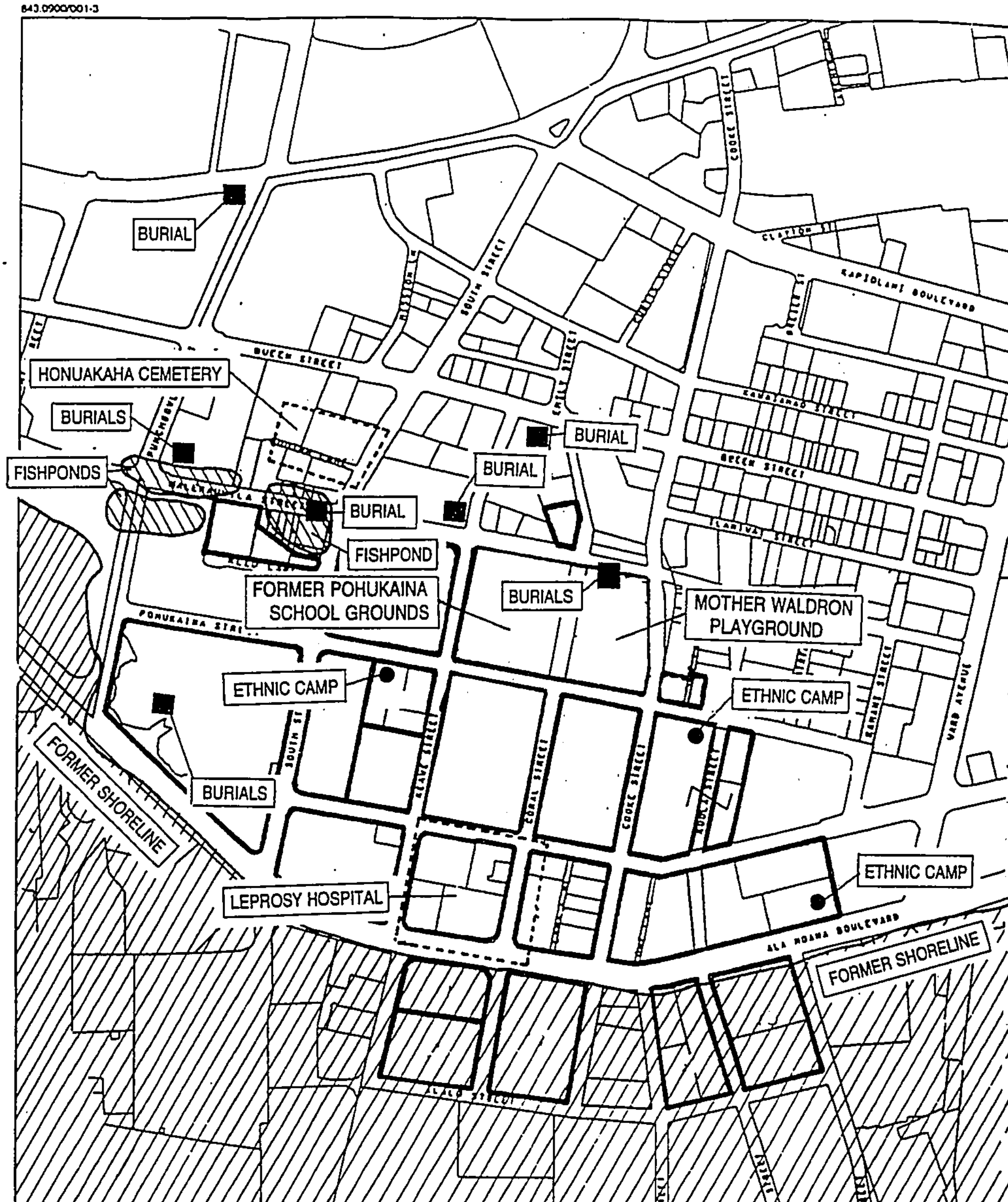

Figure 18 Kaka'ako district showing former shoreline and areas of archaeological concern in the vicinity of the Mother Waldron Playground/former Pohukaina Elementary School project area

possible restriction in use of this portion of the project area. Clarification of the present status of this area should be obtained from HCDA. (According to personal communication with burials program staff at SHPD on March 17, 1998, the program is aware of the site B designation. However, there are no present plans for its use and there remains space for additional reinterments at the already-constructed site A at the corner of Halekauwila and Cooke streets.)

3) Previous findings of isolated human burials have occurred in areas both within and adjacent to the project area. It is entirely possible that burials and other finds could be uncovered during excavation for any proposed improvements. If massive excavations of large areas are anticipated for building foundations and infrastructure improvements as a part of this project, then, prior to construction activities, these areas should be tested by backhoe with documentation of findings and preparation of an archaeological report.

If no major ground disturbing activities are planned, and these activities will be limited to periodic excavation in specific areas, then the above testing program is not recommended.

However, during construction activities, archaeological monitoring of all excavations according to a monitoring plan, approved by the SHPD, would be an appropriate form of mitigation. If findings are uncovered during this monitoring, the archaeologist would halt work in the immediate area and contact the SHPD. All burial finds would be subject to the current state burial law. Whether or not findings are uncovered, provision should be made for preparation and submittal of an archaeological monitoring report.

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APPENDIX

National Register of Historic Places nomination forms for Mother Waldron Playground

Memorandum of July 2, 1992 from Honolulu Community Development Authority to Burial Administrator, State Historic Preservation Division

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name: Mother Waldron Playground

other names/site number:

2. Location

street & number: Coral, Halekauwila, Pohukaina Streets and Lana Lane ☐ not for publication

city, town: Honolulu ☐ vicinity

state: Hawaii code: HI county: Honolulu code: 003 zip code: 96813

3. Classification

Ownership of Property

- ☐ private
- ☒ public-local
- ☐ public-State
- ☐ public-Federal

Category of Property

- ☐ building(s)
- ☐ district
- ☒ site
- ☐ structure
- ☐ object

Number of Resources within Property

Contributing	Noncontributing	
1		buildings
1		sites
		structures
		objects
1		Total

Name of related multiple property listing: City & County of Honolulu Art Deco Parks; Playgrounds

Number of contributing resources previously listed in the National Register: 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official — Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

- ☐ entered in the National Register. ☐ See continuation sheet.
- ☐ determined eligible for the National Register. ☐ See continuation sheet.
- ☐ determined not eligible for the National Register.
- ☐ removed from the National Register.
- ☐ other, (explain:)

Signature of the Keeper — Date of Action

Recreation	Recreation

7. Description

Architectural Classification (enter categories from instructions)

Modern Movement
Art deco

Materials (enter categories from instructions)

foundation NA
walls NA
roof NA
other NA

Describe present and historic physical appearance.

Mother Waldron Park is a 1.76 acre parcel bounded by Coral, Halekauwila and Pohukaina Streets and Lana Lane. It is located in the heart of Kakaako, an area of mixed light industrial and residential use.

It features a painted brick perimeter wall, approximately 3' high, which zig-zags down Coral Street. Circular piers articulate the four convex corner entries and the mid-block entries from each of the three streets. The brick wall on the Lana Lane side is approximately six feet high. Brick curbing and paving is used to further embellish the corner entries and delineates the sidewalk from the parking on the Coral Street side.

Each of the angles of the zig-zag wall which project into the playground area are built with rounded pier ends, presumably to protect children who might run into them. The zig-zag design allows for the planting of Royal Poinciana trees along the perimeter of the park to shade the benches built on the interior side of the wall. The benches within the angles of the Coral Street wall are curved, while benches on the other three sides of the park and in the middle are straight. All the benches are capped with red Padre tile.

The focal point of the playground is the comfort station pavilion, which stands in the middle of the park on the Diamond Head side. This is a single story brick structure with rounded corners and entries. Covered, curving pergolas supported by brick columns extend from the comfort station. A small, open stage area was made by incorporating a two-step semi-circular platform in the middle of the pavilion with a recessed niche in the wall of the comfort station. A flat roof covers this entire structure, and sandstone paving surrounds it.

The playground layout is symmetrical, with the axis of the pavilion and Coral Street entry dividing the park in two. This mid-point is further heightened by the presence of a lawn space. The playground was divided into one section for the younger children and another for the older. Both sides had volleyball, basketball and shuffleboard courts. But the younger children have see-saws and swings and the older handball courts.

The Department of Parks and Recreationm renovated the pavilion in 1968 and resurfaced the site in 1978. Otherwise it remains unaltered and has had no additions.

☐ See continuation sheet

☐ nationally ☐ statewide ☒ locally

Applicable National Register Criteria ☒ A ☒ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Da
recreation	1937	1937
architecture		

Cultural Affiliation

Significant Person: "Mother" Margaret Waldron

Architect/Builder: Harry Sims Bent

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above

Mother Waldron Park is significant for its associations with the playground movement as discussed under the context section of the multiple property documentation form. Similarly its architectural significance is covered in that form. It is also significant for its associations with the earlier work of Margaret Waldron in the Kakaako district.

In 1930 and 1931 the City and County of Honolulu acquired the property on which Mother Waldron Playground is situated. In 1936, the Park Board approved and implemented Harry Sims Bent's design for the park. The playground was constructed using F.E.R.A. labor and was opened to the public in September 1937.

Mother Waldron Playground was named to honor Mrs. Margaret Waldron (1873-1936), who was a public school teacher and playground director. She was of Irish-American, Hawaiian ancestry and taught fourth-grade at Pohukaina School, and was director of the playground at Atkinson Park from its opening in 1916 to 1931. Atkinson Playground was located between Coral, Keawe, Foundry and First Streets, only a few blocks away from the location of the present Mother Waldron Playground. Known for her interest in the poor, Mrs. Waldron earned a reputation for "civilizing" the youth gangs in the Kakaako area through her playground work. In 1930 city officials attempted to change the name of Atkinson Playground to Mother Waldron Playground. Such an honor broke with the municpal policy against commemorating living persons in such a manner. Mrs. Waldron refused to have her name given to the playground, and thus instead, her name was bestowed upon the Bent designed playground a year after her death.

City and County officials erected Mother Waldron Playground as a model project, and the playground was identified as, "an ideal example of the small neighborhood playground," by child welfare specialists and teachers. Lewis Mumford drew special attention to "the spirit called forth in the Mother Waldron Playground," and suggested that this model playground's combination of function and form ought to be "infused into all the city's other playground activities." Almost 60,000 people used the playground during daylight hours in 1941, and an additional 26,000 utilized its facilities for evening sports and gatherings.

☐ See continuation sheet

Mother Waldron is perhaps the best of Bent's playground designs and a fine example of his art deco-moderne styling. In it aesthetics and practical considerations are integrated into a design that remains appealing and useful.

Major Bibliographical References

Robert R. Weyeneth and Ann Yoklavich

"1930's Parks and Playgrounds in HOnolulu:
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☐ See continuation sheet

Previous documentation on file (NPS):
☐ preliminary determination of individual listing (36 CFR 67) has been requested
☐ previously listed in the National Register
☐ previously determined eligible by the National Register
☐ designated a National Historic Landmark
☐ recorded by Historic American Buildings Survey # ____
☐ recorded by Historic American Engineering Record # ____

Primary location of additional data:
☒ State historic preservation office
☐ Other State agency
☐ Federal agency
☐ Local government
☐ University
☐ Other
Specify repository:

10. Geographical Data

Acreage of property 1.76

UTM References

	Zone	Easting	Northing
A			
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

This nomination includes all the property owned by the City & County of Honolulu in 1988 as described by Tax Map Key 2-1-51: 5

☐ See continuation sheet

Boundary Justification

This is the historic boundary of the playground.

☐ See continuation sheet

11. Form Prepared By

name/title Don Hibbard Director
organization State Historic Preservation Program date 4/20/88
street & number 1151 Punchbowl Street, Room 310 telephone 548-6408
city or town Honolulu state HI zip code 96813

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO
Where Honolulu Greets The Sea

John D. Waihee
Governor
Kenneth K. Takenaka
Chairman
Michael N. Scarfone
Executive Director

Ref. No.: ENGR GEN 2.2.6.1

July 2, 1992

MEMORANDUM

TO: Mr. Edward Ayau, Burial Administrator
Historic Preservation Division
Department of Land and Natural Resources

FROM: Cleighton Goo, Chief Engineer
Hawaii Community Development Authority

SUBJECT: Reinterment of Burials, Kakaako Improvement District

This memorandum confirms the Oahy Burial Council's selection of the Mother Waldron Park expansion, sites A and B, located at the corners of Cooke Street as intersected by Halekauwila and Pohukaina Streets respectively, as the approved sites for reinterment by the Oahu Burial Council at their meeting on June 10, 1992. Site A will be utilized for Improvement Districts 1 and 3 burials and site B will be reserved for future reinterments.

Attached please find enclosed the following items for review and approval or modification as required by the Council:

Attachment No.	Description
1	Photographs of existing park entry.
2	Alternate 1 - Raised mound with plaque.
3	Alternate 2 - Plaque on wrought iron fence.
4	Alternate 3 - Raised red brick planter.

The final design will be withheld pending approval of the Council.

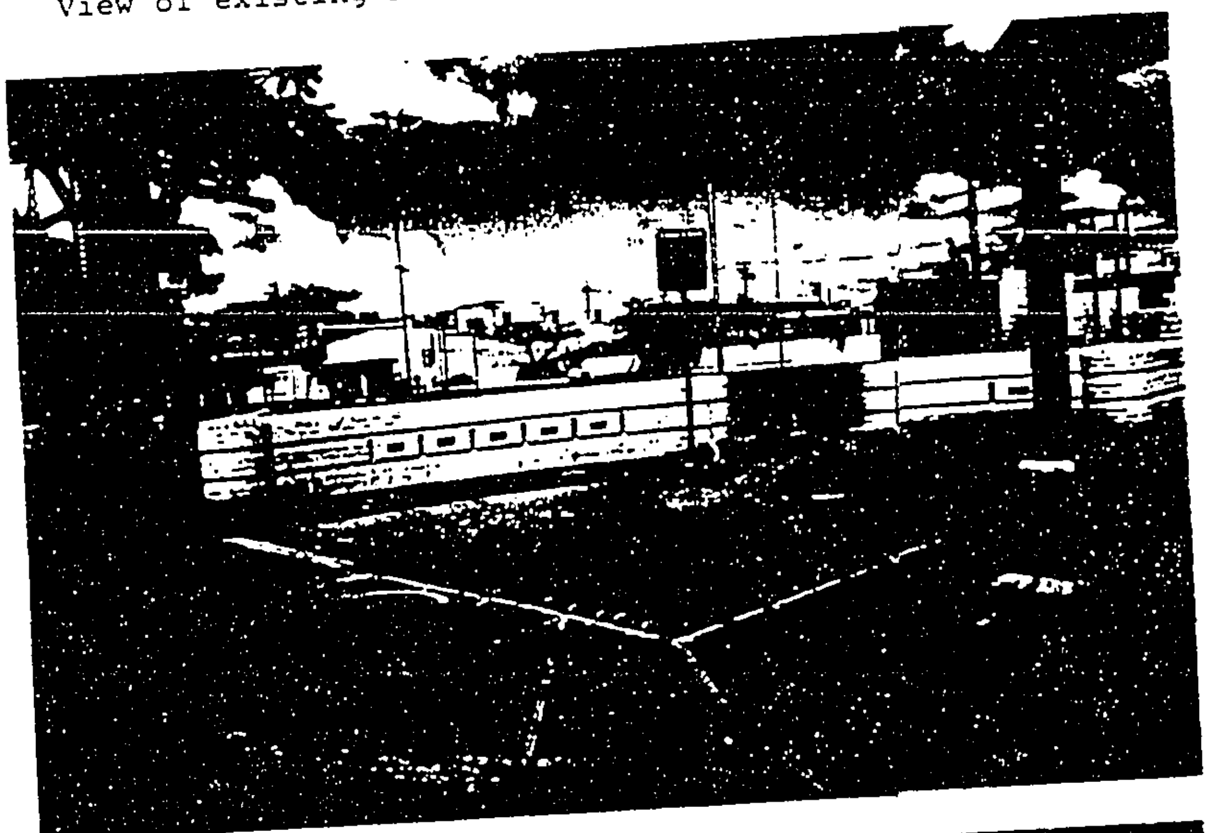
Reinterment will be scheduled at completion of the Improvement District 3 project currently scheduled for March 1993.

bcc: Hallett H. Hammatt, Ph.D.
(Cultural Surveys Hawaii)

677 Ala Moana Boulevard
Suite 1001
Honolulu, Hawaii
96813
Telephone
(808) 587-2870
Facsimile
(808) 594-2613

MOTHER WALDRON PARK

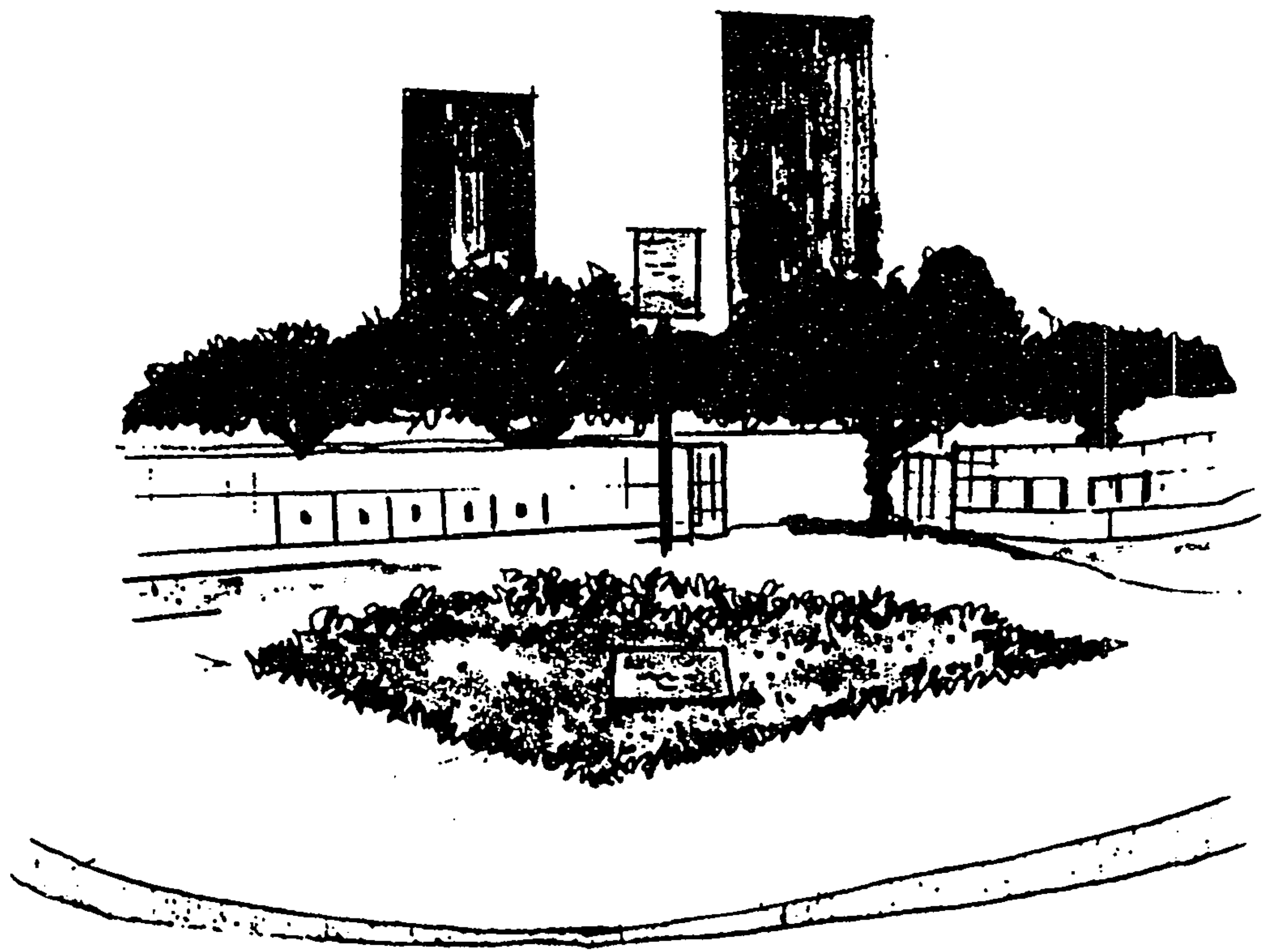
View of existing Park entry at Pohukaina/Coral Streets



Attachment 1

ALTERNATE 1

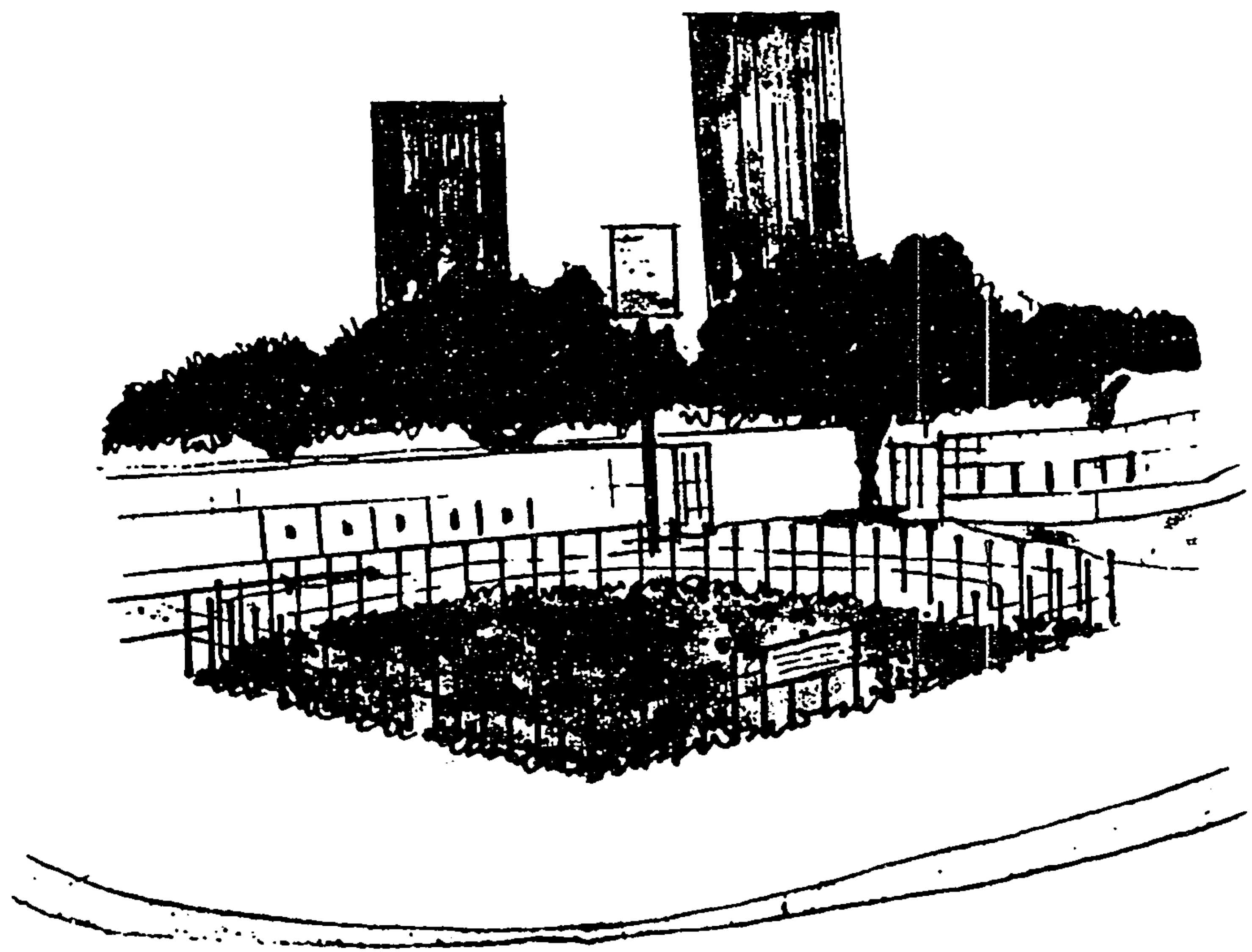
Raised Mound With Plaque



Attachment 2

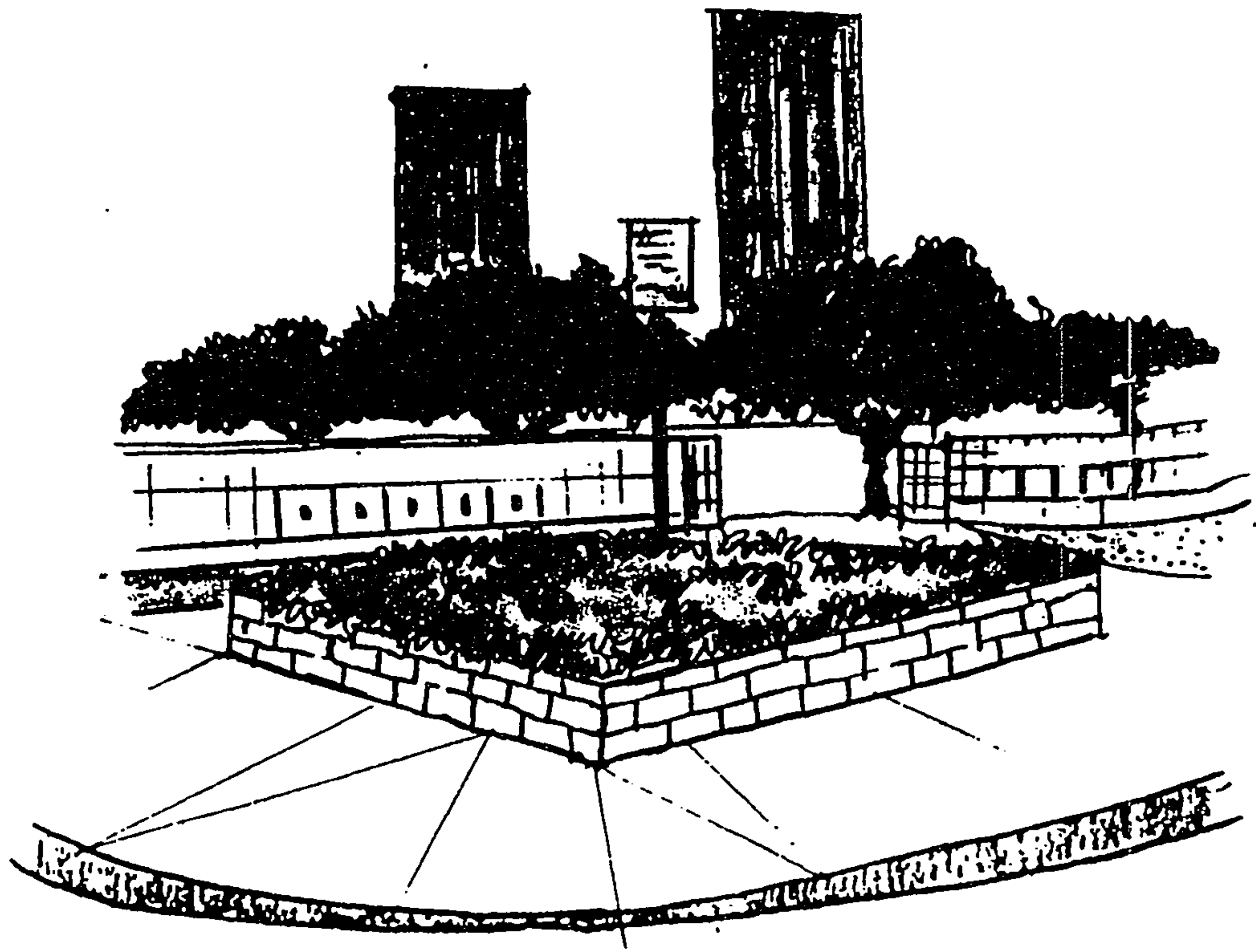
ALTERNATE 2

Plaque on Wrought Iron Fence



ALTERNATE 3

Raised Red Brick Planter



Attachment 4

Appendix B

Traffic Impact Assessment Study

TRAFFIC IMPACT ASSESSMENT STUDY

POHUKAINA
SENIOR HOUSING DEVELOPMENT

KAKAAKO, OAHU, HAWAII

July 2000
Revised November 2001

PARSONS BRINCKERHOFF QUADE & DOUGLAS

Over a Century of Engineering Excellence

TRAFFIC IMPACT ASSESSMENT REPORT

POHUKAINA SENIOR HOUSING DEVELOPMENT

Kakaako, Oahu, Hawaii

July 2000
Revised November 2001

Prepared For:
Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawaii 96813
(808) 528-4661

Prepared By:
Parsons Brinckerhoff Quade & Douglas, Inc.
Pacific Tower - Suite 3000
1001 Bishop Street
Honolulu, HI 96813
(808) 531-7094

PBQD Reference Number:
16331A-02

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I. INTRODUCTION

The Housing and Community Development Corporation of Hawaii proposes to construct a senior residential development with an integrated multi-story parking structure on 49,296 square feet in Kakaako, Hawaii. Two development options are proposed:

1. 160 3/4 bedroom units

   with 70 parking stalls

2. 200 studio/1 bedroom units

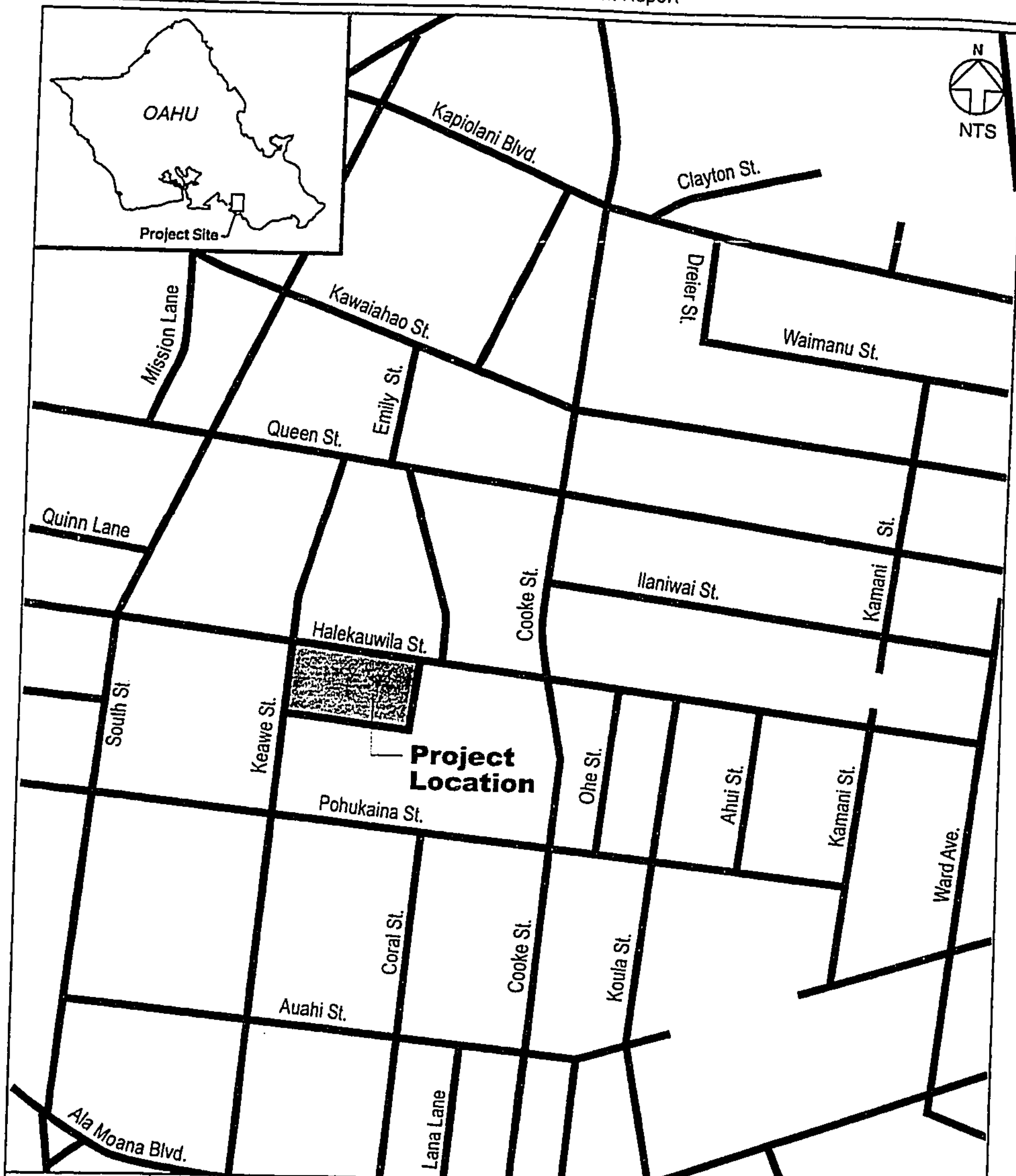
   with 87 parking stalls

The 200 studio/1 bedroom units have a greater traffic impact; therefore they will be used for this study. The site currently contains an at-grade public parking lot of approximately 320-vehicle capacity. The location of the proposed development is shown in Figure 1. Figure 2 illustrates a conceptual Pohukaina Senior Residential Development Site Plan.

Access to the proposed development will be from Halekauwila Street. Two adjacent intersections on Halekauwila Street are Keawe Street and Coral Street. Traffic impacts were evaluated at three intersections in the study area. They are:

1. Halekauwila Street and Coral Street
2. Halekauwila Street and Keawe Street
3. Pohukaina Street and Keawe Street

The proposed development is projected to be completed by the year 2002. The purpose of this report is to document the study assumptions and methodology and to summarize the findings and recommendations regarding traffic impacts of the Pohukaina Senior Housing Development.



VICINITY MAP

Figure 1

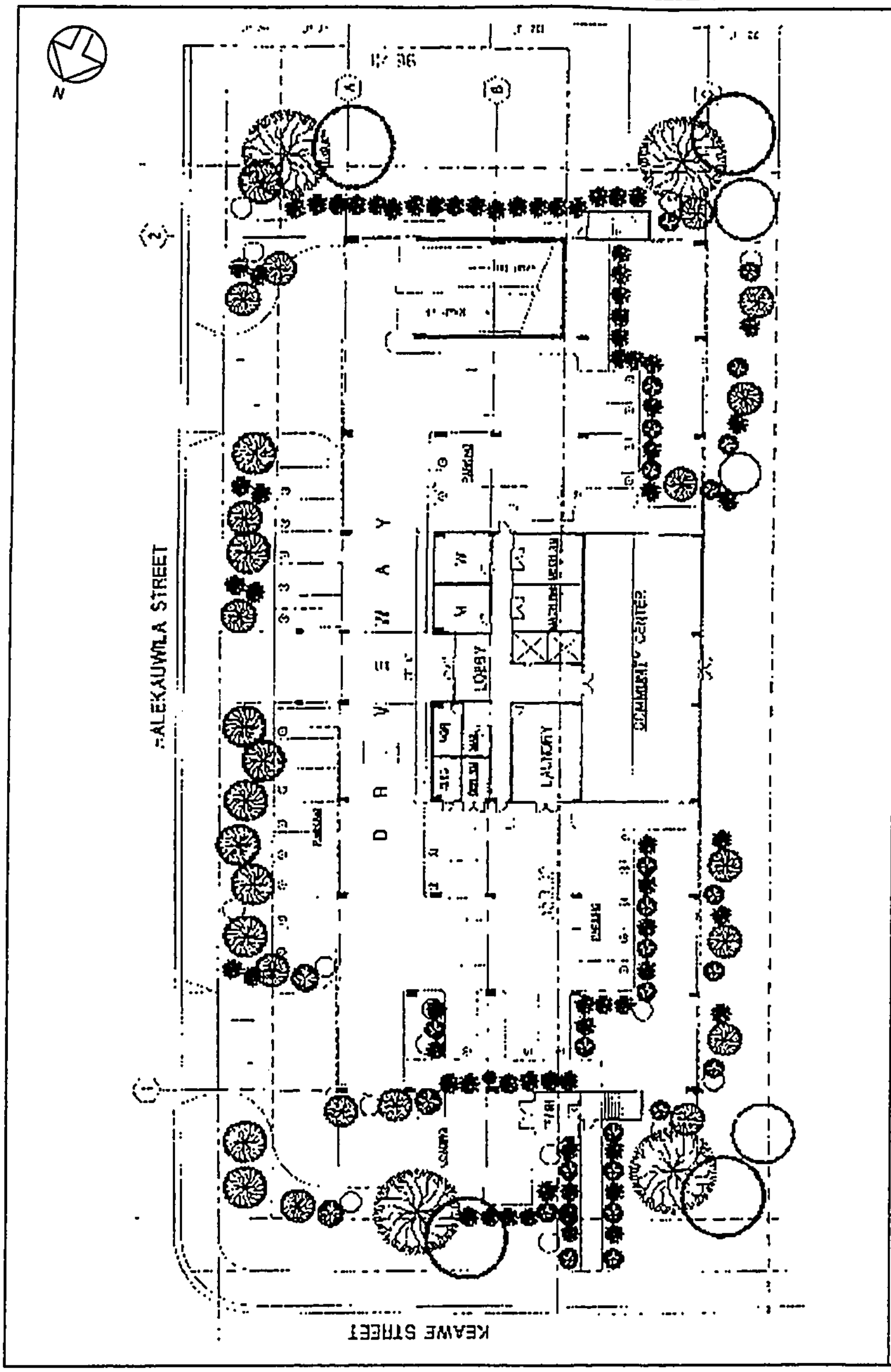


Figure 2

SITE PLAN

II. EXISTING CONDITIONS

The Pohukaina Senior Residential Development parcel is located on the makai-side of Halekauwila Street, Diamond Head of Keawe Street. The existing roadway conditions and intersection operations are described in the following sections.

A. Existing Roadway System

1. Existing Roadways

Roadways within the study area include:

a. Halekauwila Street

b. Coral Street

c. Keawe Street

d. Pohukaina Street

a. Halekauwila Street

Halekauwila Street generally runs in an Ewa-Diamond Head direction. It is a two-lane roadway with curb, gutter, and sidewalks. It has metered parking on both sides of the street and a posted speed limit of 25 mph. Within the study area, Halekauwila Street intersects with Coral Street and Keawe Street.

b. Coral Street

Coral Street runs in a mauka-makai direction. It is a two-lane roadway with partial curb, gutter, and sidewalks. It has no on-street parking. Coral Street intersects Halekauwila Street at a T-intersection and has STOP-sign control on the Coral Street approach.

c. Keawe Street

Keawe Street provides mauka-makai circulation from Kakaako Makai to Queen Street. It intersects both Halekauwila Street and Pohukaina Street at four-way STOP-sign controlled intersections. Keawe Street is a two-lane roadway with curb, gutter, sidewalks, and on-street parking.

d. Pohukaina Street

Pohukaina Street runs parallel to Halekauwila Street in an Ewa-Diamond Head orientation. It is a two-lane roadway with curb, gutter, and sidewalks. It has metered parking and a posted speed limit of 25 mph. Presently, access to the public, at-grade parking lot is provided via a driveway located on Pohukaina Street, Diamond Head of Keawe Street.

2. Existing Intersections

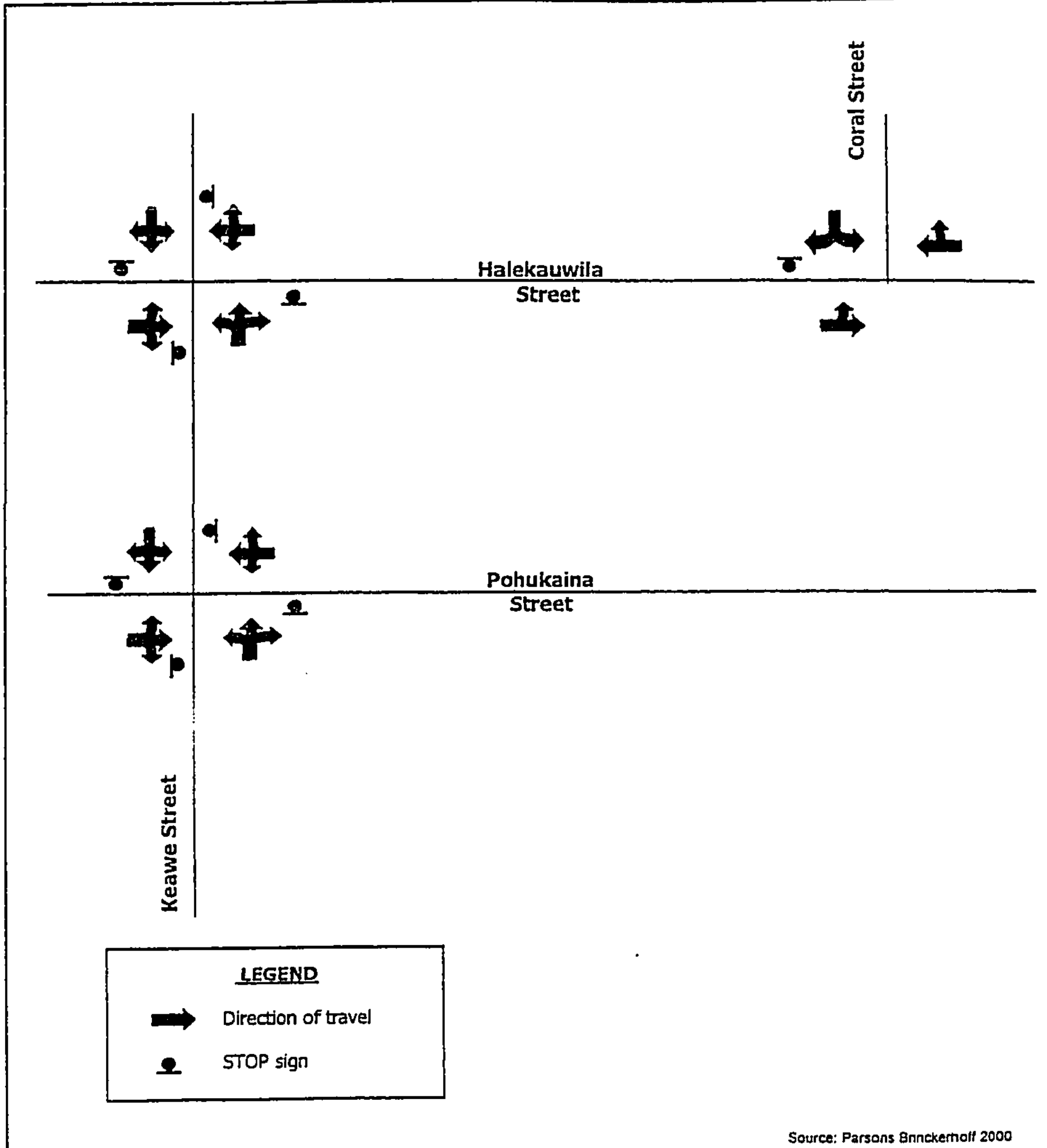
Within the study area, three existing intersections were evaluated. They are: 1) Halekauwila Street and Coral Street, 2) Halekauwila Street and Keawe Street, and 3) Pohukaina Street and Keawe Street. Figure 3 summarizes the lane configurations of the three intersections. All intersections are unsignalized and controlled by STOP signs as indicated in Figure 3.

B. Existing Traffic Volumes

The peak period traffic volume counts were conducted on Wednesday and Thursday, June 14-15, 2000. Figure 4 summarizes the existing peak hour volumes at the study area intersections.

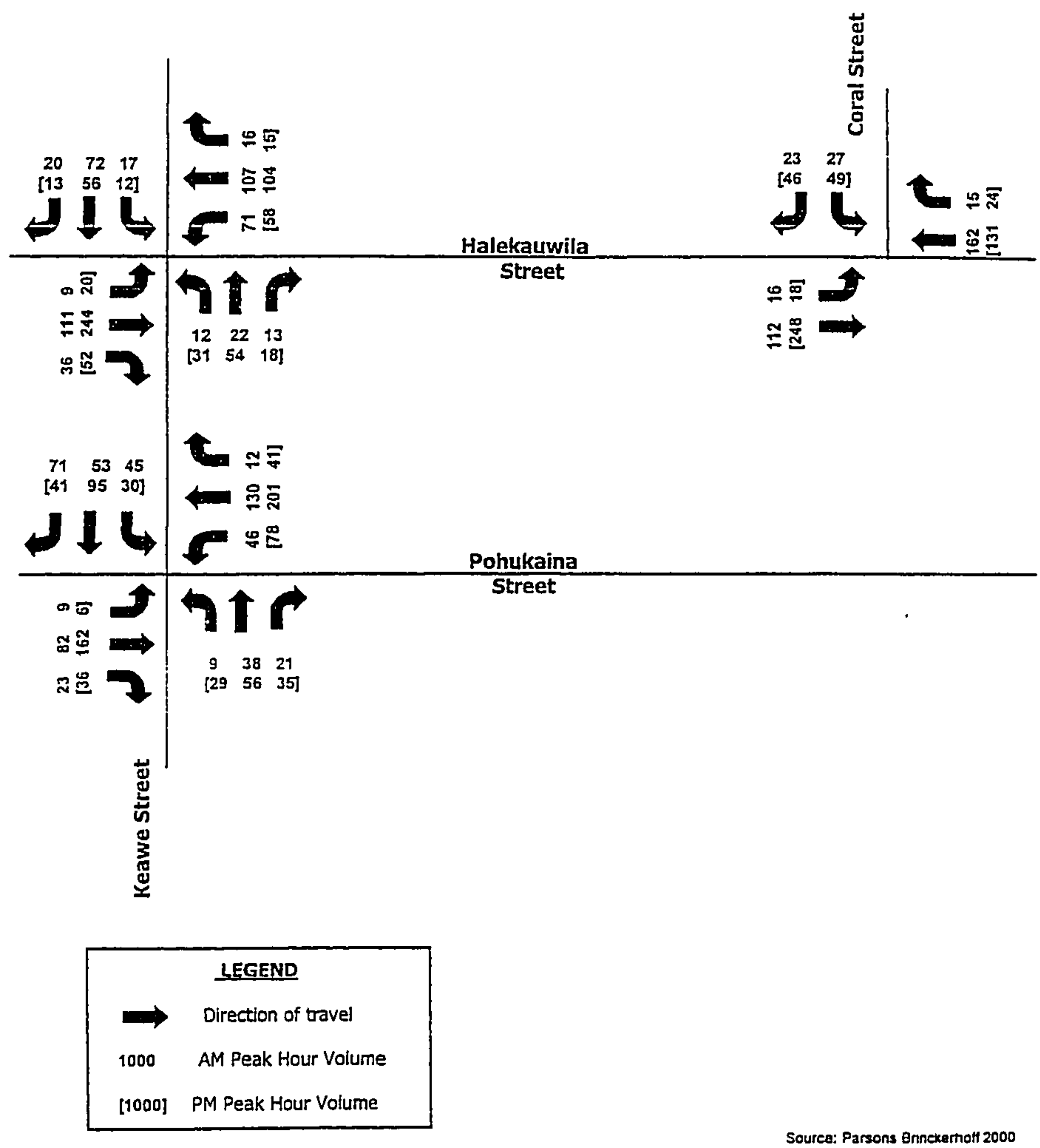
C. Existing Intersection Operations

The intersections were analyzed using the methodologies for unsignalized and signalized intersections outlined in the 2000 Highway Capacity Manual (HCM). Operating conditions at an intersection are expressed as a qualitative measure known as Level of Service (LOS). Letter designations ranging from 'A' through 'F' are used, with LOS 'A' representing very low delay conditions and LOS 'F' representing over-saturation conditions. Appendix A provides a more detailed description of Level of Service.



EXISTING INTERSECTION CONFIGURATIONS

Figure 3



Source: Parsons Brinckerhoff 2000

PB 100 YEARS

EXISTING PEAK HOUR TRAVEL VOLUMES

Figure 4

The results of the analyses are shown in Table 1. The results of the analyses indicate that the intersections operate very well, at LOS 'B' or better, with estimated delays of less than 15 seconds per vehicle on all approaches.

Table 1

Existing Conditions

Level of Service Summary

INTERSECTION	A.M. Peak Hour LOS	A.M. Peak Hour DELAY (sec/veh)	P.M. Peak Hour LOS	P.M. Peak Hour DELAY (sec/veh)
Halekauwila/Coral Street (Unsignalized)				
EB left	A	7.7	A	7.6
SB Approach	B	10.4	B	11.4
Halekauwila/Keawe Street (Unsignalized)				
NB Approach	A	8.2	A	9.3
SB Approach	A	8.7	A	9.1
EB Approach	A	8.7	B	11.4
WB Approach	A	9.3	A	9.7
Total Intersection	A	8.9	B	10.3
Pohukaina/Keawe Street (Unsignalized)				
NB Approach	A	8.3	A	10.0
SB Approach	A	9.1	B	10.6
EB Approach	A	8.6	B	10.7
WB Approach	A	9.5	B	13.1
Total Intersection	A	9.0	B	11.5

Copies of the analysis worksheets are included in Appendix B of this report.

III. PROJECTED YEAR 2020 TRAFFIC CONDITIONS WITHOUT POHUKAINA SENIOR HOUSING DEVELOPMENT

The Pohukaina Senior Housing Development is projected to be completed in the year 2004. However, because the Kakaako area is expected to experience dramatic redevelopment in the future, the Year 2020 was used as the future analysis year. This would provide future background traffic conditions that would anticipate a substantial redevelopment of the surrounding Kakaako area. Two future conditions were evaluated: Year 2020 without the Pohukaina Development and Year 2020 with the Pohukaina Development. This section evaluates traffic conditions without the proposed development.

A. Year 2020 Traffic Volumes, Without Pohukaina Development

Year 2020 traffic volumes were developed using forecasts developed in previous studies such as the Kakaako Traffic Study, July 1991, Austin-Tsutsumi & Associates, Inc. and forecasts developed as part of the Transportation for Oahu Plan, April 6, 2001, Carter-Burgess, Inc. These future forecasts were adjusted based on techniques that use existing patterns to balance raw model output. These future forecasts include non-specific growth in population and employment in the Kakaako area. In addition, it was assumed that a 500-student elementary school would be constructed adjacent to the proposed elderly housing with its access on Keawe Street, between Pohukaina and Halekauwila Streets. Trip generation rates documented in the Institute of Transportation Engineers (ITE) publication entitled, Trip Generation, 6th Edition, were used to estimate traffic volumes generated by this future elementary school. These volumes, shown in Figure 5, produce the Year 2020 baseline traffic volumes.

B. Year 2020 Intersection Operations Without Pohukaina Development

The volumes in Figure 5 were analyzed using the 2000 Highway Capacity Manual methodologies for unsignalized and signalized intersections. Table 2 summarizes the results.

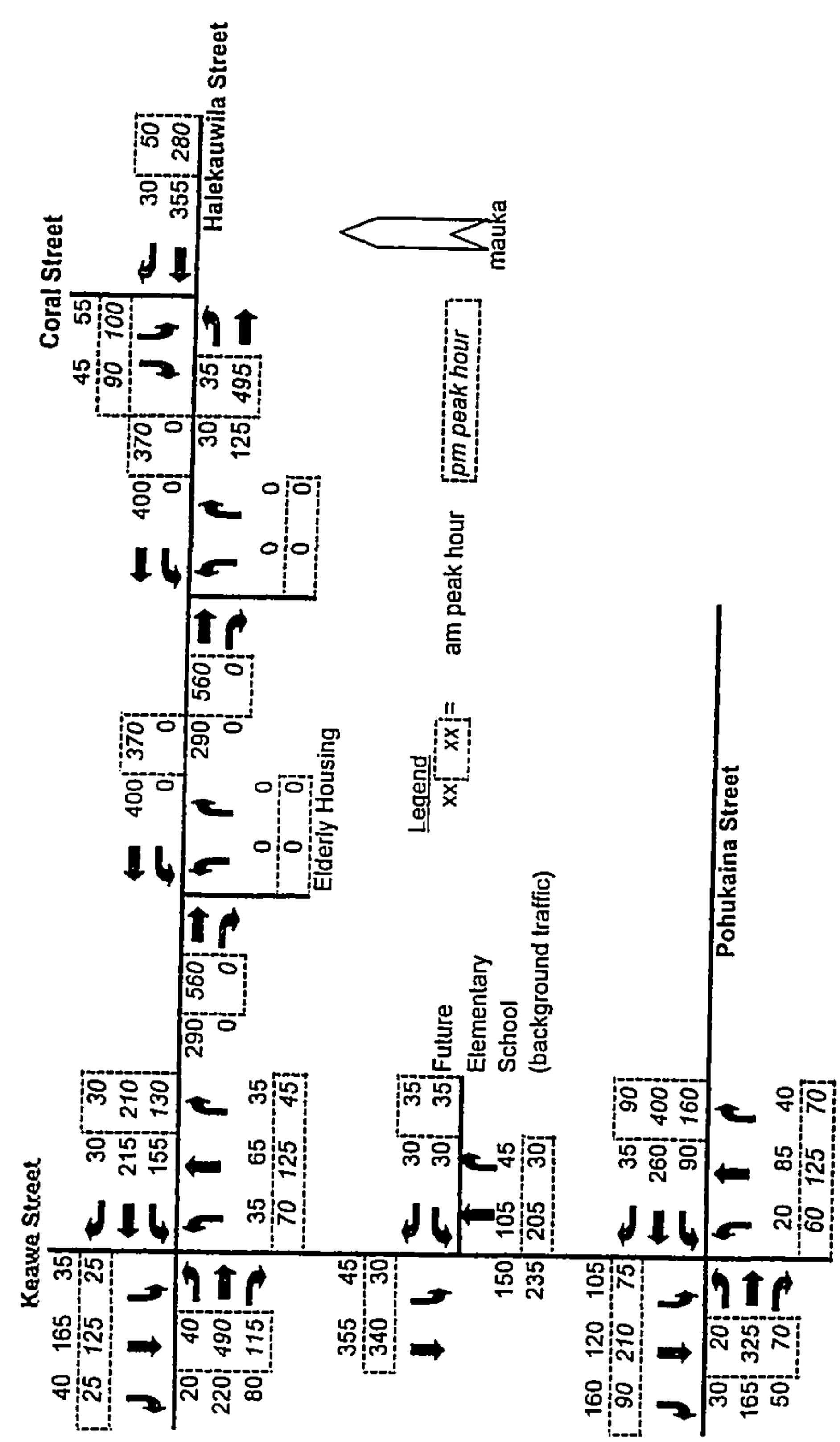


Figure 5

YEAR 2002 BASELINE TRAFFIC VOLUMES

Table 2

Summary of Year 2020 Intersection Analysis Results

	Future without Project				Future with Project			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Signalized Intersections								
Pohukaina Street and Keawe Street								
Eastbound Approach	13.7	B	10.6	B	13.7	B	10.6	B
Westbound Approach	18.5	B	40.7	D	18.5	B	40.7	D
Northbound Approach	12.0	B	26.8	C	12.0	B	26.9	C
Southbound Approach	19.6	B	44.5	D	19.6	B	45.3	D
Overall Intersection	17.0	B	32.1	C	17.0	B	32.3	C
Halekauwila Street and Keawe Street								
Eastbound Approach	10.7	B	19.7	B	10.8	B	20.1	C
Westbound Approach	15.7	B	19.1	B	15.9	B	19.4	B
Northbound Approach	16.0	B	20.2	C	16.0	B	20.2	C
Southbound Approach	18.3	B	17.1	B	18.4	B	17.1	B
Overall Intersection	14.9	B	19.3	B	14.9	B	19.6	B
Unsignalized Intersections								
Halekauwila Street and East Project Driveway								
Westbound Left Turn	--	--	--	--	7.8	A	8.6	A
Northbound Approach	--	--	--	--	11.9	B	13.8	B
Overall Intersection	--	--	--	--	11.9	B	13.8	B
Halekauwila Street and West Project Driveway								
Westbound Left Turn	--	--	--	--	7.8	A	8.6	A
Northbound Approach	--	--	--	--	11.9	B	14.6	B
Overall Intersection	--	--	--	--	11.9	B	14.6	B
Halekauwila Street and Coral Street								
Eastbound Left Turn	8.1	A	8.0	A	8.2	A	8.0	A
Southbound Approach	13.0	B	20.0	C	13.0	B	20.3	B
Overall Intersection	13.0	B	20.0	C	13.0	B	20.3	B

Based on the significant growth in traffic volumes anticipated as a result of the redevelopment of Kakaako, it was assumed for the level of service analysis that the Pohukaina Street/Keawe Street and the Halekauwila Street/Keawe Street intersections would be signalized within the time frame of the future analysis year. The Halekauwila Street/Coral Street intersection is anticipated to remain unsignalized. Given these assumptions, Table 2 indicates that the project area intersections will continue to operate well at LOS C or better in Year 2020.

Copies of the analysis worksheets are included in Appendix B of this report.

IV. PROJECTED YEAR 2020 TRAFFIC CONDITIONS - WITH POHUKAINA SENIOR HOUSING DEVELOPMENT

Vehicle trips generated by the proposed 200-unit senior residential development were added to the Year 2002 baseline traffic volumes and analyzed to determine the traffic impacts. Although part of the existing public parking lot would be displaced by the proposed development, traffic related to the parking lot was not removed from projected volumes. This allows for a conservative analysis, especially at the Pohukaina/Keawe Street intersection.

A. Vehicle Trips Generated

Trip generation was based on the ITE publication, Trip Generation, 6th Edition. The Elderly Housing - Attached (253) category was used to estimate the traffic being generated by the development during the peak hours of traffic. The trip generation rates for peak hour of adjacent street traffic were used. Table 3 summarizes the estimated trip generation.

Table 3
Pohukaina Senior Residential Development
Trip Generation Summary

Peak Period	In	Out	Total
Morning Peak Hour	9	5	14
Evening Peak Hour	12	8	20

The distribution of new trips generated by the Pohukaina Senior Residential Development was based on the existing directional split of traffic. Based on the parking lot layout, 20% of the traffic was assumed to utilize the west entrance and 80% was assumed to utilize the east entrance. Figure 6 illustrates the assignment of the trips generated by the Development onto the study area roadway network.

B. Year 2002 Traffic Volumes - With Pohukaina Development

Vehicle trips generated by the proposed Pohukaina Senior Housing Development and the Year 2002 baseline traffic volumes were combined to estimate the Year 2002 Traffic Volumes with Pohukaina Development. The traffic volumes are shown in Figure 7.

C. Year 2002 Intersection Operations With Pohukaina Development

The peak hour volumes in Figure 7 were analyzed using the 2000 Highway Capacity Manual methodologies for unsignalized and signalized intersections. The results of the analyses are shown in Table 2 on page 12 of this report.

The level of service analysis indicates that the proposed elderly residential development will not significantly change the projected intersection level of service at the intersections evaluated. Project area intersections will continue to operate well with overall LOS C or better with only slight increases in delay over the baseline 2020 conditions.

Copies of the analysis worksheets are included in Appendix B of this report.

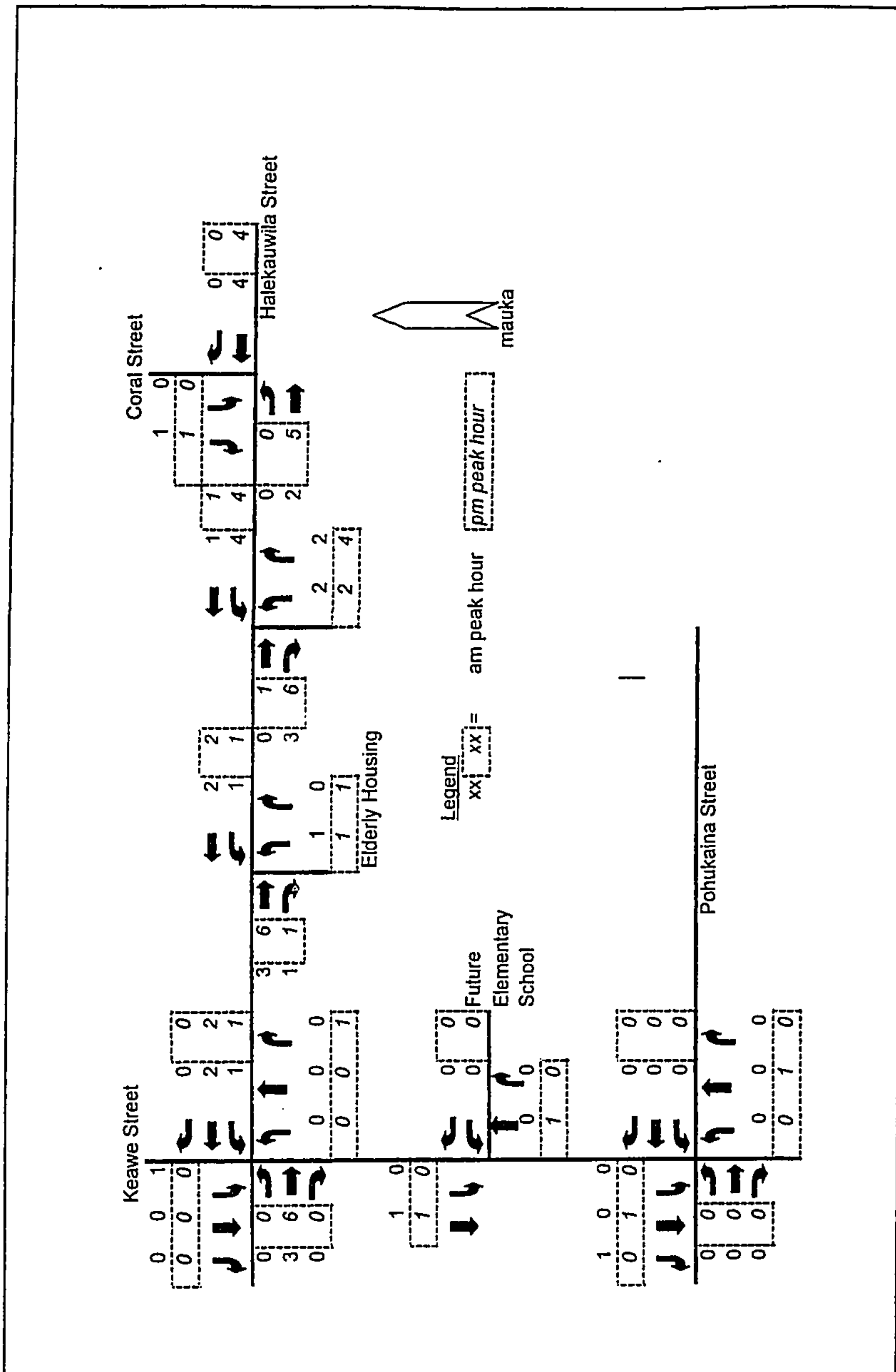
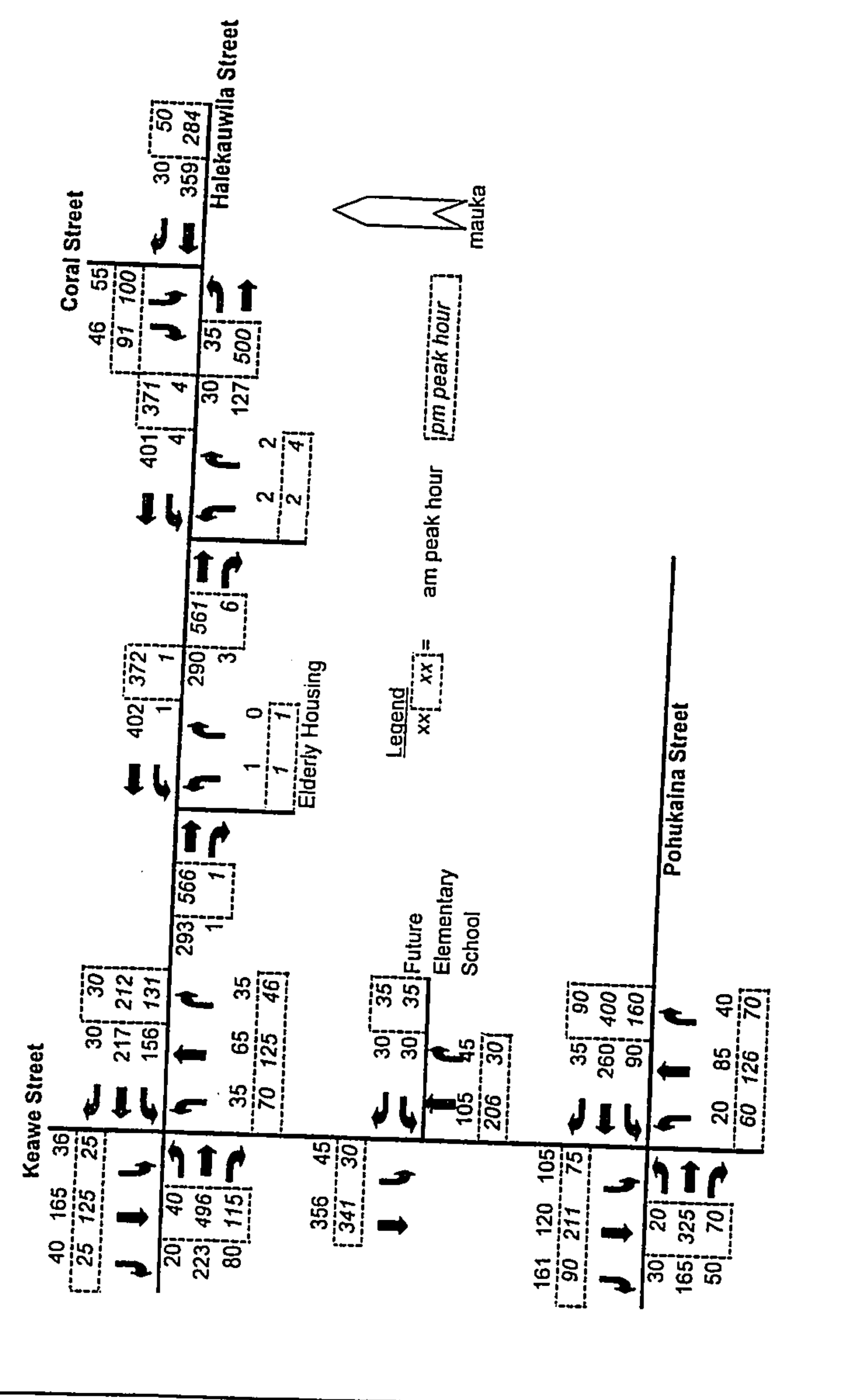


Figure 6

SITE GENERATED TRAFFIC VOLUMES



YEAR 2002 PEAK HOUR TRAFFIC VOLUMES WITH POHUKAINA DEVELOPMENT

Figure 7

V. SUMMARY AND CONCLUSIONS

The Housing and Community Development Corporation of Hawaii proposes to construct a senior residential development on 49,296 square feet in Kakaako, Hawaii. Two development options are proposed:

1. 160 3/4 bedroom units

   with 70 parking stalls

2. 200 studio/1 bedroom units

   with 87 parking stalls

The 200 unit alternative results in greater traffic impacts; therefore it was used for traffic analysis purposes. Access to the proposed site will occur from two driveways on Halekauwila Street.

The site currently consists of an at-grade public parking lot of approximately 320 stalls.

A. Summary of Traffic Analysis

The existing year 2000, operations of the three study intersections are at Level-of-Service B or better during both the morning and afternoon peak traffic hours. All approaches operate with less than 15 seconds of delay per vehicle. The three study intersections are: Halekauwila Street/Keawe Street, Halekauwila Street/Coral Street, and Pohukaina Street/Keawe Street.

The projected Year 2020 intersection operations, both with and without the residential development, would continue to operate well, at overall LOS C or better.

Additionally, driveway access to the development is projected to operate at LOS B or better.

B. Traffic Impacts

Based on the traffic operations analyses, traffic impacts at the study intersections would be minimal. The estimated trips generated in the peak hours of traffic are 14 vehicles per hour (vph) during the a.m. peak hour and 20 vph during the p.m. peak hour. This represents an increase of approximately 8% of the existing traffic on Halekauwila Street.

Traffic operations on Halekauwila Street are not projected to be affected significantly by vehicles accessing the project site. Analyses indicate good levels-of-service at both driveways.

C. *Recommendation and Conclusion*

It is recommended to eliminate on-street, parallel parking on the makai-side of Halekauwila Street where the driveways from the proposed Pohukaina Senior Housing Development are to be located. It is estimated that 7 parking spaces would be affected. The elimination of the parking spaces would provide adequate sight distance for vehicle movements at the proposed driveways.

The proposed senior residential development is projected to have minimal traffic impacts on the adjacent intersections and the overall roadway system. No modifications of existing intersection configurations are needed.

APPENDIX A

Level-of Service Definition

Level of Service Definitions

Level of Service (LOS) is a qualitative measurement of intersection operation. LOS for both unsignalized and signalized intersections is based on control delay. Control delay is the delay attributed to the traffic control device. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The Level of Service categories A through F and the associated control delay times are shown in the table below.

LOS	Unsignalized Intersections (seconds/vehicle)	Signalized Intersections (seconds/vehicle)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 510and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	>50	>80

Source: Highway Research Board, Highway Capacity Manual 3rd Edition, Special Report No. 209, 1997.

APPENDIX B

Intersection Analysis

HCS: Unsignalized Intersections Release 3.1c

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: Laurel Chun
Intersection: Coral Street at Halekauwila Street
Count Date: 6/15/00
Time Period: AM Peak

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	1	2	5	6	10	12
Volume:	16	112	162	15	27	23
HFR:	18	124	180	17	30	26
PHF:	0.90	0.90	0.90	0.90	0.90	0.90
PHV:	0.02	0.02	0.02	0.02	0.02	0.02

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

Lane 1 L	Lane 1 T	Lane 1 R	Lane 2 L	Lane 2 T	Lane 2 R	Lane 3 L	Lane 3 T	Lane 3 R
Y	Y	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

Lane 1 L	Lane 1 T	Lane 1 R	Lane 2 L	Lane 2 T	Lane 2 R	Lane 3 L	Lane 3 T	Lane 3 R
N	Y	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

Lane 1 L	Lane 1 T	Lane 1 R	Lane 2 L	Lane 2 T	Lane 2 R	Lane 3 L	Lane 3 T	Lane 3 R
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	112	0
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	1	10	12
t c,base	4.1	7.1	6.2
t c,hv	1.0	1.0	1.0
P hv	0.02	0.02	0.02
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.4	6.2

Follow Up Time Calculations:

Movement	1	10	12
t f,base	2.2	3.5	3.3
t f,HV	0.9	0.9	0.9
P hv	0.02	0.02	0.02
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows		188
Potential Capacity		854
Pedestrian Impedance Factor		1.00
Movement Capacity		854
Probability of Queue free St.		0.97

Step 2: LT from Major St.	4	1
Conflicting Flows		197
Potential Capacity		1376
Pedestrian Impedance Factor		1.00
Movement Capacity		1376
Probability of Queue free St.		0.99
Maj. L Shared ln. Prob. Queue Free St.		0.99

Step 4: LT from Minor St.	7	10
Conflicting Flows		348
Potential Capacity		649
Pedestrian Impedance Factor		1.00
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt		0.99
Movement Capacity		642

Worksheet 8 Shared Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
v(vph)				30		26
Movement Capacity				642		854
Shared Lane Capacity				725		

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	18					56		
C m(vph)	1376					725		
v/c	0.01					0.08		
95% queue length								
Control Delay	[illegible]					10.4		
LOS	A					B		
Approach Delay							10.4	
Approach LOS							B	

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	0.99	1.00
V i1	112	0
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* oj	0.99	1.00
D maj left	7.7	0.0
N number major st lanes	1	1
Delay, rank 1 mvmts	0.1	0.0

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Laurel Chun
Intersection: Coral Street at Halekauwila Street
Count Date: 6/14/00
Time Period: PM Peak

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	1	2	5	6	10	12
Volume:	18	248	131	24	49	46
HFR:	20	276	146	27	54	51
PHF:	0.90	0.90	0.90	0.90	0.90	0.90
PHV:	0.02	0.02	0.02	0.02	0.02	0.02

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
Y	Y	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	Y	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	248	0
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	1	10	12
t c,base	4.1	7.1	6.2
t c,hv	1.0	1.0	1.0
P hv	0.02	0.02	0.02
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T: 1 stage	0.00	0.00	0.00
t c 1 stage	4.1	6.4	6.2

Follow Up Time Calculations:

Movement	1	10	12
t f,base	2.2	3.5	3.3
t f,HV	0.9	0.9	0.9
P hv	0.02	0.02	0.02
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows		159
Potential Capacity		886
Pedestrian Impedance Factor		1.00
Movement Capacity		886
Probability of Queue free St.		0.94

Step 2: LT from Major St.	4	1
Conflicting Flows		172
Potential Capacity		1405
Pedestrian Impedance Factor		1.00
Movement Capacity		1405
Probability of Queue free St.		0.99
Maj. L Shared ln. Prob. Queue Free St.		0.98

Step 4: LT from Minor St.	7	10
Conflicting Flows		474
Potential Capacity		549
Pedestrian Impedance Factor		1.00
Maj. L, Min T Impedance factor		0.98
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt		0.99
Movement Capacity		542

Worksheet 8 Shared Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
v(vph)				54		51
Movement Capacity				542		886
Shared Lane Capacity				667		

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	20					106		
C m(vph)	1405					667		
v/c	0.01					0.16		
95% queue length								
Control Delay	7.6					11.4		
LOS	A					B		
Approach Delay							11.4	
Approach LOS							B	

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	0.99	1.00
V i1	248	0
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	0.98	1.00
D maj left	7.6	0.0
N number major st lanes	1	1
Delay, rank 1 mvmts	0.1	0.0

HCS: Unsignalized Intersections Release 3.1c

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst: Laurel Chun
2. Intersection: Keawe Street at Halekauwila Street
3. Count Date: 6/15/00
4. Time Period: AM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	12	17	9	71
2. TH Volume:	22	72	111	107
3. RT Volume:	13	20	36	16
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	13	18	10	78
6. Flow Rate TH:	24	80	123	118
7. Flow Rate RT:	14	22	40	17
8. Flow Rate Total:	52	121	173	215
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	52	121	173	215
2. Flow Rate LT:	13	18	10	78
3. Flow Rate RT:	14	22	40	17
4. Prop LT in Lane:	0.26	0.15	0.06	0.37
5. Prop RT in Lane:	0.28	0.18	0.23	0.08
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.08	-0.04	-0.09	0.06

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	52	121	173	215
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.05	0.11	0.15	0.19
4. hd, final value	4.8	4.8	4.5	4.6
5. x, final value	0.07	0.16	0.21	0.27
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	2.8	2.8	2.5	2.6

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	52	121	173	215
2. Service Time	2.8	2.8	2.5	2.6
3. Degree Utilization, x	0.07	0.16	0.21	0.27
4. Departure headway, hd	4.8	4.8	4.5	4.6
5. Capacity	697	711	780	766
6. Delay	8.2	8.7	8.7	9.3
7. Level Of Service	A	A	A	A
8. Delay Approach	8.2	8.7	8.7	9.3
9. LOS, approach	A	A	A	A
10. Delay, Intersection	8.9			

11. LOS, Intersection

A

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst: Laurel Chun
2. Intersection: Keawe Street at Halekauwila Street
3. Count Date: 6/14/00
4. Time Period: PM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	31	12	20	58
2. TH Volume:	54	56	244	104
3. RT Volume:	18	13	52	15
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	34	13	22	64
6. Flow Rate TH:	60	62	271	115
7. Flow Rate RT:	20	14	57	16
8. Flow Rate Total:	114	90	351	196
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	114	90	351	196
2. Flow Rate LT:	34	13	22	64
3. Flow Rate RT:	20	14	57	16
4. Prop LT in Lane:	0.30	0.15	0.06	0.33
5. Prop RT in Lane:	0.17	0.16	0.16	0.08
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.01	-0.03	-0.05	0.05

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	114	90	351	196
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.10	0.08	0.31	0.17
4. hd, final value	5.3	5.3	4.6	4.9
5. x, final value	0.17	0.13	0.45	0.27
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	3.3	3.3	2.6	2.9

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	114	90	351	196
2. Service Time	3.3	3.3	2.6	2.9
3. Degree Utilization, x	0.17	0.13	0.45	0.27
4. Departure headway, hd	5.3	5.3	4.6	4.9
5. Capacity	628	623	760	710
6. Delay	9.3	9.1	11.4	9.7
7. Level Of Service	A	A	B	A
8. Delay Approach	9.3	9.1	11.4	9.7
9. LOS, approach	A	A	B	A
10. Delay, Intersection	10.3			

11. LOS, Intersection B

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst:	Laurel Chun
2. Intersection:	Keawe Street at Pohukaina Street
3. Count Date:	6/15/00
4. Time Period:	AM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	9	45	9	46
2. TH Volume:	38	53	82	130
3. RT Volume:	21	71	23	12
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	10	50	10	51
6. Flow Rate TH:	42	58	91	144
7. Flow Rate RT:	23	78	25	13
8. Flow Rate Total:	75	187	126	208
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	75	187	126	208
2. Flow Rate LT:	10	50	10	51
3. Flow Rate RT:	23	78	25	13
4. Prop LT in lane:	0.13	0.27	0.08	0.24
5. Prop RT in lane:	0.31	0.42	0.20	0.06
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.12	-0.16	-0.07	0.04

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	75	187	126	208
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.07	0.17	0.11	0.19
4. hd, final value	4.8	4.6	4.7	4.7
5. x, final value	0.10	0.24	0.17	0.27
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	2.8	2.6	2.7	2.7

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	75	187	126	208
2. Service Time	2.8	2.6	2.7	2.7
3. Degree Utilization, x	0.10	0.24	0.17	0.27
4. Departure headway, hd	4.8	4.6	4.7	4.7
5. Capacity	709	745	732	736
6. Delay	8.3	9.1	8.6	9.5
7. Level Of Service	A	A	A	A
8. Delay Approach	8.3	9.1	8.6	9.5
9. LOS, approach	A	A	A	A
10. Delay, Intersection	9.0			

11. LOS, Intersection A

HCS: Unsignalized Intersections Release 3.1c

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst: Laurel Chun
2. Intersection: Keawe Street at Pohukaina Street
3. Count Date: 6/14/00
4. Time Period: PM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	29	30	6	78
2. TH Volume:	56	95	162	201
3. RT Volume:	35	41	36	41
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	32	33	6	86
6. Flow Rate TH:	62	105	180	223
7. Flow Rate RT:	38	45	40	45
8. Flow Rate Total:	133	184	226	355
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	133	184	226	355
2. Flow Rate LT:	32	33	6	86
3. Flow Rate RT:	38	45	40	45
4. Prop LT in lane:	0.24	0.18	0.03	0.24
5. Prop RT in lane:	0.29	0.25	0.18	0.13
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.09	-0.08	-0.07	0.01

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	133	184	226	355
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.12	0.16	0.20	0.32
4. hd, final value	5.6	5.5	5.2	5.1
5. x, final value	0.21	0.28	0.33	0.50
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	3.6	3.5	3.2	3.1

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	133	184	226	355
2. Service Time	3.6	3.5	3.2	3.1
3. Degree Utilization, x	0.21	0.28	0.33	0.50
4. Departure headway, hd	5.6	5.5	5.2	5.1
5. Capacity	594	609	658	690
6. Delay	10.0	10.6	10.7	13.1
7. Level Of Service	A	B	B	B
8. Delay Approach	10.0	10.6	10.7	13.1
9. LOS, approach	A	B	B	B
10. Delay, Intersection	11.5			

11. LOS, Intersection B

Year 2002 Baseline
Level of Service Worksheets

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Laurel Chun
Intersection: Coral Street at Halekauwila Street
Count Date: 2002 Projection
Time Period: AM Peak

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	1	2	5	6	10	12
Volume:	17	119	172	16	29	24
HFR:	19	132	191	18	32	27
PHF:	0.90	0.90	0.90	0.90	0.90	0.90
PHV:	0.02	0.02	0.02	0.02	0.02	0.02

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
Y	Y	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	Y	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	119	0
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	1	10	12
t c,base	4.1	7.1	6.2
t c,hv	1.0	1.0	1.0
P hv	0.02	0.02	0.02
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.4	6.2

Follow Up Time Calculations:

Movement	1	10	12
t f,base	2.2	3.5	3.3
t f,HV	0.9	0.9	0.9
P hv	0.02	0.02	0.02
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows		200
Potential Capacity		841
Pedestrian Impedance Factor		1.00
Movement Capacity		841
Probability of Queue free St.		0.97

Step 2: LT from Major St.	4	1
Conflicting Flows		209
Potential Capacity		1362
Pedestrian Impedance Factor		1.00
Movement Capacity		1362
Probability of Queue free St.		0.99
Maj. L Shared ln. Prob. Queue Free St.		0.99

Step 4: LT from Minor St.	7	10
Conflicting Flows		370
Potential Capacity		630
Pedestrian Impedance Factor		1.00
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt		0.99
Movement Capacity		623

Worksheet 8 Shared Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
v(vph)				32		27
Movement Capacity				623		841
Shared Lane Capacity				706		

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	19					59		
C m(vph)	1362					706		
v/c	0.01					0.08		
95% queue length								
Control Delay	7.7					10.6		
LOS	A					B		
Approach Delay							10.6	
Approach LOS							B	

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	0.99	1.00
V i1	119	0
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	0.99	1.00
D maj left	7.7	0.0
N number major st lanes	1	1
Delay, rank 1 mvmts	0.1	0.0

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Laurel Chun
Intersection: Coral Street at Halekauwila Street
Count Date: 2002 Projection
Time Period: PM Peak

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	1	2	5	6	10	12
Volume:	19	263	139	25	52	49
HFR:	21	292	154	28	58	54
PHF:	0.90	0.90	0.90	0.90	0.90	0.90
PHV:	0.02	0.02	0.02	0.02	0.02	0.02

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
Y	Y	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	Y	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	263	0
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	1	10	12
t c,base	4.1	7.1	6.2
t c,hv	1.0	1.0	1.0
P hv	0.02	0.02	0.02
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T: 1 stage	0.00	0.00	0.00
t c 1 stage	4.1	6.4	6.2

Follow Up Time Calculations:

Movement	1	10	12
t f,base	2.2	3.5	3.3
t f,HV	0.9	0.9	0.9
P hv	0.02	0.02	0.02
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows		168
Potential Capacity		876
Pedestrian Impedance Factor		1.00
Movement Capacity		876
Probability of Queue free St.		0.94

Step 2: LT from Major St.	4	1
Conflicting Flows		182
Potential Capacity		1393
Pedestrian Impedance Factor		1.00
Movement Capacity		1393
Probability of Queue free St.		0.98
Maj. L Shared ln. Prob. Queue Free St.		0.98

Step 4: LT from Minor St.

	7	10
Conflicting Flows		503
Potential Capacity		528
Pedestrian Impedance Factor		1.00
Maj. L, Min T Impedance factor		0.98
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt		0.99
Movement Capacity		521

Worksheet 8 Shared Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
v(vph)				58		54
Movement Capacity				521		876
Shared Lane Capacity				649		

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	21					112		
C m(vph)	1393					649		
v/c	0.02					0.17		
95% queue length								
Control Delay	[illegible]					11.7		
LOS	A					B		
Approach Delay							11.7	
Approach LOS							B	

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	0.98	1.00
V i1	263	0
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	0.98	1.00
D maj left	7.6	0.0
N number major st lanes	1	1
Delay, rank 1 mvmts	0.1	0.0

HCS: Unsignalized Intersections Release 3.1c

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst:	Laurel Chun
2. Intersection:	Keawe Street at Halekauwila Street
3. Count Date:	2002 Projection
4. Time Period:	AM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	13	18	10	75
2. TH Volume:	23	76	118	114
3. RT Volume:	14	21	38	17
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	14	20	11	83
6. Flow Rate TH:	25	84	131	126
7. Flow Rate RT:	15	23	42	18
8. Flow Rate Total:	55	127	184	228
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	55	127	184	228
2. Flow Rate LT:	14	20	11	83
3. Flow Rate RT:	15	23	42	18
4. Prop LT in lane:	0.26	0.16	0.06	0.36
5. Prop RT in lane:	0.28	0.18	0.23	0.08
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.08	-0.04	-0.09	0.06

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	55	127	184	228
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.05	0.11	0.16	0.20
4. hd, final value	4.9	4.9	4.5	4.6
5. x, final value	0.08	0.17	0.23	0.29
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	2.9	2.9	2.5	2.6

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	55	127	184	228
2. Service Time	2.9	2.9	2.5	2.6
3. Degree Utilization, x	0.08	0.17	0.23	0.29
4. Departure headway, hd	4.9	4.9	4.5	4.6
5. Capacity	685	700	771	758
6. Delay	8.3	8.9	8.9	9.5
7. Level Of Service	A	A	A	A
8. Delay Approach	8.3	8.9	8.9	9.5
9. LOS, approach	A	A	A	A
10. Delay, Intersection	9.1			

11. LOS, Intersection A

HCS: Unsignalized Intersections Release 3.1c

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst:	Laurel Chun
2. Intersection:	Keawe Street at Halekauwila Street
3. Count Date:	2002 Projection
4. Time Period:	PM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	33	13	21	62
2. TH Volume:	57	59	259	110
3. RT Volume:	19	14	55	16
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	36	14	23	68
6. Flow Rate TH:	63	65	287	122
7. Flow Rate RT:	21	15	61	17
8. Flow Rate Total:	121	95	372	208
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	121	95	372	208
2. Flow Rate LT:	36	14	23	68
3. Flow Rate RT:	21	15	61	17
4. Prop LT in lane:	0.30	0.15	0.06	0.33
5. Prop RT in lane:	0.17	0.16	0.16	0.09
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.01	-0.03	-0.05	0.05

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	121	95	372	208
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.11	0.08	0.33	0.19
4. hd, final value	5.4	5.4	4.7	5.0
5. x, final value	0.18	0.14	0.49	0.29
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	3.4	3.4	2.7	3.0

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	121	95	372	208
2. Service Time	3.4	3.4	2.7	3.0
3. Degree Utilization, x	0.18	0.14	0.49	0.29
4. Departure headway, hd	5.4	5.4	4.7	5.0
5. Capacity	615	609	750	699
6. Delay	9.6	9.3	12.0	10.0
7. Level Of Service	A	A	B	A
8. Delay Approach	9.6	9.3	12.0	10.0
9. LOS, approach	A	A	B	A
10. Delay, Intersection	10.8			

11. LOS, Intersection B

HCS: Unsignalized Intersections Release 3.1c

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst:	Laurel Chun
2. Intersection:	Keawe Street at Pohukaina Street
3. Count Date:	2002 Projection
4. Time Period:	AM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	10	48	10	49
2. TH Volume:	40	56	87	138
3. RT Volume:	23	75	24	13
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	11	53	11	54
6. Flow Rate TH:	44	62	96	153
7. Flow Rate RT:	25	83	26	14
8. Flow Rate Total:	81	198	134	222
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	81	198	134	222
2. Flow Rate LT:	11	53	11	54
3. Flow Rate RT:	25	93	26	14
4. Prop LT in lane:	0.14	0.27	0.08	0.25
5. Prop RT in lane:	0.33	0.42	0.20	0.07
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.13	-0.16	-0.07	0.04

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	81	198	134	222
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.07	0.18	0.12	0.20
4. hd, final value	4.9	4.7	4.8	4.8
5. x, final value	0.11	0.26	0.18	0.29
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	2.9	2.7	2.8	2.8

Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	81	198	134	222
2. Service Time	2.9	2.7	2.8	2.8
3. Degree Utilization, x	0.11	0.26	0.18	0.29
4. Departure headway, hd	4.9	4.7	4.8	4.8
5. Capacity	697	734	720	726
6. Delay	8.5	9.3	8.8	9.7
7. Level Of Service	A	A	A	A
8. Delay Approach	8.5	9.3	8.8	9.7
9. LOS, approach	A	A	A	A
10. Delay, Intersection	9.2			

11. LOS, Intersection

A

HCS: Unsignalized Intersections Release 3.1c

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 1 - Basic Intersection Information

1. Analyst:	Laurel Chun
2. Intersection:	Keawe Street at Pohukaina Street
3. Count Date:	2002 Projection
4. Time Period:	PM Peak

Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	31	32	6	83
2. TH Volume:	59	101	172	213
3. RT Volume:	37	43	38	43
4. Peak Hour Factor:	0.90	0.90	0.90	0.90
5. Flow Rate LT:	34	35	6	92
6. Flow Rate TH:	65	112	191	236
7. Flow Rate RT:	41	47	42	47
8. Flow Rate Total:	141	195	240	376
9. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
10. Subject Approach	1	1	1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Flow Rate Total:	141	195	240	376
2. Flow Rate LT:	34	35	6	92
3. Flow Rate RT:	41	47	42	47
4. Prop LT in lane:	0.24	0.18	0.03	0.24
5. Prop RT in lane:	0.29	0.24	0.18	0.13
6. Prop. Heavy Vehicle:	0.02	0.02	0.02	0.02
7. Geometry Group	1	1	1	1
8. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
9. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
10. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.09	-0.08	-0.07	0.01

Worksheet 4 - Departure Headway and Service Time

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	141	195	240	376
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.13	0.17	0.21	0.33
4. hd, final value	5.7	5.6	5.3	5.2
5. x, final value	0.22	0.30	0.35	0.54
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	3.7	3.6	3.3	3.2

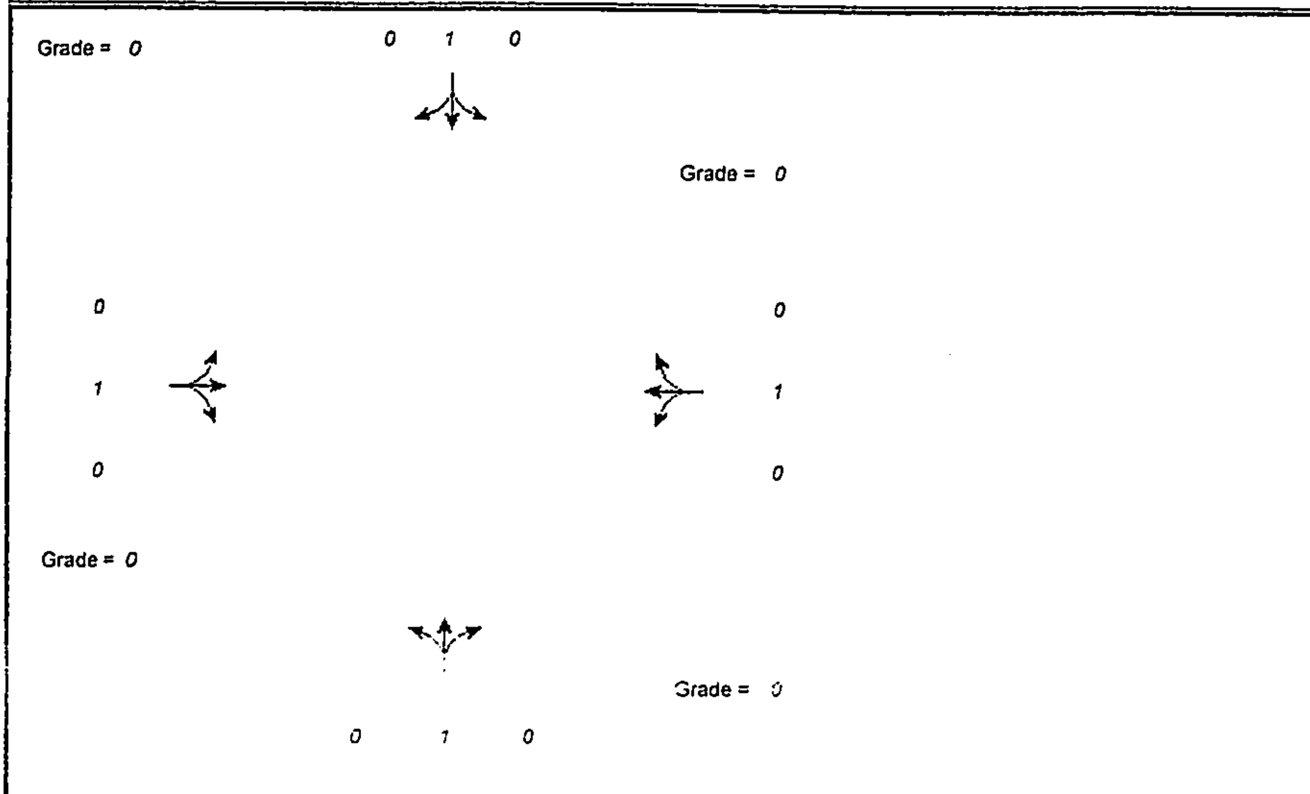
Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	141	195	240	376
2. Service Time	3.7	3.6	3.3	3.2
3. Degree Utilization, x	0.22	0.30	0.35	0.54
4. Departure headway, hd	5.7	5.6	5.3	5.2
5. Capacity	578	594	643	678
6. Delay	10.3	11.1	11.2	14.2
7. Level Of Service	B	B	B	B
8. Delay Approach	10.3	11.1	11.2	14.2
9. LOS, approach	B	B	B	B
10. Delay, Intersection	12.2			

INPUT WORKSHEET

General Information		Site Information	
Analyst	SMU	Intersection	Pohukaina-Keawe AM
Agency or Co.	Parsons Brinckerhoff	Area Type	All other areas
Date Performed	9/4/2001	Jurisdiction	Honolulu
Time Period	AM Peak Hour	Analysis Year	Year 2020 without Project

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	30	165	50	90	260	35	20	85	40	105	120	160
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Ped volume	0			0			0			0		
Bicycle volume												
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr		0			0			0			0	
Ped timing	0.0			0.0			3.0			0.0		

	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 25.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 4.0	Y =	Y =	Y =	Y = 4.0	Y =	Y =	Y =
Duration of Analysis (hrs) = 1.00					Cycle Length C = 60.0			

CAPACITY AND LOS WORKSHEET								
General Information								
Project Description *Pohukaina Sr. Housing*								
Capacity Analysis								
	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	272		428		160		428	
Satflow rate	1702		1619		1689		1549	
Lost time	2.0		2.0		2.0		2.0	
Green ratio	0.42		0.42		0.42		0.42	
Lane group cap.	709		675		704		645	
v/c ratio	0.38		0.63		0.23		0.66	
Flow ratio	0.16		0.26		0.09		0.28	
Crit. lane group	N		Y		N		Y	
Sum flow ratios	0.54							
Lost time/cycle	10.00							
Critical v/c ratio	0.65							
Lane Group Capacity, Control Delay, and LOS Determination								
	EB		WB		NB		SB	
Lane group	LTR		LTR		LTR		LTR	
Adj. flow rate	272		428		160		428	
Lane group cap.	709		675		704		645	
v/c ratio	0.38		0.63		0.23		0.66	
Green ratio	0.42		0.42		0.42		0.42	
Unif. delay d1	12.2		13.9		11.3		14.1	
Delay factor k	0.50		0.50		0.50		0.50	
Increm. delay d2	1.6		4.6		0.8		5.5	
PF factor	1.000		1.000		1.000		1.000	
Control delay	13.7		18.5		12.0		19.6	
Lane group LOS	B		B		B		B	
Apprch. delay	13.7		18.5		12.0		19.6	
Approach LOS	B		B		B		B	
Intersec. delay	17.0		Intersection LOS				B	

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