

DRAFT ENVIRONMENTAL ASSESSMENT

***LĀNA‘I HIGH AND ELEMENTARY SCHOOL
MASTER PLAN***

Island of Lāna‘i, District of Lahaina, Maui, Hawai‘i



Department of Education

State of Hawai‘i

Planning Section, Facilities Development Branch

Office of School Facilities and Support Services

4680 Kalanianaʻole Highway, TB1A

Honolulu, Hawai‘i 96821

August 2009

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Prepared in Partial Fulfillment of the Requirements of
Chapter 343, Hawaii Revised Statutes and
Hawaii Administrative Rules, Title 11, Chapter 200, State of Hawaii

Prepared for

Department of Education

State of Hawai‘i

Planning Section, Facilities Development Branch

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4680 Kalaniana‘ole Highway, TB1A

Honolulu, Hawai‘i 96821

Prepared by

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95-595 Kanamee Street #324

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August 2009

PROJECT PROFILE

Project: Lāna'i High and Elementary School
Master Plan

Proposing Agency: Department of Education
State of Hawai'i

Accepting Authority: Department of Education
State of Hawai'i

Location: Lāna'i High and Elementary School
555 Fraser Avenue
Lāna'i City, Hawai'i 96763

Existing School Site:

Tax Map Key: 4-9-014: 003
Land Area: 10.269 acres
Landowner: State of Hawai'i
Existing Use: Public School

Tax Map Key: 4-9-014: 004
Land Area: 0.125 acres
Landowner: State of Hawai'i
Existing Use: Public School

Expansion Area:

Tax Map Key: 4-9-014: 002
Land Area: 8.017 acres
Landowner: County of Maui
Existing Use: County Park

Tax Map Key: 4-9-002: por. 058
Land Area: 42.0 acres (Portion of 115 acre lot)
Landowner: County of Maui
Existing Use: Vacant

Tax Map Key: 4-9-014: por. 005
Land Area: Approximately 0.0968 acres
Landowner: County of Maui
Existing Use: Vacant

Tax Map Key: 4-9-014: por. 011
Land Area: Approximately 1.028 acres
Landowner: Castle & Cooke Resorts, LLC
Existing Use: County Park, Junkyard

PROJECT PROFILE

State Land Use District:	Urban and Agricultural
Lana'i Community Plan Land Use Map:	Public/Quasi Public, Park, Single-Family,
Zoning:	P-1, Kk-3, Interim
Special Management Area	Outside Special Management Area
Need for Environmental Assessment:	Propose the use of State land and funds (§11-200-5(c)), Hawaii Administrative Rules
Anticipated Determination:	Finding of No Significant Impact
Contact Person:	Ms. Brenda Lowrey Planning Section Facilities Development Branch Office of School Facilities and Support Services 4680 Kalaniana'ole Highway, TB1A Honolulu, Hawai'i 96821 Telephone: 377-8312

TABLE OF CONTENTS

	<u>Page</u>
PROJECT PROFILE	i
TABLE OF CONTENTS	iii
FIGURES	iv
TABLES	iv
SECTION 1 DESCRIPTION OF THE PROPOSED ACTION	1
A. Present Conditions and Need for the Project	1
B. Master Plan Concepts	2
C. Technical Characteristics	3
D. Land Ownership	13
E. Economic Characteristics	16
F. Social Characteristics	16
G. Phasing	16
H. Sustainability	17
SECTION 2 DESCRIPTION OF THE AFFECTED ENVIRONMENT	18
A. Existing Conditions	18
B. Environmental Characteristics	18
C. Land Use Plans, Policies, and Controls	33
D. Infrastructure	37
E. Socio-Economic Characteristics	42
SECTION 3 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS	45
A. Assessment Process	45
B. Short-term Impacts	46
C. Long-term Impacts	49
D. Cumulative Impacts	57
SECTION 4 ALTERNATIVES TO THE PROPOSED ACTION	60
A. No Action	60
B. Land Acquisition Addition	60
SECTION 5 AGENCIES AND ORGANIZATIONS TO BE CONSULTED	61
SECTION 6 PERMITS AND APPROVALS	63
SECTION 7 DETERMINATION OF SIGNIFICANCE	64

SECTION 8 LIST OF CONTRIBUTORS 67

REFERENCES 68

APPENDIX A BIOLOGICAL SURVEY
APPENDIX B ARCHAEOLOGICAL ASSESSMENT REPORT
APPENDIX C CULTURAL IMPACT ASSESSMENT
APPENDIX D PHASE I ENVIRONMENTAL SITE ASSESSMENT
APPENDIX E TRAFFIC IMPACT REPORT

FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	Location Map	2
2	Vicinity Map (Aerial Photo)	3
3	Master Plan	6
4	6-Classroom Building	8
5a	Building "A" Elevations	9
5b	Building "A" Elevations	9a
6a	Tax Map	14
6b	Tax Map	15
7	Existing Site	19
8	Detailed Land Classification	22
9	Agricultural Lands of Importance to the State of Hawaii (ALISH)	23
10	Vegetation Zones	27
11	State Land Use Districts	38
12	Lānaʻi Community Plan	39
13	County Zoning	40
14	Year 2034 with Project AM Peak Hour of Traffic	55
15	Year 2034 with Project PM Peak Hour of Traffic	56

TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
1	Programmed Floor Area, Lānaʻi High and Elementary School	7
2	Planned Recreation Areas	11
3	Land Owners	13
4	Aquifer Classification Code	26
5	Site Inspection Findings	30
6	Land Use Controls	37
7	Socio-Economic Characteristics, 1990-2030	42
8	Lānaʻi High and Elementary School Enrollment	43
9	Peak Hour Trip Generation	53
10	Existing and Projected With Project LOS Traffic Operating Conditions	54

The Department of Education, State of Hawai'i, has prepared a Lāna'i High and Elementary School Master Plan ("Master Plan") to guide the physical expansion and development of the school over the next 25+ years. The Master Plan encompasses the existing school facilities and grounds and approximately 50.017 acres *makai* or to the west of the school.

Lāna'i High and Elementary School is bordered by 5th Street and the Department of Hawaiian Home Lands Lāna'i Residence Lots subdivision on the north, Fraser Avenue on the east, a County of Maui recreation complex on the south, and Lāna'i Park and Tennis Courts on the west. A Location Map and Vicinity Map are shown in Figures 1 and 2.

A. Present Conditions and Need for the Project

Lāna'i High and Elementary School ("hereafter Lāna'i School or school") consists of seventeen permanent structures, nine portable classrooms, two parking areas, and faculty housing spread over the 10.39 acre campus. A Department of Education Facilities Inventory (2006) reveals that several existing facilities date back to 1937 (the two parking areas, physical education field, and a paved court). The "newest" structure, classroom building "T", was built in 1976.

As the school enters the 21st century, there is a need to upgrade the physical plant to accommodate forecasted enrollment increases, provide new, modern equipment and surroundings conducive to teaching and learning, expand educational opportunities for all residents of the island, and to provide safe, clean housing for faculty (and their families).

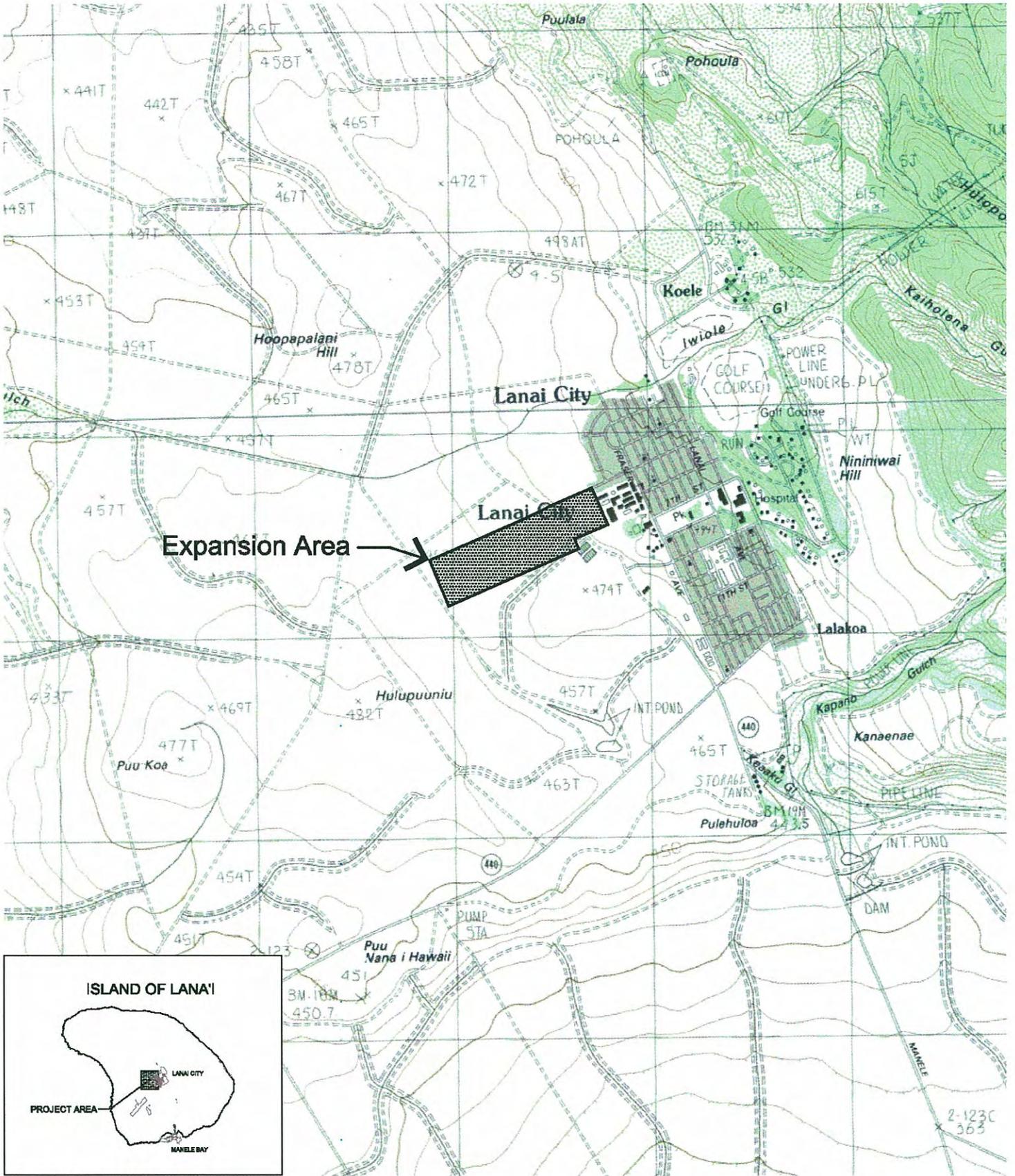
The County of Maui is proposing to transfer approximately 50.017 acres to the State of Hawaii to accommodate the land needs of the Master Plan. The Department of Education Educational Specifications requires a minimum of 50 acres for high schools and lesser acreage for middle and elementary schools. Lanai High and Elementary School is unique because the school combines elementary, middle, and high schools into one campus. The acreage proposed to be transferred is sufficient to accommodate the physical plant requirements prescribed in the Master Plan.

B. Master Plan Concepts

A master planning charrette helped to develop theme concepts for the Master Plan. The charrette involved members of the school administration and teaching staff, Department of Education and Department of Accounting and General Services staff, parents, and other members of the Lāna'i community. CDS International was retained by the Department of Education as the Prime Contractor and the principal consultant in the master planning process. The master planning charrette was conducted from August 7 through September 22, 2004 to develop a conceptual master plan.

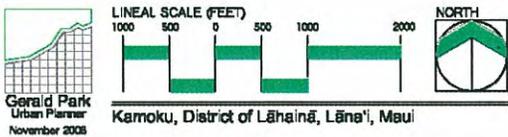
The themes forming the basis of the Master Plan are listed below.

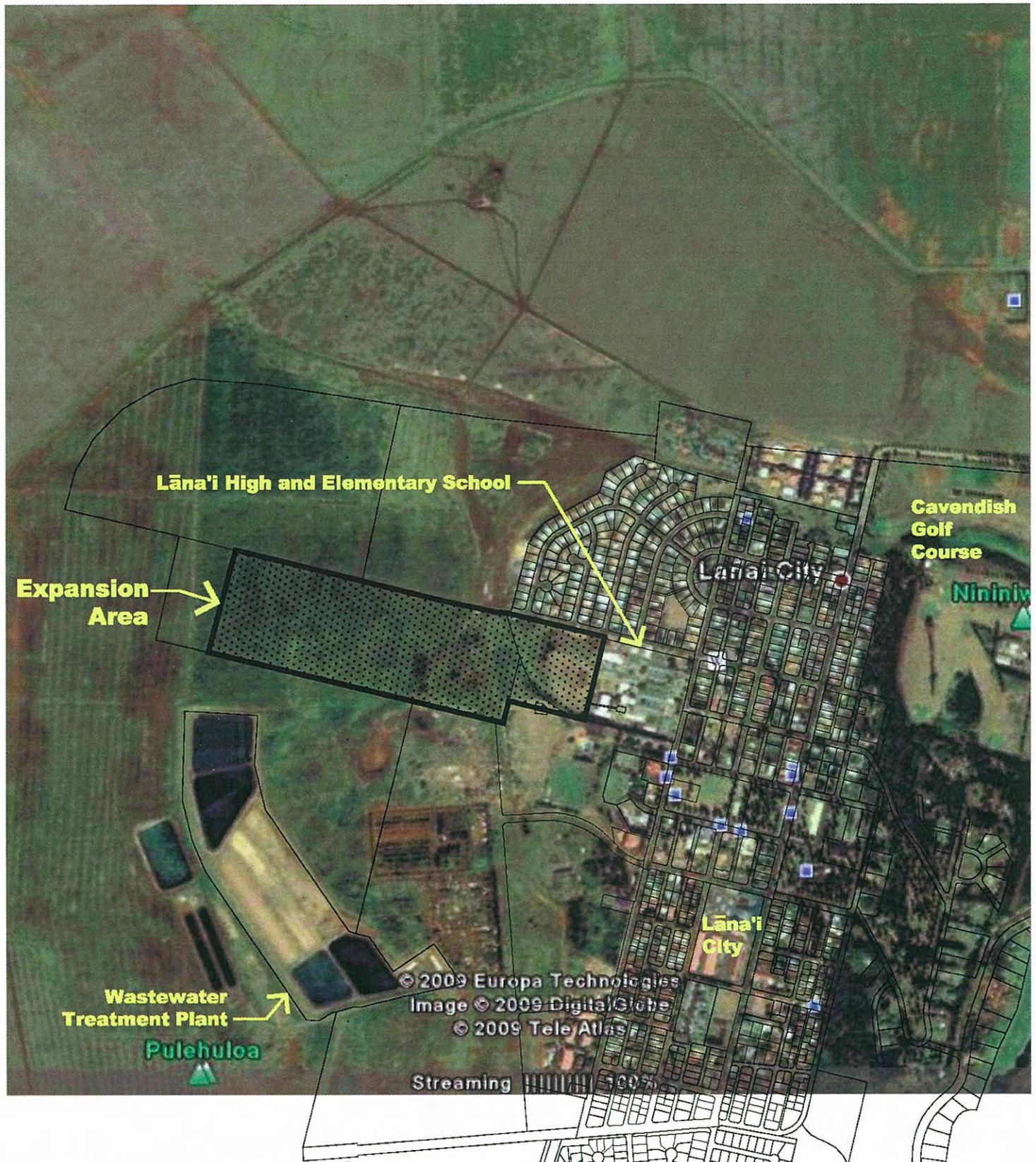
- The overall master plan incorporates the P-20 concept described in the Guiding Principles with Pre-school, Elementary School, Middle School, High School, and Community College components on one campus, resulting in several campuses within a



Source: USGS, Lanai South Quadrangle

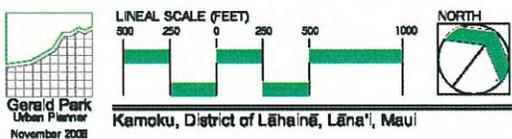
Figure 1
 Location Map
 Lānaʻi High & Elementary School Master Plan





Source: Google Maps, <http://maps.google.com/maps>

Figure 2
Vicinity Map
Lāna'i High & Elementary School Master Plan



campus. These campuses are separated to maintain safety and security for the students of all ages, but are still linked to unite the separate schools into one educational complex. [Note: the term P-20 is abbreviated for an initiative to focus on improving learner achievement in Hawai'i. The "P" refers to provisions for early learning (not only in pre-schools) and the "20" refers to the years of schooling thereafter----beyond a college degree and even beyond graduate school. P-20 is the code for lifelong learning (Hawaii P-20 Initiative)].

- The approach to teaching is holistic, integrating the mental, physical, and social development of the child. The Master Plan reflects this holistic approach to education.
- The campus is an important part of the community, and therefore the design will have an open welcoming feeling. The main administration building will be a "signature" building so it is immediately recognizable as the heart of the campus.
- Housing is an important incentive to attract qualified teachers to the island, and therefore a teacher-housing component is included in the Master Plan.
- Athletic facilities for all school levels are incorporated into the Master Plan, to serve functions appropriate to the different grade levels.
- For practical and economic reasons, and because the majority of the existing school buildings are in excellent condition, most of the existing structures are included in the Master Plan. Some of the buildings will be retrofitted to new uses to fit within the concepts of the Master Plan.
- In addition to desirable circulation patterns for vehicles and pedestrians, life safety issues have been taken into consideration in the Master Plan. Emergency vehicles will be able to traverse the entire campus to respond to emergency situation, and the campus will be designed to conform to all accessibility standards to accommodate the physically challenged.

C. Technical Characteristics

The Master Plan disburses grade levels to different parts of the existing campus and the Expansion Area. In effect, the plan proposes to create separate grade level "schools" under the umbrella of Lāna'i High and Elementary School. The spatial 're-organization" will promote cohesiveness within each grade level "school", provide state of the art improvements for a 21st century school, promote sustainability, and foster administrative and operational efficiency. In addition, space has been set aside for second parties including a pre-school operator and Maui Community College to co-locate on campus.

The Master Plan is predicated on a design enrollment of 700 students (Department of Education). The design enrollment by schools is 320 students for high school (Grades 9-12), 170 students for middle school (Grades 6-8), and 210 students for elementary school.(Grades K-5) The design enrollment for the proposed Pre-School and community college facility is undefined at this time.

For purposes of describing the location of the proposed improvements, the discussion is presented by area. There are three areas: the existing campus, Lāna'i Park and Tennis

Court (hereafter Lānaʻi Park) including the school ball field, and the Expansion Area. The Expansion Area includes land *makai* of Lānaʻi Park and portions of two lots immediately south of Lānaʻi Park that the State may acquire.

The proposed Master Plan, which is also titled Ultimate Site Plan, is reproduced as Figure 3.

1. Existing Campus

All existing permanent buildings will be retained, renovated, and adapted for classroom and or alternative educational uses. The existing school/community library will remain as a public library. All portable and temporary structures will be removed over time. In addition, the existing faculty housing area on 5th Street will be demolished and new faculty housing constructed in the Expansion Area and/or accommodations provided in the community.

High School (Grades 9-12) and Middle School (Grades 6-8) classrooms will occupy most of the existing buildings on the present campus. The existing Administration Building will be shared with Maui Community College after construction of a new Administrative Center.

The Master Plan does not propose permanent new buildings for Lānaʻi School *per se*. In the future, a landscaped pedestrian walkway will be constructed from Fraser Avenue through the existing school grounds. The pedestrian walkway is part of a larger scheme to provide a unified and uniform system of walkways throughout the entire 50+ acre campus.

Approximately 1.5 acres will be set aside at the corner of Fraser Avenue and 5th Street for Maui Community College ("MCC"). The area includes space for a building and off-street parking. Plans for the college facility will be prepared by MCC. This area will become available for MCC use after new faculty housing is built. Co-locating all public education facilities on the island supports the envisioned "P-20" concept for lifelong learning.

2. Lānaʻi Park

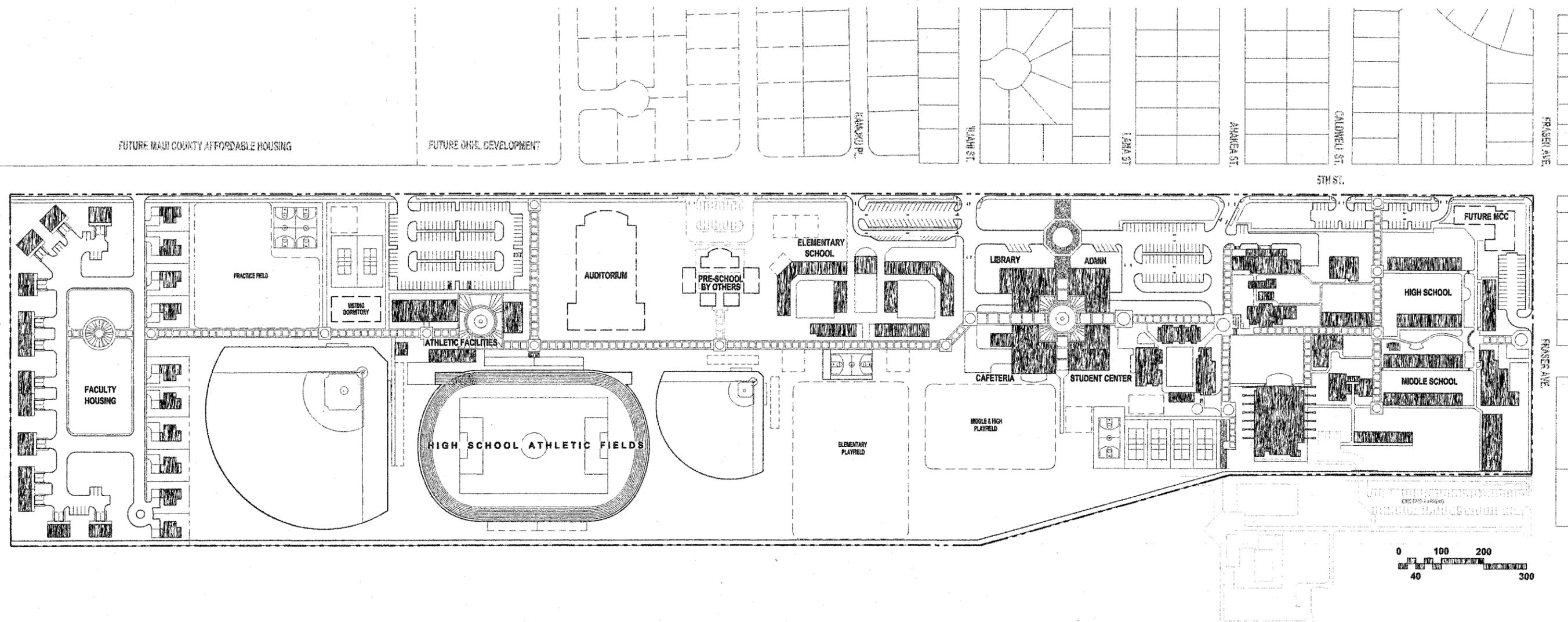
The Master Plan proposes several major new school structures on this site. A new Administrative Center, Student Center, Cafeteria, Library/Media Center, and 6-Classroom Building for the High and Middle Schools will be constructed generally on the northern half of the park grounds.

Physical education and court sport facilities will be constructed on the southern half of the site and on two adjoining lots that the State is contemplating acquiring. The new facilities will be located adjacent to the school Gymnasium.

The proposed structures and functions are described below and density tabulations presented in Table 1.

a. Administrative Center

The Administrative Center will be constructed near the center of the school along 5th Street across Iliahi and Lawa Streets. The Center will function as the "front door" to the school for administrators, staff, faculty, students, parents, and visitors. Interior space is programmed for a principal's office, vice-principal's office, registrar, reception area, general office and record keeping, health room, work rooms, staff lounge and restroom, safety office, and storage.



LANAI HIGH & ELEMENTARY SCHOOL

PROPOSED MASTER PLAN

CDS INTERNATIONAL
 Architecture • Planning • Interior Design
 1003 Bishop Street • Suite 400 • Honolulu, HI 96813-3499
 Telephone: (808) 524-4200 • FAX: (808) 521-3766



03 AUG 2009

The Center will also accommodate an Adult Education Center for administering adult education program and classes.

Design plans have not been prepared for the Administration Building.

Table 1. Programmed Floor Area, Lānaʻi High and Elementary School

Building	Floor Area (Square Feet)
Administrative Center	8,190
6-Classroom Building	14,320
Library/Media Center	10,422
Student Center	8,362
Multii-Purpose/Cafeteria	11,412
Elementary School	25,590
TOTAL	78,296 SF

Source: CDS International, 2009.

b. Classroom Building

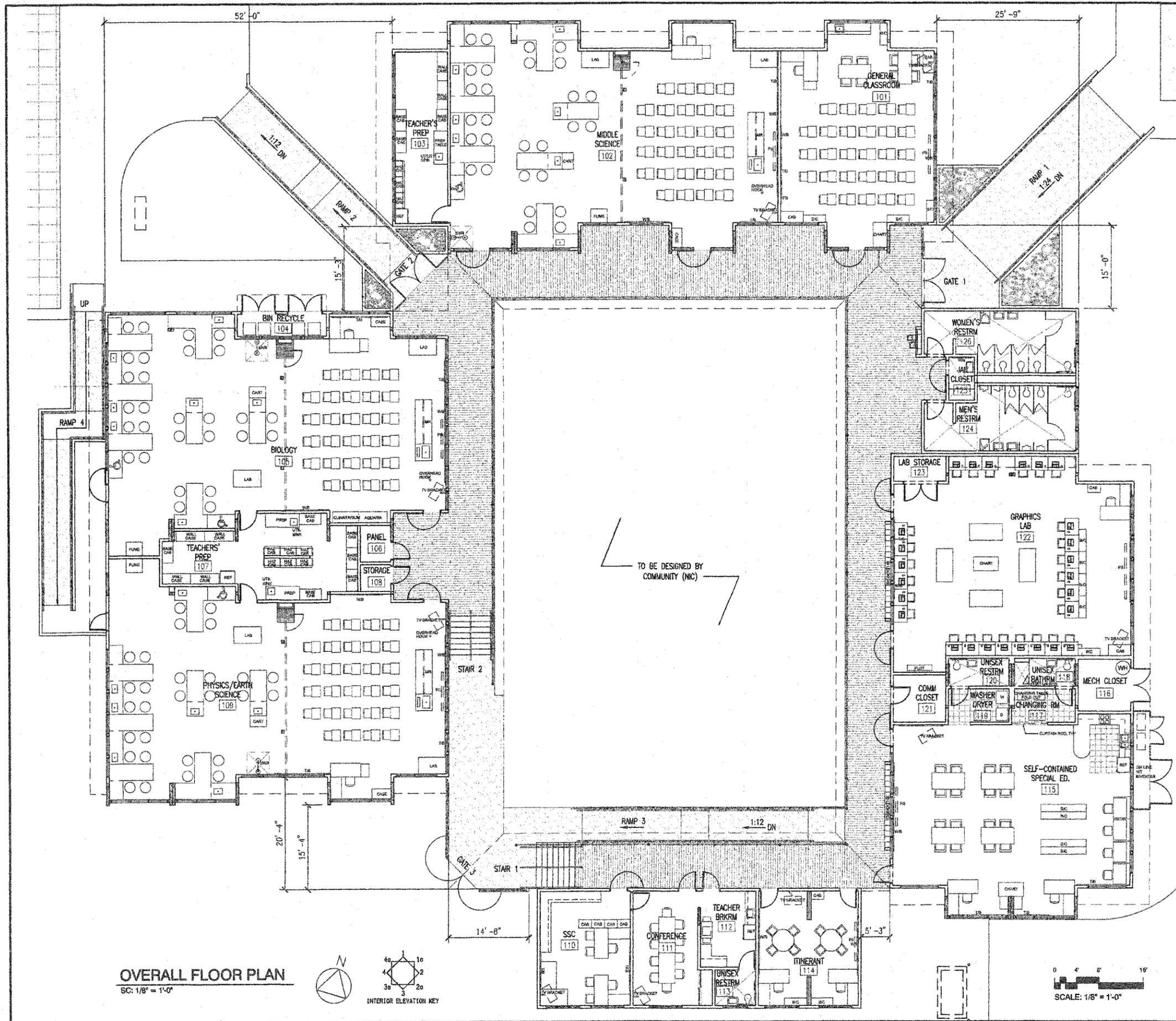
A new 6-Classroom Building for Middle and High School classes will be constructed as the first improvement of Phase 1. It will be the first new permanent building constructed at the school since Building "T" (Arts and Crafts/Special Education) was erected in 1976. Classrooms for general use, news writing, general science/biology, chemistry, business, and Special Education are proposed. Storage space for maintenance equipment and supplies and restrooms will be provided.

The building layout is arranged like a square. Four one-story buildings are placed on each side of the square surrounding a plaza-like interior open space. Design and use of the open space will be determined by the community. Each of three buildings accommodates two classrooms. The fourth building houses a SSC classroom, Internet room, teacher's breakroom, and conference room. The classroom building will be ADA compliant. A Preliminary Floor Plan and Exterior Elevations are shown in Figures 4 and 5.

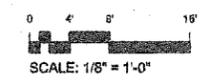
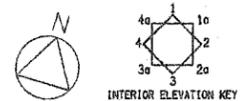
c. Library/Media Center

The Library section of this building consists of a reading/study area, book and periodical stacks, resource areas, and circulation desk. Space for back of house functions include an office for the Librarian, a production/workroom, storage, and professional staff and materials area where books will be catalogued and repaired. The workroom can also be used by teachers and staff to prepare educational materials. A 1,200 square foot Computer Resources Center will be housed in the Library.

The production of video media is seen as a clean new industry with opportunities for Hawaii residents. Towards this end, video and multi-media production equipment will be housed in the Media Center. Students will learn about various types of media and engage in hands-on media production from concept, to storyboard, filming, editing, and production.



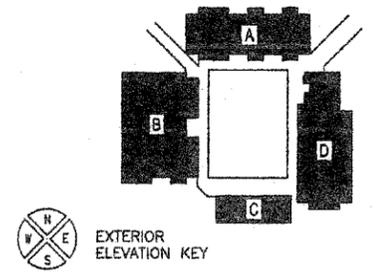
OVERALL FLOOR PLAN
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PROGRAM

Building	Rm No	Room Name	Net SF	Prog SF
A	101	General Classroom	965	980
	102	Middle School Science Classroom	2,160	2,180
	103	Middle School Science Prep./Stor.	295	320
			Total Net SF	3,410
		Total Gross SF	3,610	
B	104	Recycling Area	64	
	105	Biology Classroom	2,183	2,160
	106	Panel	36	
	107	Teacher's Prep	440	320
	108	Storage	27	
		Total Net SF	2,189	2,260
		Total Gross SF	5,180	4,740
C	110	SSC	338	330
	111	Teacher Workroom and Conference	262	400
	112	Teacher Break Room	141	
	113	Restroom	50	
		Total Net SF	372	330
		Total Gross SF	1,163	1,080
D	115	Special Ed Self-contained	1,389	1,200
	116	Mech/Elec Closet	93	
	117	Changing Room	71	
	118	Bathroom	55	
	119	Washer/Dryer	68	
	120	Restroom	57	
	121	Comm/Tel/Elec Closet	81	
	122	Graphics Lab	1,477	1,500
	123	Lab Storage	46	
	124	Men Restroom	294	
	125	Janitor Closet	36	
126	Women Restroom	274		
		Total Net SF	3,941	2,700
		Total Gross SF	4,255	
TOTAL ALL BUILDINGS NET SF			13,433	11,980
TOTAL ALL BUILDINGS GROSS SF			14,320	
Covered Walkway			3,663	
Total Gross SF including Covered Walkway			17,983	

KEY PLAN



REVISION NO.	BY	DESCRIPTION	DATE	APPROVED

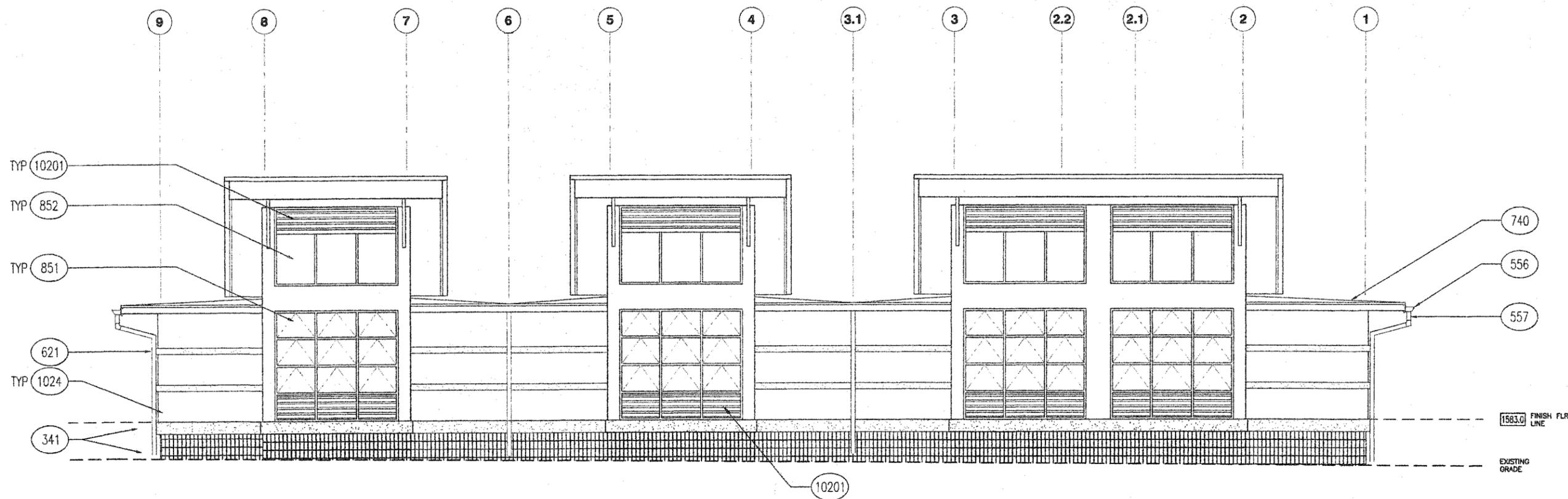
DEPARTMENT OF EDUCATION
 STATE OF HAWAII
Lanai High & Elementary School
SIX CLASSROOM BUILDING
 Lanai City, Lanai, Hawaii

OVERALL FLOOR PLAN AND PROGRAM

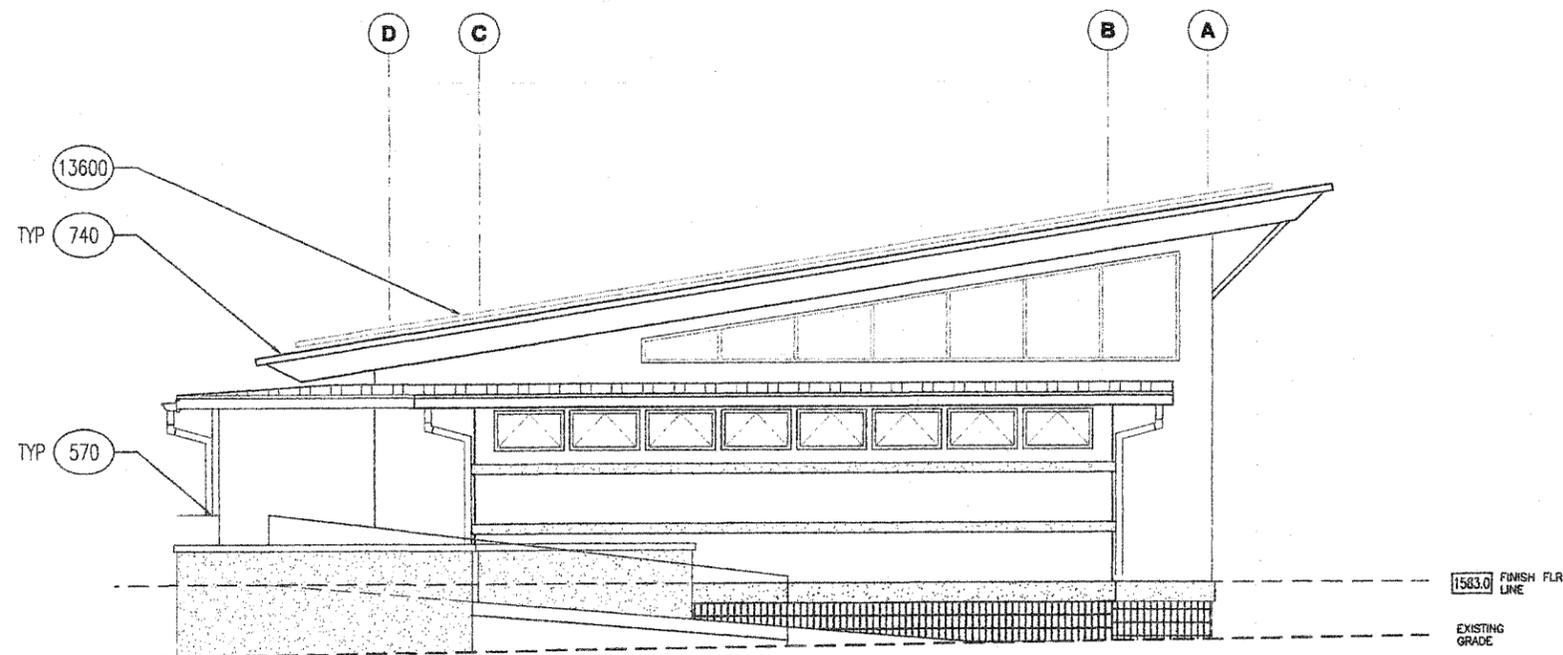
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
 April 2008
 Expiration of the License

CDS International		PROJECT NO.	056001-07	SHEET NO.	A-101
DESIGNED BY	CDS	DRAWN BY	CDS	CHECKED BY	CDS
DATE	May 2008	SCALE	AS NOTED	DATE	May 2008

Figure 4



BUILDING A - NORTH ELEVATION
 SC: 1/4" = 1'-0"



BUILDING A - EAST ELEVATION
 SC: 1/4" = 1'-0"

KEY PLAN

EXTERIOR ELEVATION KEY

REVISION NO.	BY	DESCRIPTION	DATE	APPROVED

DEPARTMENT OF EDUCATION
 STATE OF HAWAII
 Lanai High & Elementary School
SIX CLASSROOM BUILDING
 Lanai City, Lanai, Hawaii

EXTERIOR ELEVATIONS - BUILDING A

DESIGNED BY CDS	DRAWN BY CDS	DATE 05/03/07	DRAWING NO. A-201A
CHECKED BY CDS	APPROVED BY CDS	DATE May 2008	SHEET OF 01/01

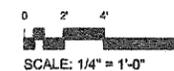
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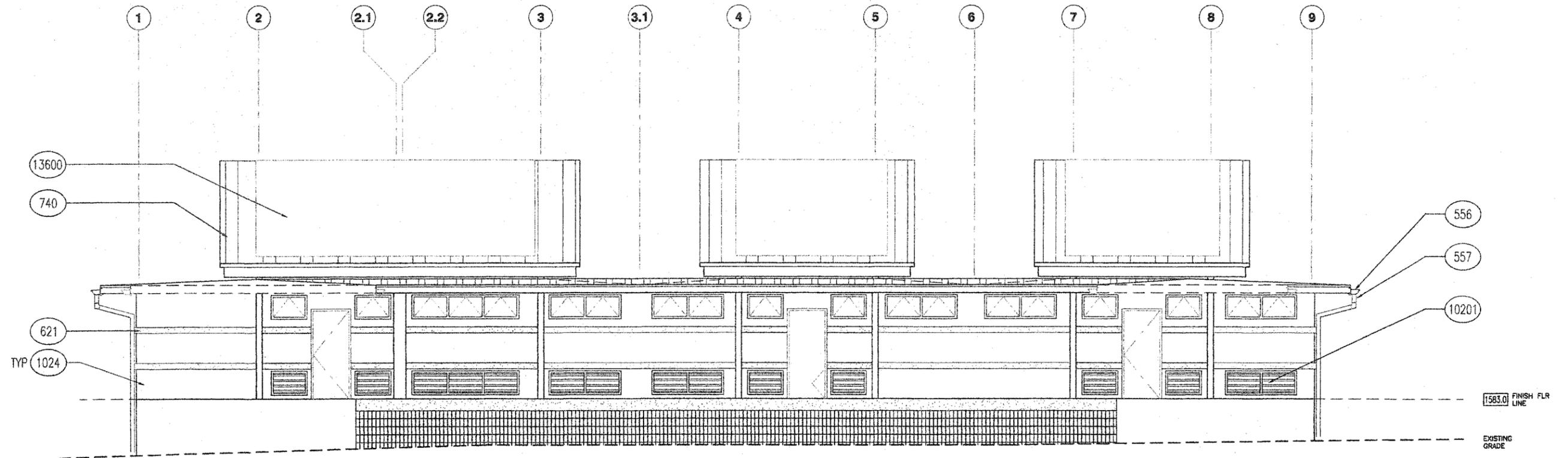
April 2010
 Expiration of the License

SCALE: AS NOTED

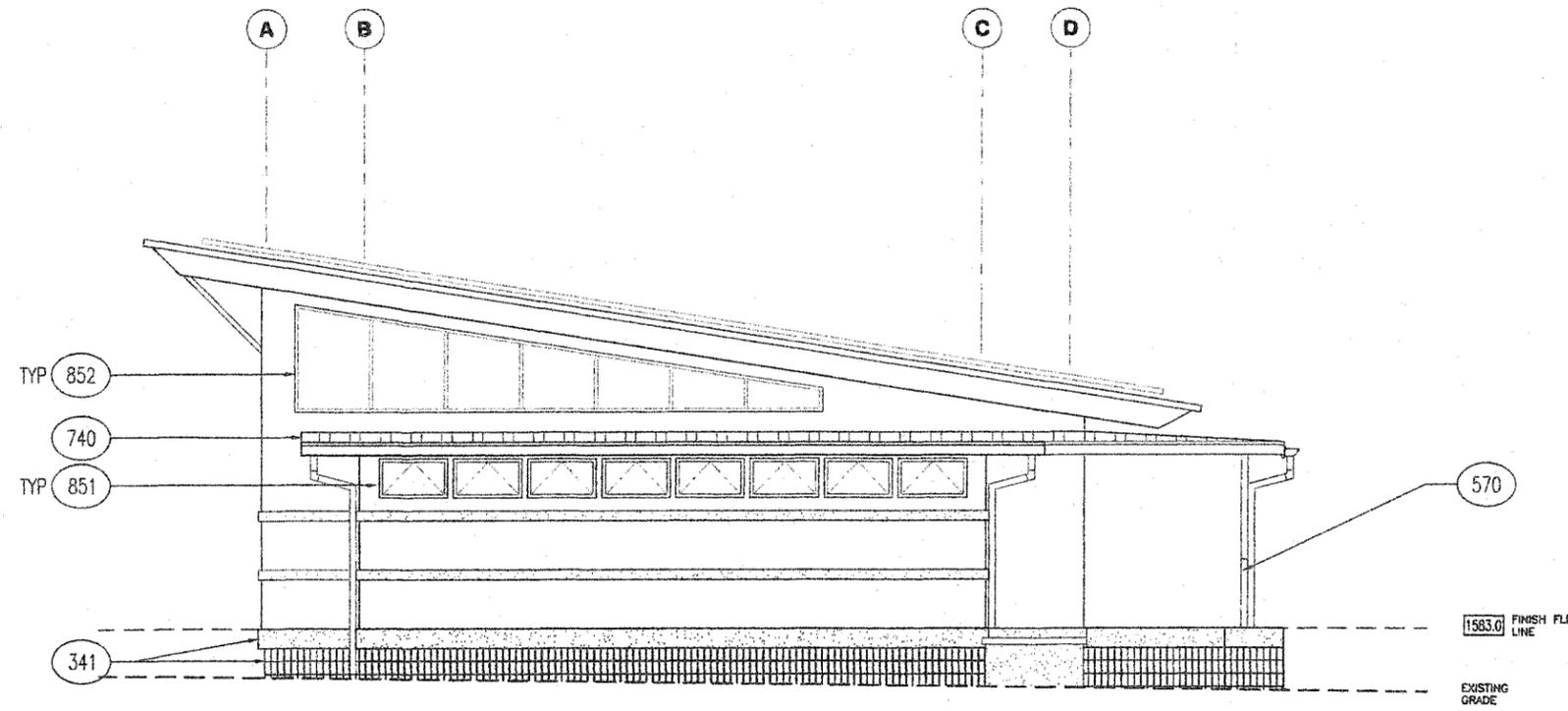
MATERIAL INDICATIONS

- 280 CHAIN LINK FENCING
- 331 CAST-IN-PLACE CONCRETE
- 341 ARCHITECTURAL PRECAST CONCRETE
- 557 GALVANIZED IRON PIPE DOWNSPOUT
- 570 ALUMINUM RAILING
- 621 ARCHITECTURAL TRIM (EPS TRIM)
- 851 AWNING WINDOW WITH LOW-E 65% TRANSMITTANCE
- 852 FIXED WINDOW WITH LOW-E 65% TRANSMITTANCE
- 10241 PATTERNSCREEN WALL PANELS
- 10201 OPERABLE WATERPROOF STORM VENTS
- 13600 SOLAR COLLECTORS (NTC)

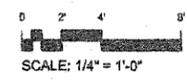
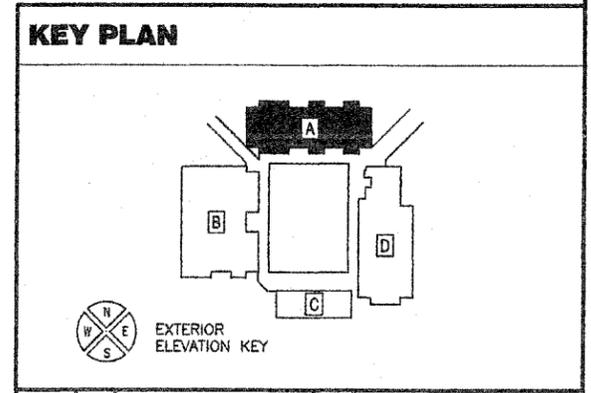




BUILDING A - SOUTH ELEVATION
 SC: 1/4" = 1'-0"



BUILDING A - WEST ELEVATION
 SC: 1/8" = 1'-0"



MATERIAL INDICATIONS	
280	CHAIN LINK FENCING
331	CAST-IN-PLACE CONCRETE
341	ARCHITECTURAL PRECAST CONCRETE
557	GALVANIZED IRON PIPE DOWNSPOUT
570	ALUMINUM RAILING
621	ARCHITECTURAL TRIM (EPS TRIM)
851	AWNING WINDOW WITH LOW-E 65% TRANSMITTANCE
852	FIXED WINDOW WITH LOW-E 65% TRANSMITTANCE
10241	RAINSCREEN WALL PANELS
10201	OPERABLE WATERPROOF STORM VENTS
13600	SOLAR COLLECTORS (TIC)

REVISION	BY	DESCRIPTION	DATE	APPROVED

DEPARTMENT OF EDUCATION
 STATE OF HAWAII
 Lanai High & Elementary School
 SIX CLASSROOM BUILDING
 Lanai City, Lanai, Hawaii

EXTERIOR ELEVATIONS - BUILDING A

DESIGNED BY CDS	DRAWN BY CDS	DATE 05/20/07	SHEET A-202A
CHECKED BY CDS	PROJECT NO. 056001-07	DATE MAY 2008	OF
TITLE AS NOTED		APPROVED BY MAY 2008	OF

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
 APR 1 2010
 Expiration of the License

d. Student Center

As its name implies, this building is a place for students of all grade levels. The Center will house counselor's offices, reference materials for college and career counseling, a student activities store, and space for student activities and meetings. Areas will be set aside also for a community organization office, reading programs, and student support services.

e. Multi-Purpose/Cafeteria

The Cafeteria includes a kitchen, food preparation area, student dining room, and faculty dining room. The student dining room is planned for multi-purpose use with a permanent stage and boy's and girl's dressing/storage rooms. In addition to school related functions and activities, the facility can accommodate large gatherings such as community meetings.

f. County Tennis Courts

Existing court facilities and ball fields at Lāna'i Park will be demolished. The Master Plan proposes to relocate and reconstruct the court facilities at a site along 5th Street *makai* of the site of the proposed Pre-School.

3. Expansion Area

Approximately 42.0 acres of former pineapple fields *makai* of Lāna'i Park comprise the "principal" Expansion Area. This acreage is part of a 115 acre parcel owned by the County of Maui.

a. Elementary School

The Elementary School will be relocated to the west side of the Administration Building and Cafeteria. It will be an entirely new "school" within a school with all new buildings and support facilities. Fourteen classrooms are planned for grades K-5 with seven additional classrooms for Special Education and two supplemental classrooms. The Elementary School will have its own vice-principal, counselor, and staff.

Recreation facilities to be provided include an enclosed Special Education play area, kindergarten playground with play equipment, a covered play court, and a dedicated play field.

b. Pre-School and Auditorium

The Master Plan allocates land for a future Pre-School and Auditorium. Both facilities are not part of the DOE improvements for Lāna'i School but will be provided by another agency or private organization. Design plans for both facilities will be prepared by the respective providers.

The Pre-School is proposed to be located to the west of the Elementary School on an approximately 1.5 acre site fronting 5th Street. Providing a pre-school location is consistent with the P-20 educational concept.

A 2.5 acre site has been identified for a future Auditorium. The building is proposed to be sited to the west of the Pre-School and front on 5th Street.

c. Recreation Areas

New playfields and outdoor physical education/athletic facilities will be constructed in the Expansion Area. As shown on the Existing Site Plan (Figure 4) there is an acute shortage of recreation space at the school and nearby court and ball fields at Lāna'i Park are shared with the school. Table 2 lists proposed recreation and sport facilities and the approximate area of each. The area calculation does not include spacing between facilities for walkways and service vehicle access.

Table 2. Planned Recreational Facilities

Facility	Area (Square Feet)
Track and Field (with bleachers)	171,258
Baseball Field	159,216
Softball Field	55,429
Tennis Courts	46,905
Athlete Locker/Shower	7,650
Practice Field	70,510
Paved Play Courts	10,400
Middle/High School Play Field	60,000
Elementary School Play Field	98,850
Elementary School Covered Play Court	14,675
Elementary School Play Equipment	8,100
Pre-School Playground	3,600
Relocated County Play Courts	44,273
Total:	750,866 SF or 17.24 acres

Source: CDS International, 2009.

Support facilities include an athletic locker and shower building, training and weight room, and a ticket office overlooking a stadium like track and soccer field with an oval track. A site is also identified for a dormitory to accommodate visiting boy's and girl's teams.

The Master Plan also proposes a new location for the County tennis and basketball courts on 5th Street where it can be accessed by the public.

d. Faculty Housing

The *makai* end of the Expansion Area is proposed for faculty housing. As stated in the Master Plan concepts, providing housing for faculty is a key element for attracting and retaining teachers. Housing will accommodate single teachers and those with family. The proposed faculty housing area is approximately 8 acres and can accommodate up to 36 units in detached and attached dwellings. The number of proposed units is subject to change and represents a slight increase over the existing 26 teacher units. Design plans will be prepared at a later time.

Off-street parking will provided per Maui County Code requirements.

4. Infrastructure Improvements

a. Water

A 12-inch main in 5th Street will be the main source of potable and fire flow. The existing connection and water meter to the school will need to be upsized from 6" to at least an 8" size. A second 8" connection and meter to the main in the vicinity of the proposed faculty housing will be provided thereby creating a looped system.

Water demand is projected at 0.241 million gallons per day (mgd) for consumption and irrigation.

b. Wastewater

Proposed improvements to the sanitary sewer system include gravity lines, lift station, laterals, sewer manholes and cleanouts. Wastewater will be pumped from lower areas of the campus and discharged into an existing 8-inch line near the gymnasium. Other campus areas will be served by existing and new gravity lines.

Average daily dry-weather flow is estimated at 0.0475 mgd.

c. Roads and Circulation

A description of the area roadway system is found in Section 2. Primary vehicle access to the school is currently provided via a driveway off Fraser Avenue between 5th and 6th Street with a student drop-off area designated as a parking lot off Fraser Avenue between 6th Street and 7th Street.

The existing driveway along Fraser Avenue will be relocated further south of the school between 5th and 6th Street and will serve the community college. No other improvements to Fraser Avenue are proposed in conjunction with the Master Plan.

5th Street will be extended to the western edge of the project site and access to the school will be provided by nine new driveways. The first two driveways will provide access to a parking lot to primarily to serve the community college in the future. The third driveway will be located at the intersection with Ahakea Street and will provide access to the school's central parking lot. This parking lot will serve faculty and staff for the elementary, middle, and high schools. The fourth driveway will be located at the intersection with Iliahi Street while the fifth driveway will be located further west. These two driveways will provide access to the student drop-off area for the elementary, middle, and high schools, as well as, another small parking lot. The sixth and seventh driveways will provide access to the new Pre-school while the eighth driveway will provide access to the new athletic fields and facilities. The ninth driveway will be located near the western edge of the project site and will provide access to the proposed new faculty housing.

d. Parking

Five new off-street parking areas are proposed on 5th Street. The number of stalls to be provided is 73 for the Administrative Center, 40 for the Elementary School, and 154 for the Athletic Complex. Parking for MCC and the Pre-School will be provided pursuant to the Maui County Code.

Parking for the faculty housing units will be provided within the faculty housing area. Up to thirty-six housing units may be constructed as a mix of 1, 2, and 3 bedrooms. Off-street parking needs will be determined during the design of the faculty housing and the required number of parking stalls provided per County of Maui Code.

e. Drainage

Drainage improvements will be constructed based on the requirements for the individual facilities. These improvements include box culverts, drain inlets, drain lines, swales, and detention basins. The plan to drain the site is to collect and direct runoff into an existing drainage channel on the south end of the school and County park. A lined or unlined open channel will be constructed extending the channel to the south corner of the Expansion Area below the proposed faculty housing. At this time, runoff will not be discharged into the proposed County of Maui detention basin but allowed to flow overland to Iwiole Gulch which is a major drainageway. Future discharge is estimated at 292 cubic feet per second (cfs).

The play fields, ball fields, and practice fields on the southern half of the school also will be used to manage and detain stormwater on-site.

f. Power and Communication

New power and communication systems will be installed underground. Connections will be taken from existing systems along 5th Street. The existing campus will continue to be serviced from systems along Fraser Avenue.

D. Land Ownership

The Master Plan encompasses four tax parcels. The parcels are shown in Figures 6a and 6b and listed in Table 3. The four parcels include two parcels owned by the State of Hawaii comprising the existing school campus and two parcels owned by the County of Maui.

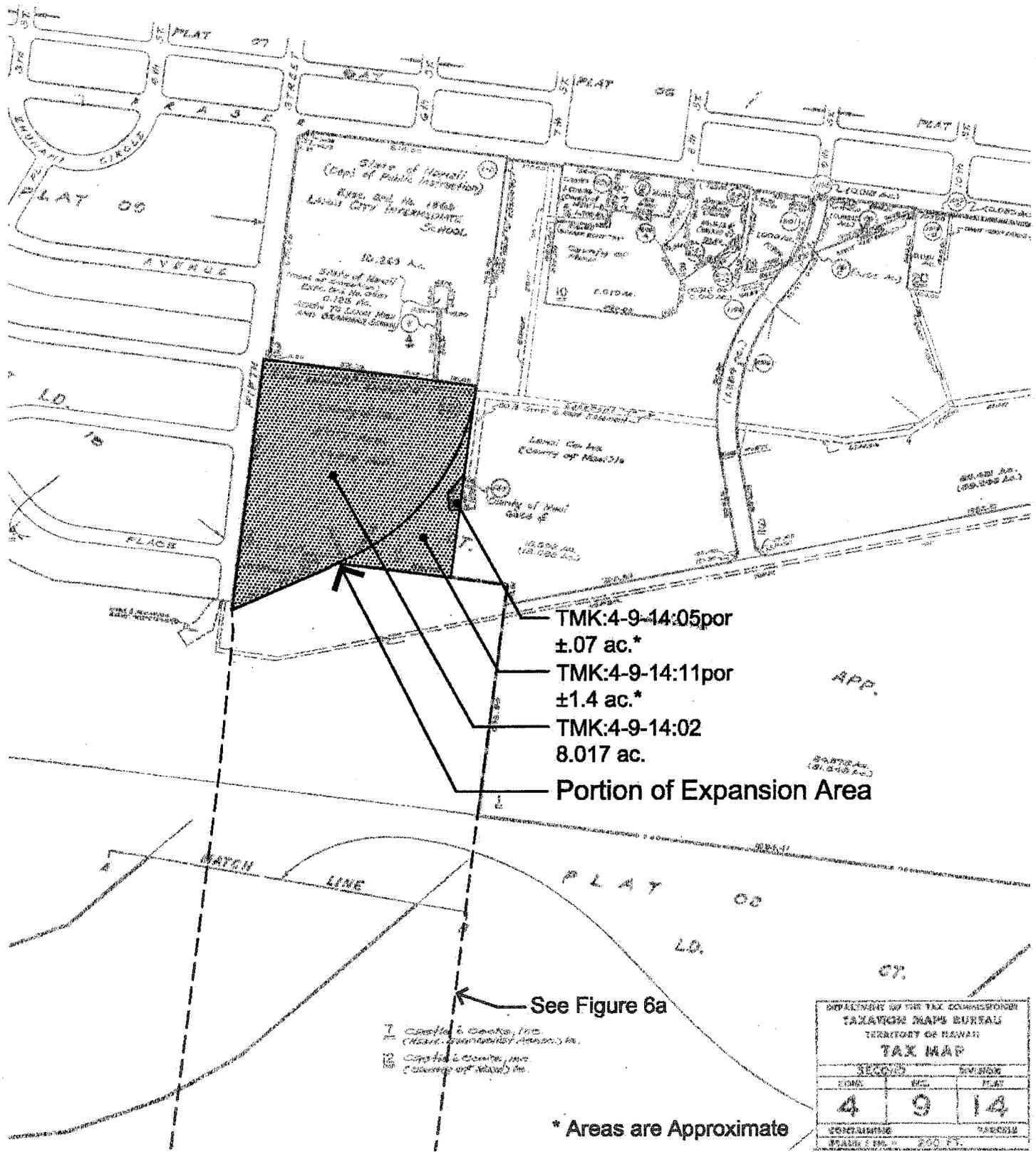
The County of Maui has proposed to transfer tax parcel 4-9-014:002 and 42.0 acres of the 115 acre tax parcel 4-9-002:058 to the State of Hawai'i to accommodate the school expansion. The area to be transferred is approximately 50.017 acres.

In addition, the State of Hawaii is contemplating acquiring, either in whole or in part, a portion (0.0968 acres) of tax parcel 4-9-014:005 from the County of Maui and a portion (1.028 acres) of tax parcel 4-9-014:011 from Castle and Cooke Resorts, LLC.

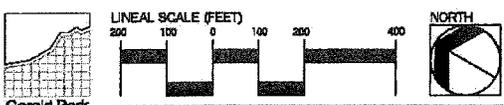
Table 3. Land Owners

Tax Map Key	Area (Acs)	Owner	Existing Use
4-9-014:003	10.269	State of Hawaii	Lāna'i High and Elementary School
4-9-014:004	0.125	State of Hawaii	Lāna'i High and Elementary School
4-9-014:002	8.017	County of Maui	Lāna'i Park and Tennis Courts
4-9-014:005	0.153	County of Maui	Vacant
4-9-014:011	18.692	C&C Resorts, LLC	County Park, Junkyard
4-9-002:058	115.00	County of Maui	Vacant

Source: Gerald Park Urban Planner, 2009



Source: County of Maui, <http://www.mauicounty.gov/index.asp?NID=1193>



Gerald Park
Urban Planner
November 2008

Kamoku, District of Lāhainā, Lāna'i, Maui

Figure 6b
Tax Map
Lāna'i High & Elementary School Master Plan

Department of Education, State of Hawai'i

E. Economic Characteristics

A total cost for the improvements proposed in the Master Plan has not been determined at this time. Implementation of the phased construction schedule will depend on educational needs, availability of State funds, and funding priorities.

The cost for constructing the 6-Classroom Building is estimated at \$8.0 million and funding has been appropriated by the State of Hawaii. Construction will commence after all necessary land use approvals and building permits are received. An 18-month construction schedule is proposed.

F. Social Characteristics

The Master Plan provides accessible elements from the public street, sidewalk, parking areas, and between buildings and facilities to comply with the requirements of the Americans with Disabilities Act Accessibility Guidelines ("ADAAG").

The interior of all buildings provides accessible facilities and elements as required by ADAAG. Areas that are used primarily by children will comply with the State of Hawaii's Children's Design Guidelines.

The Master Plan and construction of the proposed improvements will not displace any residence or business establishment.

G. Phasing

A six (6) phase construction schedule is proposed. The proposed schedule integrates and coordinates the relocation of "schools" and the "freeing up" of existing campus buildings and classrooms with the construction of new facilities in the Expansion Area. It is a systematic expansion of school facilities from east to west. Key proposals for each phase are listed below; actions affecting buildings or improvements on the existing campus are *italicized*.

Phase 1

- Construct new 6 classroom building (Phase 1A)
- Construct new P.E. facilities (Phase 1B)
- *Vacate several classrooms on the existing campus. For some of the classrooms new uses are proposed; for others uses are to be determined.*

Phase 2

- Demolish existing play courts at the Park (Phase 2A)
- Construct new Administration Building, Student Center, and Parking Area (Phase 2A)
- Construct new Library and Cafeteria adjacent to the Administration Building and Student Center (Phase 2B)
- *Vacate Administration Building, Cafeteria and Library; new uses proposed for vacated buildings.*
- *Demolish and remove wooden buildings on campus (various).*

Phase 3

- Construct elementary, middle and high playfields, Kindergarten playground, Student Drop Off area , site and pads for elementary school (Phase 3A)
- Construct Elementary School, Covered Play Court (Phase 3B)
- *Vacate and demolish wooden buildings (various).*
- *New uses occupy former high, middle, and elementary school classrooms.*

Phase 4

- *Construct new pedestrian walkway spine at existing campus (Phase 4A)*
- Construct softball field, baseball field, practice field, and County courts (Phase 4B)
- Set aside land for Non-DOE funded Auditorium and Pre-School
- Construct track facility (Phase 4C)

Phase 5

- Construct Faculty Housing (Phase 5A)
- *Demolish Faculty Housing on 5th Street near Fraser Avenue(Phase 5B)*

Phase 6

- *Maui Community College building*

H. Sustainability

All new buildings, facilities, and improvements associated with Lāna'i School will be designed and built as "sustainable" buildings per Leadership in Energy and Environmental Design ("LEED") standards or equivalent per Act 96. The LEED rating system is a "nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in five key area of human and environmental health: sustainable site development, water savings, energy efficiency, material selection, and indoor environmental quality (www.usgbc.org). LEED silver certification or higher will be sought for the project. .

A. Existing Conditions

Lānaʻi High and Elementary School was originally located at Kōʻele near the current location of the 1st green at the Cavendish Golf Course (Black, 2001). The school was constructed in sometime around 1924 in conjunction with the development of Lānaʻi i City and the start of the first pineapple field plantings. In addition to the school a post office, hospital, churches, gymnasium, theater, and tennis courts were also completed (Lānaʻi Community Plan).

The present school site was deeded to the Territory of Hawaiʻi by Hawaiian Pineapple Company, Limited in 1937. The school may then have been relocated to this location sometime between 1937 and 1938 (In Black, 2001). One of the school logos is inscribed with the year 1938 which may indicate the year the school was established at its current location. Governor's Executive Order No. 1263 dated 1948 officially gave site control to the Department of Public Instruction. The school is the only public school on the island and the largest K-12 school in the State of Hawaii.

Since 1924, the school has been cited using different names. Although the original name of the school was not researched, it has been referenced as Lanai City Intermediate School (Executive Order No. 1263), Lanai High and Grammar School (Executive Order No. 2437) and the current Lānaʻi High and Elementary School.

Lānaʻi School operates on a 1-3-2 year round option. Classes generally commence at the end of July and end in the first week of June. Current enrollment numbers 540 students with a certified staff of 59 persons.

One of the unique features of the school is the availability of faculty housing on-campus consisting of eight buildings with a capacity of 26 units. For the current school year, eleven teachers reside in faculty housing

Except for football, the Pinelads and Pinelasses participate in almost all high school varsity sports including basketball, volleyball, track, wrestling, softball (girls), baseball (boys), paddling, and golf. Participation in JV sports for the above are offered if there is sufficient participation.

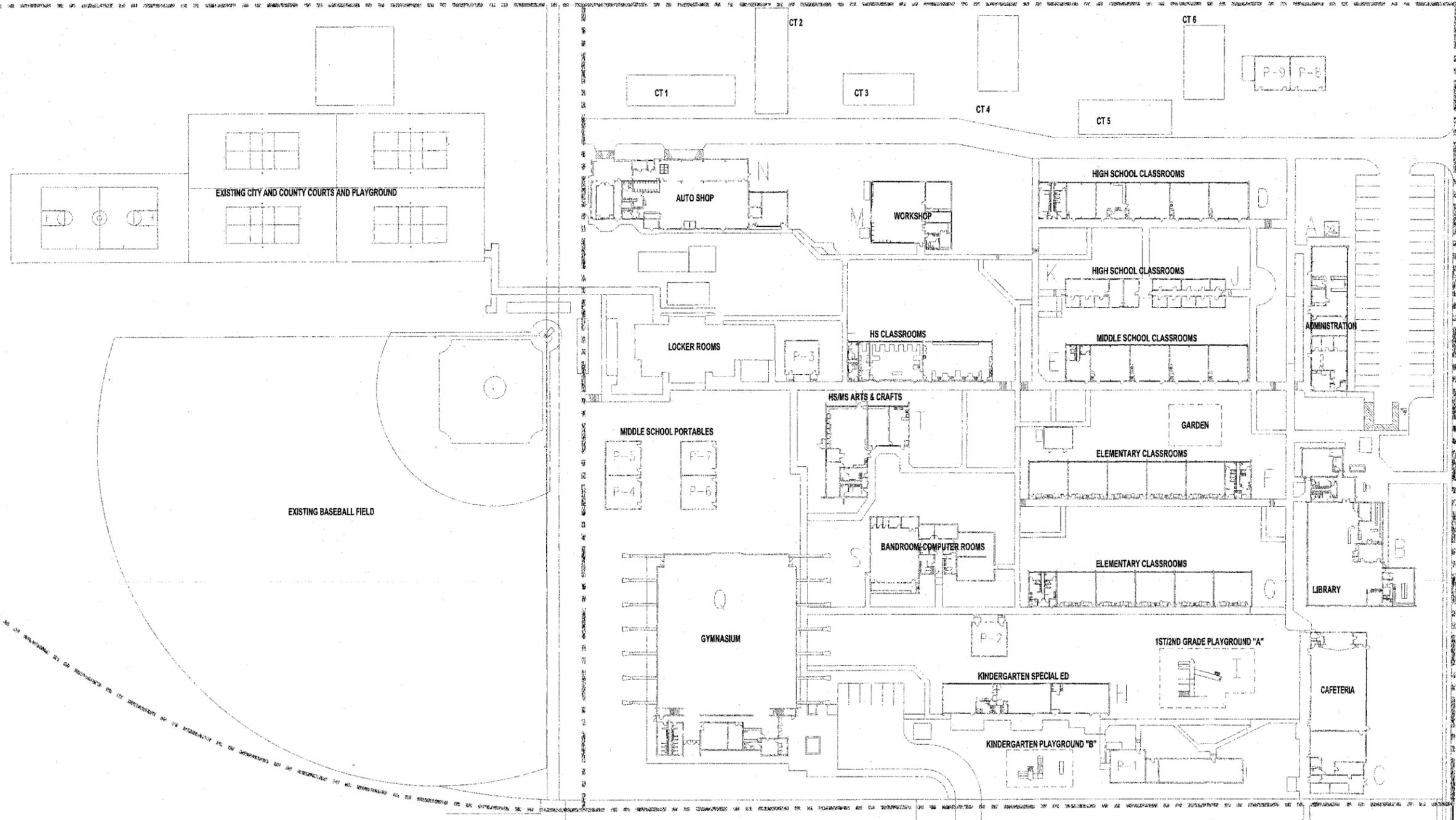
Figure 8 depicts the existing campus and associated buildings.

B. Environmental Characteristics**1. Climate**

Climate has played an important role in the weathering of geologic materials to produce the lands which exist on Lānaʻi today. The degree of soil development, leaching, and erosion is believed highly correlated with the amount and distribution of rainfall during the weathering period.

5TH ST.

FRASER AVE.



EXISTING SITE

- VACATED WITH NEW USE
- DEMOLISH/REMOVE
- EXPANSION
- VACATED - USE TBD

SCALE 1" = 40'



The climate on Lānaʻi is subtropical and is affected by the surrounding ocean and persistent tradewinds that fan the island. Median annual rainfall varies from 10 inches along the leeward coasts to 35 inches at Lanaihale. On occasions, southerly winds accompanied by heavy rains produce a large percentage of a year's rainfall.

Available surface and ground water is limited on Lānaʻi. There are no springs, and the only perennial stream, which does not reach the ocean, is in Maunalei Gulch. The principal source of water is from wells dug near this stream. Brackish water is found in wells along the windward coastal areas.

The northeast sector of the island, especially those lands north of the pineapple fields, is subject to continuous strong trade winds. These winds are of sufficient velocity to seriously affect cultivated crops. Soils are constantly moving and dunes are not uncommon.

2. Geology

The island consists of a single volcanic dome. It is believed to have been extinct longer than any volcano found on the other Hawaiian Islands. The cone, Lanaihale, is the highest point on Lanai, rising 3,370 feet above sea level. Rough mountainous lands lie between Maunalei and Kawaiu Gulches, with Lanaihale on the western boundary. These rough mountainous lands, and most of the area below 1000 feet elevation, are not suited for cultivation because of steep slopes, stones, erosion and low rainfall, combined with a lack of irrigation water. Coral sand beaches are found at Pohakuloa on the north and at Hulopa[o]e and Manele Bays on the south. There is a strip of flat, nonstony alluvial land along the windward coast. Steep marine cliffs occur along the west and south coastal areas. There is a wide reef along the windward shores (Land Study Bureau,

3. Topography

The rectangular shaped Expansion Area is oriented east-west along its longitudinal axis. The lot is approximately 3,125 feet long (0.59 miles) and 820 feet wide along most of its length. It narrows to about 510 feet wide at Lānaʻi Park.

Ground elevation ranges from a high of about 1,580 feet above mean sea level at the northeastern end of the existing Lānaʻi Park to a low of 1,510 feet in the southwest corner of the proposed faculty housing area. Ground slope averages 3 to 4 percent along this gradient.

No unusual topographic features were observed during field investigations. The southwest corner of Lanai Park, however, is higher in elevation than the surrounding ground. The contours in this area suggest that the original ground surface was raised to accommodate the ball fields.

4. Soils

A single soil type---Waihuna clay, 0 to 3 percent slopes---covers the entire Expansion Area (Soil Conservation Service, 1972). This is a well and moderately drained soil found on Molokai and Lanai primarily in the central part of the Palawai Basin on Lanai. Runoff is slow, permeability is moderately slow, and the erosion hazard is no more than slight.

Waihuna clay is suitable for non-agricultural uses but it has a high shrink swell potential and low shear strength for building foundations.

5. Agricultural Suitability

a. Land Type

The Land Study Bureau's (1967) Land Classification Map for Lāna'i (Map No. 19) classifies the Expansion Area soil as "C6" (See Figure 8). The letter indicates the master productivity rating and the numeral the land type. The master productivity rating evaluates each land type according to its general productive capacity, not for a specific crop. A five class productivity rating is applied using the letters A, B, C, D, and E with A representing the class of highest productivity and E the lowest.

There is no Class A or B rated lands on Lāna'i. This is because rainfall is inadequate and the supply of irrigation water is so limited. Class C lands, the best agricultural lands, amounts to about 4,900 acres or about 5% of the total land area (Ibid).

b. Agricultural Lands of Importance to the State of Hawaii

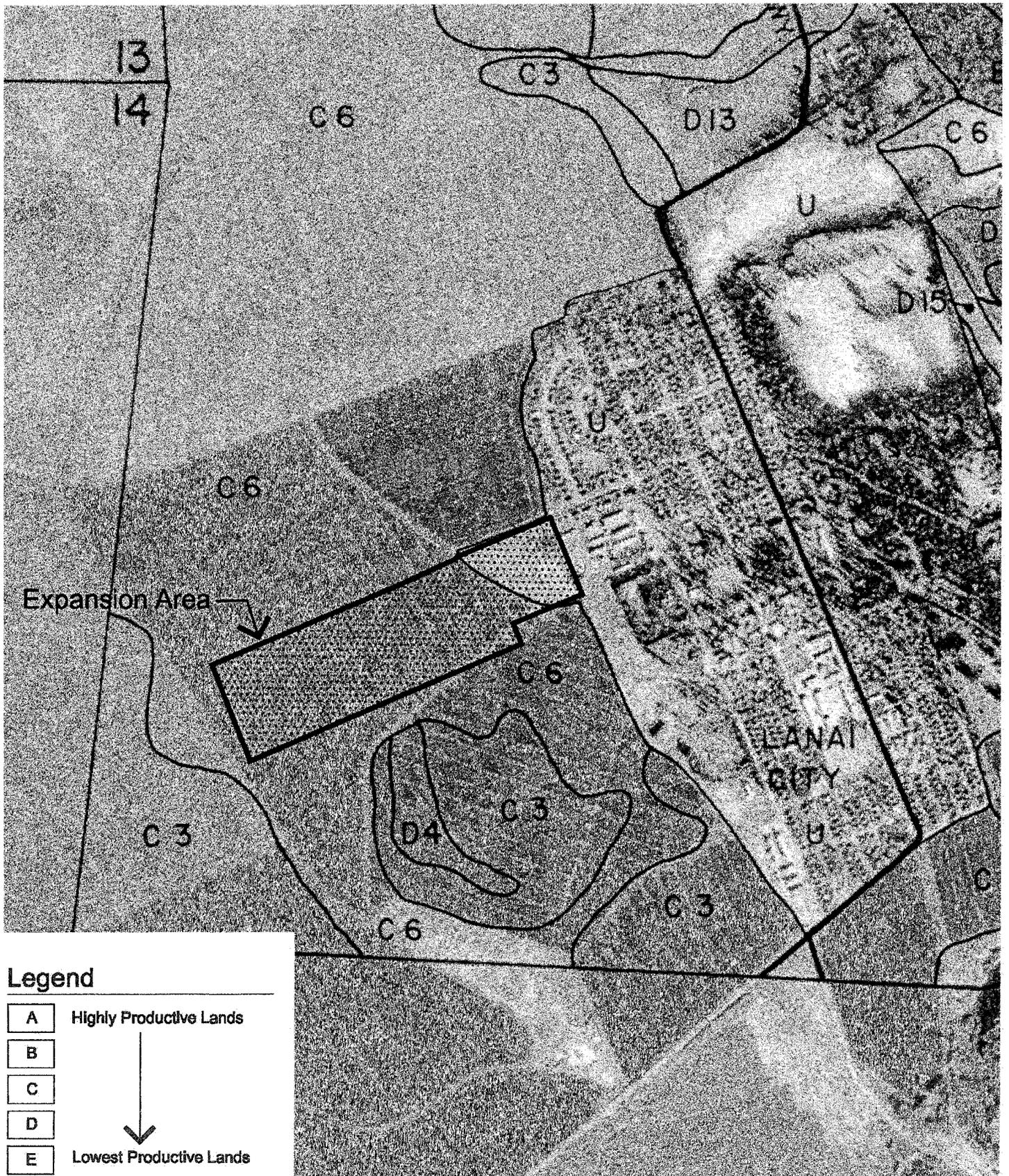
The Agricultural Lands of Importance to the State of Hawaii ("ALISH") system consist of the mapped identification of three broad classes of agricultural land. The three classes are, in order of productivity criteria, Prime Agricultural Land, Unique Agricultural Land, and Other Important Agricultural Land. Prime Agricultural land is defined as "land best suited for the production of food, fiber, forage, and fiber crops. This class of land has the soil quality, growing season, and moisture supply needed to economically sustain high yields of crops when treated and managed (including water management) according to modern farming methods. Prime agricultural land gives the highest yields with the lowest inputs of energy or money and with the least damage to the environment (Department of Agriculture, 1977)".

Unique Agricultural Land is "land that has the special combination of soil quality, location, growing season, moisture supply and is used to produce sustained high quality and or high yields of a specific crop when treated and managed according to modern farming methods (Ibid)."

The ALISH map for this section of the island shows the Expansion Area on land designated "Unique Agricultural Land" (See Figure 9).

6. Drainage

The existing drainage system at the school consists of drain inlets and culverts which collect on-site runoff and discharges south of the school through outlet structures. Runoff generally sheet flows in a north to south direction. The site is relatively flat with an average slope of about 3-5%. A watershed above the site generates approximately 159 cfs of runoff which is conveyed across Fraser Avenue through an existing 18-inch drainage culvert. Runoff is discharged into an existing drainage channel below the school which eventually drains into Iwiole Gulch (Towill, 2009).



Legend

- A Highly Productive Lands
 - B
 - C
 - D
 - E Lowest Productive Lands
- ↓

Source: Detailed Land Classification - Island of Lanai
 Land Study Bureau, University of Hawai'i, December 1967

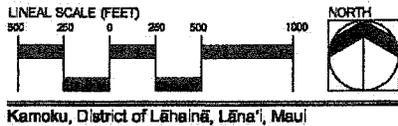
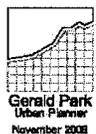
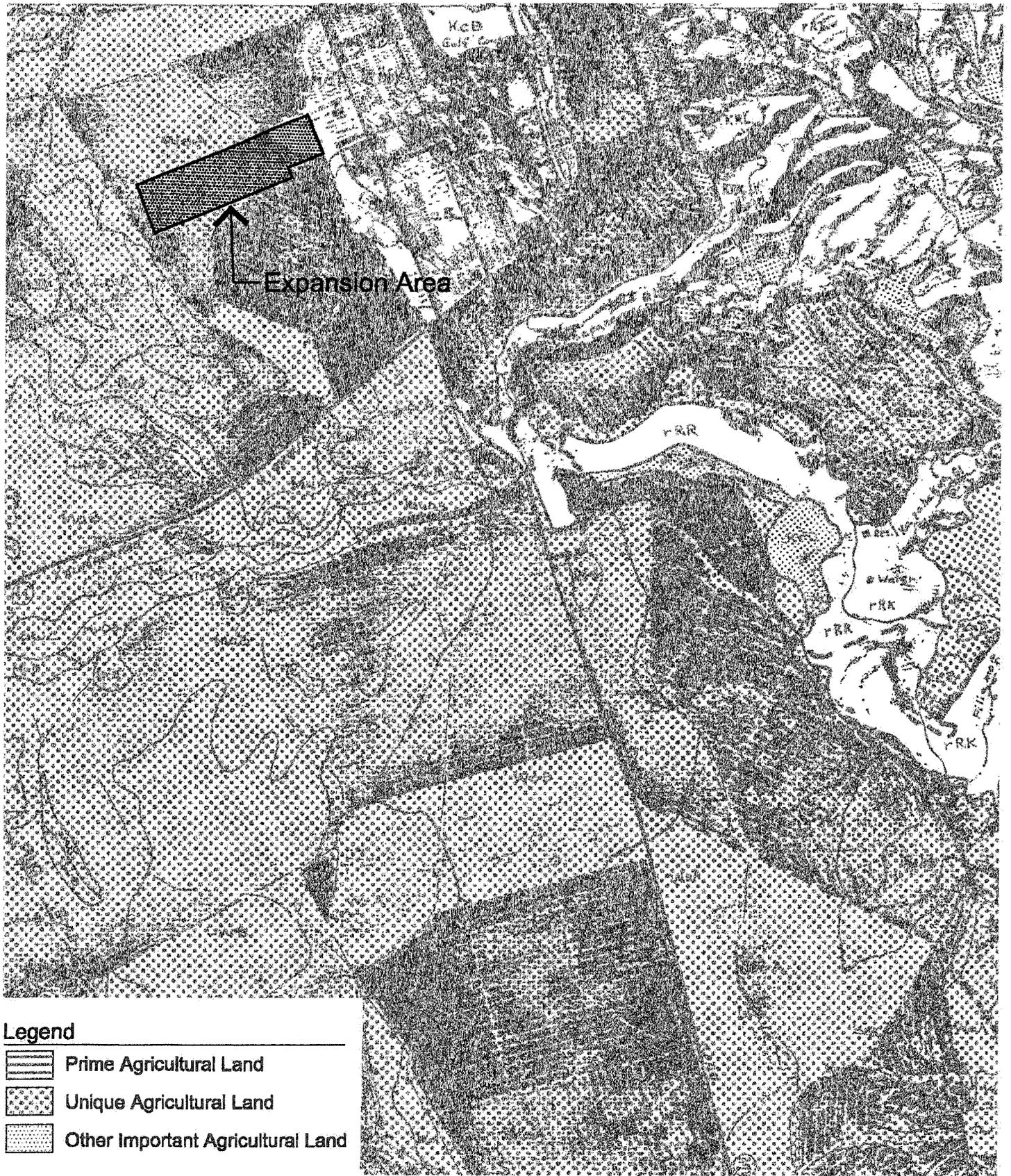


Figure 8
 Detailed Land Classification
 Lānaʻi High & Elementary School Master Plan

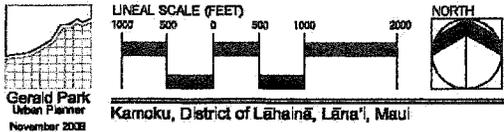


Legend

-  Prime Agricultural Land
-  Unique Agricultural Land
-  Other Important Agricultural Land

Source: Department of Agriculture, State of Hawaii, 1977.

Figure 9
Agricultural Lands of Importance
to the State of Hawai'i
Lāna'i High & Elementary School Master Plan



7. Flood/Coastal Hazard

There are no identified flood hazards associated with the subject property. The Federal Emergency Management Agency ("FEMA") has not prepared Flood Insurance Rate Maps ("FIRM") for Lāna'i. In lieu of the FIRM, the County of Maui Planning Department places the entire island in FIRM Flood Zone "C" which is defined as "areas of minimal flooding".

8. Natural Hazards

a. Earthquake

Earthquakes are fundamental to the processes that have built and shaped the Hawaiian Islands. Unlike other areas where seismic activity accompanies movement along tectonic plate boundaries, in Hawaii most earthquakes are linked to volcanic activity. Each year, thousands of earthquakes occur in Hawaii due to volcanic activity. These events are so small that they are detectable by only the most sensitive seismic instruments. However, moderate earthquakes that can be felt occur periodically, and catastrophic ones occasionally rock the Islands (Okubo in Atlas of Hawaii, 1998).

During historical times, seismic activity has been concentrated beneath the island of Hawaii and the surrounding seafloor south of the inland, in the vicinity of the "hotspot" that has fueled Hawaiian volcanoes for millions of years. Research suggests that many of the significant earthquakes on Hawaii Island have resulted from the seaward sliding of the south flanks of Kilauea and Mauna Loa along a nearly horizontal fault. This fault is thought to be the buried boundary between the ancient oceanic crust and the volcanic edifice, approximately 6 miles deep.

The most recent "major" earthquake in Hawaii occurred on October 15, 2006. The 6.5 to 6.6 magnitude earthquake occurred about 10 miles north-northwest of Kailua-Kona on Hawaii Island under the ocean.

Based on the Uniform Building Code (1997) all islands comprising the County of Maui are placed in seismic zone 2B.

b. Volcanism

The island of Lāna'i is a shield volcano built by eruptions at the summit and along three rift zones. The principal rift zone trended northwestward and is responsible for the conspicuous elongation of the island in that direction (McDonald & Abbott, 1970). A less conspicuous bulge on the southern side of the island is result of building on the southwest rift zone. The summit of the shield collapsed to form a caldera which was filled by lava flows. Palawai Basin is a remnant of the caldera. The basin is roughly circular with a diameter of about 2.5 miles.

The basaltic cone measures 3,370 feet high and 13 miles across. The volcano passed through a period of submergences and emergences similar to those of Oahu and the highest fossiliferous marine conglomerate known in the Hawaiian Islands is 1,070 feet above sea level on the south side of the island (Stearns, 1946)."

According to Stearns (Ibid) Lāna'i has been extinct longer than any of the other main islands.

c. Hurricane

Hurricanes are one of a subclass of a category of weather phenomena known as tropical cyclones. Hurricanes are an intense tropical weather system with a well-defined circulation and sustained winds of 74 mph (64 knots) or higher. In the western Pacific Ocean, hurricanes are called "typhoons." Hurricanes consist of three sections: the eye which is the center; the core which is the principal area of intense winds; and the outer region which extends out from the core to the surrounding environment. Typically, the eye is about one to five miles wide, the core five to ten miles wide, and the outer region can extend up to 150 miles from the eye.

Meteorologists locate Hawai'i in the North Central Pacific Ocean which is bounded by the Equator, 140° West Longitude and the International Date Line. Hurricanes typically approach Hawai'i from the east and south directions. Storms that form in the eastern Pacific Ocean are more common and are pushed towards Hawai'i by the prevailing east-west winds.

Hurricanes are relatively rare events in the Hawaiian Islands but there is a hurricane season that runs from June through October. The historical record also shows that hurricanes have formed in "non-seasonal" months. Since 1950, five major hurricanes have passed over and through the Hawaiian Islands: Nina in 1957, Dot in 1959, Iwa in 1982, Estelle in 1986, and Iniki in 1992. Of the five, Iniki was the most intense storm to strike Hawai'i causing the most economic damage as it passed over Kaua'i and skirted Leeward Oahu (http://www.mothernature-hawaii.com/county_hawaii/hurricane_section2-hawaii.htm).

d. Tsunami

The island of Lanai, as is all the islands comprising the Hawaiian Islands, is susceptible to tsunami. Although there is a comparatively sophisticated early warning system in place world-wide, the ability of the system to predict the size of any particular event is limited. As recently as 1957, severe damage and loss of life occurred on the island as the result of a tsunami.

Located in the center of the island and at elevations ranging between 1,510 to 1,570 feet above sea level, the Expansion Area is approximately 4.0 miles west from the nearest body of water at Honopu Bay/Pacific Ocean thus the threat of damage from and susceptibility to tsunami is low.

9. Water Resources

a. Surface Water

There are no streams, rivers, lakes, ponds, and wetlands in the Expansion Area.

b. Groundwater

The Expansion Area (and Lanai City) is situated over the Leeward aquifer system of the Central aquifer sector (Mink and Lau, 1993). Groundwater in the Leeward aquifer, (Aquifer/Status Code: 50102212/11111) is high level (not in contact with seawater) fresh water in dike compartments. Based on its groundwater status code, the aquifer is

currently used as a source of drinking water (salinity is <250 mg/l Cl⁻), irreplaceable, and highly vulnerable to contamination (See Table 4).

Table 4. Aquifer Classification System

Aquifer Code	50102212
Island Code	5 - Lanai
Aquifer Sector	01 - Central
Aquifer System	02 - Leeward
Aquifer Type, Hydrogeology	2 - High Level
Aquifer Condition	1 - Unconfined
Aquifer Type, Geology	1 - Dike
Status Code	11111
Developmental Stage	1 - Currently Used
Utility	1 - Drinking
Salinity (in mg/l Cl ⁻)	1 - Fresh (<250)
Uniqueness	1 - Irreplaceable
Vulnerability to Contamination	1 - High

Source: Mink and Lau, 1993.

Since 1990, the Commission on Water Resource Management (“CWRM”) has commissioned several hydrological studies to develop models for estimating the sustainable yield of identified aquifers in Hawaii. In 1993, CWRM modeled the sustainable yield of the Leeward Aquifer at 3.0 million gallons per day. Wilson Okamoto (2007) reported that the sustainable yield remains 3.0 million gallons per day.

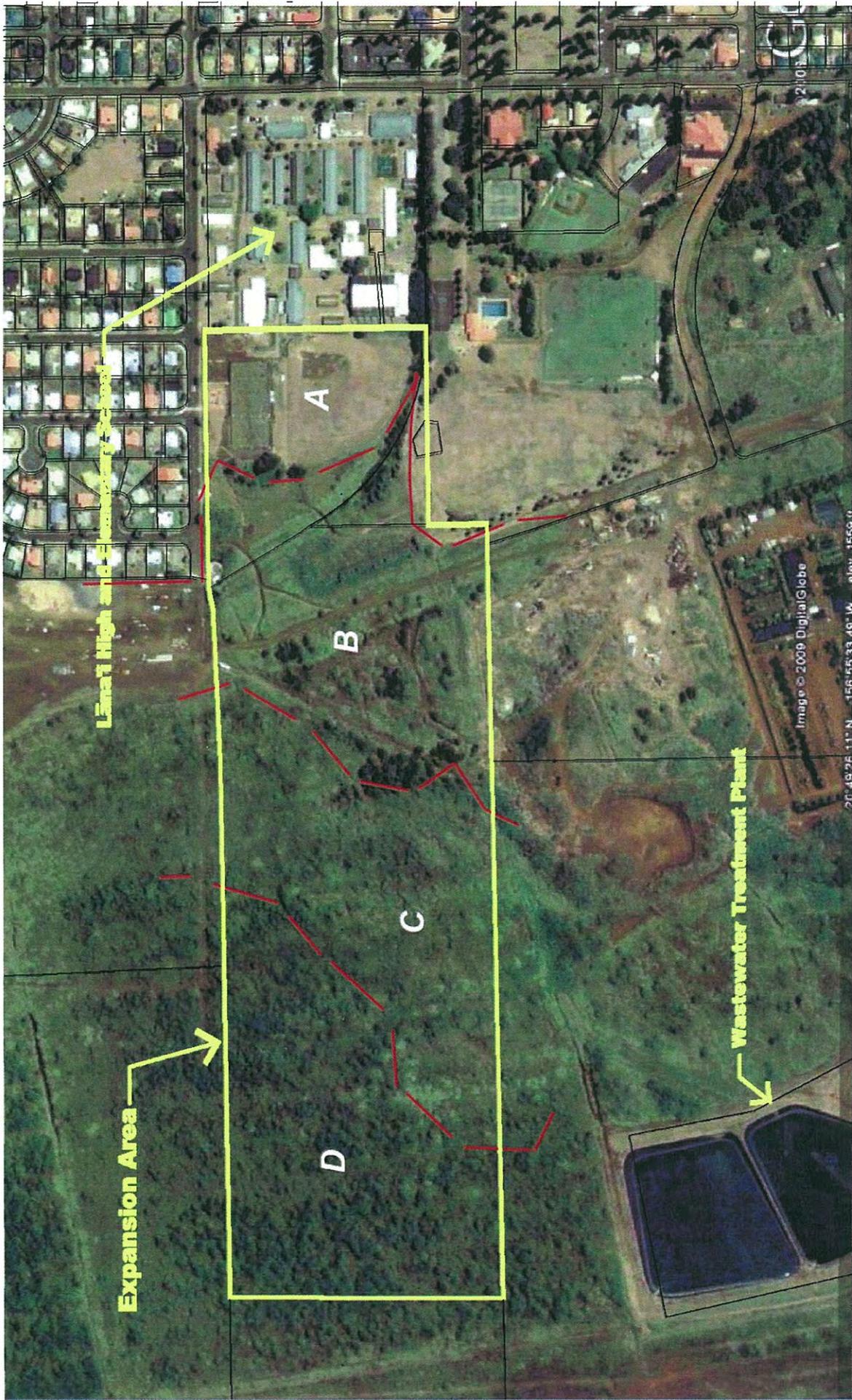
A groundwater management area is not designated for the island of Lanai (CWRM Water Management Areas Map).

10. Flora

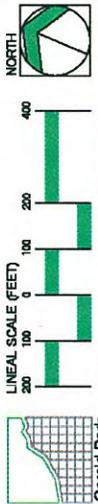
AECOS Consultants (2008) surveyed all accessible areas of the Expansion Area for botanical resources. Botanical resources are characterized below and shown on Figure 10.

“The project site is mostly covered with a a scrubby growth of shrubs, scattered and typically short-stature trees (mostly under 4 m or 12 ft), and grasses. However, the nature of the vegetation changes from one end of the nearly 2690 –ft (820-m) long parcel to the other. The developed campus, beginning at Fraser Avenue, occupies a narrower parcel at the eastern end, about 820 ft. (250 m) in length. This area consists of planted and well-maintained grounds with lawns and ornamental planting beds, and only a few weedy areas where ruderal species are to be found. Hawaiian native plants have been planted in a few places on campus.

Beyond the playing field at the lower end of the school campus is found an area of disturbed land broken up into patches or weedy fields by tree lines, an energy corridor with access roads, vehicle tracks (“dirt” roads), and stockpiled soil mounds. For a variety of reasons, notably proximity to weed sources and patterns of disturbance, this area demonstrates the greatest diversity of plants within the project area. Most of the trees in this area are



Sources: AECOS, Consultants, 2009 & Google Maps,
 Aerial Photo: <http://maps.google.com/maps>



LEGEND

- A - Maintained areas (landscaped) existing park grounds
- B- Disturbed land, mixed tree stands/grassy meadows
- C - Lantana scrub with Christmas berry
- D - Christmas berry and old field weedy growth

Figure 10
Vegetation Zones
Lāna'i High & Elementary School Master Plan

Formosan koa (*Acacia confusa*) with brush box (*Ophostemon confertus*) and ironwood (*Casuarina equisetifolia*) present in smaller numbers. Fields are a mixture of weedy species, mostly grasses such as Guinea grass (*Urochloa maxima*) California or para grass (*Urochloa mutica*), and some Napier or elephant grass (*Pennisetum purpureum*). Most of the other species recorded here are rare or present in small numbers of localized growth.

The latter area of the disturbed ground transitions into an area of dense lantana (*Lantana camara*) scrub with low-growing or “scrubby” Christmas berry (*Schinus terebinthifolius*) trees. Also abundant are Guinea grass and sourgrass (*Digitaria insularis*). This area of scrub proved exceptionally difficult to traverse because of dense growth of thorny lantana and low trees. However, axis deer or chital (*Axis axis*) trails crisscross the area, providing exploratory access (although often on hands and knees). This vegetation zone is especially low in plant diversity. The four species mentioned are the only ones present, except along parts of former field roads that cross the parcel. The restricted flora has developed under extreme grazing pressure that limits invasion by other species, while favoring lantana and Christmas berry.

The lantana/Christmas berry shrub-scrub gives way to dense groves of Christmas berry separated by old field roads supporting more open growth. Minimal undergrowth occurs in the closed canopy forest of Christmas berry due to a combination of shading and grazing pressure.

Further out (to the southwest), the copses of Christmas berry forest give way to a savannah of scattered Christmas berry trees and grassland, with patches of lantana. Plant diversity increases in this open, old field setting.

No species that is listed by the state or federal government or considered a candidate species (USFWS, 2005, 2008), or is rare, or is of any special concern was observed at the site [Expansion Area]. Therefore, no mitigation measures are proposed based upon any species of the flora.

A number of native and early Polynesian (“canoe”) plants have been planted on the school campus. Several endemic species including koa, mao, ‘ōhi‘a, wiliwili are not listed as endangered; however, other endemics such as ko‘oko‘olau, ko‘oloa‘ula, and koki‘o ke‘oke‘o are listed as endangered. The botanical survey is reproduced in Appendix A.

11. Fauna

Bruner (November, 2000) conducted an “Avifaunal and Feral Mammal Survey of a 50 Acre DHHL Parcel” to the north. Native birds were not recorded during his survey. He noted, however, that native endangered waterbirds such as the Black necked Stilt (*Himantopus mexicanus knudseni*) and the Hawaiian Coot (*Fulica alba*) may have established habitat in the settling ponds associated with the sewage treatment facility located downslope of the property. The Pacific Golden Plover (*Pluvialis fulva*), a migratory species, was recorded. According to Bruner, this species is the most abundant migrant in Hawaii; they are not listed as endangered or threatened.

A total of nine non-native species were tallied on the survey. Spotted dove (*Streptopelia chinensis*) and Nutmeg manikin (*Lonchura punctulata*) were the most abundant species. The other species included ring-necked pheasant, gray francolin, common mynah, zebra

dove, northern cardinal, northern mockingbird, and Japanese white-eye. None of the nine species are listed as endangered or threatened

Feral mammals observed included axis deer, dog, and cat.

During the current archaeological and botanical surveys, a native short-eared owl or *pueo* (*Asio flammeus sandwichensis*) was observed hovering over the site. Bruner had noted that given the location and habitat available in the general area the only native species that might on occasion be seen foraging would be the Short-eared Owl or *pueo*.

Axis deer were flushed from the brush and numerous tracks and trails through the lantana indicate they are plentiful in this area. A deer blind at the western end of the Expansion Lot (or perhaps outside the Expansion Lot) indicates that deer are hunted in the area. Two carcasses---a doe and a stag---were stumbled upon at separate locations during the survey.

12. Environmental Site Assessment

A Phase I Environmental Site Assessment ("ESA") for the Expansion Area was prepared by ENPRO Environmental (2009). The object of the assessment was to provide "an independent, professional opinion regarding *recognized environmental conditions* associated with the project site." The term recognized environmental condition is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property, or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws.

Key findings of their site inspection are summarized in Table 5. and the report is found in Appendix B. "All features that were observed during the site reconnaissance, that were discovered to have been historically present at the project site are noted in the table. Items that present concerns to the project site are also noted (ENPRO 2009)". Although not listed in Table 2, asbestos-containing material and lead based paint were not observed on the site.

The Phase I Environmental Assessment revealed the following *recognized environmental conditions* in connection with the property:

- Historical presence of a sewer pond on the eastern portion of the project site.

This finding is considered a *recognized environmental condition* because of the potential presence of heavy metals and pesticide accumulation on the eastern portion of the project site due to materials that may have been disposed in the sewer pond.

- Historical use of the project site as agricultural land, specifically for pineapple cultivation.

This finding is considered a *recognized environmental condition* because of the potential presence of chemicals associated with former pineapple cultivation onsite.

Table 5. Site Inspection Findings

Onsite Environmental Features	Currently or Historically Present	Possible Environmental Concern
Hazardous Substances or Petroleum Products	Not Observed	Not Observed
Underground Storage Tank, UST	Not Observed	Not Observed
Aboveground Storage Tank, AST	Not Observed	Not Observed
Odors	Not Observed	Not Observed
Air Emissions (stacks, hoods, other point sources)	Not Observed	Not Observed
Pools of Liquid	Not Observed	Not Observed
Drums	Not Observed	Not Observed
Unidentified Substance Containers	Not Observed	Not Observed
Electrical Equipment/Possible PCBs	Not Observed	Not Observed
Hydraulic Equipment/Possible PCBs	Not Observed	Not Observed
Stains or Corrosion	Not Observed	Not Observed
Drains	Not Observed	Not Observed
Sumps	Not Observed	Not Observed
Pits, Ponds, or Lagoons	Not Observed	Not Observed
Stained Soil or Pavement	Not Observed	Not Observed
Stressed Vegetation	Not Observed	Not Observed
Evidence of Spills or Releases	Not Observed	Not Observed
Artificially Filled Areas (Solid Waste Disposal)	Not Observed	Not Observed
Waste Water	Not Observed	Not Observed
Wells	Not Observed	Not Observed
Septic Systems (cisterns, septic systems, dry wells)	Not Observed	Not Observed
Dry Cleaning Operations	Not Observed	Not Observed
Agricultural Use (pesticides/herbicides/fungicides/	Not Observed	Not Observed
Oil/Gas Production or Exploration	Not Observed	Not Observed
Remedial Activities	Not Observed	Not Observed
Other	Not Observed	Not Observed

Source: ENPRO, July, 2009.

- Use of the adjacent property to the southeast of the project site for storage and disposal of scrap metal including propane tanks, old motor boats, old cars, used batteries, etc.

This finding is considered a *recognized environmental condition* because of the potential presence of hydrocarbon-related contaminants and heavy metals associated with storage and disposal of miscellaneous debris on the adjacent property.

13. Archaeological Resources

Cultural Surveys Hawaii (2008) examined the Expansion Area “for surface cultural materials through systematic pedestrian inspection resulting in no significant findings. It is clear from the document research and aerial photo analysis (CSH Figure 7 and 8) that the current project area had been in continuous and active pineapple cultivation for at least 50 years, from the late historic period up into the modern era leaving little probability for significant

historic properties on the surface or in a subsurface context. The single fenceline that was encountered during the pedestrian survey is interpreted as a post-1950s fenceline based on the condition of both the milled wood and wire strands. As the densely vegetated environment of the current survey area posed difficulties for mechanical subsurface testing and the high degree of ground modification within the project area indicates a low probability of *in situ* subsurface deposits within the project area, as evidenced by observations in neighboring parcels (Conley-Kapoi and Hammatt 2005; Creed et al. 2000:18; Hammatt and Borthwick 1993:16; and Hammatt and Chiogioji 1992), no subsurface testing was undertaken (See Appendix C).

Archaeological survey of the existing school campus and Lāna'i Park was not conducted. No building construction is proposed on the existing campus hence there was no need for an inventory survey. In the future, the site of the community college may need to be investigated prior to building construction.

Lāna'i Park is of recent origin (circa 1976) and the various field and court surfaces appear to be built on fill land. The park was at one time used for truck farming and the potential for uncovering historical features or deposits was considered low.

14. Cultural Resources

Cultural Surveys Hawaii (2009) also prepared a cultural assessment for the school expansion. The assessment was not limited to the existing school site and Expansion Area but generally considered traditional practices in the ahupua'a of Kamoku and the upland region that includes Lāna'i City, Kō'ele, Kaiholema and Nininiwai. In conjunction with a literature search and review of archaeological studies for the area, the assessment included community consultation in the form of interviews with persons willing to share their knowledge of the area. The cultural assessment is reproduced as Appendix D.

This study of traditional cultural practices takes into account past practices, current day practices, and potential future practices. Traditional cultural practices include those practices of any ethnic group who has influenced the culture of the study area as well as traditional Hawaiian practices. Consultations with community informants identified cultural practices described below.

a. Plant Resources

Plants such as ha'uōwī (*Verbena litoralis*), 'uhaloa (*Waltheria indica*), .pepeiao akua, bamboo shoots, guava, and lilikoi were gathered in the study area.

b. Trails

No traditional Hawaiian trails within the study area were mentioned thus it is unclear how individuals accessed upland areas for gathering plants and fruits.

c. Fresh Water Resources

Kamoku was noted for its upland forest and springs with areas that the Hawaiians developed into an extensive forested dry land agricultural system. When the area was used for ranching (Lanai Ranch), the owners built structures and reservoirs for capturing

water (storm water, roof runoff) for watering livestock and for drinking. The remnant of one reservoir was mentioned as being behind the 17th hole at the golf course at Kō'ele

d. Agricultural Practices

Pineapple was not the only agricultural activity associated with the area. LCA grants claimed land that was used for pasture, sweet potato plots, and gourd fields. The Hawaiians, in traditional times, also utilized the area for dry land agriculture as well as forest resources. Taro and yams may also have been raised in the area by the early Hawaiians.

A truck farm "Minami Gardens" was located at the school site before the school was relocated from Kō'ele. The family garden may have extended from Fraser Avenue to where the County park is today. The Minami family raised Japanese potatoes or *araimo*, carrots, lettuce, cabbage, bananas, and *won bok*. It is believed that the garden from about 1924 until about 1937 when it was relocated about one mile away.

The school site and County park were not cultivated in pineapple. The pineapple fields in the 1920's and the former Minami Gardens (now the County Park) and the school were located to the west of the pineapple fields.

e. Hawaiian Stone Artifacts

Ulu maika, pohaku ma'a, and imu (fire pits) have been discovered and are known to be common occurrences in the pineapple fields surrounding the school and throughout the formerly cultivated areas on Lāna'i

f. Hunting Practices and Deer Habitat

State of Hawaii public hunting areas (Hunting Units 1 and 3) are located approximately two miles northeast and west of the school expansion area, respectively. Game mammals and game birds that populate these areas include axis deer, mouflon sheep, *kolohala* or Chinese ring-necked pheasant, wild turkey, gray francolin, gambles quail, erckel francolin, and dove.

It was mentioned that Lāna'i residents, as well as other residents of the State, hunt as a subsistence practice; conversely there are others that believe sport hunting is not a traditional Hawaiian practice, but rather an introduced recreational sport. These public hunting areas are the most popular game mammal hunting areas in the State contributing significantly to the Lāna'i lifestyle and economy.

g. Place Names

Hawaiian place names typically tell the story or significance of an area. One informant suggested further research into a few place names within the study area near the school expansion area that refer to viewing sites, conditions of the sky, and celestial bodies. These areas include Hōkūau, Kaumaikahōkū, and Pu'u nānā i Hawai'i.

h. Lāna'i High and Elementary School

Located originally at Kō'ele, then moved to its present location, Lāna'i High and Elementary School has been the main educational facility on the island, beginning during the ranching era through the plantation era and into modern times. It was explained that when the

Japanese immigrated to the island in the 1920s, they brought with them a strong tradition and love of education. This desire to excel in education was quickly accepted and emulated by all ethnic groups on Lānaʻi. The school was also the center of community activities, sports, dances, and social events.

In effect, the school itself holds cultural and traditional value.

15. Scenic Resources

The Expansion Area has not been identified on government plans as possessing scenic resource value since most of the land was previously in pineapple cultivation. In the absence of such a designation, it is reasonable to suggest that the large tracts of former pineapple fields below Fraser Avenue presently provide scenic value as undeveloped open space.

The island of Lanai was built from a single volcanic cone which today is called Lanaihale. At approximately 3,370 feet in the height, Lanaihale is the most dominating feature visual on the island. The Munro Trail, which meanders along the top of Lanaihale, is a principal visitor attraction.

16. Acoustical Environment

The project site experiences low noise levels. Although an acoustical study was not performed, existing ambient noise level is estimated at 42 to 44 dBA which is characteristic of agricultural areas. Presently, the predominant noise sources include sounds of nature including the wind and rustling trees and vegetation. Man's influence is heard from occasional overhead aircraft and construction sounds in the distance.

The nearest residential area is a Department of Hawaiian Home Lands subdivision ("Lands of Lanai") to the north of and adjoining 5th Street.

17. Air Quality

Air quality in the general area is considered good. There are no significant sources of industrial pollution and agricultural activities that would generate airborne pollutants. Fugitive dust (both natural and from construction activities) is a common source of pollution in areas undergoing construction or awaiting construction without maintenance of any kind.

The island's wastewater treatment plant and associated effluent ponds are located to the south of the Expansion Area. While odors may emanate from the treatment process, no obnoxious odors were detected on several site visits.

C. Land Use Plans, Policies and Controls

1. State Land Use

Pursuant to Chapter 205 Hawai'i Revised Statutes, the Hawai'i State Land Use Law, the State Land Use Commission classifies all land in the State of Hawai'i into one of four land use districts---Agricultural, Conservation, Rural, and Urban. Land uses in the Agricultural, Rural, and Urban Districts are regulated by the State through the Land Use Law and the

counties through ordinances and regulations. Land uses in the Conservation district are regulated by the Board of Land and Natural Resources.

The land use district map for this section of Lānaʻi (Figure 11) designates the major portion of the Expansion Area Agricultural. Lānaʻi High and Elementary School and Lānaʻi Park are located within an existing Urban district. Implementation of the proposed Master Plan improvements on the 42 acre portion of the Expansion Area will require a land use district boundary amendment to the Urban district.

2. County General Plan

The Maui County General Plan mandated by the Maui County Charter and is the guiding document for the long-range development of the County. The Plan provides policy statements in the form of goals, directions and strategies for meeting the long-term social, economic, environmental and land use needs for the general welfare and prosperity of the people through multi-level government action (General Plan, 1980). The Plan was adopted in 1980 (Ordinance No. 1052) and updated in 1990.

The General Plan is a policy plan and not a land use plan. The integration between general plan policies is intended to aid in identifying desirable land uses, population distribution, and distribution of social benefits to residents.

The County is currently in the process of updating and revising the General Plan as a Countywide Policy Plan through the year 2030.

3. Lānaʻi Community Plan

The Lānaʻi Community Plan (December, 1998) reflects current and anticipated conditions on the island and advances planning goals, objectives, policies and implementation considerations to guide decision-making in the region through the year 2010. The Lānaʻi Community Plan provides specific recommendations to address the goals, objectives and policies articulated in the General Plan, while recognizing the values and unique attributes of Lānaʻi in order to enhance the region's overall living environment. In effect the Lanai Community Plan applies the General Plan objectives and policies to Lanai with objectives, policies, and specific actions that would implement the General Plan. The Lānaʻi Community Plan (and all County of Maui Community Plans) provides a land use plan establishing desirable land uses consistent with plan policies and objectives.

Community Plan objectives, policies, and implementing actions applicable to the proposed expansion of Lānaʻi School are listed below.

Land Use

Goal: Maintain and enhance Lānaʻi's rural atmosphere, respecting its vast open space character and small island town environment which are unique in the State of Hawaiʻi.

Objectives and Policies

1. Limit State Urban district boundary expansion to areas which are designated for urban uses on the Lānaʻi Community Plan Land Use Map.

4. Recognize and respect the Community Plan land use map as an expression of residents' needs and desires.
12. Provide for adequate land use allocations for public facilities, including, but not limited to, landfill sites.

Cultural Resources

Goal: Identify, preserve, and where appropriate, restore and promote cultural resources and practices which reflect the rich and diverse heritage found on Lāna'i.

Objectives and Policies

4. Support public and private efforts to inventory, evaluate, classify and register archaeological sites to increase public knowledge of the region's cultural resources and their relative values.
8. Preserve and protect native Hawaiian rights customarily and traditionally exercised for subsistence, cultural, and religious purposes in accordance with Article XII, Section 7, of the Hawaii State Constitution, and the Hawaii Supreme Court's PASH opinion, 79 Haw.425 (1295).

Urban Design

Goal: Preserve and enhance the unique urban design character of Lāna'i through consideration of planning, land use and design standards which respect the island's rural plantation history.

Objectives and Policies

6. Maintain existing road rights-of-way within Lāna'i City.
12. Encourage architectural designs of government facilities to be consistent and compatible with the existing design character of Lāna'i City and its surrounding environs.

Social Infrastructure

Goal: Provide a public facilities and services system which is responsive to the needs of Lana'i's rural island environment and lifestyle.

Education: Objectives and Policies:

1. Designate an appropriate site consisting of a minimum of five acres for the use of Maui Community College in consultation with the Board of Regents of the University of Hawaii.
2. Provide remedial education and language classes for adults.
3. Provide adequate and affordable daycare and preschool facilities and programs for Lāna'i families.

4. Expand educational and career counseling services for youths.
5. Support post-secondary education, career counseling and training needs for Lānaʻi residents.

Implementing Actions

5. Provide access to the HITS program for the Lānaʻi High and Elementary School.
6. Encourage the development of separate elementary and secondary school campuses.

C. Planning Standards

2. Building Heights

Limit building heights to two stories or 30 feet above grade . . .

3. Landscaping

Native plant species which are found on Lānaʻi shall be utilized for public and quasi-public facilities.

4. Building Design

All commercial buildings and government or private infrastructure improvements shall be designed in accordance with design guidelines developed for Lānaʻi City.

The Lānaʻi Community Plan Land Use Map designates the entire 115.0 acre parcel SF (Single-Family) Proposed County Housing (See Figure 12).

Lānaʻi School and Lānaʻi Park are community planned Public/Quasi Public. This land use category includes schools, libraries, fire/police stations, government buildings, public utilities, hospitals, churches, cemeteries, and community centers.

The lot owned by Castle and Cooke Resorts LLC (Tax Map Key 9-4-014: 011) is community planned PK (Park) and P (Public/Quasi-Public). The small lot owned by the County of Maui (Tax Map Key 9-4-014: 005) is community planned PK (Park).

Both educational and recreational uses are permitted uses under the Public/Quasi Public community plan category.

4. County of Maui Zoning

Just as there are several community plan designations in the vicinity of the school, so too is the zoning (See Figure 13). The zoning for Lānaʻi School and Lānaʻi Park is "P-1" (Public/Quasi-Public). This zoning district allows as a permitted use "kindergartens, elementary schools, high schools, colleges, and libraries" (Maui County Code, Title 19, Chapter 19.31, Section 19.31.020, A.f.).

The parcel owned by Castle and Cooke Resorts, LLC (Tax Map Key 4-9-014:011) is dual zoned "PK-3" (Park) and "P-1". The Master Plan overlies the portion of the lot overlapping both zoning districts.

The Interim zoning district allows as a permitted use "libraries, kindergartens, elementary schools, intermediate schools, high schools, and universities" (Maui County Code, Title 19, Section 19.02.030.A.4). A summary of land use controls is presented in Table 6.

Table 6. Land Use Controls

Tax Map Key	Area (Acres)	State Land Use	Lānaʻi Community Plan	Zoning
4-9-014:003	10.269	Urban	Public-Quasi Public	P-1
4-9-014:004	0.125	Urban	Public-Quasi Public	P-1
4-9-014:002	8.017	Urban	Public-Quasi Public	P-1
4-9-014:005	0.153	Urban	Park	PK-3
4-9-014:011	18.692	Urban Agricultural	Park Public-Quasi Public	PK-3 P-1
4-9-014:058	115.00	Urban Agricultural	SF Residential Proposed County Housing	Interim PK-3 P-1

5. Easements

Two easements cross the Expansion Area below Lānaʻi Park. A 10-foot easement identified as Easement 111 in favor of Lanai Water Company and a 10-foot wide easement for pole and wire lines in favor of Maui Electric Co. Ltd. An easement number is not provided for the latter easement.

D. Infrastructure

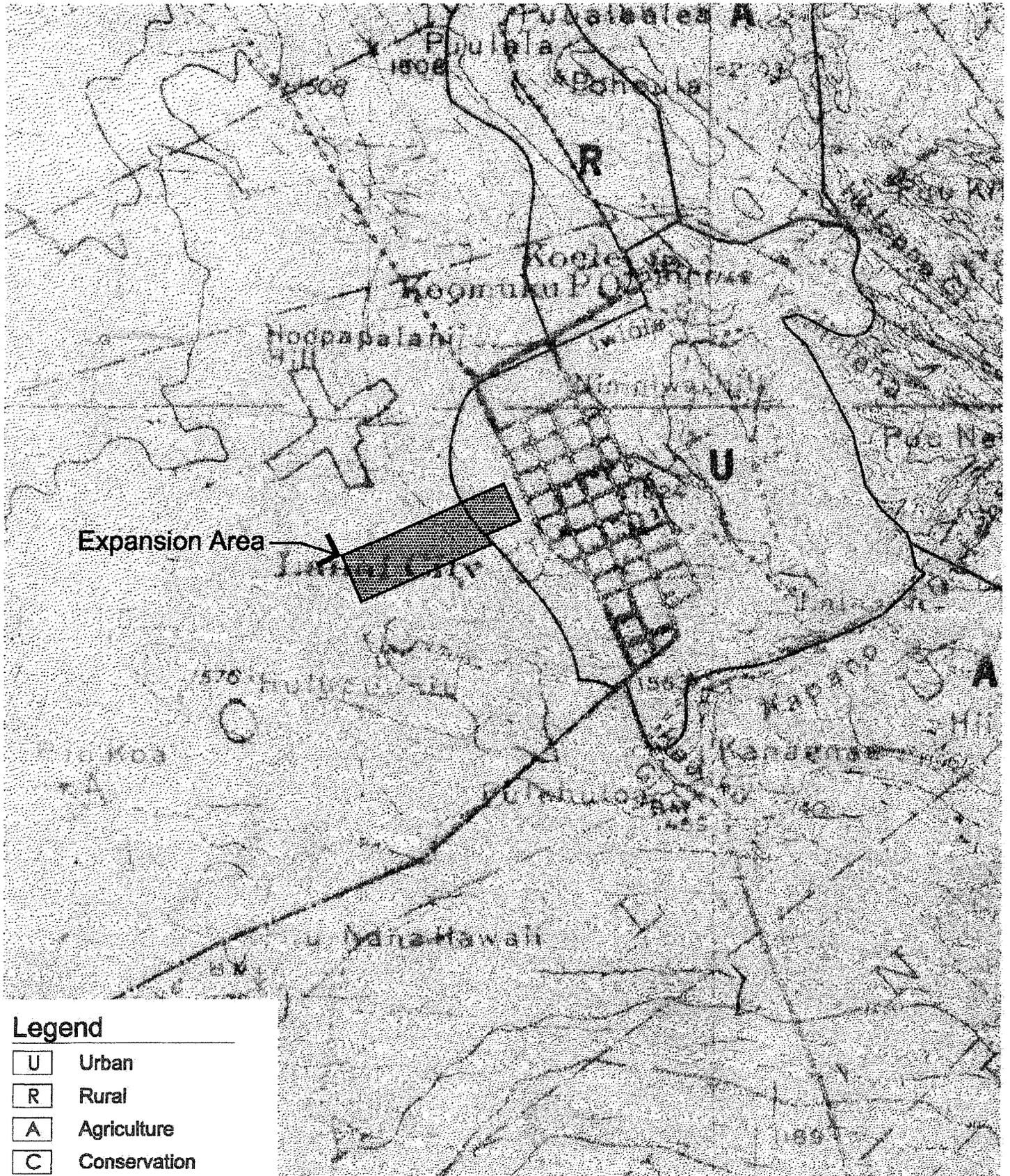
1. Potable Water

Domestic water service for the island is provided by a private water system owned and operated by the Lānaʻi Water Company. An existing 2.0 million gallon reservoir located atop Niniwai Hill near Lānaʻi City provides water storage. The reservoir is supplied by a 10-inch water main from the Lānaʻi Water Company's Maunalei Wells and two (2) 8-inch water mains from Wells 3 and 6 (Munekiyo & Hiraga, 1992).

From the reservoir, water gravity flows through a system of various sized water mains. Lānaʻi School is serviced from a 12" main in 5th Street.

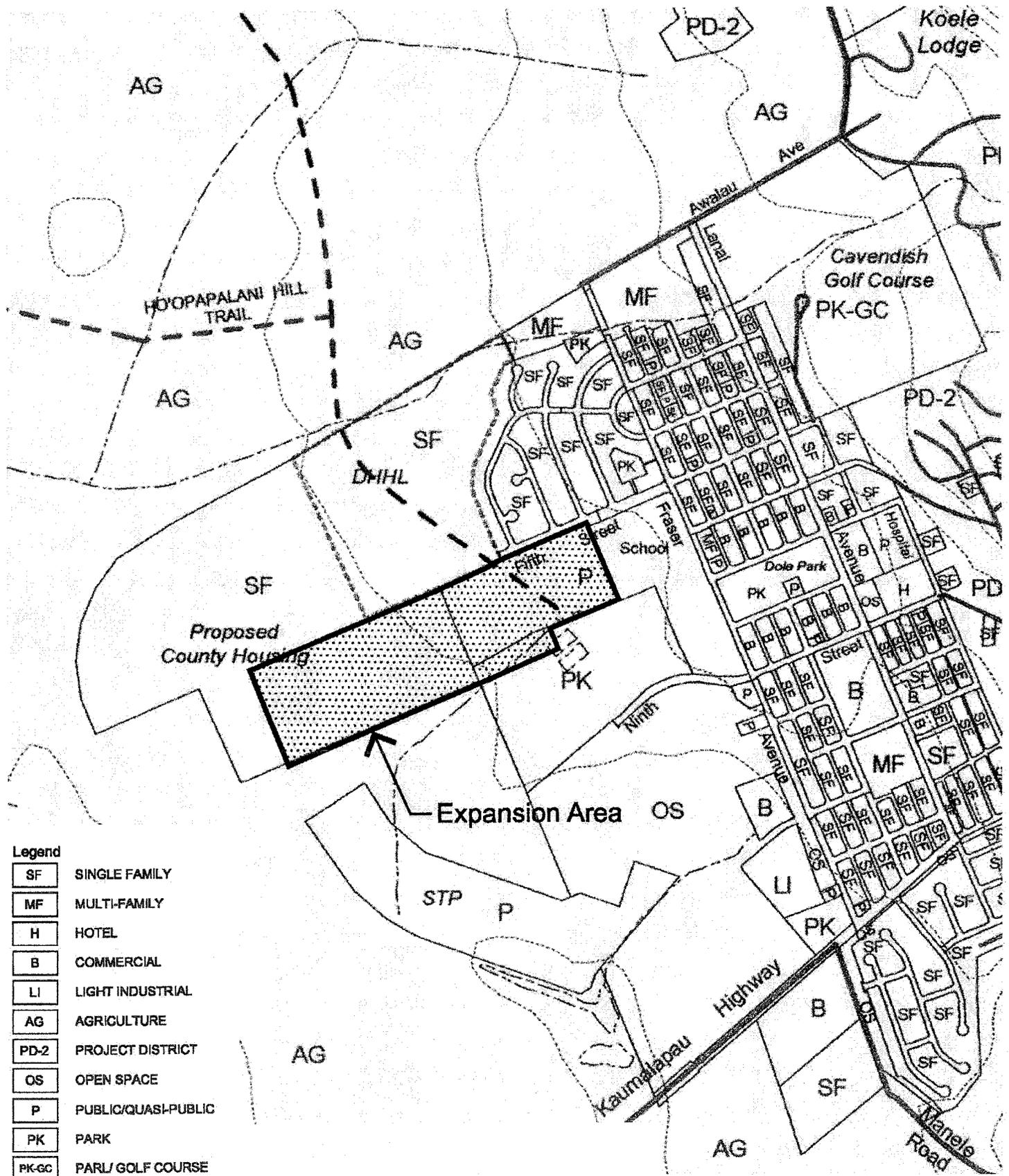
2. Wastewater System

The County of Maui operates and maintains the island's wastewater collection, treatment, and disposal system. The gravity flow system consists primarily of 8" PVC piping that collects and conveys wastewater to the Lānaʻi Wastewater Reclamation Facility located on the west side of Lānaʻi City. Constructed in 1984 by the County of Maui, it is operated and maintained by the Department of Environmental Management, Wastewater Division. The



Kamoku, District of Lāhainā, Lāna'i, Maui

Figure 11
 State Land Use Districts
 Lāna'i High & Elementary School Master Plan



Legend

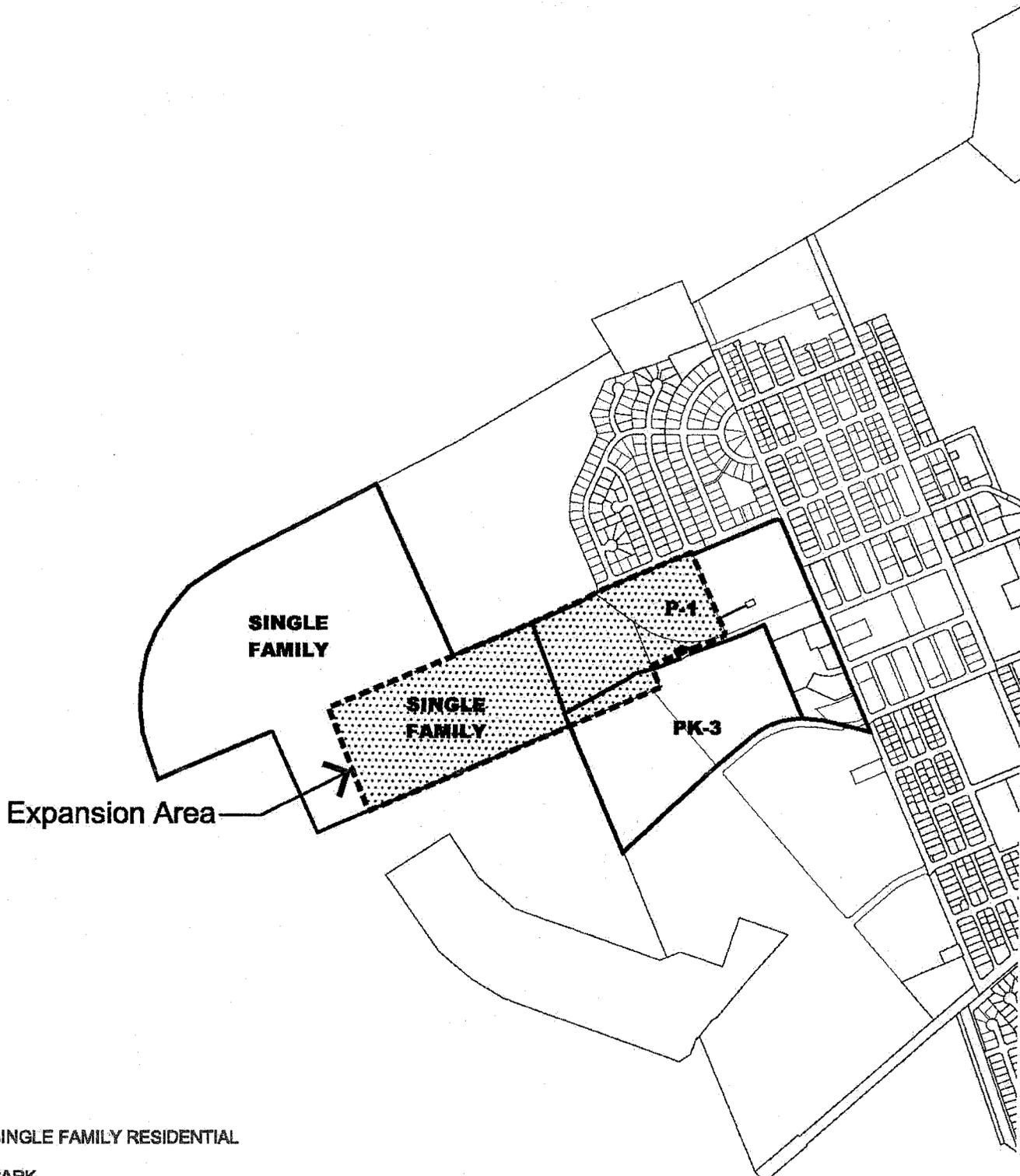
- SF SINGLE FAMILY
- MF MULTI-FAMILY
- H HOTEL
- B COMMERCIAL
- LI LIGHT INDUSTRIAL
- AG AGRICULTURE
- PD-2 PROJECT DISTRICT
- OS OPEN SPACE
- P PUBLIC/QUASI-PUBLIC
- PK PARK
- PK-GC PARK/ GOLF COURSE

Source: Lāna'i Community Plan, County of Maui
Ordinance No. 2738, December 21, 1998



Kamokū, District of Lāhainā, Lāna'i, Maui

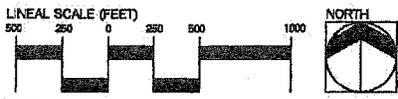
Figure 12
Lāna'i City Community Plan
Lāna'i High & Elementary School Master Plan



Legend

- SF** SINGLE FAMILY RESIDENTIAL
- PK-3** PARK
- P-1** PUBLIC / QUASI-PUBLIC

Sources: Lanai High & Elementary School-Land Use Map, CDS International



Kamoku, District of Lāhainā, Lānaʻi, Maui

Figure 13
County Zoning
Lānaʻi High & Elementary School Master Plan

facility has approximately 13.3 acres of infiltration and oxidation ponds which is used for the biological treatment of wastewater. The plant has a treatment capacity of 0.5 million gallons per day and current flow averages 0.3 million gallons per day.

Effluent from the facility is piped to holding ponds owned by Lanai Company located to the west of the facility for further treatment and reuse. Treated effluent is reused for irrigating the Company's Experience Golf Course at Kō'ele.

3. Streets and Roads

Lāna'i High and Elementary School is bounded by Fraser Avenue on the east and 5th Street on the north. Fraser Avenue is a two-way, two-lane roadway generally oriented in the north-south direction that serves as one of the major access roads through Lanai City between Kamalapau Highway and the northern edge of the city. At the northeast corner of the project site, Fraser Avenue intersects 5th Street. At this unsignalized intersection, both approaches of Fraser Avenue have one lane that serves all traffic movements. 5th Street is a two-way, two-lane roadway generally oriented in the east-west direction that provides access to the residential uses along its alignment. At the intersection with Fraser Avenue, both approaches of 5th Street have one stop-controlled lane that serves all traffic movement.

Southeast of the intersection with 5th Street, Fraser Avenue intersects 6th Street. At this unsignalized T-intersection, the northbound approach of Fraser Avenue has one lane that serves through and right-turn traffic movements while the southbound approach has one lane that serves left-turn and through traffic movements. 6th Street is a two-way, two-lane roadway generally oriented in the east-west direction that provides access to the residential and commercial uses along its alignment. At the intersection with Fraser Avenue, the westbound approach of 6th Street has one stop-controlled lane that serves left-turn and right-turn traffic movements.

During a portion of the morning peak period, the southbound left-turn traffic movement along Fraser Avenue is prohibited. Traffic cones are placed along the centerline of the roadway to ensure the restriction. The coning extends through the upstream intersection with the driveway for a parking lot that utilized as a drop-off area for the school. As such, only southbound vehicles along Fraser Avenue are able to access the parking lot. Vehicles originating from areas to the east utilize the surrounding roadway network to access 6th Street and turn left onto Fraser Avenue to access the drop-off area. Similarly, northbound vehicles along Fraser Avenue detour along 7th Street, Gay Street, and 6th Street and turn left onto Fraser Avenue to access the drop off area.

Traffic counts were taken along Fraser Avenue and 5th Street in October 2008. Turning movements were recorded manually between the morning commuter peak hours of 6:30 AM and 8:30 AM and the afternoon commuter peak hours of 3:30 PM and 5:30 PM. The traffic and turning movement counts indicate that the AM commuter peak hour of traffic occurs between 7:00 AM and 8:00 AM in the vicinity of the school. In the afternoon, the PM commuter peak hour of traffic is generally between the hours of 3:30 PM and 4:30 PM.

Traffic was analyzed using a highway capacity analysis methodology based on the concept of Level of Service ("LOS"). LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F"; LOS "A" representing ideal or free flow-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

Traffic count information and LOS conditions are presented in Table 9 of Section 3 of this assessment. The table presents existing and projected LOS conditions with the project. The Traffic Impact Report is reproduced in Appendix E.

4. Electric and Telephone System

Electrical power and communication services for the island are provided by Maui Electric Company and Hawaiian TelCom, respectively. Wireless service is available from private vendors but coverage areas are limited. Generally the best coverage is in the Lānaʻi City area (Hart, 2007).

E. Socio-economic Characteristics

1. Population and Employment

Selected demographic and employment data for Lānaʻi is presented in Table 7.

Table 7. Socio-Economic Characteristics, 1990-2030

Variable	1990*	2000*	2010**	2020**	2030**
Resident Population	2,246	3,193	3,735	4,308	4,901
Households	847	1,161	1,415	1,680	1,955
Household Size	2.86	2.74	2.64	2.56	2.51
Wage and Salary Jobs	1,534	1,630	1,891	2,162	2,248
Unemployment	4.2%	3.5%	4%	4%	4%
Labor Demand	1,395	1,840	2,124	2,428	2,727
Median Household Income	\$28,877	\$43,271	\$58,955	\$68,377	\$78,463
HUD Median, County	\$37,700	\$56,500	\$65,625	\$76,112	\$87,340

* Historical/**Projected

Source: County of Maui Planning Department, 2007.

The data indicates continued resident population growth through the projected time horizon. Historical population growth between 1990 and 2000 was 2.8%. Between 2000 and 2030, is projected grow cumulatively by 1,708 residents or slightly less than a 50% gain over the time period. This growth rate is projected to decline to 1.6% to 2015 (not shown) and 1.3% thereafter. The decline is not unique to Lanai but is also projected for Molokai and Maui over the same time period.

Household size is projected to decline from 2.86 persons to 2.51 households. Although overall resident population is projected to increase, the rate of growth and household size are projected to decrease. Smaller households suggest the possibility of fewer births, household members leaving the island for opportunities elsewhere, household members leaving one household to form their own household, and more "empty-nest" households.

Salary jobs are projected to increase as will the demand for labor. A unemployment rate of 4% is anticipated from 2010 to 2030. This suggests that although jobs are being created and there is a workforce demand to fill those jobs, there are not enough jobs to lower the unemployment rate. In effect, the number of jobs and demand for labor are in equilibrium over a 20 year period.

2. Public Services and Facilities

a. Schools

Lāna'i High and Elementary School is one of four public schools comprising the Hana-Lahainaluna-Lanai-Molokai Complex Area. Enrollment for the 2007-2008 and 2008-2009 school years are shown below:

Table 8. Lāna'i High and Elementary School Enrollment

	<u>Capacity</u>	<u>2007-08</u>	<u>2008-09</u>
Lāna'i High and Elementary	700	575	559
Elementary (K-6)		288	286
Middle (7-8)		101	100
High (9-12)		186	173

Source: Department of Education, 2007, 2008.

Staffing includes a principal, vice-principal, administrative staff, counselors, athletic director, food service personnel, custodians and 59 "certificated" staff.

b. Police Protection

Police protection originates from the Lāna'i Police Station located at the intersection of 8th Street and Fraser Avenue. Nine officers (2 commanders, 6 patrol officers, and a school resource officer) are assigned to the station. One to two officers and a commander stand watch during the day (Telephone Contact, 2009).

c. Fire Protection

Fire protection service is provided from the Lāna'i Fire Station on Fraser Avenue, about 0.5 miles south of the School. The station is manned by a complement of 21 men (3 captains, 6 drivers, and 12 firefighters) and 7 personnel are on duty 24 hours a day. Their equipment includes a fire apparatus and a tanker. A second fire apparatus is posted to the station for back up should an off-island fire company be summoned to Lāna'i (Telephone Contact, 2009).

Firefighters provide first response to emergency calls but not ambulance service. Ambulance service is provided by American Medical Response from their office on 13th Street.

d. Recreation Facilities

Two County of Maui recreation facilities border Lanai High and Elementary School on the west and south Lāna'i Park and Tennis Courts, an 8.017 acre park to the west, is improved with three tennis courts, two basketball courts, and a children's playground with a play apparatus. Use of the court facilities are shared between the public and the school. The

County of Maui will transfer this property to the State of Hawaii for the planned school expansion.

To the south is a major county recreation complex featuring a gymnasium, youth center, Park Cottage, two tennis courts, softball field, Little League Field, and parking. The complex is not named *per se* but is identified by the type of recreation facility as either Lānaʻi Gymnasium and Tennis Courts, or Lanai Softball Field, or Lanai Little League Field.

Dole Park, a 7.5 acre park in the center of Lānaʻi City was built around 1922 when Lānaʻi City was established. The grassy park provides residents and visitors open space for family activities and passive recreation, benches and tables for picnicking, a pavilion for gatherings, and a nearby community center. Spanning approximately 4 city blocks (bounded by Fraser Avenue, Lanai Avenue, 7th Street and 8th Street), it has the feeling of a quaint town square with many island businesses and restaurants surrounding the park. Tall and stately Norfolk Island and Cook Island pines provide shade, character, and a vertical element.

The Lānaʻi Community Center at the corner of Lānaʻi Avenue and Eighth Street houses a community meeting facility, County offices, and is used for County Council meetings. Outdoor spaces are used for picnicking and recreation.

e. Solid Waste

Residential solid waste collection and disposal is provided by the Maui County Department of Public Works and Waste Management. Commercial disposal service is provided by a private refuse collector.

Solid waste is disposed of at the Lānaʻi landfill located off Kaumalapau Road to the northeast of Lānaʻi Airport.

f. Medical Facilities

Lānaʻi Community Hospital, which is owned by the State of Hawaii and managed by the Hawaii Health Systems Corporation, is the only provider of emergency room and hospital care for Lānaʻi residents and visitors. The hospital is located six blocks *mauka* of the Senior Center on 7th Street. Patient services include limited acute care (4 inpatient beds), extended long-term care (10 beds), limited laboratory and radiology services, 24-hour emergency care, and outpatient dialysis. Current staffing is at 32 people (Telephone Conversation, Hospital Administrator, 2009).

SECTION 3

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS

A. Assessment Process

The scope of the project was discussed with the consulting architects, staff of the Department of Education Facilities Planning Branch, and other consultants comprising the design team. State and County agencies were contacted for information relative to their areas of expertise. Time was spent in the field noting site conditions and conditions in the vicinity of the existing school. Environmental specialists were contracted to conduct archaeological, botanical, hazardous material assessments, and traffic studies. The sum total of consultations and field investigations helped to identify existing conditions and features which could affect or be affected by the project. These influencing conditions include:

- The Expansion Area *makai* of Lāna'i Park is a vacant, tree and brush covered lot that was formerly in pineapple cultivation;
- Because of its former agricultural use, chemicals and pesticides may be present in the soil;
- No rare, threatened, or endangered flora or fauna inhabit the area;
- There are no surface archaeological features present;
- There are no significant cultural practices associated with the area;
- Many Lāna'i residents consider Lanai High and Elementary School to be a cultural resource;
- The Expansion Area is not located in a flood hazard area;
- There are no streams, ponds, or wetlands present;
- Road, water, wastewater, and power systems are available to accommodate the proposed use.

The proposed expansion of Lāna'i High and Elementary School is projected over a 25 year time horizon. Improvements will be constructed following a phasing plan and as public funds are appropriated for design and construction. The first scheduled improvement is the 6-Classroom Building. Funds have been appropriated for its construction which is projected to begin in 2011. Design and construction money has not yet been appropriated for subsequent phases.

Construction will take place incrementally over a projected 25 year time horizon. Thus, potential environmental impacts also will occur each time new construction takes place. Impacts associated with building construction also are expected to recur at much the same scale as the previous building or improvement.

The Master Plan proposes the construction of playfields, practice fields, softball and baseball facilities, a track and field with supporting facilities including seating, a ticket office, athletic showers and lockers, a dormitory for visiting teams, and parking. These outdoor athletic facilities will require extensive grubbing, grading, and stockpiling of soil. While site work activities will generate fugitive dust, erosion, noise, and construction runoff, measures stipulated in existing and future public health and County of Maui regulations and permits

will help to mitigate excessive air, acoustical, and water pollutants. The athletic facilities are planned along the southern half of the school grounds away from educational facilities and adjoining residential uses to the north. With the exception of the track and associated buildings, impacts resulting from land altering activities alone are expected to be less pronounced and of shorter duration than improvements involving building construction.

The three general areas covered by the master plan include the existing Lānaʻi High and Elementary School campus, an existing County park and portions of a second County Park, and former pineapple fields. All areas have been significantly modified to accommodate urban and agricultural uses thereon, respectively. Due to prior land altering activities there is no natural environment *per se* to be affected by the proposed action.

B. Short-term Impacts

1. Site Work

Site work is probably the most disruptive construction activity on the environment. This activity entails grubbing a site of vegetation, excavating for roads and utility lines, building foundations, and grading to design elevation.

Site work will expose soil thus creating opportunities for runoff and erosion. Grubbing, grading, and stockpiling activities will be performed in compliance with the County of Maui erosion control ordinance. Best Management Practices specified in Chapter 20.08 of the Maui County Code for drainage, dust control, erosion, and sediment control will be prepared for review and approval by the Department of Public Works and Environmental Management, County of Maui. Regulatory and construction related measures for controlling construction runoff and erosion include but are not limited to:

- Limiting the amount of area to be graded at any one time.
- Applying water frequently in areas of active construction.
- Erecting silt fences or curtains around active construction sites for construction runoff and dust control.
- Watering graded areas after construction has ceased for the day.
- Sodding, mulching, or planting areas immediately after final grading work has been completed.
- Installing temporary interceptor ditches and berms to direct water into detention basins or sediment traps to contain runoff on-site.
- Providing gravel ingress/egress pads at vehicle entries for construction vehicles.

2. Air Quality

Site work is a persistent source of fugitive dust. Site contractors are aware that dust can be a nuisance to workers and people living or working near to work sites and it is imperative for them to maintain stringent dust controls. For this project, there is also the need for stringent dust control to keep dust from interfering with instruction. Frequent water sprinkling is probably the most effective dust control measure but the Contractor may choose to implement other measures based on their experience with projects of similar scale and scope. Measures for controlling construction runoff and erosion can also be used for dust control. The Contractor will be responsible for general housekeeping of the site and for keeping adjacent areas free of mud, sediment, and construction litter and debris. Pollution

control measures will comply with Chapter 60.1, Air Pollution Control, Administrative Rules, State Department of Health.

3. Noise

Construction noise, like fugitive dust, cannot be avoided. Currently, there are no significant noise generation activities nearby and low ambient noise is the norm. The dominant noise sources are the wind, vehicle traffic, and occasional aircraft flyovers (Park, 2008). Development will entail site work and construction of infrastructure and buildings. Construction related noise will be generated during all of the construction phases which will be audible in the residential areas immediately to the north of the site. Construction noise, however, will vary by the methods and pieces of equipment used during each stage of the construction process. No pile driving is anticipated but blasting, if required, will produce noise. Blasting at construction sites is usually accomplished by using numerous small charges. Blasting mats are placed over the charges to direct the explosive energy into the rock, to contain flying debris, and to muffle the explosion. If blasting is required, warning signs will be posted along roads in the vicinity of the blast site and residents notified of this activity both in advance and on the day blasting will occur.

Maximum permissible daytime (7:00 AM to 10:00 PM) noise levels for the Class A zoning district (which includes lands zoned residential) set by the State Department of Health is 55 dBA measured within the zoning district and at or beyond the property line. On occasion, construction work may temporarily exceed this standard and, per Administrative Rules (Chapter 46) of the Department of Health, the Contractor will obtain a Variance from Pollution Controls (Noise) permit prior to construction.

In general, construction activities cannot exceed the permissible noise levels for more than ten percent of the time within any twenty minute period except by permit or variance. Any noise source that emits noise levels in excess of the maximum permissible sound levels cannot be operated without first obtaining a noise permit from the State Department of Health. Although the permit does not attenuate noise per se it regulates the hours during which excessive noise is allowed.

The general contractor will be responsible for obtaining the permit and complying with conditions attached to the permit. Work will be scheduled for normal working hours (7:00 AM to 3:30 PM) Mondays through Fridays. The contractor will also ensure that motors are properly equipped with mufflers in good operating condition.

4. Flora and Fauna

Existing vegetation will be removed to allow for construction of the school buildings, parking lots, and athletic/recreation fields. There are neither federally listed or candidate threatened or endangered species of plants nor critical plant habitats generally found on the site. Thus, adverse effects to the flora of the site are not anticipated.

The botanical survey came across a garden on the existing school grounds (in the vicinity of Buildings E and F) where endangered plants are propagated. There are no plans to remove these plantings but they may be incorporated into a planned Hawaiian garden at their present location.

5. Archaeology

Aside from a modern fence line, no archaeological features were observed on the ground surface of the 42.0 acre former pineapple fields. Lanai Park and the two lots the State may acquire were not surveyed for archaeological resources. Given its present use for recreational activities and prior land clearing, it is not likely that there are surface features present.

Should subsurface archaeological features be unearthed during construction, work in the immediate area will cease and preservation authorities notified for investigation and proper disposition of the finds. If burials are uncovered, the County of Maui Police Department, State Historic Preservation Division, and the Maui Island Burial Council will be notified.

6. Construction Traffic

Construction vehicles hauling men and material will contribute to traffic on Kaunalapau Road, Fraser Avenue, and 5th Street. Material deliveries will be scheduled during non-peak traffic hours to minimize impacts on local and school traffic. Most if not all construction materials will be delivered to an on-site staging area. Some materials such as water and sewer pipe may be temporarily stockpiled off 5th Street for ease of handling and delivery to job sites within the road right-of-way. At these times, flagmen will be posted for traffic control during material loading and off-loading. Traffic delays can be expected but should not last more than a few minutes. Heavy vehicles traveling to and from the project site will comply with the provisions of Chapter 42, Vehicular Noise Control for Oahu, Hawaii Administrative Rules.

Construction in the right-of-way will require diverting traffic around work sites and temporarily interrupting the normal flow of traffic on 5th Street and Fraser Avenue. Motorists and pedestrians will be temporarily inconvenienced but this impact cannot be avoided. Traffic control plans will be submitted to the County of Maui Department of Transportation for review and approval. Measures to be taken to mitigate traffic impacts during construction work in the road right-of-way include but are not limited to:

- Posting warning signs on both sides of the work area to alert motorists of road work and to slow traffic speed;
- Positioning traffic cones or other directional devices in the roadway to guide vehicles around work areas;
- Posting flagmen to assist in traffic control;
- Providing alternative access if an entire street is to be closed; and
- Limiting road construction to between 8:00 AM and 2:30 PM, Monday through Friday.

Trenches will be covered with traffic plates during non-working hours and warning lights and signs posted for the duration of construction in the right-of-way. Off-site areas directly affected by construction will be restored to pre-construction conditions or better. Installation of infrastructure will not obstruct any residential driveways.

7. Infrastructure

Temporary interruptions in water service to residential users may be required when water lines for the school are tied into the existing 8-inch line in 5th Street. Residents will be

notified in advance of the interruption. The contractor will complete the connection in a timely manner to minimize inconvenience to water customers served by the line.

Waterlines will be pressure tested with water during construction and, following construction, disinfected with a chlorine solution prior to being placed online. Hydrotesting water and disinfection water will be discharged into an existing swale to the west of the property and allowed to percolate into the ground or discharged into the existing storm drainage system. Disinfection will be performed according to Department of Water Supply standards and should not pose a threat to public health and safety.

No interruption in service is anticipated for sewer line connections.

Design drawings will be prepared and submitted to the respective power and communication providers. All construction work will be coordinated with the utility provider. If public utilities need to be relocated, rerouted, or placed underground, they will be done so at the State's cost.

8. Economic

Public funds appropriated for the project will provide a short-term capital infusion into the local economy. Funds budgeted for construction will purchase construction materials within the County of Maui and employ local tradesmen. Revenue will accrue to the State of Hawaii in the form of general excise tax on goods and services, corporate taxes, and payroll taxes.

C. Long-term Impacts

1. Master Plan

A grass-root, school-community based advisory committee approved the Master Plan as the blueprint for the future development of Lāna'i School. It lays out the desired location of improvements, the linkages between the existing and expanded school campus, recreation facilities, and faculty housing. Although the focus of the plan is on a K-12 school, the Master Plan also supports the P-20 Concept by setting aside space for a Pre-School and Community College. Indirectly, the Master Plan centralizes all public learning facilities in one accessible in-town location which is consistent with the Lāna'i Community Plan.

The Master Plan has a shelf life of 25 years. It is anticipated that many but not all the improvements will be completed in that period of time. The Plan, however, orders the priorities and development sequencing for future funding and construction. It makes it clear to all players that enter into the decision-making process affecting the school. These players include school administrators and staff, the community, the Department of Education, the State administration, and the State Legislature. That the master plan was derived and approved by consensus between the Department of Education and the community can go far in avoiding prolonged discussion over development sequencing.

The Master Plan is not a static one dimensional plan cast in stone. It is also a process that leads to desired goals. The Plan should be reviewed periodically and amended in response to changing community needs and Department of Education. If there is no need for amendments, then it should be left as is.

2. Physical Environment

Significant, adverse long-term impacts on the physical environment are not anticipated. The three areas proposed for expansion have been altered in the past and there is no natural environment *per se*. There are no streams, ponds, or wetlands, archaeological resources, botanical, and wildlife resources present. Game animals have been recorded in the former pineapple fields but they are migratory animals that can establish habitat elsewhere in similar areas.

Several species of rare and endangered flora are propagated and grown on the existing school grounds. There are no plans to relocate the plants thus no impacts are anticipated. If transplanted elsewhere on campus, adverse impacts are not anticipated because they are grown and maintained by man and not under "wild" conditions.

3. Land Use

Land uses in nearby areas should not be affected by the gradual increase in school facilities and students. The proposed use is consistent with and vertically aligned with the Lanai Community Plan land use designations and County of Maui zoning for the lots comprising the Expansion Area. School facilities can be constructed on the site of Lanai Park without changes in any land use designation once the land is transferred to the State.

Constructing school facilities *makai* of the park will require a land use district boundary amendment from the State agricultural district to the urban district, a County of Maui community plan amendment, and a change in zoning to a district consistent with the community plan. These changes, if approved, will vertically align applicable State and County land use controls for the area and help to attain the desired land use pattern of the Lanai Community Plan.

5. Noise

For noise control purposes, schools are considered to be a noise sensitive use and noise regulations seek to minimize actions and noise that can detrimentally affect educational activities. Residential land uses are also treated as a noise sensitive use and public health regulations allow certain levels of noise during daylight and night hours. Noise from everyday school activities such as class bells, noise from the cafeteria during lunch periods, and students talking and laughing will be audible in the adjoining residential subdivision. School noises generally are limited to certain times of the day (e.g. recess) and certain classes (e.g. physical education, outdoor programs). The school buildings should buffer noise and the distance between the school and residences will aid in noise attenuation. Furthermore, school noises will occur principally during daylight hours when higher noise levels in residential areas are permissible.

Athletic events will generate crowd type noise of fans cheering on their team and athletic efforts in general. Noise of this type is generally spontaneous rather than constant. Moreover, since sporting events have time limitations, the source of noise should last generally no more than 3-4 hours depending on the sport. Crowd noise will not result in adverse effects principally because it is anticipated that most Lānaʻi residents will show up to support the home team.

Noise will also be generated from stationary sources such as air conditioning systems, exhaust fans, and refrigeration compressors. Most air conditioning systems and exhaust fans will be in use during daylight hours and turned off at night. Some air conditioning systems will operate 24 hours as will refrigeration compressors. Noise from stationary sources will be attenuated in part with design measures (e.g. enclosing air conditioning compressors) to comply with the Department of Health's Administrative Rules, Chapter 46 Community Noise Control.

Traffic noise from vehicles on 5th Street will be audible both on campus in areas and facilities close to the street and in the residential area in homes along the street. Traffic noise cannot be avoided and over time it becomes a common sound of urban activity. It should be noted that traffic noise probably will be the loudest during morning drop-offs for students and afternoon pick-ups.

The open play fields, baseball and softball fields, court facilities, and the proposed track will help to attenuate noise emanating from areas south of the school. In addition, the judicious use of landscaping can help to buffer sounds from outside areas surrounding the school grounds.

The sounds of overhead aircraft will be audible but these infrequent flyovers are temporary in duration and should not adversely interfere with instruction and activities.

6. Design

The Lāna'i High and Elementary School Master Plan resulted from a comprehensive and intensive functional analysis and concept design process. Integral to the process was the participation of and interaction between elementary school teachers, school principals, librarians, counselors, local elected officials, representatives from the DAGS, DOE, and architects and engineers comprising the design team. In the resulting site plan and general design for the site, the placement of buildings, parking, recreation facilities, and ancillary facilities reflect the knowledge and experience of those most familiar with the existing school environment and the functional relationships that make Lāna'i School work.

Participation of Lanai residents in the design of the school does not end with the Master Plan. Many continue to participate and contribute ideas for the design of the 6-Classroom Building providing valuable feedback about nuances with the site and environmental conditions. When the Administrative Center is designed, there is a strong sentiment that this building should be the "signature" building of the school. It is anticipated that community participation will continue with the design of other school buildings and their contribution will result in a school whose form and scale are appropriate to the community.

The school buildings are sited to take advantage of natural climatic factors, the sloping terrain, and the need to have the school blend with the site. The Master Plan layout also considered the interface with the existing low-rise, low-density residential subdivision to the north and knowledge of future residential development on County land to the northwest. When completed, the design of the individual school buildings should visually "complement" existing and future residential uses to the north of 5th Street.

In general, the low-rise, low-density campus will not have new buildings exceeding one floor in height. There are two exceptions however. One exception may be the proposed Auditorium which in all probability will be taller than one floor and the second is the

proposed announcer's booth at the soccer/track field. On-site and perimeter landscaping coupled with buffering (via setbacks and intervening buildings for the announcer's booth) should highlight the physical appearance of the campus rather than the height of two buildings.

7. Hazardous Materials

The Expansion Area was used for cultivating pineapple for 50+ years. A Phase I Environmental Assessment identified this former use as a *recognizable environmental condition* because of the potential presence of chemicals associated with pineapple cultivation occurring on site. A Phase II Environmental Site Assessment will be performed to ascertain the presence of chemicals in the soil and the levels of concentration. If hazardous materials are discovered in levels exceeding permissible health standards and the hazard cannot be remediated, then construction of the school at this location could be delayed or another site sought. It is not in the interests of the students, parents, faculty, school administrators, and responsible agencies of the State of Hawaii to build and operate a school at a location where hazardous materials could pose a threat to public health, welfare, and safety.

8. Infrastructure

Improvements and or upgrades to infrastructure are common to development. As proposed, significant infrastructure upgrades are not required for the 6-Classroom Building. In general, existing water, wastewater, drainage, and utility systems can accommodate this modest expansion. Beyond construction of this building however, improvements to on-site and off-site infrastructure systems will be required. The type of infrastructure improvements and the sequencing of improvements will be coordinated with the development phasing schedule.

Off-site infrastructure improvements should be coordinated with the Department of Hawaiian Home Lands and County of Maui. Both are developing or proposing to develop housing to the north of the school and improvements associated with residential use has implications for the school. There is a need to extend 5th Street and install new water and wastewater lines and drainage improvements to service users on both sides and ends of 5th Street. Participating in a shared program for infrastructure investment can result in capital investment savings to both the County and the State.

9. Public Facilities and Services

Operations of the Maui Police Department and the Lāna'i Fire Station should not be adversely affected. For fire prevention and protection purposes, each building will be equipped with fire sprinklers and fire hydrants will be provided on site as required by the fire code. On-campus fire lane will provide access to all buildings for a fire apparatus.

Solid waste and food waste will be removed daily by a private hauler contracted by the DOE. Trash awaiting removal will be stored in appropriate containers designated for that purpose. All handling and disposal of solid waste will comply with regulations of the County of Maui.

10. Traffic

Although field observations indicated that many of the existing students walk to and from school, all of the new site-generated trips were conservatively assumed to be new vehicular

trips along the surrounding roadways. It was also assumed that trips associated with the proposed faculty housing were pedestrian trips to and from the school.

Trip generation calculations are based on enrollment increases in the various "schools" over existing enrollment. Thus elementary school enrollment is estimated to increase by +28 students, middle school by +14 students, and high school by +18 students. Enrollment in Pre-School and Community College, which are new "schools", are estimated at 40 students apiece.

Table 9 Peak Hour Trip Generation

Projected Trip Ends					
AM Peak	ES	MS	HS	PS	CC
Enter	4	4	5	18	32
Exit	3	4	3	16	7
Total	7	8	8	34	39
PM Peak					
Enter	2	1	1	16	44
Exit	2	1	1	18	24
Total	4	2	2	34	68

Source: Wilson Okamoto Corporation, 2009.

In addition to trip generation rates, traffic conditions will be influenced by the relocation of existing driveways and student-drop off area from Fraser Avenue to 5th Street. Nine new driveways will be constructed along 5th Street thus diverting school related traffic from Fraser Avenue onto 5th Street.

Traffic currently accessing the school via the driveway along Fraser Avenue would instead access the school via the new driveway at the intersection of 5th and Ahakea Streets. In addition, traffic currently using the school drop-off area off Fraser Avenue would instead use the new drop-off area off 5th Street via the driveways at and near Iliahi Street.

New trips to and from the school were distributed between the school driveways based upon their related use. For example, faculty and staff were assumed to use the driveway along 5th Street at the intersection with Ahakea Street while trips associated with elementary, middle, and high school students were assumed to use the driveways at and near the intersection with Iliahi Street.

The year 2034 cumulative AM and PM peak hour traffic conditions with the implementation of the proposed improvements at Lanai School are summarized in Table 10. Peak hour traffic circulation during AM and PM peak hours with the Project are shown in Figures 14 and 15.

The analysis shows that traffic operating conditions along Fraser Avenue in the vicinity of the school are expected, in general, to remain similar to existing conditions despite the

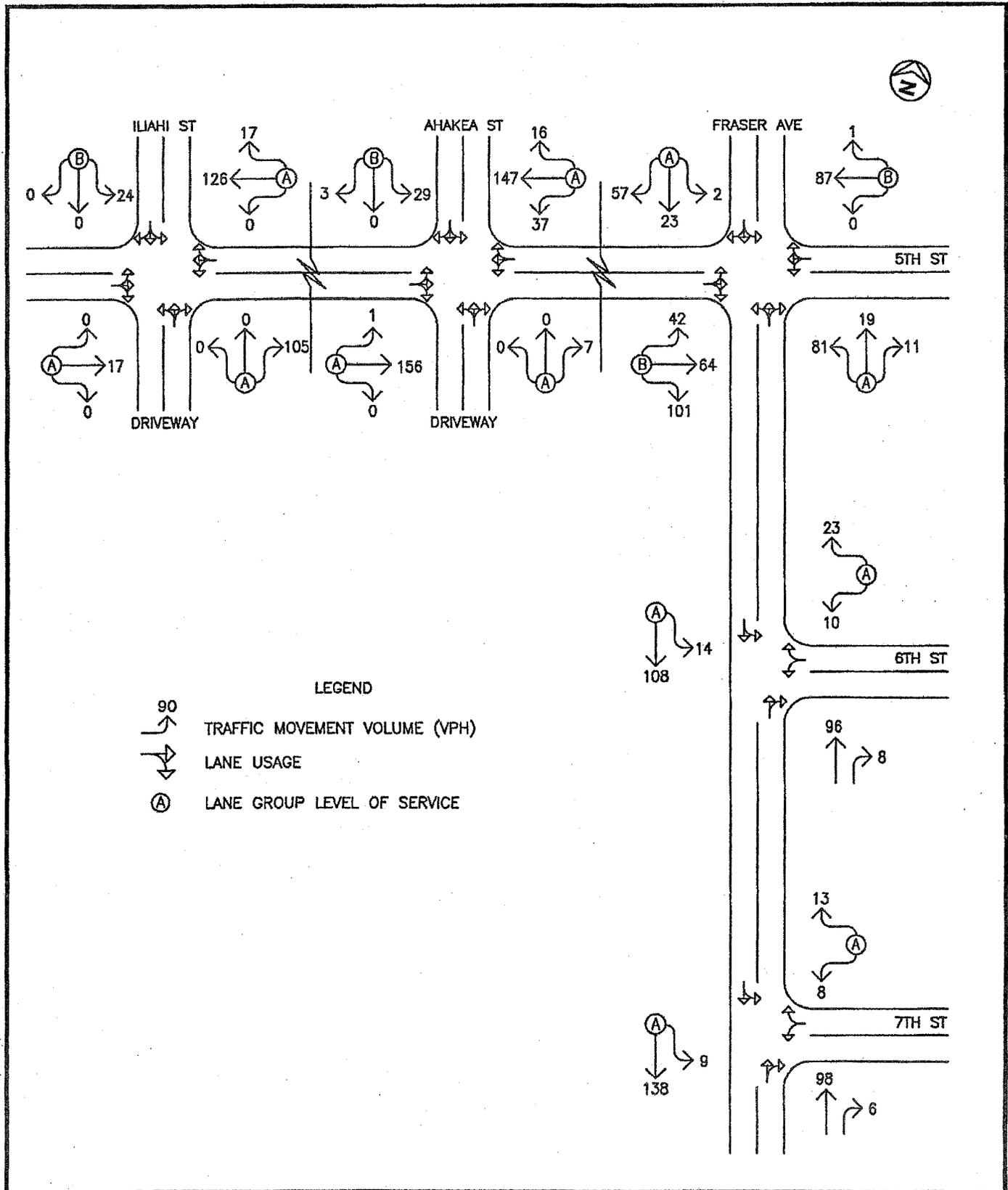
Table 10. Existing and Projected With Project LOS Traffic Operating Conditions

Intersection	Critical Movement		AM		PM	
			Exist	Year 2034 w/ Proj	Exist	Year 2034 w/ Proj
Fraser Ave/ 5 th Street	Eastbound	LT-TH-RT	B	B	A	B
	Westbound	LT-TH-RT	B	B	B	B
	Northbound	LT-TH-RT	A	A	A	A
	Southbound	LT-TH-RT	A	A	A	A
Fraser Ave/ 6 th Street	Southbound	LT-TH	A	A	A	A
	Westbound	LT-RT	B	A	A	A
Fraser Ave/ 7 th Street	Southbound	LT-TH	A	A	A	A
	Westbound	LT-TH	A	A	B	B
5 th Street/ Ahakea Street	Eastbound*	LT-TH-RT	A	A	A	A
	Westbound	LT-TH-RT	-	A	-	A
	Northbound	LT-TH-RT	-	A	-	A
	Southbound*	LT-TH-RT	A	B	A	A
5 th Street/ Iliahi Street	Eastbound*	LT-TH-RT	A	A	A	A
	Westbound	LT-TH-RT	-	A	-	A
	Northbound	LT-TH-RT	-	A	-	A
	Southbound*	LT-TH-RT	A	B	A	A

*Approach modified to accommodate new intersection configuration.

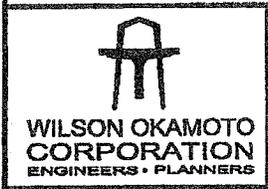
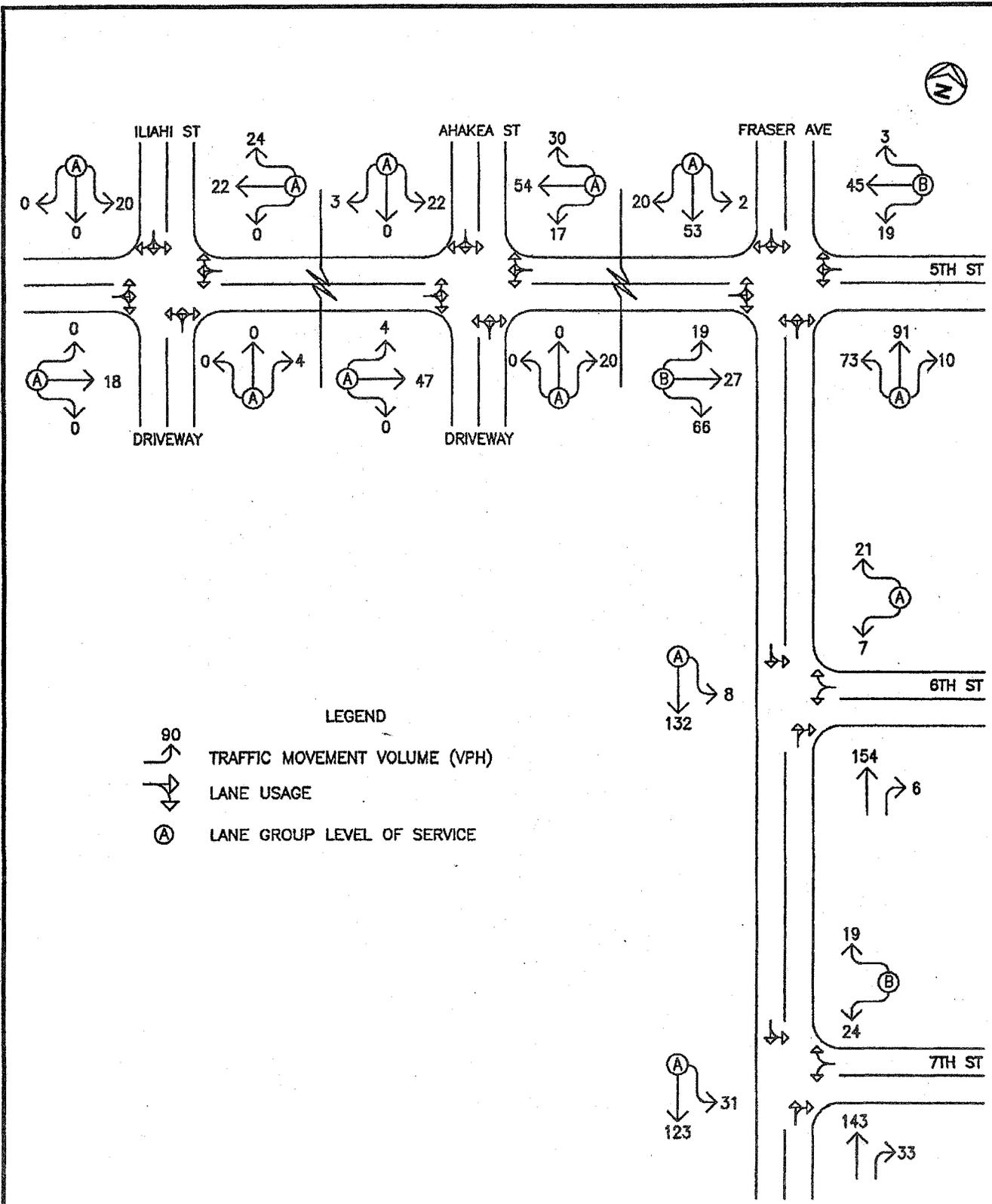
Source: Wilson Okamoto Corporation, 2009.

anticipated changes in travel patterns as a result of the proposed improvements at the school and the addition of new site-generated vehicles to the surrounding roadway network. The westbound approach of the intersection with 6th Street is expected to improve to LOS "A" during the AM peak period while the eastbound approach of the intersection with 5th Street is expected to deteriorate to LOS "B" during the PM peak period. The remaining critical movements at these intersections, as well as, the intersection with 7th Street are expected to continue operating at levels-of-service similar to existing conditions. Along 5th Street, the critical movements at the intersection with Ahakea Street and Iliahi Street are expected to operate at LOS "A" during both peak periods with the exception of the southbound approaches of both intersections which are expected to operate at LOS "B" during the AM peak period.



LANAI HIGH & ELEMENTARY SCHOOL
YEAR 2034 WITH PROJECT
AM PEAK HOUR OF TRAFFIC

FIGURE
14



LANAI HIGH & ELEMENTARY SCHOOL

YEAR 2034 WITH PROJECT

PM PEAK HOUR OF TRAFFIC

FIGURE

15

The traffic impact report makes the following recommendations:

- Maintain sufficient sight distance for motorists to safely enter and exit all project driveways.
- Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
- Provide adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.
- Provide sufficient turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
- Align the second driveway along 5th Street with Caldwell Street to minimize turning conflicts for entering and exiting vehicles.
- Align the third driveway along 5th Street with Ahakea Street to minimize turning conflicts for entering and exiting vehicles.
- Align the fourth driveway along 5th Street with Iliahi Street to minimize turning conflicts for entering and exiting vehicles.
- Provide adequate and safe pedestrian crossings in the vicinity of the school along roadways surrounding the project site.

Extensive improvements are planned at the Lānaʻi High & Elementary School to modify and expand the existing school. With the implementation of the aforementioned recommendations, the critical traffic movements at the intersections in the project vicinity are anticipated to continue operating at levels of service similar to existing conditions. As such, the proposed project is not expected to have a significant effect on traffic operations in the project vicinity.

Crosswalks should be provided across 5th Street so that children walking to school can safely cross two travel lanes. Crossing guards and junior police officers (JPOs) can help make street crossing safer.

11. Fiscal

State funds will be expended to staff, operate, and maintain the school. At capacity, there is a projected need for 11 administrative and 52 teaching positions. Additional full, part-time, and volunteer staffing will be working in the A+ Program, PCNC Office, Kitchen, and Custodial Centers. The positions may be filled by DOE employees currently serving in the same capacity at other schools or people hired to fill the open positions.

The school site is not subject to real property taxes thus no revenues will accrue to the County of Maui in the form of real property taxes.

D. Cumulative Impacts

The Master Plan presented in this environmental assessment is a composite site plan, land use plan, and space to guide the expansion of Lānaʻi School. The form and scale of the plan are geared towards systematically expanding the physical plant with spaces for recreational uses that heretofore could not fit on the 10.0 acre campus.

The physical facilities, however, are shaped by more than the analytical questions of what kind of facilities are needed and where should they be placed. Participants in the master plan charette brought divergent views to help answer the planning question, "What could Lāna'i High and Elementary School be?" The resulting prescriptions are the themes presented in Section 1 as collectively articulated by consensus of all participants.

The themes send a clear message that Lanai residents value education, educators, and the school per se. These values also were reiterated by community informants in the cultural assessment and can be interpreted by the educational objectives and policies in the Lanai Community Plan. There is a collective desire to provide educational opportunities for pre-school children, improve the quality of public schooling in the community, promote lifelong learning, and provide the tools to foster and enhance the learning environment.

There is the potential for cumulative traffic impacts associated with residential development and school development. Cumulative impacts are anticipated however the impact will not be immediately recognizable and sustainable over a period of time. More than likely, residential development will precede school improvements after construction of the 6-Classroom Building. School expansion depends on an increase in the number of school age children before additional buildings can be erected. Currently, the County of Maui housing project and that of the Department of Hawaiian Home Lands are the only two residential developments for owner-occupants proposed on the island.

It is anticipated that the County housing project along 5th Street will be built out well before the school. Thus the principal source of vehicle traffic along 5th Street is expected from residents that drive 5th Street to and from Fraser Avenue. During school hours and non-school hours, drivers should experience free flowing conditions. Congestion is expected to occur during morning school drop off and afternoon school pick up. During these periods, traffic tie-ups on 5th Street and adjoining intersections should last no more than one-half hour. To facilitate traffic movement, traffic cones can be set up to direct traffic, left turn movements into the drop off area prohibited, or crossing guards used for traffic control. It is anticipated that motorists will adapt to the increase in traffic around the school and the number of crosswalks in the vicinity of the school

There will be a need to furnish potable water for all who reside on the island. Water is delivered through a private system and there will come a time when the water source will have to be expanded (say by increasing pumping capacity and storage) and or other water sources sought and developed. Similarly, the wastewater treatment plant capacity will have to be expanded to receive and treat increases in wastewater flow from future development. Similar improvements and upgrades will be needed to existing drainage systems and power and communication services in Lāna'i City.

One of the goals of the Hawaii public school system is to prepare and equip all students with the knowledge and tools to tackle future individual undertaking. Toward this end, new technologies have and continue to be introduced at all grade levels in all schools. For several years, computer education has been part of the curriculum at Lāna'i School. Students have become proficient in using computers, fluent in working with application programs, and knowledgeable with the almost unlimited communication and learning opportunities made possible by the Internet. In short, students are engaged in 21st century learning in a 20th century environment.

Lānaʻi is a small island with only one town, rather limited economic opportunities, owned by a single entity, and there is only one public school. The island owner is introducing new technologies to the island in the form of solar and wind farms (the solar farm has been operational since December 2008). The energy to be generated will be sold to off-island utility companies. Skilled people are needed to operate and maintain the facilities (and to construct) thus creating employment opportunities for island residents. While employment opportunities are not restricted to Lānaʻi residents, the basic skills of English, mathematics, science and technology, and computing taught to Lanai School students can significantly benefit students in their careers, the community, Lanai based technology industries, and the State as a whole in the long-term.

Public schools do not encourage economic development. Schools also are not directly responsible for changes in land use. Schools are need-based facilities provided as communities develop because there is a population base and a school age component of the population requiring an education. In turn, it is the schools that teach the basic skills for persons to enter the workforce or pursuit other endeavors. These three seemingly unrelated socio-economic functions go hand in hand whereby economic development and employment opportunities attract a skilled workforce and families and an expanding population requires basic needs such as housing and public facilities and services. One of the primary services is educational facilities.

Lānaʻi School may have been in existence at the time of ranching on the island and was there to educate the children of the plantation workers. With the demise of pineapple cultivation and evolution to a visitor based industry, the school still functions to educate the children whose parents are employed in the visitor industry or engaged in commerce on the island. With or without the proposed expansion the school will continue its primary educational mission.

A. No Action

A No Action alternative would preclude development of the site for its planned use. The land will remain vacant, undeveloped, and all anticipated short and long-term, beneficial and adverse impacts resulting from its development will not occur. The State of Hawaii would not have to commit financial resources to build, staff, operate, and maintain the expanded educational facility and the funds that would have been expended on Lanai High and Elementary School could be allocated to alternative uses or schools.

B. Land Acquisition Addition

The State of Hawaii is contemplating acquiring an additional 1.030 acres (approximate) of parcel 11 from Castle & Cooke Resorts LLC. This acreage is shaped like a triangle and its acquisition would "straighten" out the property line in the vicinity of Lānaʻi Park. The State would then be able to relocate a section of the existing drainage channel further to the south. The existing outlet can then be abandoned thereby providing a seamless transition between the realigned section and the proposed extension of the channel through the Expansion Area. The beneficial impact would be to improve drainage control from Fraser Avenue to the proposed faculty housing area.

SECTION 5

AGENCIES AND ORGANIZATIONS TO BE CONSULTED

Federal

U.S. Army Corps of Engineers, Honolulu Engineer District

State of Hawaii

Department of Hawaiian Home Lands

Department of Health

Environmental Planning Office

Hazard Evaluation and Emergency Response Office

Department of Land and Natural Resources

Maui/Lanai Islands Burial Council

State Historic Preservation Division

Land Use Commission

Maui Community College

Office of Hawaiian Affairs

Office of Planning

Lānaʻi Public Library (Placement)

County of Maui

Department of Environmental Management

Department of Fire and Public Safety

Department of Housing and Human Concerns

Department of Parks and Recreation

Department of Planning

Department of Public Works

Department of Transportation

Maui County Cultural Resources Commission

Police Department

Organizations and Elected Officials

Castle and Cooke Resorts, LLC

Maui Electric Company

Hawaiian Telcom

Hui Malama Pono O Lanaʻi

Lānaʻi Planning Commission

Lānaʻi Community Advisory Council

Lānaʻi Cultural & Heritage Center

Lanaians for Sensible Growth

The Honorable Charmaine Tavares, Mayor, County of Maui

The Honorable Sol P. Kahoʻohalahala, Maui County Council

The Honorable J. Kalani English, 8th Senatorial District

The Honorable Mele Carroll, 13th Representative District

Individuals

Glenn Richardson

Albert Morita

Momi Suzuki

Robert Horn

Gary Onuma

SECTION 6

LIST OF PERMITS AND APPROVALS

State of Hawaii

Land Use Commission

Land Use District Boundary Amendment

Department of Health

NPDES General Permits

Discharge of Hydrotesting Water

Discharges Associated with Construction Activities

Variance from Pollution Controls (Noise Permit)

County of Maui

County Council

Community Plan Amendment

Change of Zone

Department of Public Works

Building Permit

Certificate of Occupancy

Driveway Permit

Electrical and Plumbing Permit

Grading and Grubbing Permit

Land Consolidation

Private

Lāna'i Water Company

Title 11, Chapter 200 (Environmental Impact Statement Rules), Administrative Rules of the State Department of Health, establishes criteria for determining whether an action may have significant effects on the environment (§11-200-12). The relationship of the proposed project to these criteria is discussed below.

1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

An archaeological survey of the 42.0 acres area comprising the former pineapple fields did not reveal the presence of archaeological features on the ground surface. Lāna'i Park was not surveyed because of its existing recreational use and the possibility that prior grading and the placement of fill altered the land.

During construction, should subsurface features be unearthed, work in the immediate will cease and historic authorities notified for disposition of the finds.

No traditional and cultural resources will be affected by the proposed school expansion. In contrast, the school expansion will add to the community's tradition and pursuit of education.

2) Curtails the range of beneficial uses of the environment;

There was a time when ranching followed by pineapple cultivation were the principal use of land in the Expansion Area. Truck crops were also raised on the site of Lāna'i Park and sections of the school grounds.

Agricultural land use is now giving way to urban land uses functions. The County of Maui proposal to develop affordable housing in the area coupled with expansion of Lanai School expands rather than curtails beneficial use of the environment. It also confines development to the western edge of Lanai City thereby fostering a compact rather than linear urban form between Kaumalapau Road on the south and Awaiau Street on the north.

3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;

The proposed expansion does not conflict with environmental policies established in Chapter 344, HRS.

4) Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;

Short-term direct economic benefits will accrue to residents participating in the construction of the various buildings and facilities. Spillover effects can be anticipated on supply houses furnishing building materials for residents who are able provide rental

space for off-island workers. The benefits will not be sustained over a long period of time but will occur for each development phase.

Traditional cultural practices are not associated with the Expansion Area. Many residents, however, believe the school itself is a cultural resource because it serves an education, athletic, and social purpose in the community. The Master Plan will promote and not detract from these values.

5) Substantially affects public health;

Public health should not be substantially affected by construction activities. The expansion process will proceed incrementally over a 25 year time horizon rather than in a compressed period of time.

A public health concern is the potential for environmental hazards to be present in the soil where pineapple was cultivated. The Department of Education will begin a Phase 2 Environmental Site Assessment to ascertain the levels of pesticides and chemicals present and the respective levels of concentration. It is not in the safety and welfare of students, parents, faculty, school administrators, and responsible agencies of the State of Hawaii to build and operate a school at a location where hazardous materials could pose a public health hazard that cannot be remediated.

6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

Expansion of Lāna'i School will not lead to an increase in population on the island. Schools are not population generators but are built to serve the population in a community.

Modest increases in water demand and wastewater flow are anticipated in proportion to the growth in the student body. Again, the phased implementation of improvements will result in a gradual rather than a sudden increase in the need for public facilities.

7) Involves a substantial degradation of environmental quality;

The 42.0 acre expansion area, the 8.017 acre Lāna'i Park, and two small lots (or portions thereof) adjoining the school have been previously altered by agricultural and urban activities. Consequently, there is no natural environment *per se* to be affected.

Short-term construction related impacts are expected but can be mitigated by measures described in this Assessment. In the long-term the school will provide educational facilities for the benefit of students, faculty, and community.

8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed use is consistent with County of Maui land use plans for Lāna'i City. No commitment for a larger action is anticipated beyond the Master Plan. School facilities also are expensive to build. The proposed 6-Classroom Building is needed to help reorganize the school and to provide needed classrooms for the Middle and High School curricula. Beyond construction of this building future improvements are yet to be funded.

The phasing schedule identifies the priority and sequencing of future improvements but is subject to external circumstances and State priorities.

9) Substantially affects a rare, threatened or endangered species, or its habitat;

Rare, threatened or endangered species or species proposed for such status and their respective habitat are not found on the Expansion Area..

Several endemic plants are propagated in a garden on the school grounds. Some of the endemic species are listed as rare, threatened, or endangered. There are no plans to displace the garden as part of the Master Plan.

10) Detrimentially affects air or water quality or ambient noise levels;

Minor degradation of ambient air quality and noise levels in the vicinity of the school site will result from construction activities in the short-term. Fugitive dust and construction noise are expected consequences of any construction activity. Several measures for mitigating potential air, noise, and water quality impacts were described in this Assessment and other measures may be stipulated in construction plans and documents. Site contractors, construction managers, public health officers, and government regulators are keenly aware of potential problems resulting from improper or inadequate environmental management during construction.

11) 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;

Lānaʻi School is not located in a flood plain or an environmentally sensitive area. The project is not proposed along the coastline and there are no streams, ponds, or wetlands on the school site and Expansion Area.

12) Substantially affects scenic vistas and view planes identified in county or state plans or studies; or,

Scenic vistas and view planes are not identified in County of State plans for Lānaʻi The low-rise school buildings should not detract from the open space quality afforded by vast tracts of former pineapple fields *makai* of the school. In addition, the school buildings will not obstruct panoramic views of Lanaihale when viewed from adjoining land.

13) Requires substantial energy consumption.

Energy consumption is expected to increase as facilities are brought on-line. While this effect cannot be avoided, there are measures that architects and engineers can design into buildings to help reduce energy consumption. Buildings can be sited to take advantage of natural lighting and cooling breezes. The use of insulated materials for walls, low- E double glazed glass, and energy efficient lighting fixtures are standard in design plans. These design measures will aid in achieving LEED silver certification or higher which is required for all new State buildings and a goal of the Master Plan. In the future, alternative energy sources such as photo-voltaic units and or wind turbines may be constructed to reduce energy costs.

SECTION 8

LIST OF CONTRIBUTORS

Master Plan	<i>CDS International</i>
Environmental Assessment	<i>Gerald Park Urban Planner</i>
Archaeology and Cultural Assessment	<i>Cultural Surveys Hawaii</i>
Botanical Assessment	<i>AECOS Consultants</i>
Phase I Environmental Site Assessment	<i>ENPRO Environmental</i>
Topographical Survey and Civil Engineering	<i>R. M. Towill, Inc.</i>
Traffic Impact Assessment	<i>Wilson Okamoto Corporation</i>

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APPENDICES

The Technical Reports listed below are printed as a companion document to the Draft Environmental Assessment for the Lānaʻi High and Elementary School Master Plan.

- APPENDIX A** Botanical Survey for Proposed Public School Facilities Expansion at Lānaʻi City, Island of Lānaʻi.
- APPENDIX B** An Archaeological Assessment Report for the Lānaʻi High and Elementary School Expansion Parcel Kamoku Ahupaʻa, Lāhainā District, Lānaʻi Island, TMK (2) 4-9-002: 058 por.
- APPENDIX C** Cultural Impact Assessment for the Lānaʻi High and Elementary School Expansion Project in Kamoku Ahupaʻa, Lahaina District, Island of Lānaʻi Island, TMK (2) 4-9-002: 058 por. and (2) 4-9-014: 002.
- APPENDIX D** Phase I Environmental Site Assessment. Project No. 808-00253-PH 1, Lanai City, Hawaii.
- APPENDIX E** Traffic Impact Report for the Proposed Lanai High and Elementary School.

