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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

12 DEC 19 P2:43

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OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

December 6, 2012

TO: Mr. Gary Hoosier, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i

FROM: Michael H. Shigetani, Public Works Manager *MHS*
Facilities Development Branch, Project Management Section

SUBJECT: King Kekaulike High School – Auditorium
Tax Map Key (2) 2-03-007:032
Pukalani, Maui

The State of Hawaii Department of Education hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI) for the King Kekaulike High School Performing Arts Center situated at (2) 2-03-007:032, in Pukalani on the island of Maui for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, one (1) hard copy of the DEA-AFONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact Mr. Ryan Yamamoto of the Facilities Development Branch, Project Management Section at 808-586-0966.

MS:RY:ju

Enclosures
c: Leo A Daly
Project Management Section (RY)

**AGENCY ACTIONS
SECTION 343-5(B), HRS
PUBLICATION FORM (JULY 2012 REVISION)**

Project Name: King Kekaulike High School Performing Arts Center
Island: Maui
District: Pukalani
TMK: (2) 2-03-007;032
Permits: National Pollutant Discharge Elimination System (NPDES), Community Noise Permit, Grading, Building, Electrical, and Plumbing Permits

OFC. OF ENVIRONMENTAL QUALITY CONTROL
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Proposing/Determination Agency: Department of Education
Facilities Development Branch
1151 Punchbowl Street, Rm. 431
Honolulu, HI, 96813
Contact: Ryan Yamamoto
Phone No: (808) 586-0966

Consultant: Leo A Daly
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814
Contact: Nicholas Deeley
Phone No: (808) 521-8889

Status (check one only):

- DEA-AFNSI** Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqc@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.
- FEA-FONSI** Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
- FEA-EISPN** Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqc@doh.hawaii.gov); a 30-day consultation period ensues upon publication in the periodic bulletin.
- Act 172-12 EISPN** Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqc@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
- DEIS** The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.
- FEIS** The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

___ Section 11-200-23
Determination

The accepting authority simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the proposing agency. No comment period ensues upon publication in the periodic bulletin.

___Section 11-200-27
Determination

The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.

___Withdrawal (explain)

Summary (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page):

The proposed project is located on the campus of King Kekaulike High School (TMK: (2) 2-03-007:032) in Pukalani, Maui, Hawaii. The proposed project is a new Performing Arts Center for King Kekaulike High School (KKHS). The Performing Arts Center is designed to be constructed in two phases. Phase 1 of the project includes a 400-seat performance facility with a lobby, house, stage, and back-of house support functions totaling 22,123 SF. The future Phase 2 (12,288 SF) is planned for a black box (free form performance space), instructional functions and administrative offices.

The master plan for King Kekaulike High School included a learning center for the visual and performing arts. The high school offers its students three major curriculum pathways, i.e., arts and communication, health and human services, business and industrial education. Students are placed within their pathway of interest and the historically largest and most popular pathway is arts and communication. The creation of these facilities is an investment in the future of visual and performing arts and the development of its students. The Proposed Performing Arts Center is intended as an inward-looking venue to showcase student performances to faculty, staff, parents and friends, and to the surrounding community.



State of Hawai'i Department of Education

**King Kekaulike High School
Performing Arts Center**

Draft Environmental Assessment

Pukalani, Maui

TMK (2) 2-3-007:032

December 2012

Prepared by

LEO A DALY

1357 Kapiolani Blvd. Suite 1230

Honolulu, Hawaii 96814

This document is prepared pursuant to:
The Hawai'i Environmental Policy Act, Chapter 343, Hawai'i Revised Statutes and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules.

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LIST OF ACRONYMS

A/E	Architecture and Engineering
ADA	Americans Disabilities Act
BMP	Best Management Practices
DLNR	Department of Land & Natural Resources, State of Hawai'i
DOE	Department of Education, State of Hawai'i
DOH	Department of Health, State of Hawai'i
DP	Development Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protective Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GPD	Gallon Per Day
GPM	Gallon Per Minute
HAR	Hawai'i Administrative Rules
HRS	Hawaii Revised Statutes
HFD	Honolulu Fire Department
HPD	Honolulu Police Department
HRS	Hawai'i Revised Statutes
KKHS	King Kekaulike High School
LEED	Leadership in Energy and Environment Design
LUC	Land Use Commission
LUO	Land Use Ordinance
MECO	Maui Electric Company
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
PUC	Primary Urban Center
SHPD	State Historic Preservation Division
SMA	Special Management Area
TMK	Tax Map Key
USC	Unified Soil Classification

Executive Summary

The proposed project is located on the campus of King Kekaulike High School (TMK: (2) 2-03-007:032) in Pukalani, Maui, Hawaii. The proposed project is a new Performing Arts Center for King Kekaulike High School (KKHS). The Performing Arts Center is designed to be constructed in two phases. Phase 1 of the project includes a 400-seat performance facility with a lobby, house, stage, and back-of house support functions totaling 22,123 SF. The future Phase 2 (12,288 SF) is planned for a black box (free form performance space), instructional functions and administrative offices. The site for the Performing Arts Center is an unused open area immediately north of the school's main porte cochere (vehicle drop-off/ loading zone), between the Administration Building and the school's football field.

King Kekaulike High School offers its students three major curriculum pathways, i.e., arts and communication, health and human services, business and industrial education. While students are placed within their pathway of interest, the largest and most popular pathway has historically been arts and communication. The Proposed Performing Arts Center is intended as an inward-looking venue to showcase student performances to faculty, staff, parents and friends, and to the surrounding community.

King Kekaulike High School presents three (3) musical comedy shows per year with casts of 40-50 and pit bands of 10-15 musicians. Each show is performed six (6) times over two weekends after a 6 week rehearsal period. The school also presents one (1) straight drama per year with a cast of up to 20. Also, student directed-shows occur at irregular intervals. Besides theater shows the high school has musical performances. The music program presents three (3) concerts per year, with a concert band of 36-60 musicians and the choir of about 50 singers.

The creation of the new Performing Arts Center is an investment in the future of visual and performing arts and the development of King Kekaulike High School students.

The proposed project will result in unavoidable construction-related impacts, including noise-generated impacts caused by the proposed improvements. In addition, there may be temporary air quality impacts associated with dust generated from site work and exhaust emissions discharged by construction equipment, which will be mitigated using Best Management Practices. There are no expected long term negative impacts to the environment, community resources or infrastructure.

This Draft Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) and Hawaii Administrative Rules (HAR), Title 11, Department of Health, which set forth the requirements for the preparation of environmental assessments. A Finding of No Significant Impact (FONSI) is anticipated for this project.

KING KEKAULIKE HIGH SCHOOL
PERFORMING ARTS CENTER

Table 1 - Executive Summary

Project Name	King Kekaulike High School Performing Arts Center
Location	Island of Maui Pukalani, Maui, Hawaii TMK (2) 2-03-007:032
Landowner	State of Hawaii
Type of Document	Draft Environmental Assessment
Legal Authority	Chapter 343, Hawaii Revised Statutes
Chapter 343 HRS Environmental Review Trigger	Use of State Lands Use of State Funds
Determination	Anticipated Finding of No Significant Impact (FONSI)
Applicant	State of Hawaii Department of Education Facilities Development Branch 1151 Punchbowl Street, Rm. 431 Honolulu, HI, 96813 Contact: Ryan Yamamoto Phone No: (808) 586-0966
Approving Agency	Department of Education, State of Hawaii
Consultant	Leo A Daly Company 1357 Kapiolani Blvd. Suite 1230 Honolulu, Hawaii 96814 Contact: Nicholas Deeley, Planner Phone No.: (808) 521-8889

1.0 Project Overview

1.1 Project Location and Land Ownership

The proposed project site is located on the campus of King Kekaulike High School (TMK: (2) 2-03-007:032) in Pukalani, Maui, Hawaii. King Kekaulike High School is situated on the southwestern corner of the intersection of the Haleakala Highway and Kula Highway in Pukalani, spreading over 50 acres, with students coming from the neighboring communities of Ha'iku, Kula, Pa'ia, Makawao, and Pukalani.

The new Performing Arts Center will be located on campus, immediately north of the school's main porte cochere (vehicle drop-off/ loading zone) and between surrounded by existing Building A (Administration Building), the Basketball and Tennis Courts and the Football Stadium.

King Kekaulike High School is owned by the State of Hawaii. The applicant for the proposed project is the Department of Education.

1.2 Project Background

In 1994, the Department of Education (D.O.E.) constructed a new high school to relieve overcrowding at Baldwin High School and Maui High School in Central Maui. The Upcountry Maui High School serves the areas of Haiku, Kula, Makawao, Paia and Pukalani and was named King Kekaulike High School. As part of the development of the new high school the "*Upcountry Maui High School Master Plan Report*" was completed by Matsushita and Associates, Inc. in November 1993. The 1993 Master Plan, prepared an ultimate site plan and facilities development plan covering six (6) increments of construction which included an implementation plan for the first three increments of the schools development.

Included in the site plan and facilities development plan was a 24,112 Sqft. Auditorium. Described as "Building W", the auditorium was to seat 750 people and was located in the middle of the campus between the cafeteria and the school library. According to the Master Plan, the Auditorium was to be built in increment six (6), which the plan called the balance of facilities.

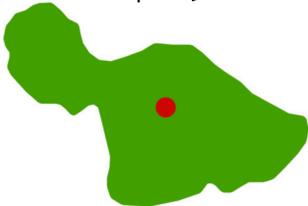
Through discussion with the School Administration and the DOE, it was decided that the auditorium project need to be expanded to include a black box/educational facility. The proposed Performing Arts Center is a result of those discussions.

KING KEKAULIKE HIGH SCHOOL
Pukalani, Maui

Property Location Map



Island of Maui | Project Location



KING KEKAULIKE HIGH SCHOOL
Pukalani, Maui

Proposed Location

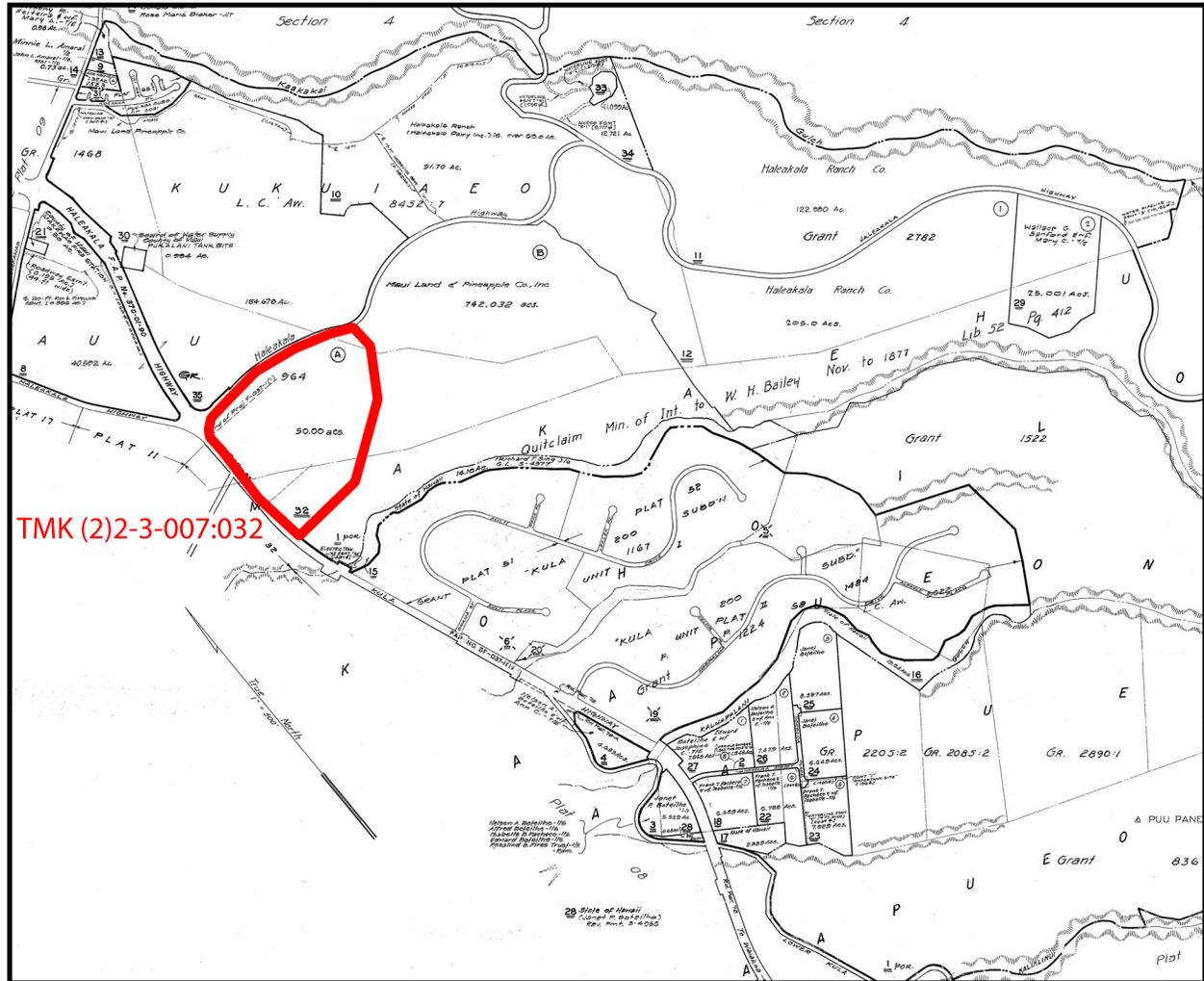


Island of Maui | Project Location



KING KEKAULIKE HIGH SCHOOL
Pukalani, Maui

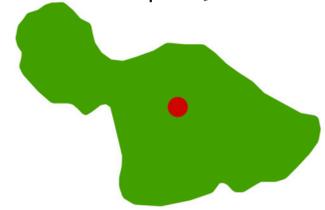
Proposed Location



TMK (2)2-3-007:032



Island of Maui | Project Location



1.3 Proposed Action

The proposed project is a new Performing Arts Center for King Kekaulike High School. The Performing Arts Center is designed to be constructed in two phases. Phase 1 of the project includes a 400-seat performance facility with a lobby, house, stage, and back-of-house support functions. The future Phase 2 is a black box, instructional functions and administrative offices (see Figure 1: Site/Phasing Plan). Each phase is designed to be a freestanding structure but, with the completion of both Phases, the support areas of both structures align, allowing for the entire facility to be used seamlessly. The separation of the performance hall and black box also allows for two unrelated performance functions to be held simultaneously.



Figure 4 Site/Phasing Plan

The King Kekaulike Performing Arts facility will be set into the hillside to lower its scale, integrate with the existing topography and provide a dramatic entrance into the Performing Arts Center. The entry is defined by an entry plaza approached from either the sidewalk or a switch back

KING KEKAULIKE HIGH SCHOOL
PERFORMING ARTS CENTER

ramp/stair combination designed to heighten the experience of arrival. The main patio forms a covered lanai, as does the lower plaza between the two buildings.



Figure 5 Proposed Performing Arts Center

The Performing Arts Center will be based on environmentally sustainable principles and employ sustainable design strategies in its planning and design. Although not intended as a Leadership in Energy and Environmental Design (LEED) certified project, this sustainable design strategy would be comparable to one employed for a project seeking certification. The sustainable strategy of the King Kekaulike Performing Arts Center includes careful attention to building siting, multiple water conservation measures, and selection of recycled and recyclable material, use of day-lighting and energy conservation and enhanced indoor air quality.

1.3.1 Phase 1- Theatre Building

The Performing Arts Center includes a 400-seat performance facility with a lobby, house, stage, and back-of-house support functions totaling 22,123 SF. The Performing Arts Theater is to be built in the western portion of the project site, immediately east of the basketball and tennis courts. Rectangular in shape, the theatre will measure about 105 feet wide by 200 feet long aligned in a north to south direction.

Main Theater

The proscenium theatre is planned to have approximately 400 seats which will fit one entire grade level or two learning communities, and will still provide an intimate theatre suitable for young

performers. A proscenium-type stage is appropriate for the uses and priorities described by the performing arts department at KKHS.

The stage will be 36' deep and approximately 100' wide, including the rigging pit and dedicated storage space for orchestra shell, music risers and grand piano. The fixed proscenium opening will be 44' wide and 20' tall to accommodate the future concert band of 80-85 musicians. The proscenium is adjustable in both directions (horizontal and vertical) via movable "form panels" and a vertical "teaser". An apron allows small scenes or announcements to be staged in front of the closed curtain and extends from the stage proper to the pit/forestage beyond. Side stages are included to provide additional acting space and direct access from audience cross-aisle to stage, including wheelchair access.

The seating is laid out in one continuous bank of seats from front to rear with aisles at each exterior wall and two interior aisles. This 4-aisle plan combines audience cohesion with multiple exit/entrance opportunities to minimize the time it takes students to get seated for a class period event. Vestibules will be provided at all entrances to prevent exterior sound and light from penetrating the house. Exits will be distributed per code requirements. Seating for wheelchair users and semi-ambulatory patrons will be provided as required – removable chairs that provide a minimum of 5 ADA-compliant wheelchair spaces with companion seats, 4 semi-ambulant spaces with 24" of leg room and 4 spaces with fold-away arms. There are insets at row seven to provide desirable seating for wheelchair patrons and their companions, which is also at stage level for level access from seat to side stages and main stage.

The control room is elevated above the last row of seats enough so that operators can see over the heads of audience members standing in the last row. The control booth has stations for lighting, stage management, video and sound control operators. The sound portion has an operable window to allow the operator audibility of the live sound in the room.



Figure 6 View of Theater from the Stage

Main Lobby

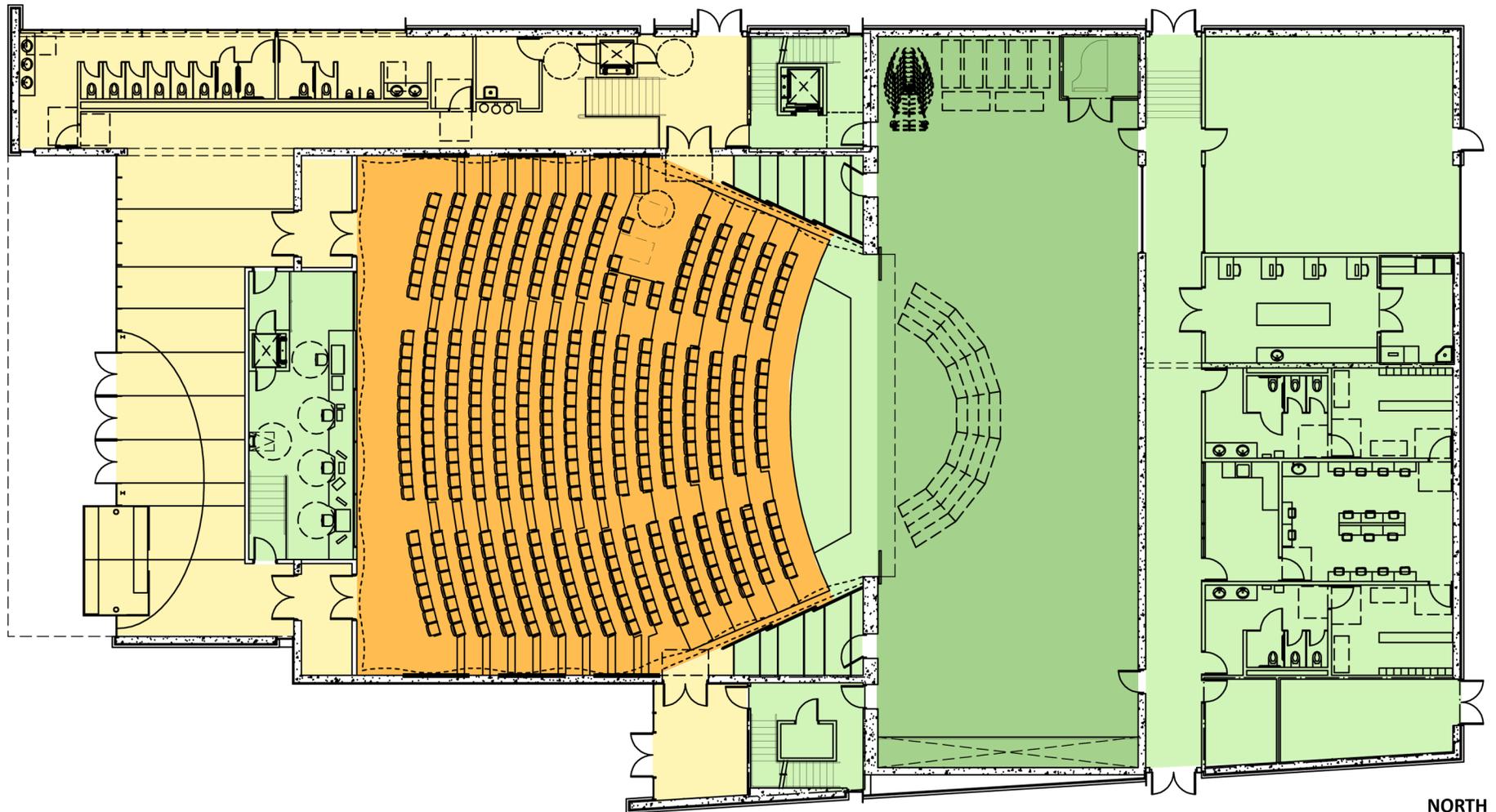
The lobby can double as rehearsal space/dance studio with a proper floor and lighting. A small box office is included with two windows facing the exterior of the building, which can also be used for concession sales.

Scene Shop

Scenery is important for the program and is built by students, parents and volunteers. Formal classes in stagecraft are desirable in the future. Storage of large pieces will allow for re-use to minimize the effort required for 4 shows a year. The Scene shop is not intended for woodworking, welding, or flammable paints/solvents use.

Costume Shop

The costume shop will provide for construction, alteration and maintenance of costumes required for performances and may support formal tailoring classes in the future. It will be equipped with sewing and ironing stations, a cutting table, storage cabinets, a utility sink, tiled drain area, plumbing for washer and dryer and possibly a dye vat.

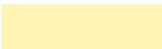
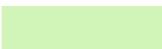


King Kekaulike Performing Arts Center
 Phase 1 - Theater Floor Plan
 Not to Scale

LEO A DALY
 Project No. 081-10055-001
 10 October 2012

NORTH



Audience Chamber	
Audience Support Functions	
Stage	
Back-of-House/Production Support Functions	

Performer Support

Immediately off the crossover corridor is a performer support suite with restrooms which are accessible directly from the corridor and from the changing rooms. This allows the changing rooms to be secured during performance times when costumes or performers belongings may be inside. The makeup room has 16 individual makeup stations with appropriate lighting and utility power. It is accessible from the green room and the changing rooms. A small green room is close to the stage for performer assembly when not onstage. It may also be used as a seminar room or lounge.

1.3.2 Phase 2 - Black Box/Education Building

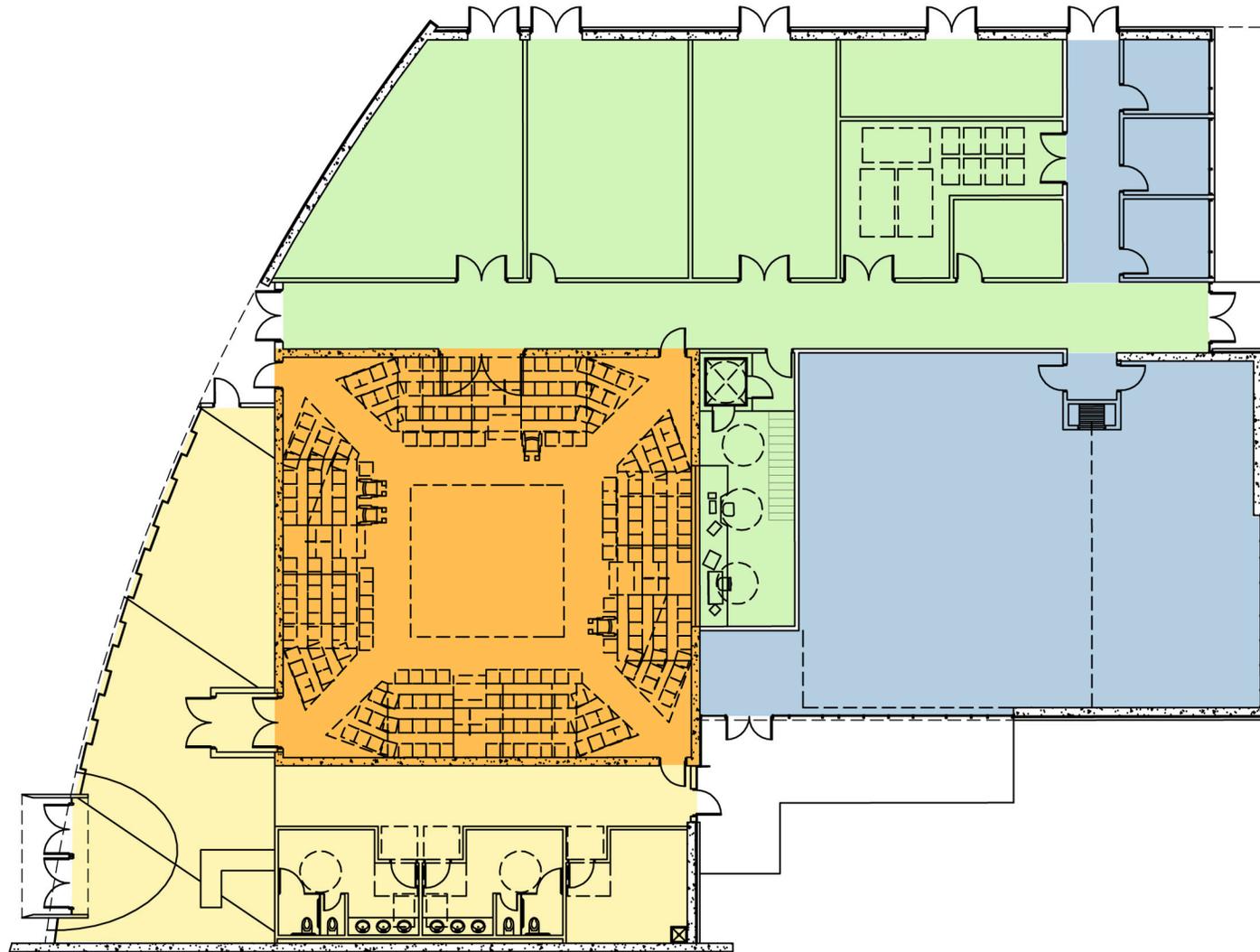
The second phase of the project includes the Black Box Theatre, classrooms, offices and storage rooms. The future Black Box/Education Building will be irregular in shape and will cover the remaining project site area. The proposed structure will measure 80 feet by 110 feet in maximum plan dimensions.

Black Box

The priority for the Black Box is “everyday use”, including classes (mostly in acting), rehearsals, and student productions. In order to accommodate a full school “learning community” population, the facility is programmed to accommodate 200 people at maximum capacity. Both daytime and evening public performances (abridged daytime shows for students, full-length evening shows for all) are planned for the Black Box with about four shows of each type in each academic year. The Black Box will likely be the primary rehearsal space for all productions.

One of the primary characteristics of a studio theatre like this Black Box is flexibility. The users have the freedom to create an audience-performer relationship unique to any production. The pipe grid and catwalks provide lighting and access overhead regardless of the performance platform arrangement below. It is worthwhile to note that when the platforms all face one end of the room (endstage) the sightlines will not be as good as in the main theatre; Black Boxes are used more for thrust (audience on three sides) or arena (audience on all four sides) configurations.

The Black Box control room would provide another small teaching space for tech theatre, a secure location for equipment, in addition to its functions as a control room. Since a Black Box is by nature flexible, the capability of operating control consoles from multiple locations will be provided (hard-wired control receptacles at each wall minimum.) The control room floor is approximately 8' above the main floor level and the space below it will be useable for storage.



King Kekaulike Performing Arts Center
 Phase 2 - Black Box Theater Floor Plan
 Not to Scale

LEO A DALY
 Project No. 081-10055-001
 10 October 2012

NORTH

- Black Box theater
- Audience Support Functions
- Back-of-House / Production Support Functions
- Instructional / Office

The Black Box does not have any dedicated dressing or makeup space. If there are performances in both theatres simultaneously, the Dance Studio may be used as additional performer support space.

Black Box Lobby

The academic wing has its own lobby, restrooms, and a concessions counter. It is connected to the Black Box via vestibules which prevent light and sound from bleeding from lobby into the performance space.

Dance Studio

The Dance Studio will be used for musical comedy rehearsals and future Western-style dance classes. It should be equipped with mirrors and bars, plus curtains to cover the mirrors when needed. It will have an operable wall, allowing it to be opened to the adjacent classroom when needed for public performance (not initially anticipated to be frequent). A pipe grid and small dimmable performance lighting system may be included for future performance use.

Academic and Support Spaces

The classroom is intended as a replacement for an existing classroom and it will support performing arts academic programs. It will have an operable wall open to the Dance Studio. Four (4) offices are included in the project to be occupied as appropriate. The academic building includes dedicated storage for scenery, props, costumes, chairs/platforms used in the Black Box.

1.4 Purpose and Need

Since its inception the master plan for King Kekaulike High School included a learning center for the visual and performing arts. The high school offers its students three major curriculum pathways, i.e., arts and communication, health and human services, business and industrial education. Students are placed within their pathway of interest and the historically largest and most popular pathway is arts and communication. The creation of these facilities is an investment in the future of visual and performing arts and the development of its students. The Proposed Performing Arts Center is intended as an inward-looking venue to showcase student performances to faculty, staff, parents and friends, and to the surrounding community.

Based on the betterment of its the students, plus the school and the community, the objectives and benefits of the proposed project are as follows:

- Students
 - Engage a variety of student learners
 - Promote creativity and imagination in culture and society

- Raise performance quality
- Provide performance and rehearsal space for dance, theatre and music
- Engage and inspire students through exposure to the arts
- School
 - Provide a performance venue
 - Showcase work of students and teachers
 - Offer space for:
 - Guest artist workshops and displays
 - Professional Development workshops
 - Scholastic and interscholastic meets and events
 - College and professional presentations
 - Student run forums
- Community
 - Invigorate local artistic community
 - Showcase community's cultural riches
 - Reaffirm the role of art to enliven and transform education
 - Support academic excellence

King Kekaulike High School presents three (3) musical comedy shows per year with casts of 40-50 and pit bands of 10-15 musicians. Each show is performed six (6) times over two weekends following a 6 -week rehearsal period. Rehearsals take place in the cafeteria at present, which is labor-intense to organize and disruptive, but workable. In the future, rehearsals would take place in the planned Black Box, on stage or in the cafeteria if absolutely necessary. The school also presents one (1) straight drama per year with a cast of up to 20, and again, six (6) performances. Student directed-shows occur at irregular intervals.

Besides theatrical shows the high school has musical performances. KKHS has a Concert Band with 36-60 musicians and expectations to expand up to 85. The choir has about 50 singers and, to date, choir and band have not combined any performances on stage. The music program presents three (3) concerts per year.

1.5 Project Costs and Schedule

The preliminary costs for Phases 1 and 2 are comprised of project hard costs and project soft costs. Hard costs are direct building/construction costs while soft costs include A/E fees, permits, bonds, insurance, and other project related costs. The approximate project costs (proposed budgets) for Phases 1 and 2 are summarized as follows:

Table 2 - Projected Cost

	Phase 1	Phase 2
Hard Costs	\$ 20,960,000	\$ 9,290,000
Soft Costs	\$ 7,970,000	\$ 3,660,000
Total	\$ 28,930,000	\$12,950,000
Proposed Budget (Rounded-up)	\$ 29,000,000	\$13,000,000

Design of Phase 1 of the Performance Arts Center will take nine (9) months, while construction will take approximately 18 months to complete. Design and construction duration for Phase 2 is still to be determined. The proposed project is funded by the State of Hawaii.

1.6 Chapter 343, Hawaii Revised Statutes

The use of State Lands and State funds are triggering effects for Chapter 343, Hawaii Revised Statutes (HRS) which requires a Draft Environmental Assessment be prepared. Chapter 343 states:

“...that the quality of humanity's environment is critical to humanity's well-being, that humanity's activities have broad and profound effects upon the interrelations of all components of the environment, and that an environmental review process will integrate the review of environmental concerns with existing planning processes of the State and counties and alert decision makers to significant environmental effects which may result from the implementation of certain actions.”

This Draft Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) and Hawaii Administrative Rules (HAR), Title 11, Department of Health, which set forth the requirements for the preparation of environmental assessments.

The Draft EA will be published in the Office of Environmental Quality Control (OEQC) Environmental Notice, which will commence a 30-day public review period. After the conclusion of the 30-day review period of the Draft EA, public comments received will be considered and addressed to the extent feasible within the project scope and evaluation. A Final EA will then be prepared, highlighting key areas of the document that were revised, updated, or modified based upon information received during the public comment period.

A Finding of No Significant Impact (FONSI) is anticipated for this project.

2.0 Relationship to Governmental Plans, Policies and Controls

2.1 Hawaii State General Plan

The Hawai'i State Plan (Chapter 226, HRS) establishes a statewide planning system with goals, objectives, policies, and priorities to guide future long-range development of the state toward a desired future. The proposed project is consistent with the Hawai'i State Plan objectives and policies for socio-cultural advancement--education (§226-21), which states:

(a) Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.

(b) To achieve the education objective, it shall be the policy of this State to:

- (1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.*
- (2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.*
- (3) Provide appropriate educational opportunities for groups with special needs.*
- (4) Promote educational programs which enhance understanding of Hawaii's cultural heritage.*
- (5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands.*
- (6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.*
- (7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.*
- (8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.*
- (9) Support research programs and activities that enhance the education programs of the State.*

2.2 State Land Use Districts

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission (LUC), establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as "Urban", "Rural", "Agricultural", and "Conservation".

In constructing King Kekaulike High School, the Department of Education received a Special Use Permit as the land used designation for the school site was Agricultural. This project is consistent with the conditions of the Special Use Permit.

2.3 Maui County General Plan

The Countywide Policy Plan provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the County's future. This includes: (1) a vision statement and core values for the County to the year 2030; (2) an explanation of the plan-making process; (3) a description and background information regarding Maui County today; (4) identification of guiding principles; and (5) a list of countywide goals, objectives, policies, and implementing actions related to the following core themes:

- Protect the Natural Environment
- Preserve Local Cultures and Traditions
- Improve Education
- Strengthen Social and Healthcare Services
- Expand Housing Opportunities for Residents
- Strengthen the Local Economy
- Improve Parks and Public Facilities
- Diversify Transportation Options
- Improve Physical Infrastructure
- Promote Sustainable Land Use and Growth Management
- Strive for Good Governance

The project is consistent with the theme of improving education.

2.4 Kula-Makawao-Pukalani Community Plan

The Makawao-Pukalani-Kula Community Plan, one of nine (9) Community Plans for Maui County, reflects current and anticipated conditions in the Makawao-Pukalani-Kula region and advances planning goals, objectives, policies and implementation considerations to guide decision-making in the region through the year 2010. The Makawao-Pukalani-Kula Community Plan provides specific recommendations to address the goals, objectives and policies contained in the General Plan, while recognizing the values and unique attributes of Makawao-Pukalani-Kula, in order to enhance the region's overall living environment.

"Inadequacies in public and quasi-public services and facilities are cited as major community issues. The upgrading, expansion of, and addition to recreational and community facilities; educational facilities; day care services; elderly and youth facilities; communication services; and fire protection, police protection and emergency medical facilities are required to meet the growing needs of the region's residents."

This project is consistent with the theme of improving education facilities.

2.5 Coastal Management Zone - Special Management Area

Pursuant to Chapter 205A, Hawai'i Revised Statutes, and the Rules and Regulations of the Planning Commission of the County of Maui, actions located within the Special Management Area (SMA) are evaluated with respect to SMA objectives, policies and guidelines. The property is not located within the SMA and is not anticipated to have negative impacts to the SMA resources.

3.0 Description of the Existing Environment, Potential Impacts and Mitigation Measures

This section describes the existing environmental setting on identified natural, cultural, and socio-economic resources as well as existing infrastructure, identifies possible impacts of the proposed project and strategies to mitigate those potential impacts.

3.1 Archaeological and Cultural/Historical Resources

Existing Conditions

Evidence of early Hawaiian settlement is evident from the large numbers of archeological sites which provide evidence of concentrated habitation and land use in the region well before 1778 when Captain Cook arrived in the Hawaiian Islands. The Makawao-Pukalani-Kula Region, with its cool and relatively dry climate and exceptional soil, was ideal for growing a number of crops and raising cattle. Pre-contact Hawaiians grew "uala" or sweet potatoes on smaller scale farms in Kula.

In the 1840's many small family farms grew Irish potatoes to be shipped to the mainland mining areas during the California gold rush. With the construction of Hamakua Ditch sugar production was made possible bringing water to the dry central valley and northwestern slopes of Haleakala. Large scale sugar production was established in the 1850s to the 1870s with a partnership between S. T. Alexander and H. P. Baldwin. All long with sugar, the cattle industry was a major industry in the upcountry area. Large cattle operations of such as Haleakala Ranch, Kaonoulu, Erewhon and Ulupalakua Ranches, raised beef and dairy cattle, with many of these operations still open today. By the early 1920's, Pineapple which is generally grown at higher elevations, and requiring less irrigation than sugar cane becoming the main crop grown in the region.

As the various industries grew and plantations and ranches became established, workers were recruited from all over the world, including Portugal, Japan, Russia, Germany, Philippines, Puerto Rico and China, under contract to work in the fields. Often when the contracts were fulfilled, the immigrants sought to settle in the upcountry area, according to the Makawao-Pukalani-Kula Community Plan, the predominant migrants settling the upcountry region where of Portuguese, Chinese and Japanese descent.

As part of the 1991 "Site Selection Report and Final Environmental Impact Statement for the Proposed Upcountry Maui High School" Prepared by Wilson Okamoto and Associates, Inc. an archaeological/historical survey was performed by Paul H. Rosendahl, Ph.D., Inc. on all proposed sites including the King Kekaulike High School's site. That survey found "No evidence of prehistoric or early historic period activities were identified . . ." and states "If such sites were once present in these areas, they have since been destroyed beyond recognition by intensive pineapple cultivation." Prior to its use as a high school, the 50 acres of land the school is currently located on was owned and operated by Alexander and Baldwin and used for the propagation of pineapple.

Impacts and Mitigation

There are no expected impacts to archaeological or historical resources. Construction of the proposed Performing Arts Facility, and utility connections, and improvements will involve ground disturbance in the form of grading and excavation. Since the project site was previously used for the production of pineapple and has been disturbed in the construction of the school, these activities are not expected to impact historic, cultural, and archaeological resources. However, should subsurface remains, artifacts, or other historical deposits be discovered during excavation activities, all work shall cease and the appropriate agencies and authorities, including the State Historic Preservation Division (SHPD), will be notified.

3.2 Climate

Existing Conditions

Maui's climate is relatively uniform year round. The coolest months on Maui are December and January. August and September are the hottest and most humid summer months. Differences in climate among different regions on Maui are largely due to local terrain. Pukalani is located in Upcountry Maui, with its higher elevation the climate is mild with temperatures ranging from the low 60's at night to the mid 80's during the day.

Trade winds tend to blow from the north to northeast. Rainfall averages approximately 20 inches per year.

Impact and Mitigation

The proposed Performing Arts Center is to be constructed on an existing school campus and sited between existing facilities. The project will be replacing an open grass area. No significant impacts to local temperature, rainfall, or wind patterns are anticipated for either the short-term or long-term.

As such, no mitigation measures are required.

3.3 Topography and Soils

Existing Conditions

In the development and design of the Performing Arts Center, a subsurface investigation (Appendix A) was performed on the proposed project site. The investigation found that the site was previously graded, resulting in relative flat site topography with an existing ground surface between about Elevation of 1803 and Elevation 1805.

According to the subsurface investigation, the site is generally underlain by relative competent fill, residual soils and saprolites over weathered basalt which should provide adequate support for the planned construction using relatively standard excavating equipment and construction techniques. The fill material consists of low plasticity clayey silts with sand and gravel, sandy silts, and silty sands. These soils are classified as ML and SM soils under the Unified Soil Classification (USC) system. The residual soils and saprolites consist of both low plasticity clayey silts and high plastic siltiness clays which are classified as ML and CH soils under the USC system.

Impact and Mitigation

The proposed project will involve grading and site preparation for the new Performing Arts Center. No major earthwork to alter topography or changes in landforms will occur. The soil type will remain unchanged.

The proposed project was organized in such a way as to minimize cut and fill, and to work with existing drainage patterns. To accommodate the proposed buildings and provide proper drainage, existing drain lines and structures within the project area will be

relocated, along with installation of new drainage lines and structures so as to not adversely impact the surrounding areas. Short-term construction related impacts may include minor soil loss or erosion, but construction activities will employ Best Management Practices (BMPs) to minimize or prevent such occurrences. BMPs will include silt fences, periodic watering to minimize airborne dirt particles, and stabilized construction road access. Before issuance of a grading permit by the County of Maui, the final erosion control plan and best management practices required for the NPDES permit will be completed. All construction activities will also comply with the provisions of the permit.

Storm water design would include retaining the maximum feasible amount of storm water on site and will comply with County of Maui Department of Public Works and Waste Management, *Rules of the Design of Storm Drainage Facilities in the County of Maui*, July 1995. Permanent erosion control measures such as planting or hardscape will be used once construction is completed.

3.4 Surrounding Land Use

Existing Conditions

The proposed site for the Performing Arts Center will utilize approximately 42,700 S.F. of open grass area located on the school campus immediately north of the school's main porte cochere (vehicle drop-off/ loading zone) and between the Administration Building and the Football Field. The region's population is concentrated in two (2) main settlement areas, Makawao and Pukalani, which are characterized by a mixture of suburban and rural land uses. Near the school are several residential subdivisions.

Impact and Mitigation

The new Performing Arts Center will have no short or long term impact to the surrounding land use. The project site is fully contained to the school campus. No mitigation measures are needed.

3.5 Flood and Tsunami Hazard

Existing Conditions

According to the Federal Emergency Management Agency (FEMA) Flood Insurance

Rate Map (FIRM), King Kekaulike High School is in Zone X, outside the flood prone areas. At approximately 1800 ft. above sea level the project site is outside the Tsunami indentation zone.

Impact and Mitigation

The project area is not within a flood prone area or the tsunami evacuation area. The proposed project will not increase flood hazard to the surrounding area. No mitigation measures are required.

3.6 Flora and Fauna

Existing Conditions

The proposed project area is on an old pineapple field and was cleared and graded to construct the school and, as such, the natural biota was disturbed long ago. Most of the vegetation today consists of landscaping and nonnative species. Fauna that would likely be found within the project area include mammals that typically inhabit rural areas in this region, including feral cats, rats, mice, and mongoose.

There are four protected species that are known to inhabit the Makawao and Pukalani area. The four protected species are Newell's shearwater (*Puffinus auricularis newelli*), Hawaiian goose (*Branta sandvicensis*), Hawaiian hoary bat (*Lasiurus cinereus semotus*) and Hawaiian petrel (*Pterodroma sandwichensis*).

Newell's shearwater and the Hawaiian petrel may traverse the action area when flying between the ocean and nesting sites in the mountains during their breeding season (March through December). The Hawaiian goose (Nene) may be present in the vicinity, and the Hawaiian hoary bat roosts in both exotic and native woody vegetation.

No threatened or endangered species of plants or animals are associated with the project area.

Impact and Mitigation

Currently the project site is an open grassy area with no landscaping. The proposed project will have an impact on the existing flora and fauna. A landscape plan has been

developed to enhance the project site by providing appropriate native Hawaiian and Polynesian introduced plants that grow well in this elevation and can handle drought.

The proposed improvements will enhance the natural vegetation on the site and overall appearance of the school, as well as aid in mitigating potential erosion and drainage concerns.

Nighttime artificial lighting can adversely impact the Newell's shearwater, the Hawaiian petrel and other seabirds by causing disorientation which may result in collision with utility lines, buildings, fences, and vehicles. Furthermore, fledging seabirds attracted to nighttime artificial lighting have a tendency to exhaust themselves while circling the light source and become grounded becoming vulnerable to depredation by feral predators, such as dogs, cats, and mongoose.

Measures to minimize the amount of glare from all outdoor lighting installations will be incorporated into the design of the lighting for the project. Outdoor lighting will utilize systems which employ the lowest possible wattage for the application, and be constructed in a manner that fully shields lamp sources and directs light downwards. Construction will take place during normal working daylight hours, and there will be no construction activities during the night.

King Kekaulike High School staff report that there have been no sightings of Nene Goose on school property. The project site is located on an empty grassy area and the construction of the Performing Arts Center will have no impact on any Hawaiian hoary bat habitat.

3.7 Air Quality

Existing Conditions

The Environmental Protective Agency (EPA) National Ambient Air Quality Standards (AAQS) have been established for six pollutants: particulate matter, sulfide dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead. National AAQS are classified in terms of primary and secondary standards. Pukalani and KKHS fall into the Class II category, which establishes levels of air quality that will protect the public welfare from "any known or anticipated adverse effects of air pollution."

Along with the national AAQS, the State of Hawaii has AAQS standards, and in some cases the State's standards are considerably more stringent than comparable National

AAQS. The State of Hawaii has only one category for standard of air quality which is intended “to protect public health and welfare and to prevent the significant deterioration of air quality.” Air pollutant levels are monitored by the State Department of Health (DOH) at a network of sampling stations statewide. Based on ambient air monitoring data, the U.S. Environmental Protection Agency has classified the island of Maui and the entire State of Hawai’i as being in attainment of the federal standards.

Impact and Mitigation

There will be a short term impact to the air quality from the proposed project caused by fugitive dust that may arise from grading and dirt-moving activities at the project site and from exhaust emissions from construction equipment. There should be no long term impacts caused by the proposed project.

Construction activities will be conducted in accordance with State air pollution control regulations as outlined in HAR, Chapter 11-60.1-33, “Fugitive Dust”. To mitigate the projects effect on air quality, the contractor shall prepare a dust control management plan. The contractor’s plan for dust control shall cover each phase of construction. The focus should be on minimizing the amount of dust-generating materials and activities. Water spraying will be used when necessary. Exhaust fumes from the contactor’s equipment will be controlled by maintaining mufflers on equipment in good working order and tuning motors.

3.8 Noise

Existing Conditions

Noise levels in the vicinity of the project area are relatively low, consistent with the character of the school and surrounding residential uses. The primary source of noise near the project area is associated with school activities, and vehicular traffic, KKHS is adjacent to the intersection of Lower Kula Road and Haleakala Road a main thoroughfare in Pukalani.

Impact and Mitigation

The proposed project will have a short term and direct impact to the area as the ambient noise levels will increase with the construction of the Performing Arts Center. There should be no long term effect from the increase in noise level which would subside once the project is completed.

The impact of the noise created by construction activities will be mitigated through State of Hawaii DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control." Based on these rules a noise permit is required should noise levels from construction related activities are expected to exceed allowable levels.

To limit the noise caused by construction, the contractor will be required to perform construction activities during regulated hours, i.e., Monday through Friday from 7:00 am to 5:00 pm, and Saturday from 8:00 am to 5:00 pm. There will be no construction on Sundays and holidays. All equipment is to be maintained in good operating condition to ensure that there is no unnecessary noise.

3.9 Visual Resources

Existing Conditions

The project site is located on the school campus. The site is currently an open grassy area between the administration building and the football stadium. The school campus is set from the road by approximately 500 feet and does not have a visual effect on the community as it has no direct neighbors.

Impacts and Mitigations

The King Kekaulike Performing Arts facility is set into the hillside to lower its scale and integrated with the existing topography to minimize the visual effect. As landscape plan has been developed to enhance the project site by providing appropriate native Hawaiian and Polynesian introduced plants that grow well in this elevation and can handle drought. Flowering trees, shrubs and ground covers will provide visual interest throughout the year. The plants will be interspersed with basalt rock mulched areas which play off of the lava flows from Haleakala and the plants that grow in between the fingers of lava. The rock areas will also reduce maintenance effort.

3.10 Utilities

3.10.1 Water

Existing Conditions

Water is provided King Kekaulike High School by the Department of Water Supply (DSW). The project site is served by a 12 inch waterline, private fire hydrants, a 4 inch water meter and the 1 million gallon Kealaloa tank.

Impact and Mitigation

The proposed Performing Arts Center will tie into the existing water system, but the existing 6" and 12" waterlines that pass through the site will be relocated around the proposed building footprints. A water connection for both fire protection and domestic uses will be provided.

The Performing Arts Center is expected to use 408 total gallons per day (GPD) demand based on DSW Fixture Unit Worksheet. To preserve water, the design of the Performing Arts Center will follow LEED guidelines for water conservation, including the utilization of low-flow fixtures and devices as required by Maui County Code.

The irrigation system will connect to the relocated 6" or 12" water lines. The peak demand for the existing irrigation system is 60 gallons per minute (GPM) totaling 5,984 GPD. New irrigation system will utilize high efficient irrigation system such as drip irrigation and ET-Sensors to conserve the use of irrigation water. Drip irrigation is 80-90% efficient versus 60-70% efficiency for traditional pop-up spray irrigation, so less water will be needed and wasted. Proposed Irrigation System will not exceed the current peak demand of 60 GPM.

The plants chosen in the landscaping plan have moderate or very good drought tolerance, which means they will be able to survive on less water after they are established. The rock mulch areas will reduce the amount of water and maintenance needed. A weather station will be connected to the irrigation controller to turn off watering cycles or reducing the watering time if it is raining or when the ground has enough moisture.

3.10.2 Waste Water

Existing Conditions

A sewer connection will be provided connecting the proposed buildings to the existing sewer system, which is located on the northeast side of the project site near the existing Weight Room.

Impact and Mitigation

Two sewer connections will be provided connecting the proposed building to the existing sewer system. Connections to the existing sewer system will be made a northeast side of the project site near the existing Weight Room and at the southeast side of the project site near the existing Administration Building

Wastewater generation is calculated using student enrollment numbers. Since the proposed project is not increasing overall enrollment, there will be no significant change in wastewater or wastewater facilities demand. The existing wastewater system capacity is adequate.

3.10.3 Electrical

Existing Conditions

The Facility's primary electrical service will originate from underground MECO facilities located throughout the campus. A new pad mounted MECO utility transformer will be located near the loading dock at the back of Phase 1 will provide 480/277 volt, 3 phase power to the Facility. Secondary power will be routed from the MECO transformer to a main switchboard for the project

The secondary electrical power distribution system will originate from a 2000 Amp, 480/277 volt, 3 phase, 4 wire electrical service. The main switchboard will be located in the Phase 1 main electrical room.

Impacts and Mitigation

The new facilities will require new electrical systems. The Phase 1 Theater Building connected load is estimated at 798 kW. Phase 1 demand load projected to be 638 kW. Phase 2 Black Box connected load estimated at 553 kW. Phase 2 demand load projected to be 442 kW. The overall projected load for the Performing Arts Center is estimated at 830 kW.

The new Performing Arts Center will mitigate the new demand load by having its design meet or exceed applicable energy conservation guidelines and building code requirements to be a fully sustainable project and pursue a Leadership in Energy and Environment Design (LEED) rating certification. MECO will provide the necessary electrical power for the proposed project. No mitigation for this connection is required.

3.11 Roadways and Traffic

Existing Conditions

King Kekaulike High School is situated on the southwestern corner of the intersection of the Haleakala Highway and Kula Highway. A traffic study was complete in 1991 as part of the schools original environmental impact statement. The study found that the peak hours of traffic in the area were during the hour before school started and the hour after school finished, with the highest leaves of traffic occurring during the 20 minutes before school started and the 20 minutes after school let out. Wilson Okamoto Corporation prepared a Traffic Assessment Report for the Performing Arts Center and confirmed the finding of the original traffic study. The complete Traffic Assessment Report can be found in Appendix B.

Impact and Mitigation

Performances by the performing arts department will not take place during these peak hours and should have no effect on traffic during those times. Performances are held during the evening hours for the community at large and during school for the students. Should there be a need; the school will follow protocols used during other large events at the school by using Off-Duty Police Officers and school security to monitor and keep traffic flowing smoothly and to help pedestrians cross the highway.

There will be a short term impact during construction activities. Vehicles carrying equipment and materials will increase traffic volumes along the existing highways and roadway near KKHS. There are no street or sidewalk closures planned for the adjacent or nearby streets due to the proposed project.

The contractor will be responsible for providing traffic control measures and safety precautions to minimize adverse effects. Such measures include the timing of the construction vehicle movement so that they avoid the busiest times of morning and

afternoon rush hours. The City and County of Maui regulates this timing and other construction activities. These regulations will be followed by the contractor and the contractor shall notify the Maui Department of Transportation Services at least 2 weeks prior to the start of construction.

3.12 Socio-Economic

Existing Conditions

According to the King Kekaulike High School -Focus on Learning Self-Study Report 2010-2011 performed by the Department of Education Maui Office,

“According to the 2000 Census, the school community area had a population of approximately 33,406 with 22.1% of the residents aged five to nineteen. The median age of the population was 37.6. There were approximately 8,200 families/households with an average family size of 3.2. Approximately 52% of these families included children under the age of 18 and 20% headed by a single parent. These values are slightly higher compared to the state which was at 45% and 18% respectively. The median household income was \$52,638 compared to \$49,820 for the state. The percentage of households receiving public assistance income for the school community was 5.3% and families with children in poverty at 8.8%. Both values were slightly lower than the state which was at 7.6% and 11.2% respectively. The largest groups by race in the Pukalani community, as reported by the 2000 U.S. Census, were Whites at 34% and Asians at 31% followed by Native Hawaiian or Other Pacific Islander at 10.7%. It should also be noted that 22% of the Pukalani population reported themselves as Mixed Race and the Hispanic race alone was report at about 10%.”

Impact and Mitigation

The Performing Arts Center will likely have no negative impacts of the socio-economic conditions at the school or in the community at large. The proposed project would create a short-term positive impact has it would provide employment related to construction. The proposed project is not expected to affect resident population or demographics.

3.13 Public Services

Existing Condition

The County of Maui's Police Department headquarters is located in Wailuku. There are four patrol districts on the island of Maui – the Hana, Kihei, Lahaina, and Wailuku districts. The project site is within the Wailuku district. Fire prevention, suppression and protection services for the island of Maui are provided by the County Department of Fire

and Public Safety. The Department provides fire and emergency services to the islands of Maui, Lanai and Molokai. The project area is serviced by the Makawao Fire Station, located near Pukalani.

Maui Memorial Medical Center is currently the only major medical facility on the island. Acute, general, and emergency care services are provided by the facility. In addition, there are private medical and dental clinics to service residents of Paia, Makawao and Pukalani.

Besides King Kekaulike High School, the Department of Education schools located in the surrounding area include Makawao Elementary School (grades K to 5), Samuel E. Kalama Intermediate School (grades 6 to 8), Pukalani Elementary School (grades K to 5).

Single-family solid waste collection service is provided once weekly by the County of Maui. Residential solid waste is disposed of at the County's Central Maui landfill, located in the Puunene region. Commercial waste collected by private collection companies is also disposed at the County landfill.

The main recreational facility is the Eddie Tam Memorial Center in Makawao, which consists of a community center, gymnasium, baseball fields, soccer field, tennis and basketball courts, and a playground.

Impacts and Mitigation

The proposed project will not significantly increase the demand on public services, including law enforcement, fire protection, refuse collection, and educational, medical, and recreation facilities and will not inhibit public services ability to provide adequate protection services to the surrounding community.

3.14 Cumulative and Secondary Impacts

Cumulative impacts on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Secondary impacts are those that have the potential to occur later in time or farther in distance, but which are reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project.

The development of the Performing Arts Center is being accomplished in two phases. Both Phases will involve short term limited effects associated with construction which have been identified and mitigation methods have been provided. There are no considerable cumulative effects and this project does not involve any secondary impacts or commitment for larger actions.

4.0 Summary of Unavoidable Impacts on the Environment and Resources

The proposed project will result in unavoidable construction-related impacts which include noise-generated impacts occurring from the proposed improvements. In addition, there may be temporary air quality impacts associated with dust generated from site work and exhaust emissions discharged by construction equipment. These impacts will be mitigated by erosion control measures and Best Management Practices designed to minimize dust and erosion. Construction of the proposed project will be carried out in compliance with State Department of Health Community Noise Control standards.

The project will require the irretrievable commitment of time, energy, and land.

5.0 Alternatives

This Draft Environmental Assessment (EA) evaluates alternatives to the proposed project. The following provides discussion of the alternatives to the proposed project.

5.1 Preferred Alternative

The proposed action represents the preferred alternative. The project involves construction of a new Performing Arts Center at King Kekaulike High School.

5.2 1992 Master Plan Alternative Site

As part of the King Kekaulike High School's development a master plan was completed by Matsushita and Associates, Inc in 1993. The Master Plan established a list of facilities to be included at the new high school, and provided a facilities layout recommending the site location for each building. An auditorium was included in the facilities development plan, described as "Building W" the auditorium was to seat 750 people and was located in the middle of the campus between the cafeteria and the school library (See Figure 9). Unlike the proposed project, the Master Plan Alternative calls for only the construction of the theater building and lacks the space to support the theater and the Black Box/ educational building which now make up the proposed

Performing Arts Center. The proposed auditorium site is too small to fit the proposed project. Also, according to school security, the Master Plan Site for an auditorium is now used as the main break area for students during lunch and between classes. Being located between the cafeteria and the library, the originally proposed auditorium site is an ideal location for student interaction. For these reasons this site was not consider for further review.

5.3 No Action Alternative

The No Action Alternative means that the project would not take place. The No Action Alternative is the standard alternative used to measure the effects that a proposed project would have on the environment should it be developed. While this alternative will have no effect on the physical environment, it would have a negative effect on the students and community at large. The Performing Arts Center will allow for students participating in the arts and communication pathway to learn, perfect and perform their craft whether it is acting, stage craft, lighting or costume design. It will provide a place for the band and choir to perform.

5.4 Deferred Action Alternative

The Deferred Action Alternative is basically the same as the No Action Alternative as the project will not take place until a later date. Like the No Action Alternative, there would be a negative effect on the school and its students. Also, there is no guarantee that funding will be available in the future.

6.0 List of Permits and Approvals

The following permits and approvals will be required prior to the implementation of the proposed project.

- Environmental Assessment - The proposed project is required to undergo review pursuant to Chapter 343, Hawaii Revised Statutes (HRS)
- National Pollutant Discharge Elimination System (NPDES) Permit - A National Pollutant Discharge Elimination System (NPDES) permit for construction storm water activities will be required from the State of Hawaii Department of Health (DOH).
- Community Noise Permit - A Community Noise Permit from DOH will be required during the construction phase of the project.
- Grading, Building, Electrical, and Plumbing Permits -The proposed project will require a permit for mass grading, as well as building, electrical and plumbing permits from the County of Maui.



Proposed Project Site

Alternate Project Site

Campus Boundary



King Kekaulike Performing Arts Center
Phase 1 - Theater Floor Plan
Not to Scale

LEO A DAILY
Project No. 081-10055-001
10 October 2012

7.0 Pre-Consultation for Draft Environmental Assessment

Pre-Consultation letters were sent in July 2012 to initiate the environmental review process. The following is a list of agencies and other parties that were presented notice of the proposed project or were contacted during the pre-consultation period of the Draft EA. Comments received during this pre-consultation process are also provided in Appendix C.

Table 3 Pre- Consultation Letters

State of Hawaii Office of Planning P.O. Box 2359 Honolulu, Hawaii 96804	University of Hawaii Environmental Center Krauss Annex 19 2500 Dole Street Honolulu, Hawaii 96822	Department of Transportation Aliiaimoku Building 869 Punchbowl Street Honolulu, HI 96813
Office of Hawaiian Affairs - Maui 33 Lono Avenue, Suite 480 Kahului, HI 96732	Office of the Chairperson Department of Land & Natural Resources 1151 Punchbowl Street Rm. 130 Honolulu, HI. 96813	Department of Public Safety 919 Ala Moana Boulevard, Rm 400 Honolulu, Hawaii 96814
Office of Hawaiian Affairs 711 Kapiolani Blvd Suite 500 Honolulu, Hawaii 96813	Division of Conservation & Resource Enforcement Department of Land & Natural Resources 1151 Punchbowl Street Room 311 Honolulu, HI. 96813	Department of Human Services 1390 Miller Street, Room 209 Honolulu, HI 96813
State Historic Preservation Division Department of Land & Natural Resources Kakuhihewa Building 601 Kamokila Blvd., Suite 555 Kapolei, HI 96707	Bureau of Conveyances Department of Land & Natural Resources 1151 Punchbowl Street Room 121 Honolulu, HI. 96813	Department of Accounting & General Services Kalanimoku Building 1151 Punchbowl Street Honolulu, Hawaii 96813
Department of Health Kinau Hale 1250 Punchbowl Street Honolulu, Hawaii 96813	Division of Forestry & Wildlife Department of Land & Natural Resources 1151 Punchbowl Street Room 325 Honolulu, HI. 96813	Department of Accounting & General Services Maui District 755 Mua Street Kahului, HI 96732
Department of Health Maui Branch 54 South High Street Rm. #301 Wailuku, Maui, HI 96793	Land Division Department of Land & Natural Resources 1151 Punchbowl Street Rm 220 Honolulu, HI. 96813	Division of State Parks Department of Land & Natural Resources 1151 Punchbowl Street Rm 310 Honolulu, HI. 96813
Department of Hawaiian Homelands Hale Kalaniana'ole 91-5420 Kapiolani Parkway Kapolei, Hawaii. 96707	Department of Agriculture 1428 South King Street Honolulu, Hawaii 96814	Department of Defense 3949 Diamond Head Road Honolulu, HI 96816
Department of Business Economic Development & Tourism P.O. Box 2359 Honolulu, HI 96804	Office of Conservation and Coastal Lands Department of Land & Natural Resources 1151 Punchbowl Street Room 131 Honolulu, HI. 96813	Bishop Museum 1525 Bernice Street Honolulu, Hawaii 96817

KING KEKAULIKE HIGH SCHOOL

PERFORMING ARTS CENTER

Office of the Mayor 200 S. High St. Kalana O Maui Bldg 9th Fl. Wailuku, HI 96793	Maui County Environmental Coordinator's Office 200 South High St. Kalana O Maui Bldg 9th Fl Wailuku, HI 96793	Department of Environmental Management 2200 Main St. One Main Plaza Bldg Suite 100 Wailuku, HI 96793-2155
Department of Fire and Public Safety 200 Dairy Road Kahului, HI 96733	Department of Housing and Human Concerns 2200 Main St. One Main Plaza Bldg, Suite 546 Wailuku, HI 96793	Department of Management 200 South High St. Kalana O Maui Bldg, 9th Fl Wailuku, HI 96793
Department of Parks and Recreation 700 Halia Nakoia St. War Memorial Complex Wailuku, HI 96793	Department of Planning 250 S. High St Kalana Pakui Bldg Ste 200 Wailuku, HI 96793]	Police Department 55 Mahalani Street Wailuku, HI 96793
Department of Public Works 200 South High St. Kalana O Maui Bldg 4th fl Wailuku, HI 96793	Department of Transportation 2145 Kaohu St. David Trask Bldg Ste 102 Wailuku, HI 96793	Department of Water Supply 200 S. High St Kalana O Maui Bldg. 5th Floor Wailuku, HI 96793-2155
Gladys C. Baisa Council Member Kalana O Maui Building 200 South High St. Eighth Floor Wailuku, Hawaii 96793	Kyle T. Yamashita House District 12 Hawaii State Capitol Room 422 Honolulu, HI 96813	Manger, EPA –PICO 300 Ala Moana Blvd. Rm. 1302 Honolulu, Hawaii 96850
Pacific Islands Administrator Fish & Wildlife Svc. Dept. of Interior 300 Ala Moana Blvd., Rm. 3108 Honolulu, Hawaii 96813		

8.0 Anticipated Determination

After reviewing the significance criteria outlined in Chapter 343, Hawaii Revised Statutes (HRS), and Section 11-200-12, State Administrative Rules, Contents of Environmental Assessment (EA), the proposed action has been determined to not result in significant adverse effects on the natural or human environment. A Finding of No Significant Impact (FONSI) is anticipated.

8.1 Reasons Supporting the Anticipated Determination

The potential impacts of the King Kekaulike High School Performing Arts Center have been examined and discussed in this Draft EA. As stated above, there are no significant environmental impacts expected to result from the proposed action. The Department of Health Administrative Rules Section 11-200-12 provides thirteen “Significance Criteria” for determining if an action will have a significant impact on the environment, listed below are those criteria.

- *Involves an irrevocable commitment to loss or destruction of any cultural resource;*

The project will not result in an irrevocable commitment to loss or destruction of any natural or cultural resources. No known historical or natural resources will be impacted. There is a possibility of encountering sub-surface archaeological resources during the construction of the project, but mitigation measures will be in place and in accordance with the State Historic Preservation Division.

➤ ***Curtails the range of beneficial uses of the environment;***

The Performing Arts Center is consistent with current use and will not curtail the range of beneficial uses of the environment.

➤ ***Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions or executive orders;***

The proposed project does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, Construction will produce some short-term impacts to air quality and noise, but these impacts are minor, and will be mitigated in accordance with Department of Health regulations.

➤ ***Substantially affects the economic or social welfare of the community or state;***

The proposed project will not significantly affect the socio-economic welfare of the community or state, although it will contribute to the improvement of KKHS performing arts and musical performances and the overall educational experience of the students.

➤ ***Substantially affects public health;***

The proposed project will not affect substantially affect public health. There will be temporary short-term impacts to air quality emanating from possible dust emissions and temporary degradation of the acoustic environment in the immediate vicinity resulting from construction equipment. Construction-related impacts of noise, dust, and emissions will be mitigated by compliance with the Hawaii State Department of Health (DOH) Administrative Rules.

➤ ***Involves substantial secondary impacts, such as population changes or effects on public facilities;***

The project will not have substantial secondary impacts such as significant population changes or effects on public facilities.

➤ ***Involves a substantial degradation of environmental quality;***

No substantial degradation of environmental quality is expected by the Performing Arts Center Project. Short term impacts caused during construction activities will be mitigated by the use of Best Management Practices and compliance with all rules and regulation set forth by the State of Hawaii and the County of Maui.

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

As discussed above the development of the Performing Arts Center is being developed in two phases. Both Phases will involve short term limited effects associated with construction which have been identified and mitigation methods have been provided. There are no considerable cumulative effects and this project does not involve a commitment for larger actions.

➤ ***Substantially affects a rare, threatened, or endangered species, or its habitat;***

The project area does not contain identified rare, threatened or endangered species or habitat. No impact is anticipated.

➤ ***Detrimentially affects air/ water quality or ambient noise levels;***

General temporary impacts associated with construction have been identified and mitigation measures discussed in this EA. No detrimental long-term impacts to air, water, or acoustic quality are anticipated with this proposal.

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

The project site is not located in an environmentally sensitive area lies within Zone X according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), which is outside the flood prone areas.

➤ ***Substantially affects scenic vistas and view planes identified in county or state plans or studies;***

The proposed project will have no adverse effect on scenic vistas and view planes identified in the county or state plans or studies.

➤ *Or requires substantial energy consumption;*

The proposed project will not require substantial energy consumption. The project will integrate sustainable design features and strategies in accordance with the Leadership in Energy and Environmental Design (LEED) for New Construction system guidelines. These features and strategies will help conserve energy, as well as achieve other sustainable objectives.

9.0 References

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Department of Geography, University of Hawai`i, Atlas of Hawai`i, 3rd Edition, 1998.

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Appendix A- Subsurface Investigation

SUBSURFACE INVESTIGATION REPORT

DRAFT

Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

INTRODUCTION

We have completed a subsurface investigation for Performing Arts Center at the King Kekaulike High School in Pukalani, Maui, Hawaii. This report presents our findings and conclusions. This work has been completed in general accordance with our August 26, 2011 Proposal and your June 29, 2012 authorization to proceed.

PURPOSE AND SCOPE

Information provided by Leo A. Daly (LAD) indicates that the State of Hawaii Department of Education (DOE) is planning to construct a new Performing Arts Center at King Kekaulike High School on Maui. Geotechnical assistance has been requested of Fewell Geotechnical Engineering, Ltd. (FGE) by LAD to aid in the design of the facility and its related improvements.

Our work included a subsurface investigation of the site for the new buildings and their related campus improvements. The scope of work of our investigation is detailed in the above-reference proposal, but generally included: 1) drilling and sampling 8 test borings at selected locations across the site, 2) performing laboratory testing on the soils obtained from the test borings, 3) evaluating the soil characteristics as they pertain to the new construction, and 4) presenting our findings and conclusions in this report.

The results of the field exploration, including a Boring Location Plan and the Boring Logs, are presented in Appendix A. Appendix B presents the results of the laboratory and field tests. The limitations of this investigation and report are presented in Appendix C.

PROJECT CONSIDERATIONS

King Kekaulike High School is on the southwestern corner of the intersection of Haleakala Highway and Kula Highway in Pukalani. The general area of campus is shown on the Project Location Map, Figure 1, in Appendix A.



The July 20, 2010 Overall Site Plan provided by email on August 22, 2011 indicates that the site for the new structures is in the central portion of the campus, immediately north of, and downhill from the school's Administration Building. A classroom building is located east of the site with basketball and tennis courts on its western side. The site is irregularly shaped and measures about 240 feet in length by about 160 feet wide.

Previous grading at the site has resulted in relatively level site topography, with the existing ground surface between about Elev. 1803 and Elev. 1805. Approximately 8-foot high, 2 Horizontal to 1 Vertical (2H:1V) slopes rise up to the Administration Building on the southern edge of the site and approximately 6- to 8-foot high slopes drop down to an access road on the northern side of the site. The September 2, 2009 Topographic Survey Map included with your August 22, 2011 email, indicates that the site is transected by several underground drain, water, and electrical lines.

The preliminary information indicates that the proposed construction will include a Performing Arts Center and a Multi-Purpose/Classroom Building which will be constructed in 2 phases. Phase 1 will include the Performing Arts Center which is planned in the western portion of the site, immediately east of the basketball and tennis courts. The Multi-Purpose/Classroom Building will be constructed in Phase 2 of the project east of the Performing Arts Center and north of the existing Administration Building.

The Performing Arts Center will be a rectangular building measuring about 105 feet wide by 200 feet long with its longitudinal axis aligned in a north to south direction. The future Multi-Purpose/Classroom Building will be an irregularly shaped structure measuring about 80 feet by 110 feet in maximum plan dimensions. We understand that both buildings will be 1-story structures, which will cover most of the site. The floor level of the Performing Arts Center will step down toward the north with finish floor elevations ranging from Elev. 1810 at the southern end of the building, down to Elev. 1803 in the northern portion of the structure. The finish floor level for the Multi-Purpose/Classroom Building is anticipated at about Elev. 1803.

The preliminary information indicates that the Performance Arts Building will have cast-in-place concrete walls and a metal roof deck with concrete topping. Concrete slabs-on-grades are planned for the floors. The building loads will be transmitted to the foundation through the load bearing concrete walls. Due to the spans necessary for the structure, relatively heavy wall loads

of 6 kips per foot of wall have been assumed based on our experiences with similar structures. No design information is available for the future Multi-Purpose/Classroom Building and we have assumed that it will use similar construction.

It appears that the site grading will include cuts of up to 8 feet in depth along the southern and western edges of the site, with fills of up to 5 feet in thickness in the northern portion of the site. We understand that both graded slopes, and both basement-type and free-standing retaining walls will be used to support the abrupt grade differences resulting from the site grading.

SUBSURFACE INVESTIGATION

Eight test borings were drilled during the period between July 23 and July 25, 2012 at the approximate locations shown on the Boring Location Plan, Figure 2 in Appendix A. The borings were generally extended to depths of between 19 and 25 feet below the existing ground surface using a Simco SK2400 truck-mounted drilling rig advancing 4-inch and 6-inch diameter continuous flight augers, wash boring equipment, and NX coring tools.

Samples of the subsurface soils were obtained at selected depths using either a 2.0-inch O.D. Standard Penetration Test (SPT) sampler or a 3.0-inch O.D. split-spoon sampler. Both samplers were driven by a 140-pound hammer falling 30 inches. The number of blows required to drive the samplers the final 12 inches into the soil mass was recorded and is shown on the Boring Logs, Figures 3 through 10. The blow counts shown on the logs are the actual blow counts obtained in the field. Both the actual and the estimated equivalent Standard Penetration Test (SPT) blow counts for the 3-inch sampler are shown on the logs. A Boring Log Legend is included as Figure 11. Photographs of the rock cores obtained from the borings are shown in Figures 12 and 13.

In addition to the subsurface samples, a bulk sample of the near-surface materials was obtained for laboratory classification and California Bearing Ratio (CBR) testing.

LABORATORY TESTING

Selected samples of the subsurface soils were tested in the laboratory to determine their general engineering characteristics, including in-situ moisture content, density, consolidation, direct shear strength and expansion. Atterberg Limits tests were completed on visually representative

samples to aid in the classification of the soils. A CBR test was performed on a bulk sample of the soils to evaluate their pavement support characteristics and their recompacted swell potential.

The results of the laboratory tests are shown on the Boring Logs, where appropriate, with selected results exhibited graphically as Figures 14 through 20 in Appendix B. The results of the laboratory testing are summarized in Table I in Appendix B.

GENERAL SUBSURFACE CONDITIONS

The test borings indicate that the area of the Performing Arts Building and the future Multi-Purpose/Classroom Building are generally underlain by between 2½ and 10 feet of fill over residual (weathered-in-place from parent basalt) soils and saprolites (residual soils which exhibit the original rock structure) which extend to the bottom of Borings 1 and 5 at depths of 25 and 20 feet below the existing ground surface, respectively, and to depths of between 7 and 23 feet below the existing ground surface in the remaining borings. The residual soils and saprolites are underlain by highly weathered basalt which extends to the bottom of Borings 2 through 4 and 6, and to a depth of 10 feet in Boring 7 which was drilled near the northwestern corner of the future Multi-Purpose Classroom Building. Slightly to moderately weathered basalt was encountered at a depth of 10 feet in Boring 7 and immediately beneath the surface fill at a depth of 2 ½ feet in Boring 8 which were drilled in along the eastern edge of the Multi-Purpose/Classroom Building.

The fill generally consists of low plasticity clayey silts with sand and gravel, sandy silts, and silty sands. These soils are classified as ML and SM soils under the Unified Soil Classification (USC) system. The fill generally exhibited hard consistencies or dense relative densities. Except in Borings 1 and 4, which were drilled in the higher areas at the southern end of the Performing Arts Building, the fill generally exhibited high moderate blow count resistances, and appeared to be adequately compacted.

In Borings 1 and 4, the fill exhibited low to moderate blow count resistances and dry densities. This fill did not appear to be adequately compacted in accordance with current standards.

Laboratory swell tests performed on relatively undisturbed samples of the fill indicated between 0.2 and 1.3 percent swell when tested at their relatively dry in-situ moisture content. A laboratory CBR test performed on a sample of the silty sand fill obtained near the center of the Performing

Arts Building indicated a CBR of 35 with less than 1 percent swell when recompacted near its optimum moisture to at least 95 percent relative compaction.

The residual soils and saprolites consist of both low plasticity clayey silts and highly plastic silty clays which are classified as ML and CH soils, respectively, under the USC System. The residual silts and clays generally exhibited hard to very hard consistencies and high blow count resistances. This generally corresponds to high shear strengths and low compressibility. Laboratory expansion tests performed on the both the residual silts and clays indicated exhibits no more than 1.1 percent swell when saturated above its current in situ moisture contents.

The saprolite generally consists of highly plastic clayey silts which are classified as an MH soil under the USC system. The saprolite exhibits very stiff to hard consistencies, low to moderate blow count resistances, and moderate shear strengths. A laboratory consolidation test performed on a sample of the saprolite indicates that it exhibits a preconsolidation pressure of at least 4,000 p.s.f. above its current in-situ pressure with a Compression Index, C_c' of about 9 percent.

The basalt encountered in Borings 2, 3, 4, and 6, and between depths of 7 and 10 feet in Boring 7, consisted of soft, highly weathered basalt. The deeper basalt in Boring 7, and the basalt encountered at a depth of 2 ½ feet in Boring 8, consisted of slightly to moderately weathered basalt which was hard and occasionally broken to massive.

Groundwater was not encountered in any of the test borings at the time of the field investigation.

DISCUSSION

Except along the southern edge of the Performing Arts Center, the test borings indicate that the site is generally underlain by relatively competent fill, residual soils and saprolites over weathered basalt which should provide adequate support for the planned construction using relatively standard excavating equipment and construction techniques. In Borings 1 and 4, which were drilled along the southern edge of the Performing Arts Center, fills which did not appear to be adequately compacted were encountered up to depths of between 7 and 10 feet below the existing ground surface.

The main geotechnical concern associated with the proposed construction is the low compaction levels indicated for the existing fills encountered in Borings 1 and 4 along the southern edge of

the Performing Arts Center. Beneath a hard surface crust, the fill in this area generally exhibited stiff to very stiff consistencies and relatively low dry densities of between 75 and 82 pounds per cubic foot (p.c.f.). While the fill can likely support floor slabs and lightly loaded foundations without significant risks of post-construction consolidation settlements, it can result in large and unpredictable settlements under the anticipated heavy wall loads of the Performing Arts Center.

The uncompacted fill should be removed down to the underlying residual soils from beneath the foundations of the Performing Arts Center and replaced with properly compacted material. While the removal of the uncompacted material should only be necessary from beneath the wall foundations of the Performing Arts Center, plus a 3-foot perimeter, it will likely be more economical to remove the material from the entire eastern portion of the building pad during the project's mass grading, when the contractor will likely have larger excavating equipment on site. Although the actual extent of the uncompacted fill must be determined in the field during construction, it appears to underlie the southern 1/3 of the building footprint.

After the uncompacted fills have been removed and replaced with properly compacted material, we believe that the new Performing Arts Center, and the future Multi-Purpose/Classroom Building, can be adequately supported on shallow foundation systems bearing upon properly compacted fill, the natural residual soils or basalt.

RECOMMENDATIONS

Site Preparation

1. Prior to the start of the actual construction, the site should be cleared and grubbed in accordance with Prior to the start of actual grading operations, the site should be cleared and grubbed in accordance with Section 201 of the Standard Specifications for Road, Bridge and Public Works Construction (1994) for the County of Maui (Standard Specifications). All organics, vegetation, boulders, rubbish and other deleterious materials should be removed and wasted off-site.
2. All underground utilities which interfere with the planned construction should be removed and re-routed. The trenches resulting from the removal of the existing utilities should be backfilled in accordance with the Site Grading recommendation of this report.

3. The uncompacted fill present beneath the southern portion of the Performing Arts Center should be removed down to the underlying residual soils or saprolites. The excavation to remove the uncompacted fill should extend at least 3 feet beyond the perimeter of all foundations. Although the actual extent of the uncompacted fill must be determined in the field during construction, it appears to underlie the entire southern perimeter of the Performing Arts Center. The excavated material resulting from the removal of the uncompacted fill may be re-used to backfill the resulting depression, provided it is placed and compacted in accordance with the Site Grading recommendations of this report.

Site Grading

4. Once the site has been properly prepared and the uncompacted fill has been removed from beneath the building foundation areas, grading operations may begin to generate the planned finished grades. In its final configuration, the top of slope for the Performing Arts Center should extend at least 5 feet beyond the perimeter of the structure and any sidewalks or similar structural attachments. Where this criteria cannot be met, deepened foundations or thickened edge slabs should be anticipated.

5. We anticipate that the majority of the site excavations should encounter either the existing fill or residual soils which can likely be completed using heavy earthmoving equipment. However, the occasional use of rock excavating equipment should be anticipated to facilitate the removal of basalt from beneath the future Multi-Purpose/Classroom area. Deeper utility trenches and similar site excavations which encounter the basalt in the eastern portion of the site will require the use of rock excavating equipment.

6. The exposed subgrade should be scarified, moisture-conditioned above their optimum moisture content, and uniformly compacted to at least 95 percent of the soil's maximum dry density as determined by Laboratory Compaction Test ASTM D1557, for a minimum depth of 6 inches.

7. The excavated on-site fill and residual soils may be used for fill or backfill provided all organics and rocks or soil clods greater than 3 inches in maximum dimension are removed and they are placed, moisture conditioned and compacted in accordance with the recommendations herein.

8. Should imported fill be required, it should be similar to the on-site soils and should exhibit less than 2 percent swell when tested in accordance with ASTM D1883. The fill should be free of organics, rocks, and soil clods larger than 3 inches in diameter, with a CBR of at least 12.

9. Fill and backfill should be placed in maximum loose lifts of 8 inches in thickness, moisture-conditioned to no drier than 2 percent above their optimum moisture content and uniformly compacted to at least 90 percent of their maximum dry density as determined by Laboratory Compaction Test ASTM D1557.

10. Although the on-site soils generally exhibit low expansion potential, the on-site soils should be kept moist and not be allowed to dry excessively during the intervening period between the completion of the pads and the construction of the slabs, foundations and pavements. Should shrinkage cracks greater than 1/8 inch in width be noted in the compacted soils, the affected areas should be re-scarified, re-moisture-conditioned and re-compacted in accordance with the above recommendations.

Utilities

11. The installation of the new utilities should be completed in accordance with Section 206 and the particular section of the Standard Specifications pertaining to each utility. Utility backfills should be placed and compacted utilizing the appropriate mechanical compactors around and above the pipes. Jetting and ponding of the backfill as a method to achieve compaction should not be allowed.

12. Utilities may be founded in the properly compacted fill, the hard residual soils and saprolites, or the basalt. Where soft spots are encountered at the bottom of utility excavations, they should be removed down to properly compacted fill and the resulting depression replaced with fill compacted in accordance with the Grading Recommendations.

13. Should basalt be encountered at the utility invert levels, it should be overexcavated to a depth of at least 6 inches below the bottom of the proposed utilities to allow placement of at least 6 inches of pipe bedding. The pipe bedding should conform to Standard Specifications as well as the specific requirements of the pertinent utility.

14. Adequate shoring and bracing should be provided by the contractor in accordance with HIOSH and other governmental regulations for the utility trenches and other similar site excavations. The design of the shoring, bracing and dewatering systems should be the responsibility of the contractor.

Foundations

15. The proposed Performing Arts Center and the future Multi-Purpose/Classroom Buildings may be supported on either individual spread footings, continuous strip footings, or a combination of these two types.

16. Foundations should be founded on properly compacted fill or the hard residual soils where they may be designed for an allowable bearing pressure of 3,500 p.s.f. The allowable footing bearing capacity may be increased by one-third for short term wind and seismic loads.

17. Where both soil and intact basalt are encountered at the bottom of footing level, such as along the eastern edge of the future Multi-Purpose/Classroom Building, either the basalt should be overexcavated to a depth of at least 6 inches below the bottom of the footing level and the resulting depression backfilled in accordance with the grading recommendations, or the footing embedment depth should be increased such that the entire footing is bearing on the basalt.

18. Individual spread foundations should have a minimum base width of 24 inches and continuous strip footings should have a minimum base width of 16 inches. All foundations should be embedded at least 12 inches below the lowest adjacent compacted subgrade.

19. Footings on slopes or within 5 feet of the top of slopes should be embedded such that there is a minimum of 6 feet of horizontal set-back between the lower, outside edge of the foundation and the compacted slope face.

20. The bottom of the foundation excavations should be compacted to at least 90 percent relative compaction. Any soft or loose spots encountered should be removed down to compacted fill, the very stiff to hard residual soils, or basalt, and the resulting depression backfilled in accordance with the Grading Recommendations and compacted to at least 90 percent relative compaction.

21. Total and differential settlements are not expected to exceed ½ inch per 25 feet of wall length for maximum wall loads of 6 kips per foot. Should the actual loads exceed this amount, FGE should be notified so that supplemental recommendations can be provided, if necessary.
22. Steel reinforcement of the foundations should be provided as recommended by the Project Structural Engineer.

Retaining Walls

23. We understand that free-standing retaining walls up to 6 feet high are planned along the southern and eastern sides of the Performing Arts Building. Shorter non-yielding basement-type retaining walls up to 4 feet high may be included in the building construction. The retaining wall foundations should be designed in accordance with the Foundation recommendations, but may use a maximum toe pressure of 4,000 p.s.f.
24. The estimated earth pressures against the retaining walls will depend on the backfill type and slope. For level wall backfill consisting of the on-site low plasticity clayey and sandy silts or silty sands, the free-standing retaining walls should be designed for an estimated active earth pressure of 40 p.c.f.. Non-yielding retaining walls with similar backfill conditions should be designed for an estimated at-rest earth pressure of 60 p.c.f.
25. The above earth pressures are given in terms of equivalent fluid pressure and do not include surcharge, foundation, or hydrostatic pressures, which must be added where appropriate.
26. A friction factor of 0.45 and 200 p.s.f. of adhesion may be used between the bottom of the footings and the on-site soils to resist sliding. Should additional lateral resistance be required, a passive resistance of 275 p.c.f. equivalent fluid pressure may be used between the sides of the foundations and the on-site soils. Passive resistance should be disregarded for the top 1 foot of footing embedment for yielding walls, and disregarded entirely for non-yielding walls.
27. Excavations for retaining wall construction should be sloped back in accordance with HIOSH and other governmental regulations, or properly shored and braced. The design of the shoring and bracing system should be the responsibility of the contractor.

28. Backfill behind retaining walls should be placed in accordance with the Grading Recommendations and compacted to at least 90 percent relative compaction. Compaction should be attained with small, light compaction equipment and should not exceed 95 percent relative compaction to minimize the lateral earth pressures against the walls.

29. Adequate drainage in the form of weepholes in the walls, or transverse drains behind the walls, should be provided to minimize the buildup of hydrostatic pressures behind the walls. Transverse drains should consist of perforated pipe surrounded by 6 inches of filter gravel, or ASTM D448 No. 61 Gravel (3B fine) wrapped in filter fabric. Weepholes should be connected by continuous drainage blanket of filter gravel or 3B fine wrapped in filter fabric, at least 12 inches in width.

Concrete Slabs-on-Grade

30. Concrete slabs-on-grade may be used provided the Site Grading recommendations of this report are followed. This will assure that the slabs will rest on a subgrade that has been properly compacted to at least 90 percent relative compaction and has not been allowed to dry excessively prior to the slab construction.

31. The on-site soils are susceptible to the capillary rise of moisture. Where a capillary break is desirable, such as beneath office areas or slabs not subject to vehicular traffic, it should consist of at least 4 inches of lightly compacted ASTM D448 No. 67 Gravel (3B fine). If desired, a vapor barrier should be placed over the gravel in accordance with the recommendations of the Project Structural Engineer.

32. Steel reinforcement of the concrete slabs should be provided as recommended by the Project Structural Engineer. Differential settlements between the concrete slabs and foundation exceeding ¼ inch are not anticipated.

Miscellaneous

33. Assuming that the subsurface conditions found in the borings extend to a depth of at least 100 feet, the site may be considered as Site Class D, as defined in Table 1613.5.2 of the 2009 IBC for seismic considerations.

34. Positive drainage provisions should be included in the design of the project to direct surface water away from slopes and to preclude the ponding of water adjacent to or beneath the structures and their foundations.

Quality Control

35. The site grading, including the removal of the uncompacted fill, should be observed by FGE to verify that the anticipated conditions are encountered. Intermittent field density tests should be taken to determine whether the specified levels of compaction and moisture conditioning are consistently obtained in the fills and backfills.

36. Samples of the proposed fill materials should be submitted to FGE no less than 7 working days prior to its intended job-site delivery to allow adequate time for testing, evaluation, and approval.

37. The foundation excavations should be observed by FGE to determine whether the anticipated bearing materials have been encountered. The recommendations given herein are contingent on adequate observation and testing of the geotechnical phases of the construction by FGE.

Limitations

38. This report was prepared for the exclusive use of **Leo A. Daly, Inc.** for the **Proposed Performing Arts Center at the King Kekaulike High School** in Pukalani, Maui, Hawaii. The limitations of this report are presented in Appendix C.

/tjc:ajs:fse

APPENDIX A

Subsurface Investigation Summary

Project Designation: Performing Arts Center
King Kekaulike High School **File:** 3103.01

Location: Pukalani, Maui, Hawaii

Project Location Map: Figure 1

Boring Location Plan: Figure 2

Drilling Equipment: Simco SK2400

Drilling Method: / x / 4-inch Auger / x / Wash
/ / 5-inch Auger / x / NX Core
/ / 6-inch Auger / / PQ Core

Boring Summary

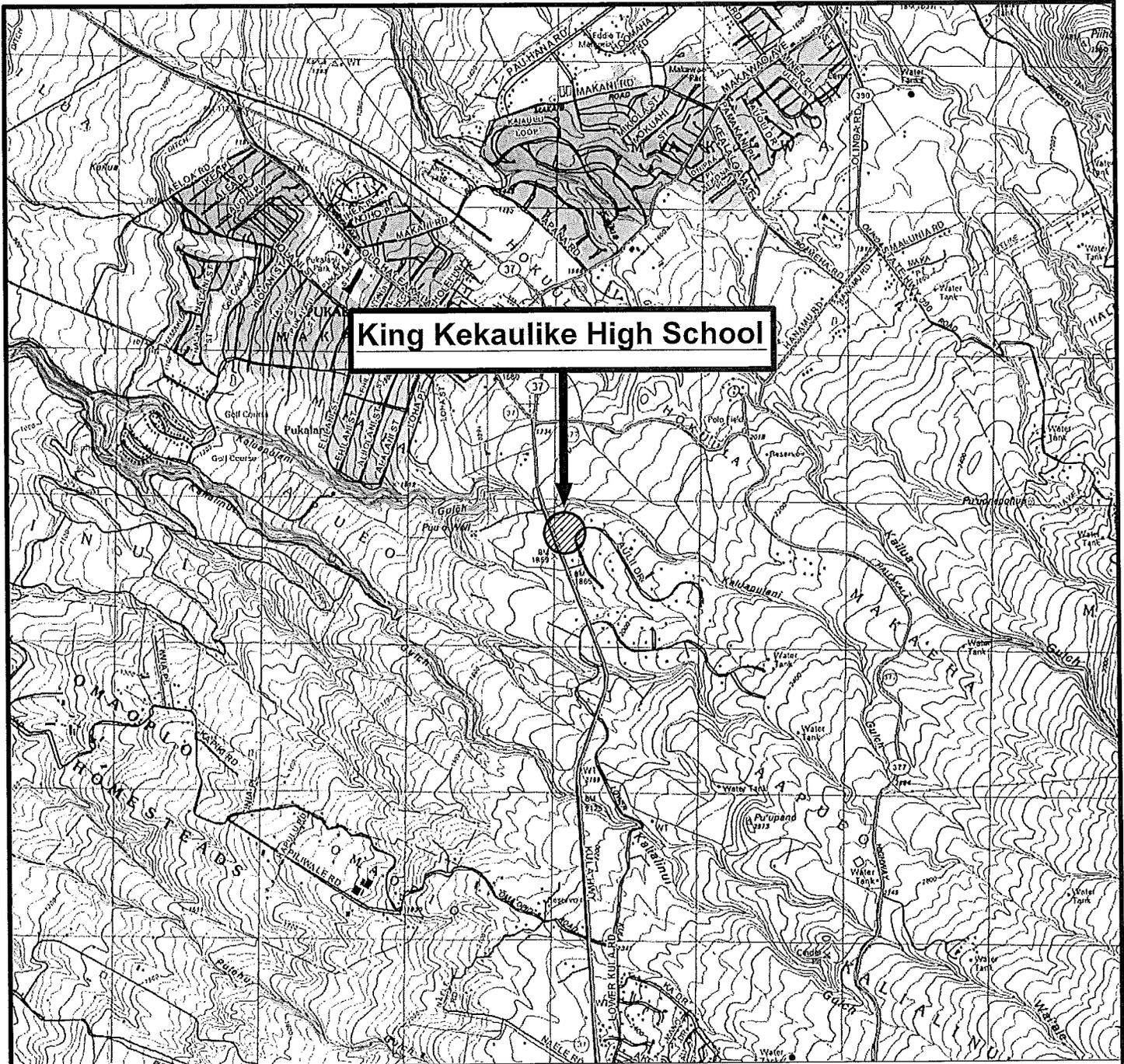
<u>Boring</u>	<u>Depth</u>	<u>Number of Samples</u>	<u>Depth to Rock</u>	<u>Length of NX/PQ Core</u>	<u>Depth to Water Table</u>	<u>Figure No.</u>
1	25.0'	7	N.E.	0.0'	N.E.	3
2	17.5'	6	16.0'	0.0'	N.E.	4
3	19.5'	7	19.0'	0.0'	N.E.	5
4	26.0'	8	24.5'	0.0'	N.E.	6
5	20.0'	6	N.E.	0.0'	N.E.	7
6	20.0'	6	18.5'	0.0'	N.E.	8
7	16.5'	4	7.0'	3.5'	N.E.	9
8	<u>12.5'</u>	<u>1</u>	2.5'	<u>8.5'</u>	N.E.	10
Total:	157.0'	45		12.0'		

N.E. = None Encountered

Boring Log Legend: 11

Rock Core Photographs

Boring 7 12
Boring 8 13



LEGEND:

 PROJECT LOCATION

SCALE: 1:24000

GENERAL AREA:

PUKALANI, MAUI, HAWAII

REFERENCE:

KILOHANA QUADRANGLE
U.S.G.S. TOPOGRAPHIC MAP

PROJECT LOCATION MAP



F.G.E.

Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 1



F.G.E. Ltd.

Boring: 1
Project: Performing Arts Center
 King Kekaulike High School
Location: Pukalani, Maui, Hawaii
Surface Elevation: 1809±
Depth to Water: None Encountered (7/25/12 @ 8:20am)
Date Completed: 7-23-12

File: 3103.01

Project Engineer: TC
Field Engineer: HW
Drafted by: KSL
Date of Drawing: September 2012

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT. <small>*(x) See Legend</small>	SAMPLE	DEPTH	CLASSIFICATION
Swell= 0.2% LL= 48, PI = 17 Direct Shear: C= 700psf Ø= 38° Swell= 0.3% Swell Index=0.1	33	87	31 (23)	1	0	Dark Brown Clayey SILT (ML), with Gravel-sized Rock Fragments, stiff to very stiff, damp
	38	82	28 (21)	2	1	
	47	75	14 (12)	3	5	
	41	80	12 (10)	4	10	(FILL)
	34	90	31 (23)	5	15	Dark Brown Clayey SILT (ML), very hard, damp
	35	89	54 (37)	6	20	
	32	93	41 (29)	7	25	(RESIDUAL)
BOH @ 25.0'						
					30	
					35	

Figure 3



F.G.E. Ltd.

Boring: 2
Project: Performing Arts Center
 King Kekaulike High School

Location: Pukalani, Maui, Hawaii

Surface Elevation: 1800'±

Depth to Water: None Encountered (7/25/12 @ 8:23am)

Date Completed: 7-24-12

File: 3103.01

Project Engineer: TC

Field Engineer: HW

Drafted by: KSL

Date of Drawing: September 2012

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT. *(x) See Legend	SAMPLE	DEPTH	CLASSIFICATION
Swell= 0.1%	22	94	92 (62)	1	0-1	Dark Brown Clayey SILT (ML) with Gravel-sized Rock Fragments very hard, dry (FILL)
			95 (64)	2	1-2	
Consol.	28	94	47 (32)	3	2-3	Dark Brown Clayey SILT (ML), hard, damp (RESIDUAL)
			19 (15)	4	3-4	Brown/Gray Clayey SILT (MH) with remnant rock structure, very stiff, moist
			18 (15)	5	4-5	(SAPROLITE)
			R	6	5-6	Gray Highly Weathered BASALT (WH), medium hard, massive BOH @ 17.5'
					6-17.5	
					17.5-20	
					20-25	
					25-30	
					30-35	

Figure 4



F.G.E. Ltd.

Boring: 3
Project: Performing Arts Center
 King Kekaulike High School
Location: Pukalani, Maui, Hawaii
Surface Elevation: 1803'±
Depth to Water: None Encountered (7/25/12 @ 8:29am)
Date Completed: 7-24-12

File: 3103.01

Project Engineer: TC
Field Engineer: HW
Drafted by: KSL
Date of Drawing: September 2012

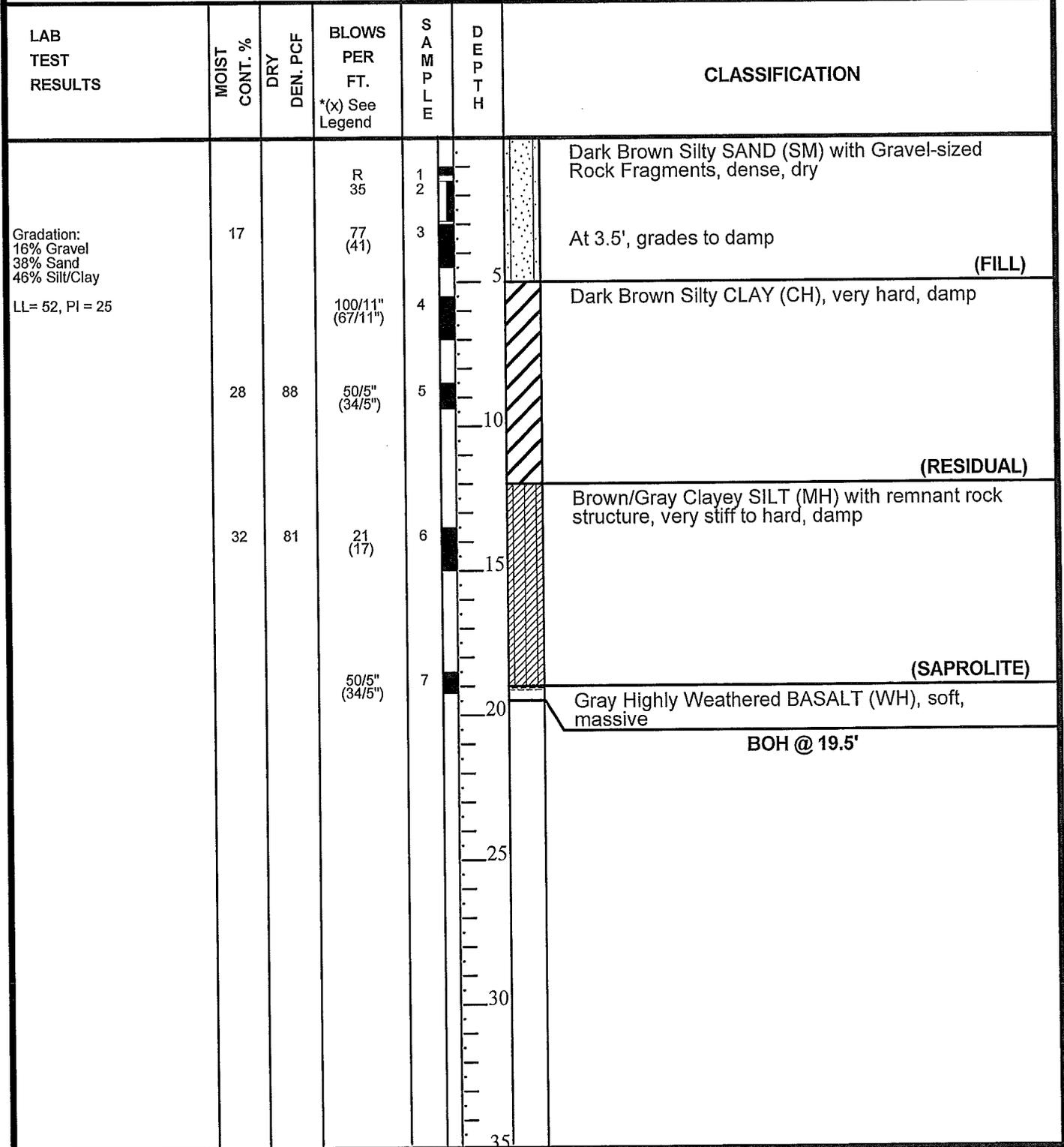


Figure 5



F.G.E. Ltd.

Boring: 4
Project: Performing Arts Center
 King Kekaulike High School
Location: Pukalani, Maui, Hawaii
Surface Elevation: 1813±
Depth to Water: None Encountered (7/25/12 @ 8:20am)
Date Completed: 7-23-12

File: 3103.01
Project Engineer: TC
Field Engineer: HW
Drafted by: KSL
Date of Drawing: September 2012

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT. <small>*(x) See Legend</small>	SAMPLE	DEPTH	CLASSIFICATION	
Gradation: 19% Gravel 22% Sand 59% Silt/Clay Torvane= 1,750psf LL = 45, PI = 17	24	82	R	1	0-1	Dark Brown Sandy SILT (ML) with Gravel-sized Rock Fragments, very hard, dry	
			17 (14)	2	1-2	At 3.0', grades to very stiff, damp	
	33	9 (8)	3	3	2-3	At 6.0', grades to stiff, moist (FILL)	
	31	90	62 (42)	4	4	3-4	Dark Brown Clayey SILT (ML), hard, moist
			80/9" (54/9")	5	4-5	10.5'-12.5' Boulder Encounter (RESIDUAL)	
	27	83	27 (21)	6	5-6	Dark Brown Clayey SILT (MH) with Remnant Rock Structure, very stiff, damp (SAPROLITE)	
	35	80	75/9" (51/9")	7	6-7	Gray Highly Weathered BASALT (WH), soft, massive	
	R			8	7-8		
					BOH @ 26.0'		

Figure 6



F.G.E. Ltd.

Boring: 5
Project: Performing Arts Center
 King Kekaulike High School
Location: Pukalani, Maui, Hawaii
Surface Elevation: 1803'±
Depth to Water: None Encountered (7/25/12 @ 8:30am)
Date Completed: 7-24-12

File: 3103.01

Project Engineer: TC
Field Engineer: HW
Drafted by: KSL
Date of Drawing: September 2012

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT. *(x) See Legend	SAMPLE	DEPTH	CLASSIFICATION
Gradation: 45% Sand 55% Silt/Clay Swell= 1.3% LL = 52, PI = 25 Swell = 0%	29		85/11" (57/11")	1	0	Dark Brown Sandy SILT (ML), with Gravel-sized Rock Fragments, very hard, dry
	27	89	88/11" (59/11")	2	5	(FILL)
	34	87	96/9" (65/9")	3	10	Dark Brown Silty CLAY (CH), very hard, moist
			48 (32)	4	15	(RESIDUAL)
			29 (22)	5	20	Brown and Gray Clayey SILT (MH) with remnant rock structure, very stiff, damp
			21 (17)	6	25	(SAPROLITE)
					30	
					35	

Figure 7



F.G.E. Ltd.

Boring: 6
Project: Performing Arts Center
 King Kekaulike High School
Location: Pukalani, Maui, Hawaii
Surface Elevation: 1805±
Depth to Water: None Encountered (7/25/12 @ 8:32am)
Date Completed: 7-23-12

File: 3103.01

Project Engineer: TC
Field Engineer: HW
Drafted by: KSL
Date of Drawing: September 2012

LAB TEST RESULTS	MOIST. CONT. %	DRY DEN. PCF	BLOWS PER FT. *(x) See Legend	SAMPLE	DEPTH	CLASSIFICATION
Swell= 1.1% LL = 45, PI = 17	29	91	50/6" (34/6")	1	0	Dark Brown Sandy SILT (ML) with Gravel-sized Rock Fragments, very hard, dry
			50/5" (34/5")	2	5	(FILL)
	29	95	61 (41)	3	5	Dark Brown Clayey SILT (ML), very hard, dry to damp
			25 (19)	4	10	(RESIDUAL)
	51	67	10 (9)	5	15	Brown/Gray Clayey SILT (MH), with remnant rock structure, stiff, moist
			50/3" (34/3")	6	20	Gray Highly Weathered BASALT (WH), soft to medium hard
						BOH @ 20.0'
						25
						30
						35

Figure 8



F.G.E. Ltd.

Boring: 7
Project: Performing Arts Center
 King Kekaulike High School
Location: Pukalani, Maui, Hawaii
Surface Elevation: 1803'±
Depth to Water: None Encountered (7/26/12 @ 7:00am)
Date Completed: 7-25-12

File: 3103.01
Project Engineer: TC
Field Engineer: HW
Drafted by: KSL
Date of Drawing: September 2012

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT. <small>*(x) See Legend</small>	SAMPLE	DEPTH	CLASSIFICATION
Swell = 0.1%	15	96	79/11" (53/11")	1	0	Dark Brown Clayey SILT (ML), with Gravel-sized Rock Fragments, very hard, dry
	31	85	93 (63)	2	1	(FILL)
			15 (12)	3	5	Dark Brown Clayey SILT (MH) with remnant rock structure, very stiff, moist (SAPROLITE)
	27	71	76/9" (51/9")	4	10	Gray Highly Weathered BASALT (WH), medium hard to soft, massive
			REC ^R = 81% RQD = 60%	5	15	Gray Slightly Weathered BASALT (WS), hard, massive
				NX Core		BOH @ 16.5'
					20	
					25	
					30	
					35	

Figure 9



F.G.E. Ltd.

Boring: 8
Project: Performing Arts Center
 King Kekaulike High School
Location: Pukalani, Maui, Hawaii
Surface Elevation: 1803±
Depth to Water: None Encountered (7/26/12 @ 7:03am)
Date Completed: 7-25-12

File: 3103.01
Project Engineer: TC
Field Engineer: HW
Drafted by: KSL
Date of Drawing: September 2012

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT. <small>*(x) See Legend</small>	S A M P L E	D E P T H	CLASSIFICATION
	22		50/1" (34/1")	1	0	Dark Brown Clayey SILT (MH) with Gravel-sized Rock Fragments, hard, dry (FILL)
			REC= 100% RQD= 67%	NX Core	5	Gray Slightly to Moderately Weathered BASALT (WS-WM), very hard, occasionally broken to massive
			REC= 100% RQD= 52%	NX Core	10	
			REC= 96% RQD= 83%	NX Core	12.5	
					15	BOH @ 12.5'
					20	
					25	
					30	
					35	

Figure 10

MAJOR SOIL TYPES

	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
	SW	Well-graded sands, gravelly sand, little or no fines
	SP	Poorly-graded sands, gravelly sand, little or no fines
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
	ML	Inorganic silts and very fine sands, rock flour, silty or clayey silts with slight plasticity
	MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	CH	Inorganic clays of high plasticity
	OL	Organic silts and organic silty clays of low plasticity
	OH	Organic clays of medium to high plasticity, organic silts
	PT	Peat, humus, swamp soils with high organic contents

MAJOR ROCK TYPES

	BASALT
	TUFF
	DECOMPOSED ROCK
	CORAL

Sampling Symbols

	3" O.D. Relatively Undisturbed Sample		Core
	2" O.D. Standard Penetration Sample		Water Level
	3" O.D. Disturbed Sample		Shelby Tube
	No Recovery		*(x) Equivalent Estimated SPT Blow Count

BORING LOG LEGEND

Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

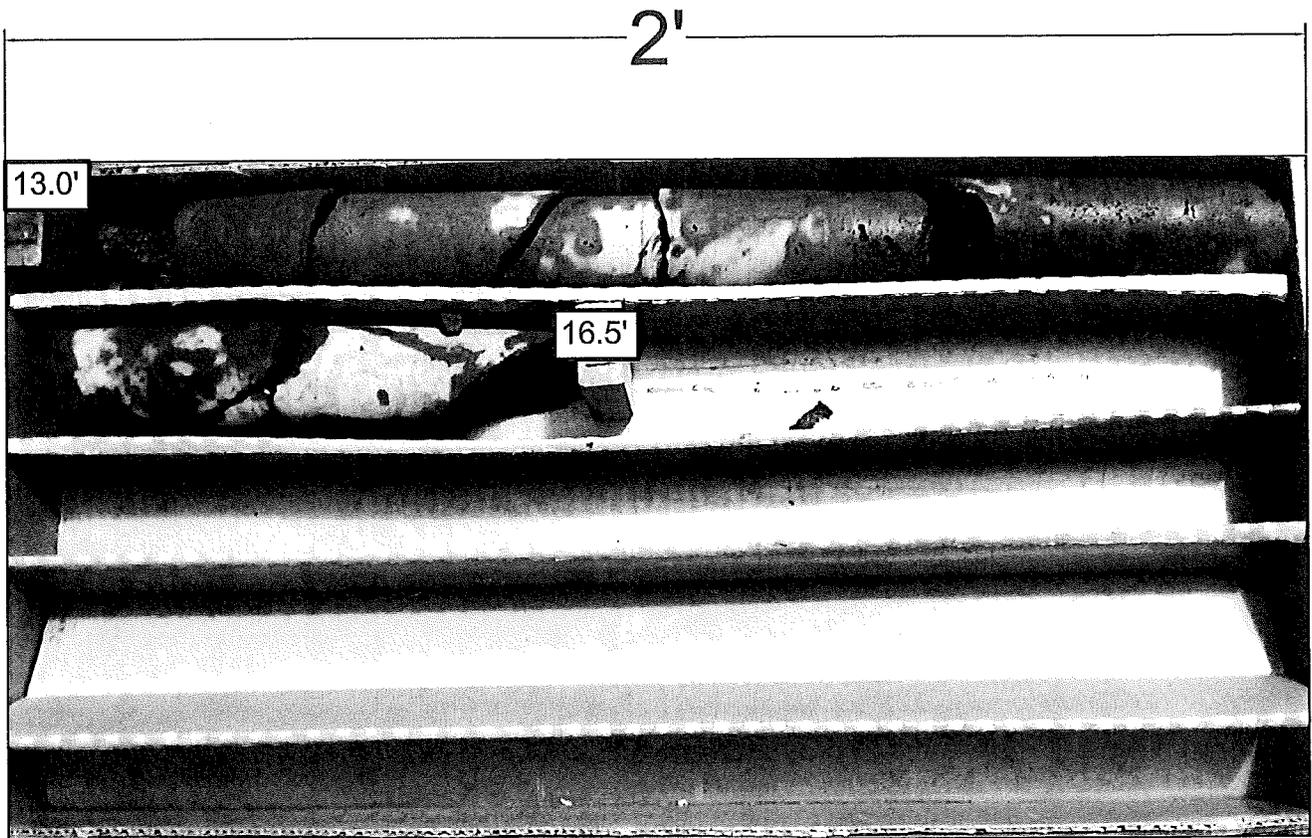
File: 3103.01

September 2012



Figure 11

Boring 7: 13.0'-16.5'



F.G.E.

ROCK CORE PHOTOGRAPH

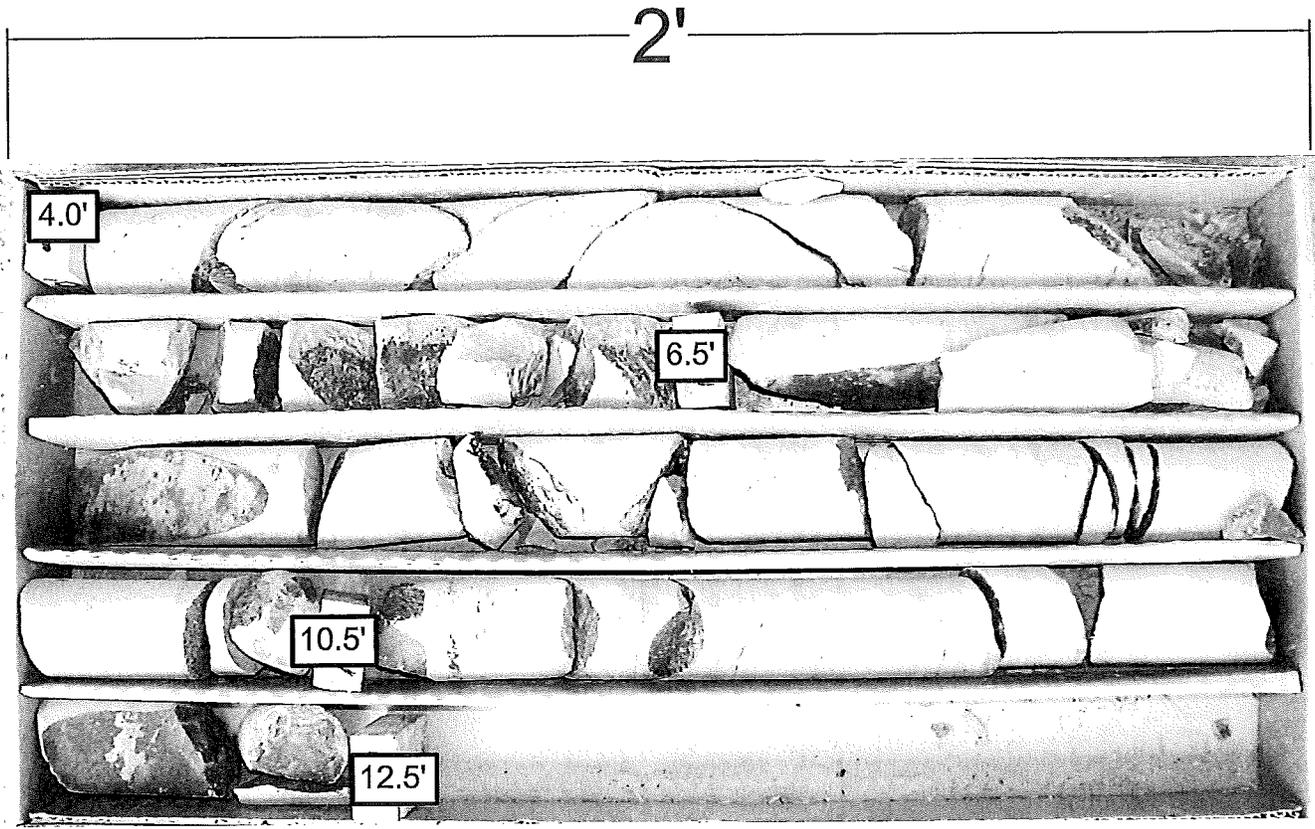
Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 12

Boring 8: 4.0'-12.5'



ROCK CORE PHOTOGRAPH

Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 13

APPENDIX B

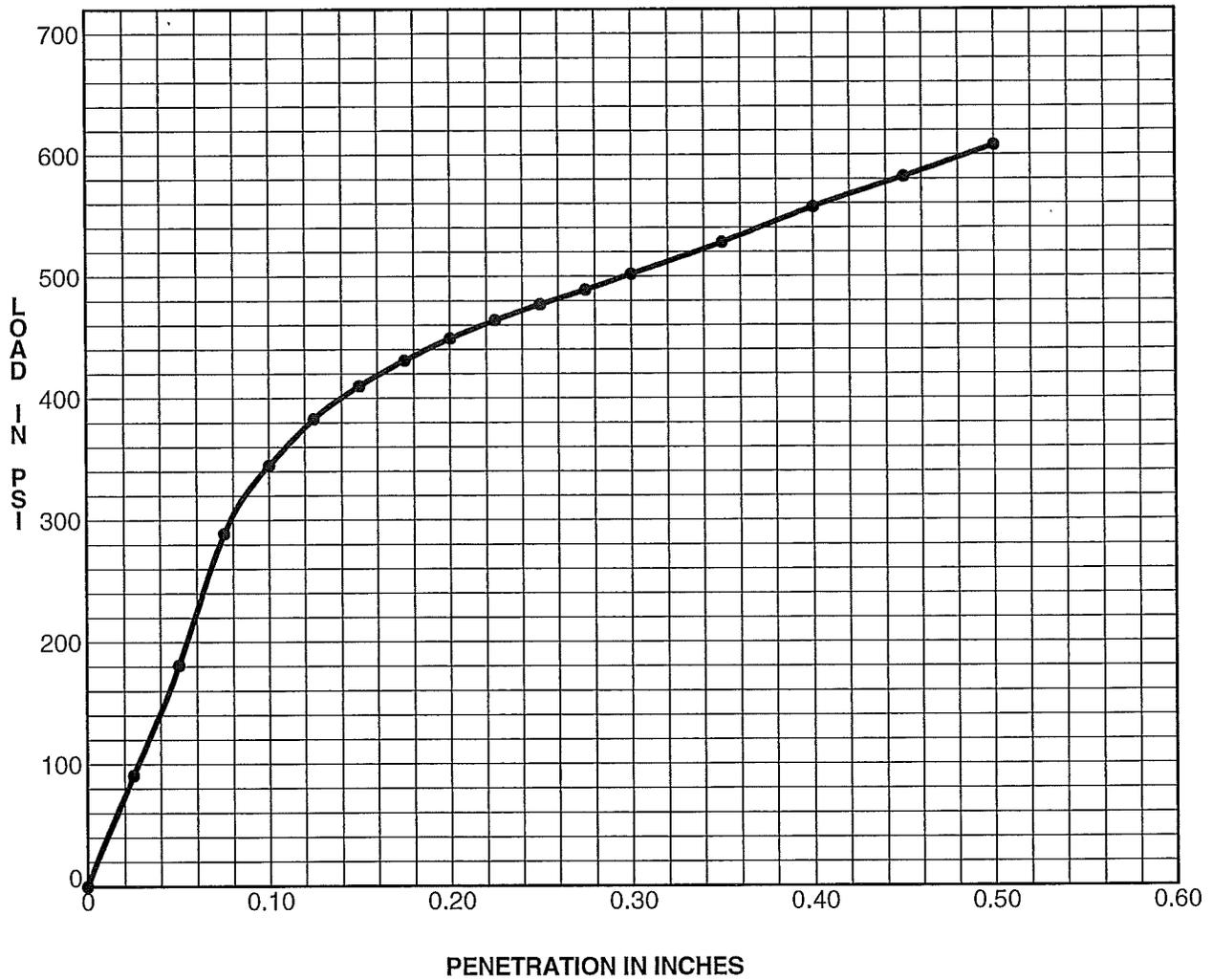
Laboratory Testing Summary

Project Designation: Performing Arts Center
King Kekaulike High School **File:** 3103.01

Location: Pukalani, Maui, Hawaii

	<u>Sample No.</u>	<u>Figure Designation</u>
<u>California Bearing Ratio Curve:</u>	Bag A	14
<u>Consolidation Curve:</u>	2-4	15
<u>Gradation Curves:</u>	3-3	16
	4-2	17
	5-1	18
	Bag A	19
<u>Plasticity Chart:</u>	1-2	20
	3-4	20
	4-4	20
	5-3	20
	6-3	20
	Bag A	20

Summary of Laboratory Test Results Table I



Sample Identification	Classification	CBR	% Comp.	Max. Den.	Opt. % MC	% Swell	LL	PI
● Bag A	Brown Silty SAND (SM) w/ Gravel	35.0	96	100.5	23.0	0.8	44	15



F.G.E. Ltd.

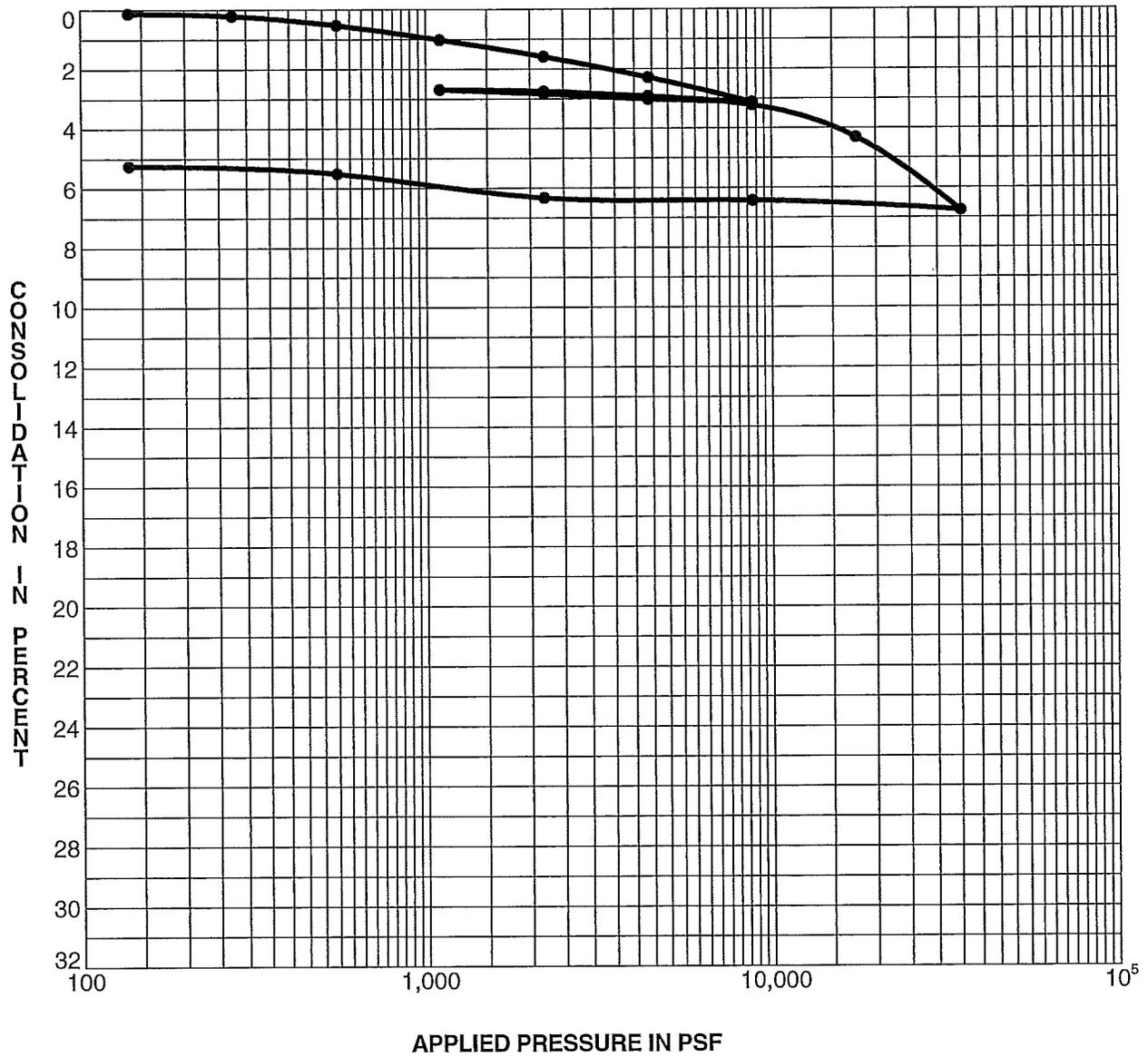
CALIFORNIA BEARING RATIO

Performing Arts Center
 King Kekaulike High School
 Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 14



Sample Identification	Depth (feet)	Classification	LL	PI
2 - 4	8.5	Brown Clayey SILT (MH)		



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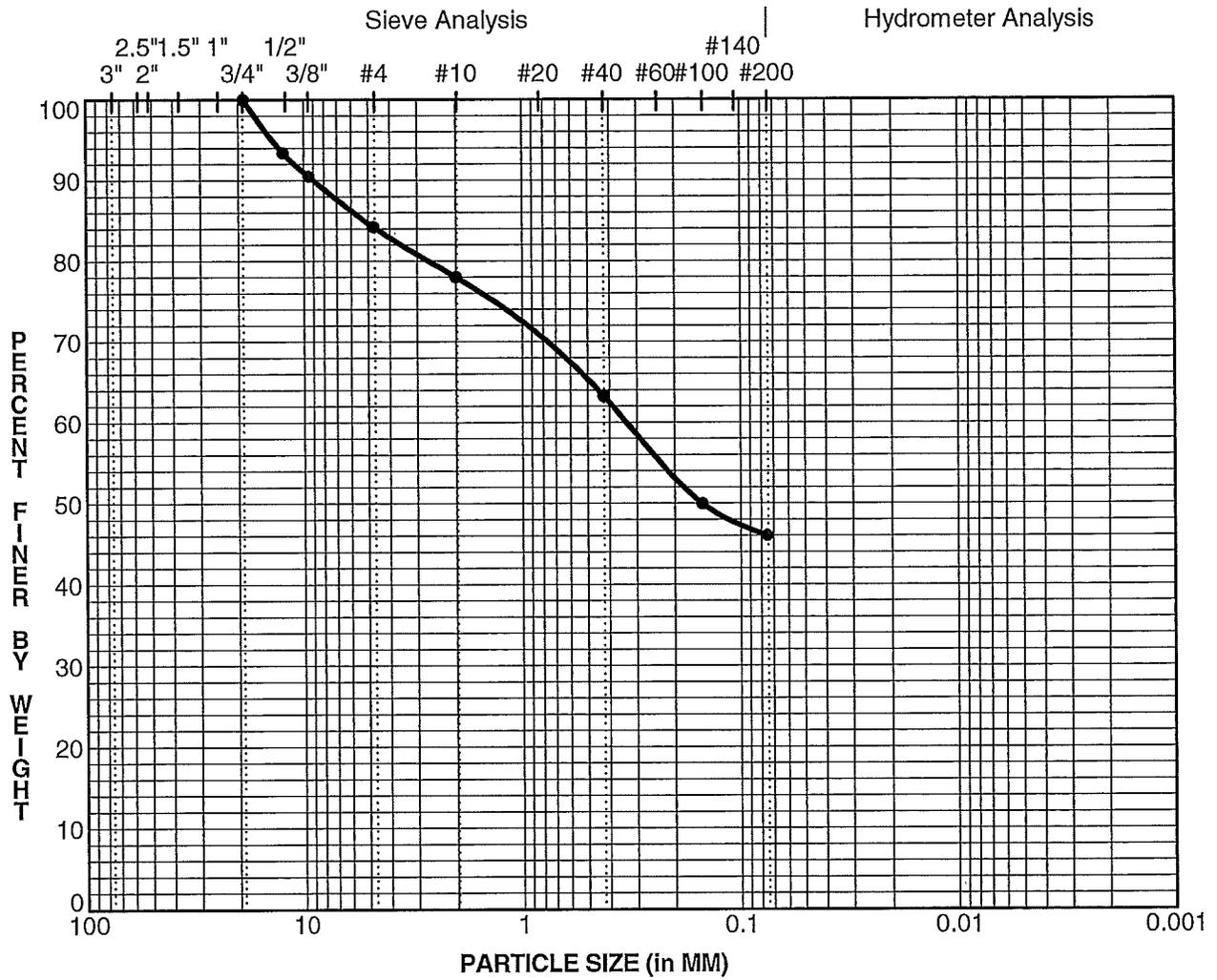
CONSOLIDATION CURVE

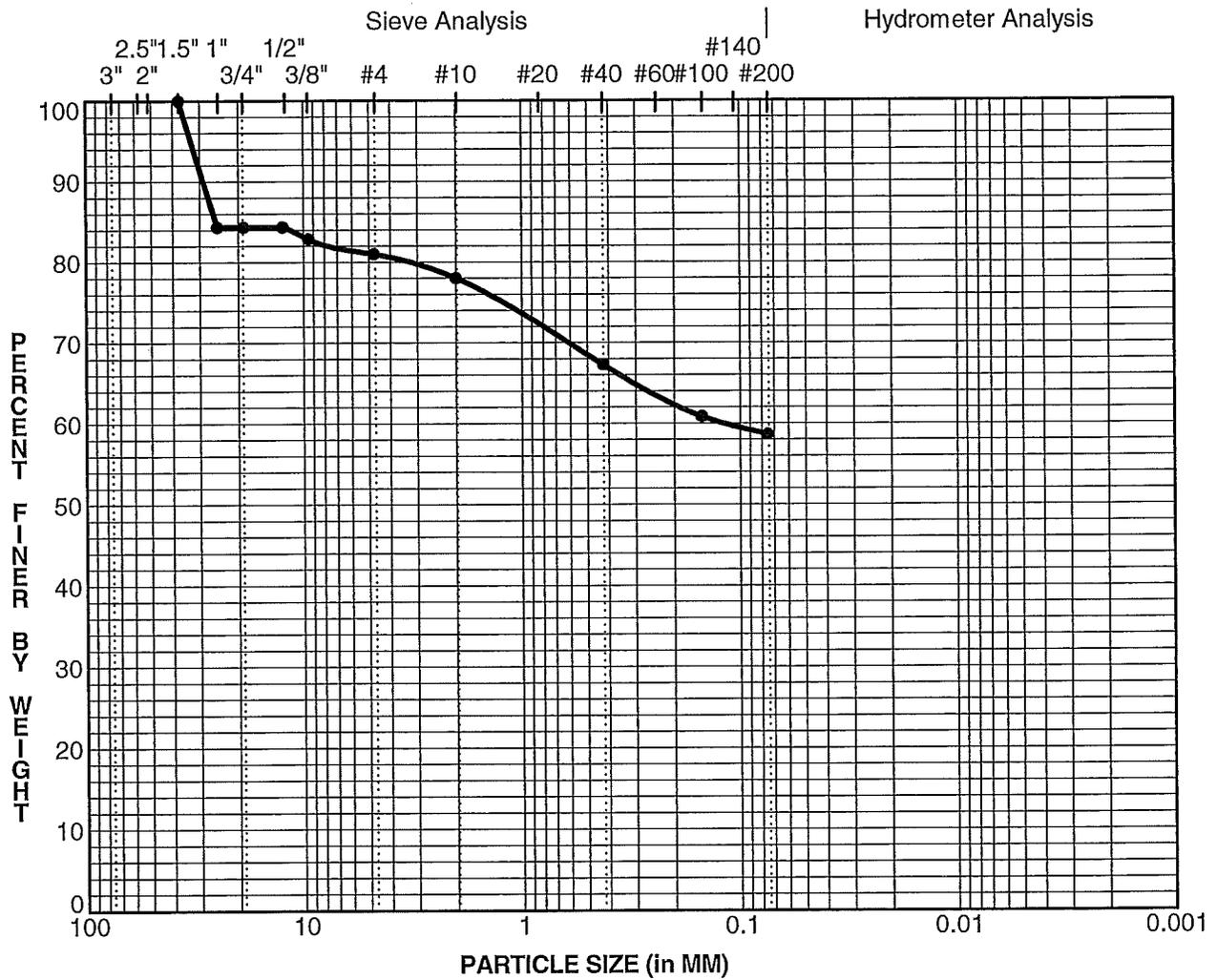
Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 15





Gravel		Sand			Silt and Clay
coarse	fine	coarse	medium	fine	

Sample ID	Depth	Classification	MC%	LL	PL	PI	Cc	Cu
● 4 - 2	3.0	Brown Sandy SILT (MH) w/ Gravel	24					

Sample ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt & Clay
● 4 - 2	3.0	37.5	0.1			19	22	59



F.G.E. Ltd.

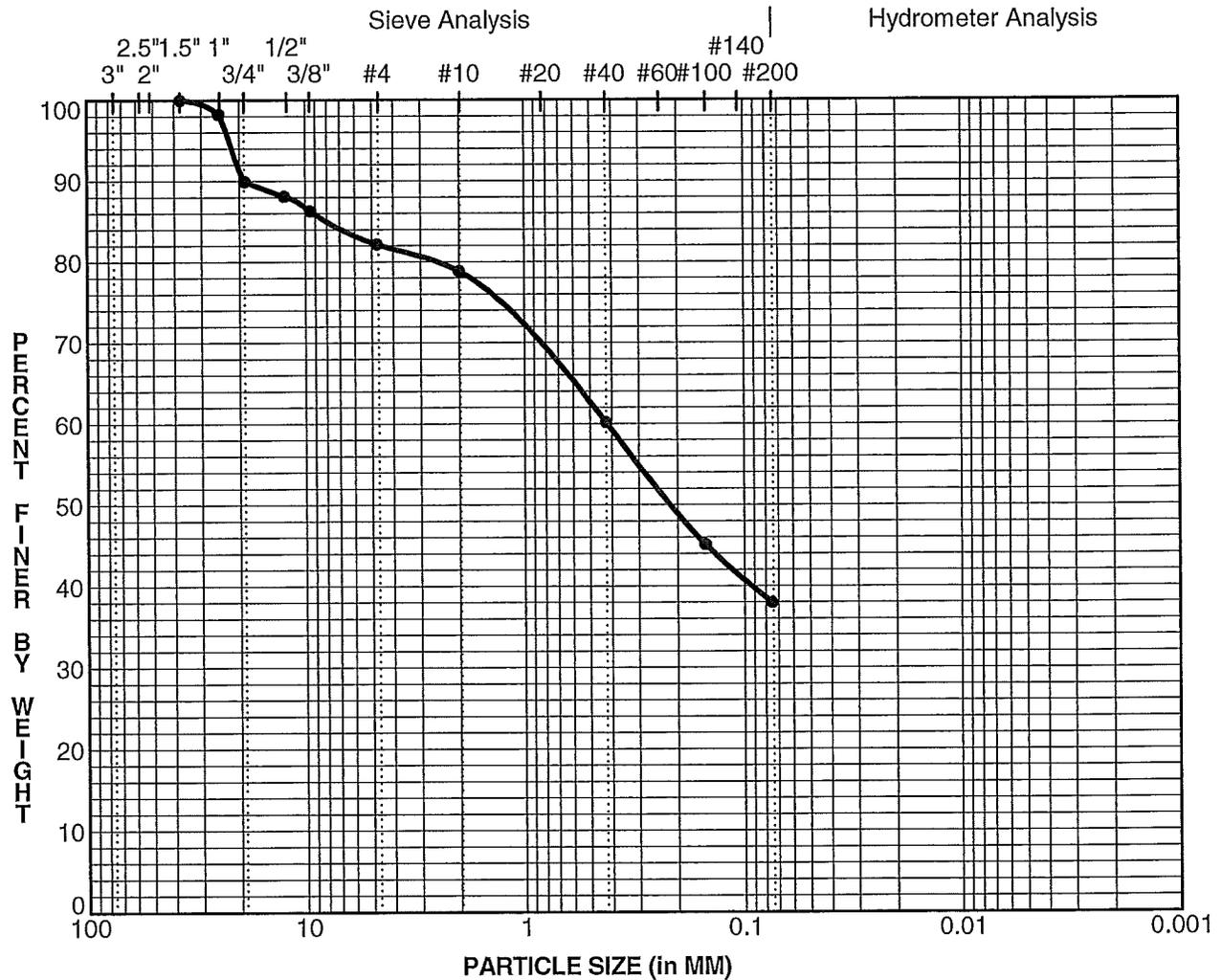
GRAIN SIZE DISTRIBUTION

Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 17



Gravel		Sand			Silt and Clay
coarse	fine	coarse	medium	fine	

Sample ID	Depth	Classification	MC%	LL	PL	PI	Cc	Cu
● Bag A -	0.0	Brown Silty SAND (SM) w/ Gravel	23	44	29	15		

Sample ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt & Clay
● Bag A -	0.0	37.5	0.4			18	44	38



F.G.E. Ltd.

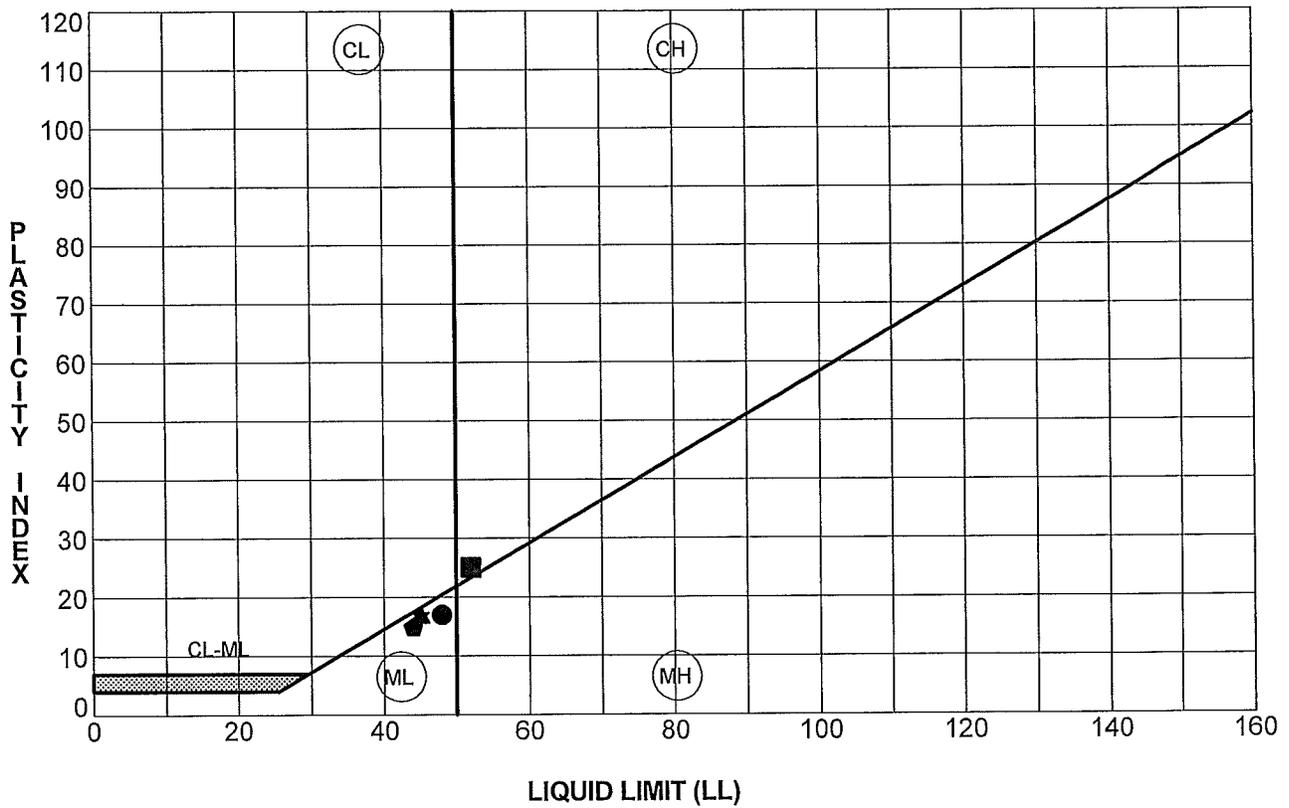
GRAIN SIZE DISTRIBUTION

Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 19



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 1 - 2	3.0	48	31	17	Gray/Brown Clayey SILT (ML) w/ Gravel
■ 3 - 4	5.5	52	27	25	Brown Silty CLAY (CH)
★ 4 - 4	8.5	45	28	17	Gray/Brown Clayey SILT (ML)
◆ 5 - 3	5.5	52	27	25	Brown Silty CLAY (CH)
▲ 6 - 3	5.5	45	28	17	Gray/Brown Clayey SILT (ML)
◆ Bag A -	0.0	44	29	15	Brown Silty SAND (SM) w/ Gravel



F.G.E. Ltd.

PLASTICITY INDEX CHART

Performing Arts Center
King Kekaulike High School
Pukalani, Maui, Hawaii

File: 3103.01

September 2012

Figure 20

TABLE I

Summary of Laboratory Test Results

Sample No.	Depth (ft)	Moisture Content (%)	Dry Density (pcf)	Direct Shear C (psf)	Phi (Degrees)	Liquid Limit (%)	Plasticity Index	Gradation			USC	Swell (%)	CBR
								Gravel (%)	Sand (%)	Silt/Clay (%)			
1-1	1.0	33	87										
1-2	3.0	38	82			48	17				ML		
1-3	5.5	47	75	38	700							0.3	
1-4	8.5	41	80										
1-5	13.5	34	90										
1-6	18.5	35	89										
1-7	23.5	32	93										
2-1	1.0	22	94										0.1
2-3	5.5	28	94										
2-4	8.5	34	81										
2-5	13.5	34	81										
3-3	3.0	17						16	38	46	SM CH		
3-4	5.5					52	25						
3-5	8.5	28	88										
3-6	13.5	32	81										
4-2	3.0	24						19	22	59	ML		
4-3	5.5	33	82										
4-4	8.5					45	17				ML		
4-5	13.5	31	90										
4-6	18.5	27	83										
4-7	23.5	35	80										
5-1	1.0	29							45	55	ML		
5-2	3.5	27	89									1.3	
5-3	5.5					52	25				CH		
5-4	8.5	34	87										

TABLE I (Continued)

Summary of Laboratory Test Results

Sample No.	Depth (ft)	Moisture Content (%)	Dry Density (pcf)	Direct Shear C (psf)	Phi (Degrees)	Liquid Limit (%)	Plasticity Index	Gravel (%)	Gradation		USC	Swell (%)	CBR
									Sand (%)	Silt/Clay (%)			
6-2	3.0	29	81			45	17				ML	1.1	
6-3	5.5	29	95										
6-4	8.5	28	96										
6-5	13.5	51	67										
7-1	1.0	15	96										
7-2	3.0	31	85									0.1	
7-4	8.5	27	71										
8-1	1.0	22											
Bag A	0.0					44	15	18	44	38	SM	0.8	35

APPENDIX C

Limitations

This report has been prepared for the exclusive use of **Leo A. Daly** for the **Performing Arts Center at King Kekaulike High School** in Pukalani, Maui, Hawaii. In the completion of the investigation and the preparation of this report, we have strived to perform our services in a manner consistent with that level of care and skill ordinarily exercised by members of the geotechnical profession practicing under similar conditions in Hawaii. No other warranty, either expressed or implied, is made.

The analysis, conclusions, and recommendations submitted in this report are based in part upon the data obtained in the test borings, and upon the assumption that the soil conditions do not deviate from those observed. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that planned at the present time, Fewell Geotechnical Engineering, Ltd. (FGE) should be notified so that supplemental recommendations can be given. The conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing.

Unanticipated soil conditions are commonly encountered and cannot be fully determined by soil samples, test borings, or test pits. Such unexpected conditions frequently require that additional expenditures be made to attain a properly constructed project. Some contingency funds are recommended to accommodate such potential extra costs.

The site investigation may not have disclosed the presence of underground structures, such as cesspools, drywells, storage tanks, etc. that may be present at the site. Should these items be encountered during construction, FGE should be notified to provide recommendations for their disposition. The cost for these services was not included within the fee for this investigation.

The scope of work for this investigation was limited to conventional geotechnical services and did not include environmental or archeological assessments or evaluations. Silence in the report regarding any archeological or environmental aspects of the site does not indicate the absence of potential environmental or archeological problems.

The boring locations were determined by approximate field measurements from existing features. Ground surface elevations at the boring locations were estimated from the Topographic Survey Map provided by Leo A. Daly. The locations and elevations of the borings should be considered accurate only to the degree implied by the methods used.

Groundwater was not encountered in any of the test borings of this investigation. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors not present at the time the measurements were taken.

FGE should be provided the opportunity for general review of the final design drawings and specifications to verify that the earthwork and foundation recommendations have been properly interpreted and implemented in the design and specification. If FGE is not afforded the privilege of making this recommended review, it can assume no responsibility for misinterpretations of the recommendations.

FGE should also be retained to provide periodic soil engineering services during construction. This is to observe compliance of the design concepts, specifications, and recommendations and to allow design changes in the event the subsurface conditions differ from that anticipated prior to construction. The recommendations contained herein are contingent upon adequate construction monitoring of the geotechnical phases of the construction by FGE.

TABLE I

Summary of Laboratory Test Results

Sample No.	Depth (ft)	Moisture Content (%)	Dry Density (pcf)	Direct Shear C (psf)	Phi (Degrees)	Liquid Limit	Plasticity Index	Gradation			USC	Swell (%)	CBR
								Gravel (%)	Sand (%)	Silt/Clay (%)			
1-1	1.0	33	87										
1-2	3.0	38	82			48	17				ML		
1-3	5.5	47	75	38	700								0.3
1-4	8.5	41	80										
1-5	13.5	34	90										
1-6	18.5	35	89										
1-7	23.5	32	93										
2-1	1.0	22	94										0.1
2-3	5.5	28	94										
2-4	8.5	34	81										
2-5	13.5	34	81										
3-3	3.0	17						16	38	46	SM		
3-4	5.5					52	25				CH		
3-5	8.5	28	88										
3-6	13.5	32	81										
4-2	3.0	24						19	22	59	ML		
4-3	5.5	33	82										
4-4	8.5					45	17				ML		
4-5	13.5	31	90										
4-6	18.5	27	83										
4-7	23.5	35	80										
5-1	1.0	29							45	55	ML		
5-2	3.5	27	89										1.3
5-3	5.5					52	25				CH		
5-4	8.5	34	87										

TABLE I (Continued)

Summary of Laboratory Test Results

Sample No.	Depth (ft)	Moisture Content (%)	Dry Density (pcf)	Direct Shear C (psf)	Phi (Degrees)	Liquid Limit (%)	Plasticity Index (%)	Gravel (%)	Gradation			USC	Swell (%)	CBR	
									Sand (%)	Silt/Clay (%)					
6-2	3.0	29	81												
6-3	5.5	29	95			45	17				ML		1.1		
6-4	8.5	28	96												
6-5	13.5	51	67												
7-1	1.0	15	96												
7-2	3.0	31	85										0.1		
7-4	8.5	27	71												
8-1	1.0	22													
Bag A	0.0					44	15	18	44	38	SM		0.8	35	

Appendix B- Traffic Assessment Report

Traffic Assessment Report

King Kekaulike High School *Performing Arts Center*



Prepared for:
Leo A. Daly

Prepared by:
Wilson Okamoto Corporation

November 2012

TRAFFIC ASSESSMENT REPORT
FOR THE
KING KEKAULIKE HIGH SCHOOL
PERFORMING ARTS CENTER

Prepared for:

Leo A. Daly
1357 Kapiolani Boulevard, Suite 1230
Honolulu, Hawaii 96814

Prepared by:

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1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC Ref #8252-01

November 2012

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to assess traffic operations with the proposed development of an auditorium at the existing King Kekaulike High School in Pukalani on the island of Maui. The proposed project entails the development of a Performing Arts Center at the existing high school.

B. Scope of Study

This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

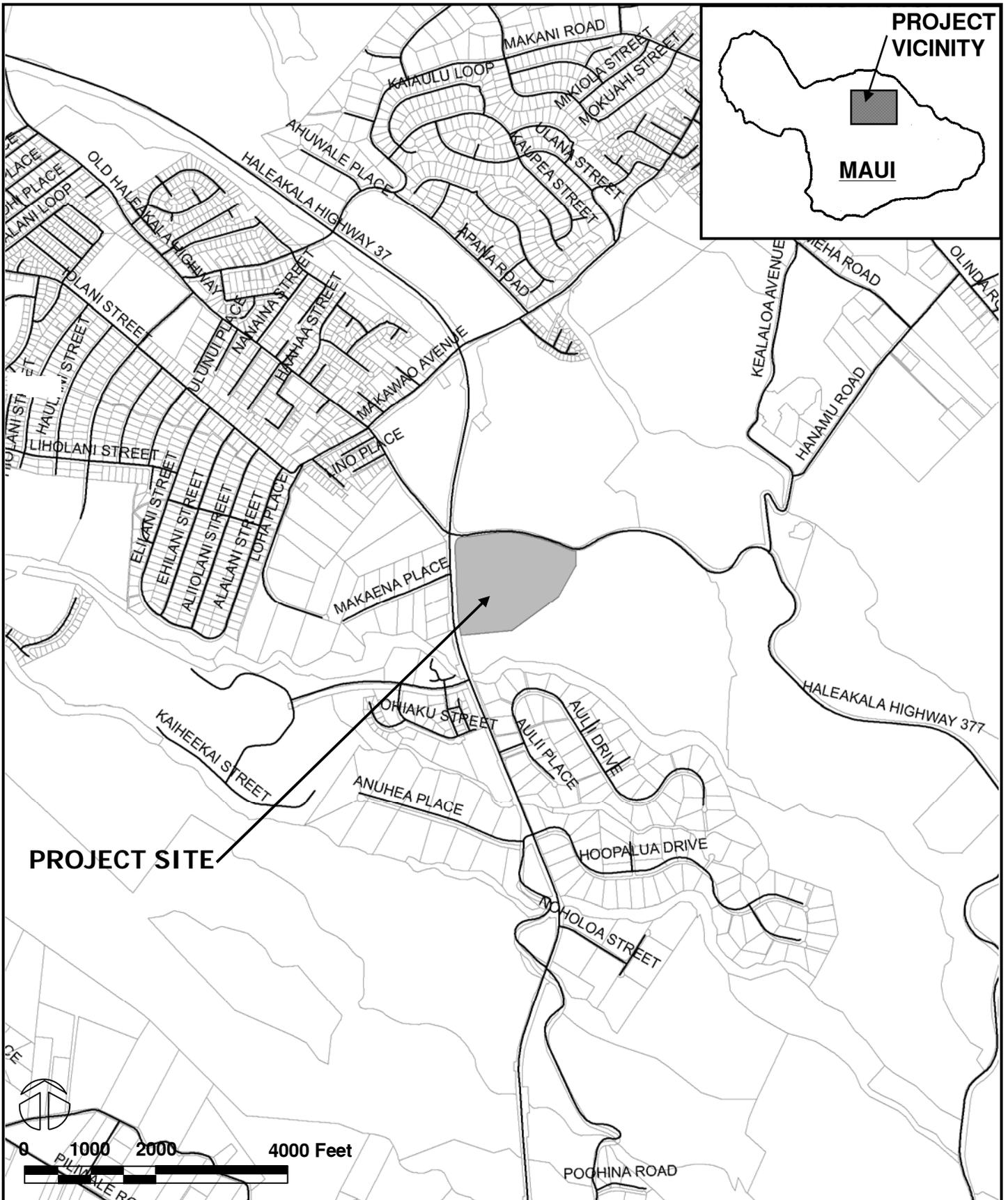
II. PROJECT DESCRIPTION

A. Location

The existing King Kekaulike High School is located adjacent to Kula Highway in Pukalani on the island of Maui (see Figure 1). The school is bounded by Kula Highway to the west, Haleakala Highway to the north, and agricultural uses to the east and south. Access to the school is currently provided via access roads off Kula Highway and Haleakala Highway.

B. Project Characteristics

The existing King Kekaulike High School currently includes classrooms, administrative uses, athletic facilities (such as a football field, track, tennis courts, and basketball courts), and parking areas that serve its approximately 1,066 students. The




WILSON OKAMOTO
CORPORATION
 ENGINEERS - PLANNERS

KING KEKAULIKE HIGH SCHOOL
LOCATION MAP AND VICINITY MAP

FIGURE
1

proposed project entails the development of a Performing Arts Center near the Administration Building and Tennis Courts to serve the existing student body. The facility will be developed in two phases and include the following:

- Performance facility with approximately 400 seats, a lobby, stage, and back-of-house areas (Phase 1)
- Black box theater facility with a maximum of 220 seats (Phase 2)
- Instructional areas (Phase 2)
- Administrative office areas (Phase 2)

The proposed facilities are anticipated to be completed by the Year 2015. Access to the project site will be provided via the existing school accesses. Figure 2 shows the proposed project site plan.

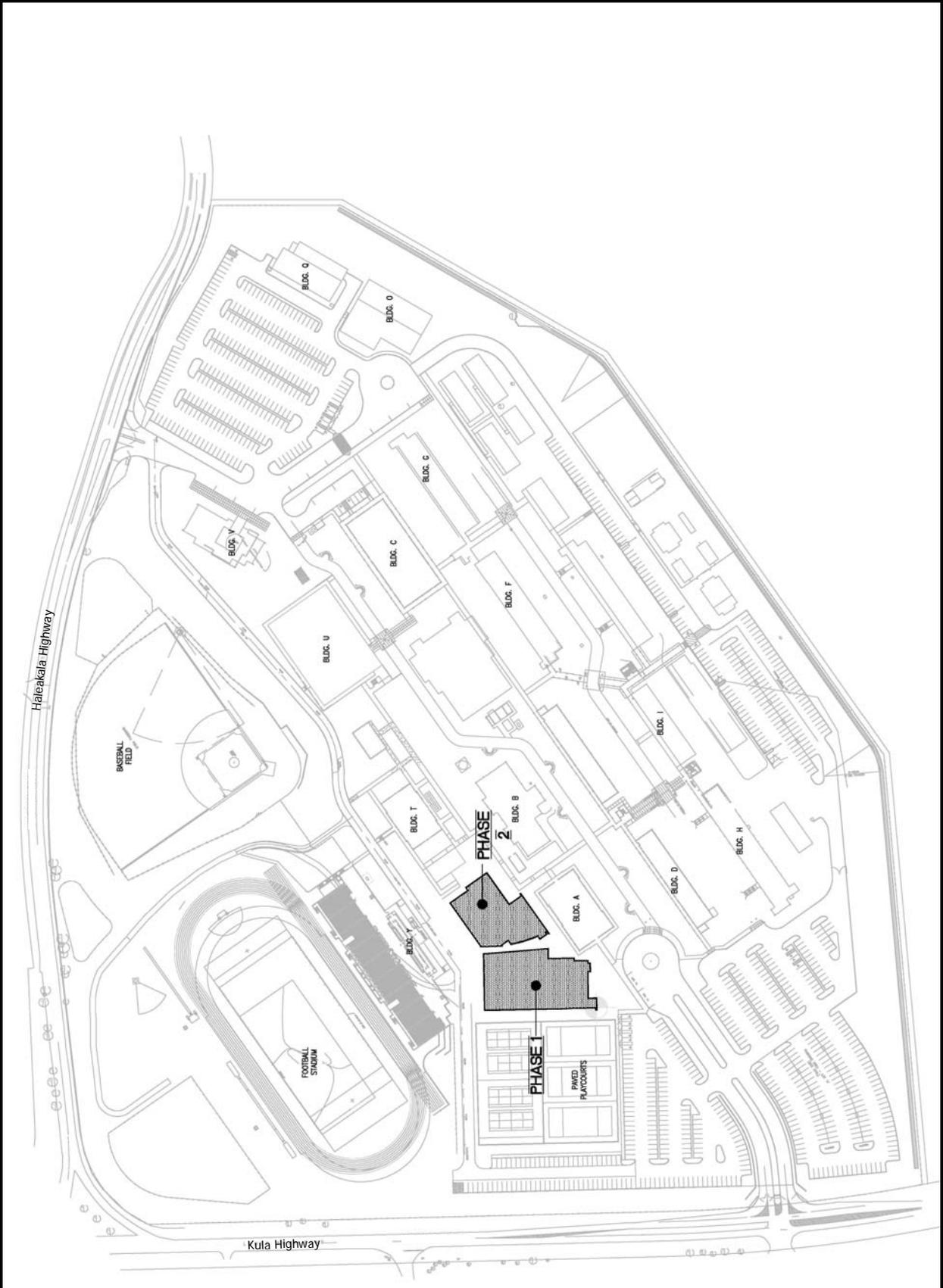
III. EXISTING TRAFFIC CONDITIONS

A. Area Roadway System

In the vicinity of the King Kekaulike High School, Kula Highway is a predominantly two-lane, two-way roadway with one lane generally oriented in the north-south direction with a posted speed limit of 45 mile per hour (mph). At the signalized intersection with Haleakala Highway, the northbound and southbound approaches of Kula Highway have one left-turn lane, one through lane, and one right-turn lane (see Figure 3). Haleakala Highway is a predominantly two-lane, two-way roadway with a posted speed limit of 35 mph. The eastbound approach of Haleakala Highway has one shared left-turn and through lane, and one right-turn lane while the westbound approach has one left-turn lane, one through lane, and one right-turn lane.

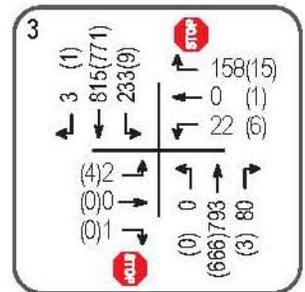
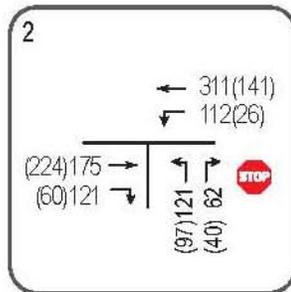
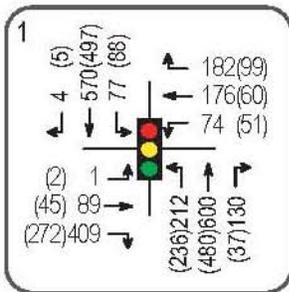
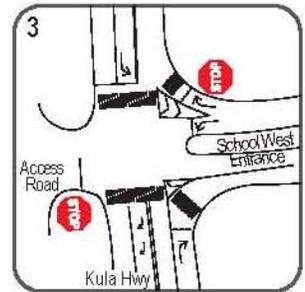
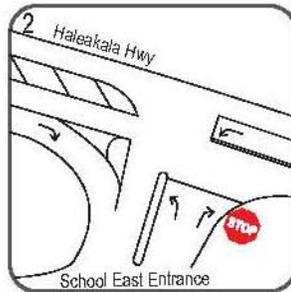
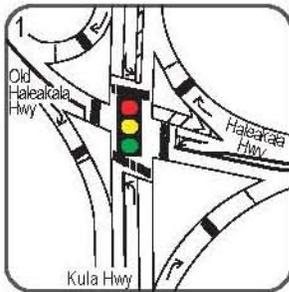
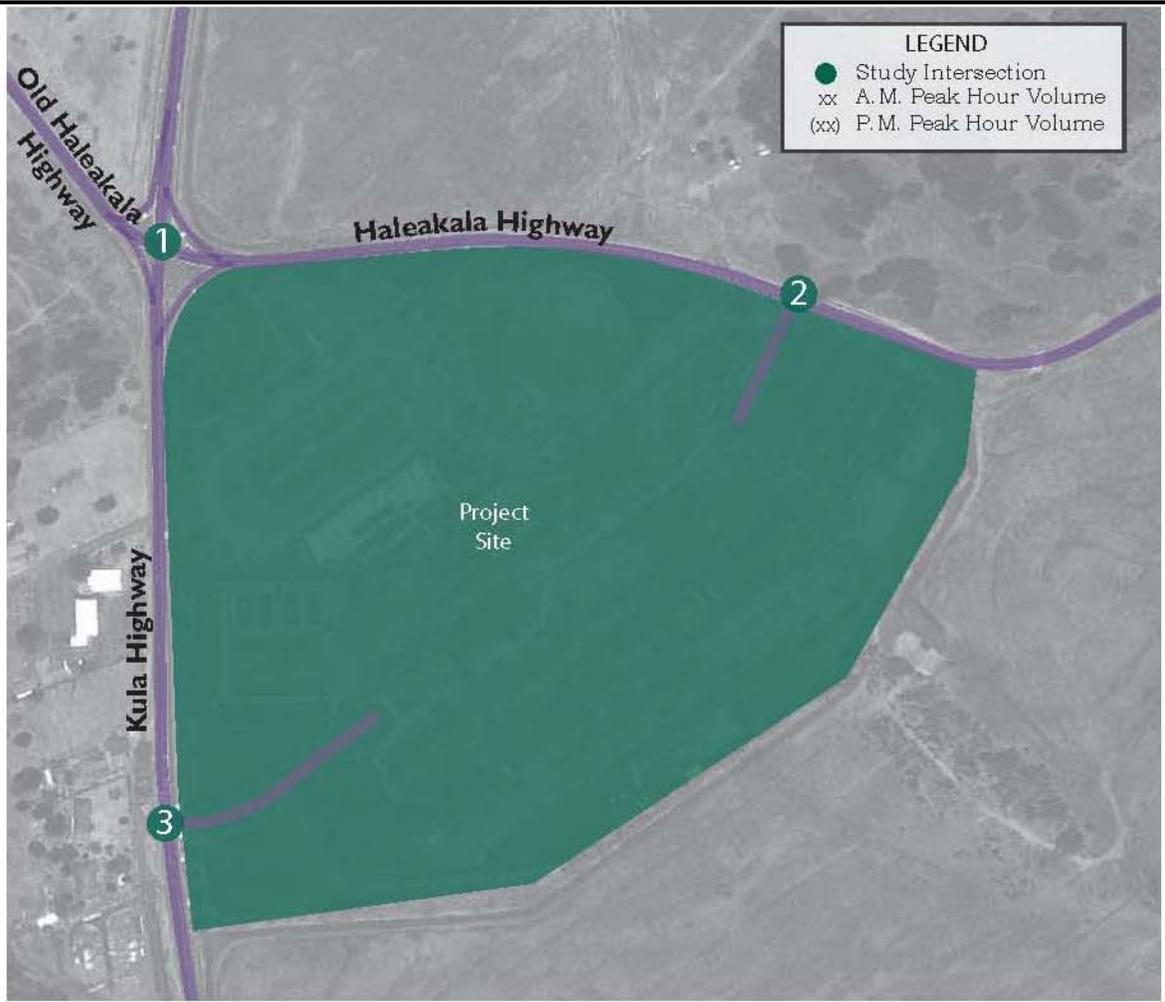
East of the intersection with Kula Highway, Haleakala Highway intersects an access for the adjacent King Kekaulike High School. At this unsignalized T-intersection, the eastbound approach of Haleakala Highway has one through lane and one right-turn lane while the westbound approach has one left-turn lane and one through lane. The northbound, stop-controlled approach from the school has one left-turn lane and one right-turn lane.

South of the intersection with Haleakala Highway, Kula Highway intersects an access for the adjacent school. At this unsignalized intersection, the northbound approach of Kula Highway has one shared left-turn and through lane, and one right-



KING KEKAULIKE HIGH SCHOOL
PROJECT SITE PLAN

FIGURE
 2



turn lane while the southbound approach has one left-turn lane and one shared through and right-turn lane. In addition, an acceleration lane is provided along the highway for vehicles turning right from the school onto the highway. The eastbound approach from the school has one stop-controlled lane that serves all movements. The westbound, stop-controlled approach of the intersection is an access road for a small adjacent residential subdivision that has one shared left-turn and through lane, and one right-turn lane.

B. Traffic Volumes and Conditions

1. General

a. Field Investigation

Field investigations were conducted in October and November 2012 and consisted of manual turning movement count surveys during the morning peak hours between 6:30 AM and 8:30 AM, and the afternoon peak hours between 2:00 PM and 5:00 PM at the following intersections:

- Kula Highway and Haleakala Highway
- Haleakala Highway and the School Access
- Kula Highway and the School Access

Appendix A includes the existing traffic count data.

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the “Highway Capacity Manual”, Transportation Research Board, 2000, and the “Synchro”, developed by Trafficware. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak periods of traffic.

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 traffic operating conditions

and LOS “F” unacceptable or potentially congested traffic operating conditions.

“Volume-to-Capacity” (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road’s carrying capacity. The LOS definitions are included in Appendix B.

2. Existing Peak Hour of Traffic

a. General

Figure 3 shows the existing AM and PM peak period traffic volumes. The morning peak hour of traffic generally occurs between 7:00 AM and 8:00 AM in the project vicinity. In the afternoon, the peak hour of traffic generally occurs between the hours of 4:00 PM and 5:00 PM. Although the peak hours of traffic generally occur during these periods, the analysis is conservatively based on the absolute peak hour time periods for each intersection to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.

b. Kula Highway and Haleakala Highway

At the intersection with Haleakala Highway, Kula Highway carries 942 vehicles northbound and 651 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are less with 753 vehicles traveling northbound and 590 vehicles traveling southbound. The critical traffic movements on the highway approaches at the intersection are the northbound left-turn traffic movement which operates at LOS “D” and LOS “C” during the AM and PM peak periods, respectively, and the southbound through traffic movement which operates at LOS “C” during both peak periods.

The Haleakala Highway approaches of the intersection carry 499 vehicles eastbound and 432 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are less with 319 vehicles traveling eastbound and 210 vehicles traveling westbound. The critical movements on the Haleakala Highway approaches of the intersection are the eastbound left-turn and through traffic movement which operates at LOS "C" during both peak periods and the westbound through traffic movement which operates at LOS "D" and LOS "C" during the AM and PM peak periods, respectively.

c. Haleakala Highway and the School Access

At the intersection with the access for King Kekaulike High School, Haleakala Highway carries 296 vehicles eastbound and 423 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are less with 284 vehicles traveling eastbound and 167 vehicles traveling westbound. The critical movement on the highway approaches of the intersection is the westbound left-turn traffic movement which operates at LOS "A" during both peak periods.

The school approach of the intersection carries 183 vehicles and 137 vehicles northbound during the AM and PM peak periods, respectively. The critical movement on this approach is the northbound left-turn traffic movement which operates at LOS "C" and LOS "B" during the AM and PM peak periods, respectively.

d. Kula Highway and the School Access

At the intersection with the access for King Kekaulike High School, Kula Highway carries 873 vehicles northbound and 1,051 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are less with 669 vehicles traveling northbound and 781 vehicles traveling southbound. The critical movement on the highway approaches of the intersection is the southbound left-turn and

through traffic movement which operates at LOS “B” and LOS “A” during the AM and PM peak periods, respectively.

The school approach of the intersection carries 180 vehicles and 22 vehicles westbound during the AM and PM peak periods, respectively. The critical movement on this approach is the westbound left-turn and through traffic movement which operates at LOS “F” during the AM peak period with extensive traffic queues observed on this approach during that period. However, these queues were observed to last for a relatively short time (approximately 15-20 minutes) and dissipated shortly after the beginning of the school hours. During the PM peak period, this approach operates at LOS “C.”

The eastbound approach is comprised of an access for an adjacent small subdivision which carries a low volume of traffic throughout the day. 3 vehicles and 4 vehicles were observed on this approach during the AM and PM peak periods, respectively.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in “Trip Generation, 9th Edition,” 2012. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per student. As previously stated, the proposed auditorium is expected to serve the existing students at the high school. As such, the proposed performance arts facility is not expected to generate additional trips during the AM and PM peak periods. However, the Department of Education (DOE) projects that student enrollment at the high school will increase without or with the construction of the proposed project. As such, for the purpose of this report, additional trips to and from the school

were generated based on the anticipated increases in student enrollment. Per the DOE, student enrollment at the high school is expected to increase by approximately 92 students by the Year 2015. Table 1 summarizes the trip generation characteristics applied to the AM and PM peak periods of traffic to account for the anticipated increases in student enrollment.

Table 1: Peak Hour Trip Generation

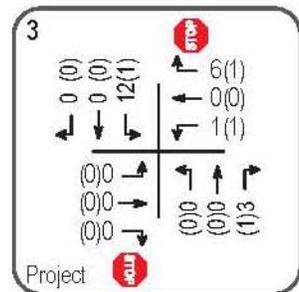
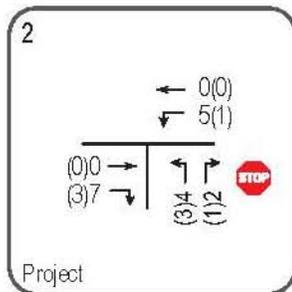
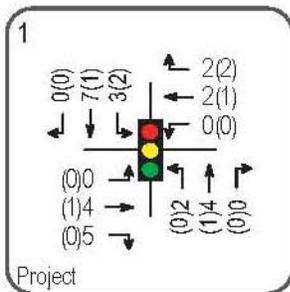
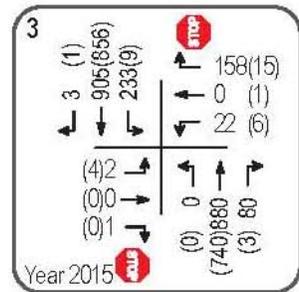
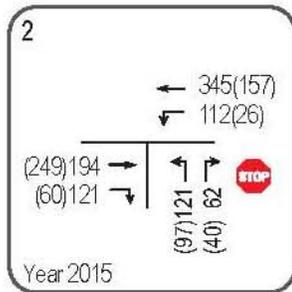
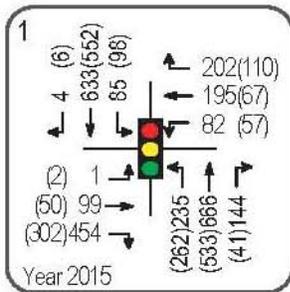
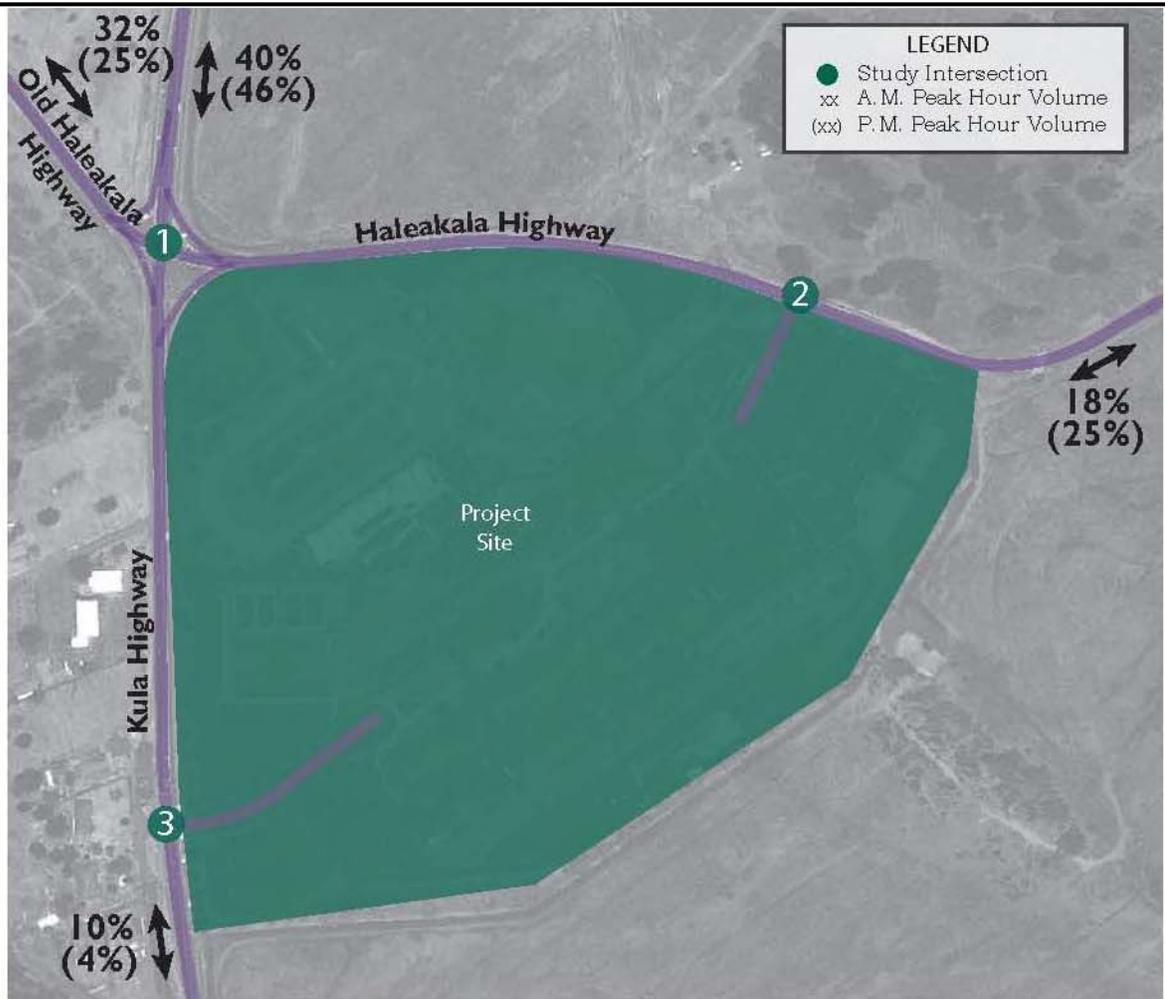
HIGH SCHOOL		PROJECTED TRIP ENDS
INDEPENDENT VARIABLE		
		Add'l Students = 92
AM PEAK	ENTER	27
	EXIT	13
	TOTAL	40
PM PEAK	ENTER	6
	EXIT	6
	TOTAL	12

2. Trip Distribution

Figure 4 shows the distribution of additional site-generated traffic during the AM and PM peak periods. Access to the existing school will continue to be provided via the accesses off Haleakala Highway and Kula Highway. The directional distribution of the additional site-generated trips was based on the relative distribution of traffic at study intersections as well as between the school accesses.

B. Through Traffic Forecasting Methodology

An analysis of both historical traffic data and traffic projections contained within the Maui Long-Range Land Transportation Plan (MLRLTP) was made to determine an appropriate ambient growth of traffic demands in the project vicinity. Using linear regression analyses, historical data indicates an average annual traffic growth rate in the vicinity of approximately 2.7%, while the MLRLTP indicates an average annual traffic growth rate of less than 0.5%. Therefore, for conservative analysis purposes, the travel forecast used in this study is based upon the historical traffic count data obtained from the State Department of Transportation (DOT). Using Year 2012 as the base year, a growth factor of 1.11 was applied to the existing



traffic demands on the highways to achieve the projected ambient traffic demands for Year 2015.

C. Total Traffic Volumes

The Year 2015 cumulative AM and PM peak hour traffic volumes are shown in Figures 5, and summarized in Table 2. As previously discussed, these projected volumes are representative of the without and with project conditions since the proposed Performing Arts Center is expected to serve the existing student body. The cumulative volumes consist of additional site-generated traffic superimposed over Year 2015 projected traffic demands. The existing operating conditions are provided for comparison purposes. LOS calculations are included in Appendix D.

Table 2: Existing and Projected Year 2015 Traffic Operating Conditions

Intersection	Critical Movement		AM		PM	
			Exist	Year 2015	Exist	Year 2015
Kula Hwy/ Haleakala Hwy	Eastbound	LT-TH	C	D	C	C
	Westbound	TH	C	D	C	C
	Northbound	LT	D	D	C	C
	Southbound	TH	C	C	C	C
Haleakala Hwy/ School Access	Westbound	LT	A	A	A	A
	Northbound	LT	C	C	B	B
Kula Hwy/ School Access	Westbound	LT-TH	F	F	C	C
	Southbound	LT-TH	B	B	A	A

Traffic operations in the vicinity of King Kekaulike High School are expected, in general, to remain similar to existing conditions despite the anticipated increases in traffic along the surrounding roadways due to the development of the proposed project. The critical movements at the intersection of Kula Highway with Haleakala Highway are expected to operate at LOS “D” or better during the AM peak period and LOS “C” during the PM peak period while those at the intersection of Haleakala Highway with the school access are expected to operate at LOS “C” or better during the AM peak period and LOS “B” or better during the PM peak period. At the intersection of Kula Highway with the school access, although the levels of service

during both peak periods are expected to remain similar to existing conditions, exiting traffic from the high school currently experiences high delay during the AM peak period. As such, the preparation of a Traffic Management Plan for the school is recommended to address before and after school traffic, as well as, special events at the school. These special events which include athletic and performing arts events are primarily expected to occur during off-peak periods. In addition, it is recommended that the school consider the provision of an off-duty officer or trained crossing guard at the intersection of Kula Highway with the school access during the morning peak period to assist vehicles exiting the school, as well as, pedestrians crossing the highway to access the school.

V. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study to be incorporated in the project design.

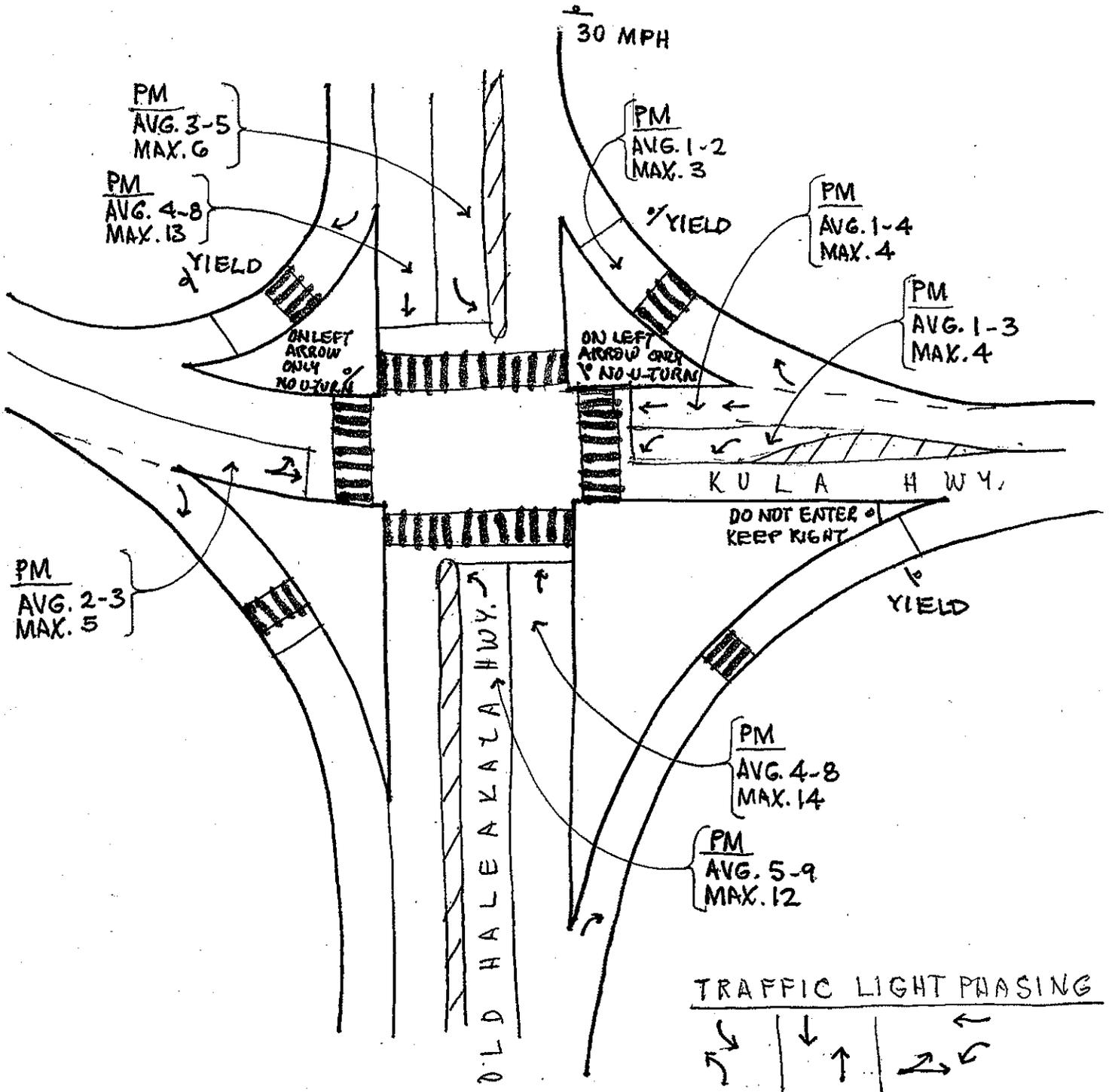
1. Maintain sufficient sight distance for motorists to safely enter and exit all project roadways.
2. Maintain adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
3. Maintain adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.
4. Maintain sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
5. Prepare a Traffic Management Plan for the high school to minimize the impact of school related vehicles on the surrounding roadways. This plan should address daily school and special event traffic.
6. Consider providing an off-duty officer or trained crossing guard at the intersection of Kula Highway with the school access during the morning peak period to assist vehicles exiting the school, as well as, pedestrians crossing the highway to access the school.

VI. CONCLUSION

King Kekaulike High School currently includes classrooms, administrative uses, athletic facilities (such as a football field, track, tennis courts, and basketball courts), and parking areas that serve its approximately 1,066 students. The proposed project entails the development of a Performing Arts Center to serve the existing student body. As previously discussed, the proposed facility is not anticipated to generate additional traffic during the AM and PM peak periods. As such, traffic operations in the vicinity of the school are expected to continue operating at levels of service similar to existing conditions without or with the construction of the facility. However, traffic operations at the school access off Kula Highway are currently congested during the morning peak period. As such, the preparation of a Traffic Management Plan is recommended to address before and after school traffic, as well as, special events at the school. In addition, it is recommended that the school consider the provision of an off-duty officer or trained crossing guard at that intersection.

APPENDIX A

EXISTING TRAFFIC COUNT DATA



TRAFFIC LIGHT PHASING



TRAFFIC LIGHT TIMING

63 SEC.	107 SEC.	120 SEC.
120 SEC.	120 SEC.	112 SEC.
80 SEC.	120 SEC.	120 SEC.
66 SEC.	85 SEC.	

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, Hawaii

File Name : Halkula AM
 Site Code : 00000002
 Start Date : 10/23/2012
 Page No : 1

Counted By: JY, TO
 Counter: D4-3889, D4-3890
 Weather: Clear

Groups Printed- Unshifted

Start Time	Kula Highway Southbound						Old Heleakala Highway Westbound						Kula Highway Northbound						Old Heleakala Highway Eastbound											
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total
06:30 AM	5	45	0	0	50	2	4	23	0	29	29	96	5	1	131	0	6	39	0	45	0	6	39	0	45	0	6	39	0	45
06:45 AM	12	62	0	0	74	7	5	19	0	31	30	139	9	2	180	0	12	46	0	58	0	12	46	0	58	0	12	46	0	58
Total	17	107	0	0	124	9	9	42	0	60	59	235	14	3	311	0	18	85	0	103	0	18	85	0	103	0	18	85	0	103
07:00 AM	19	129	0	0	148	11	22	40	0	73	53	169	17	1	240	1	14	91	0	106	0	14	91	0	106	0	14	91	0	106
07:15 AM	25	169	0	0	194	27	44	51	0	122	63	165	42	0	270	0	25	126	0	151	0	25	126	0	151	0	25	126	0	151
07:30 AM	22	147	1	0	170	13	61	55	0	129	47	141	40	0	228	0	38	126	0	164	0	38	126	0	164	0	38	126	0	164
07:45 AM	11	125	3	0	139	23	49	36	0	108	49	125	31	0	205	0	12	66	0	78	0	12	66	0	78	0	12	66	0	78
Total	77	570	4	0	651	74	176	182	0	432	212	600	130	1	943	1	89	409	0	499	0	89	409	0	499	0	89	409	0	499
08:00 AM	8	65	0	0	73	11	22	30	0	63	34	93	7	0	134	1	6	43	0	50	0	6	43	0	50	0	6	43	0	50
08:15 AM	15	78	1	0	89	7	11	22	0	40	42	117	8	0	165	1	4	45	0	50	0	4	45	0	50	0	4	45	0	50
Grand Total	117	815	5	0	937	101	218	276	0	595	347	1045	157	4	1553	3	117	592	0	702	0	117	592	0	702	0	117	592	0	702
Approch %	12.5	87	0.5	0	24.7	17	36.6	46.4	0	22.3	22.3	67.3	10.1	0.3	41	0.4	16.7	82.9	0	18.5	0	16.7	82.9	0	18.5	0	16.7	82.9	0	18.5
Total %	3.1	21.5	0.1	0	24.7	2.7	5.8	7.3	0	15.7	9.2	27.6	4.1	0.1	41	0.1	3.1	15.4	0	18.5	0	3.1	15.4	0	18.5	0	3.1	15.4	0	18.5

Start Time	Kula Highway Southbound						Old Heleakala Highway Westbound						Kula Highway Northbound						Old Heleakala Highway Eastbound											
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total
07:00 AM	19	129	0	0	148	11	22	40	0	73	53	169	17	1	240	1	14	91	0	106	0	14	91	0	106	0	14	91	0	106
07:15 AM	25	169	0	0	194	27	44	51	0	122	63	165	42	0	270	0	25	126	0	151	0	25	126	0	151	0	25	126	0	151
07:30 AM	22	147	1	0	170	13	61	55	0	129	47	141	40	0	228	0	38	126	0	164	0	38	126	0	164	0	38	126	0	164
07:45 AM	11	125	3	0	139	23	49	36	0	108	49	125	31	0	205	0	12	66	0	78	0	12	66	0	78	0	12	66	0	78
Total Volume	77	570	4	0	651	74	176	182	0	432	212	600	130	1	943	1	89	409	0	499	0	89	409	0	499	0	89	409	0	499
% App. Total	11.8	87.6	0.6	0	24.7	17.1	40.7	42.1	0	15.7	22.5	63.7	13.8	0.2	41	0.2	17.8	82	0	18.5	0	17.8	82	0	18.5	0	17.8	82	0	18.5
P-HF	.770	.843	.333	0	.839	.685	.721	.827	0	.837	.841	.888	.774	.872	.872	.250	.586	.812	0	.761	0	.586	.812	0	.761	0	.586	.812	0	.761

Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:00 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, Hawaii

Counted By: RY, TO
 Counter: D4-3889, D4-3890
 Weather: Clear

File Name : HalKula PM
 Site Code : 00000002
 Start Date : 11/1/2012
 Page No : 1

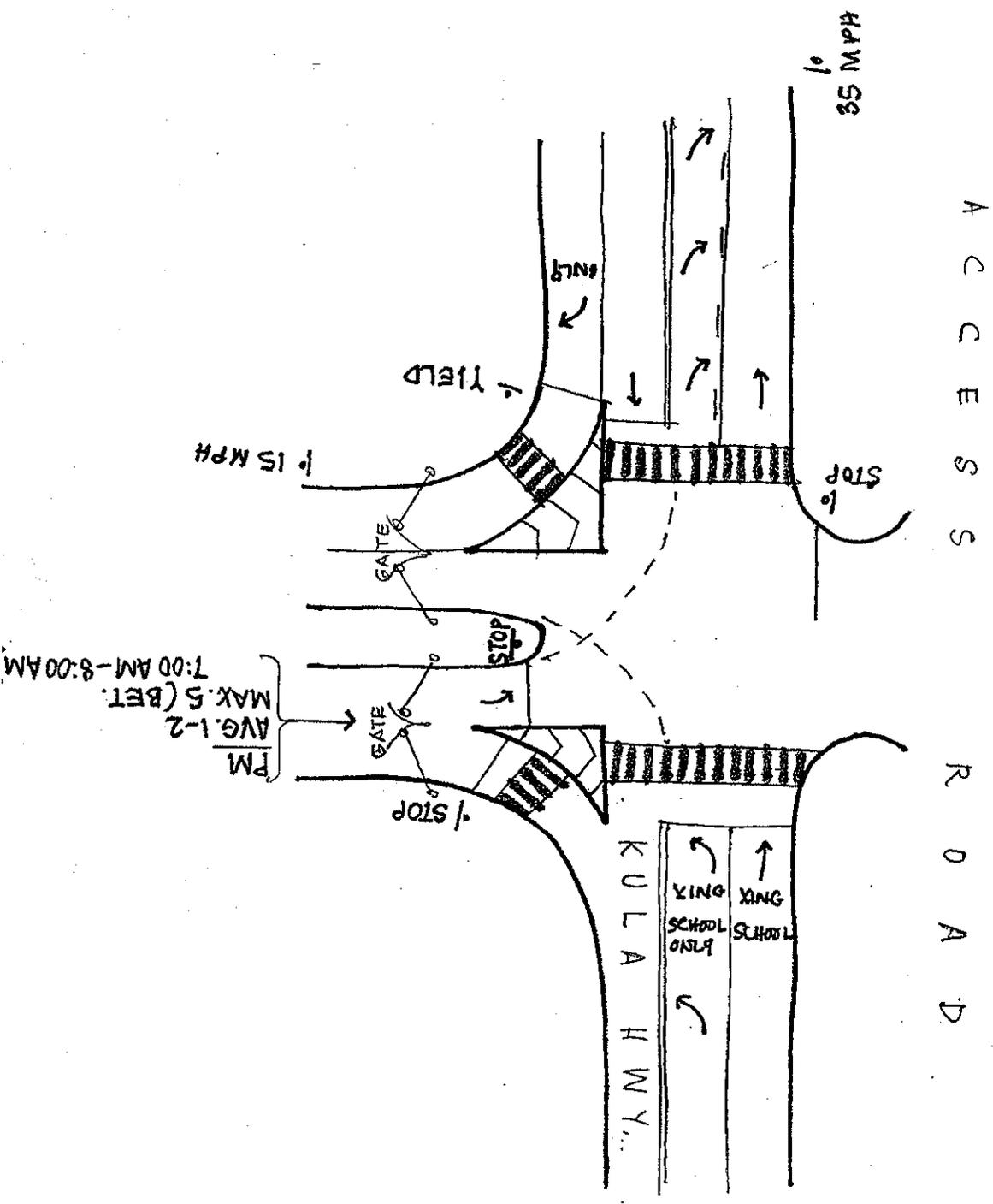
Groups Printed: Unshifted

Start Time	Kula Highway Southbound				Haleakala Highway Westbound				Kula Highway Northbound				Old Haleakala Highway Eastbound							
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds				
02:00 PM	10	76	2	0	12	39	42	0	93	81	107	19	21	228	2	16	61	0	79	488
02:15 PM	15	112	0	0	21	24	22	2	69	67	121	9	17	214	0	14	60	0	74	484
02:30 PM	17	131	0	0	8	148	8	0	44	81	120	9	1	211	1	9	60	0	70	473
02:45 PM	18	103	2	0	9	8	20	0	37	74	133	22	1	230	0	17	60	0	77	467
Total	60	422	4	0	50	79	112	2	243	303	481	59	40	883	3	56	241	0	300	1912
03:00 PM	15	89	2	0	18	8	20	0	46	64	131	20	0	215	0	9	58	0	67	494
03:15 PM	18	91	1	0	17	8	28	0	53	64	103	12	0	179	1	11	58	0	70	412
03:30 PM	18	99	0	0	12	15	18	0	45	59	101	9	0	169	2	7	64	0	73	404
03:45 PM	21	108	2	0	12	13	20	0	45	60	126	10	0	196	0	4	56	0	60	432
Total	72	387	5	0	59	44	86	0	189	247	461	51	0	759	3	31	236	0	270	1682
04:00 PM	23	116	1	0	9	21	35	0	65	51	127	4	1	183	1	11	70	0	82	470
04:15 PM	27	140	0	0	18	11	30	0	59	64	137	13	0	214	0	19	76	0	95	535
04:30 PM	17	133	2	0	12	15	14	0	41	61	90	10	0	161	1	11	70	0	82	436
04:45 PM	16	105	1	0	11	12	20	0	43	64	115	12	0	191	1	11	62	0	74	430
Total	83	494	4	0	50	59	99	0	208	240	469	39	1	749	3	52	278	0	333	1871
Grand Total	215	1303	13	0	159	182	297	2	640	790	1411	149	41	2391	9	139	755	0	903	5465
Approch %	14	85.1	0.8	0	24.8	28.4	46.4	0.3	11.7	14.5	25.8	2.7	0.8	43.8	0.2	2.5	13.8	0	16.5	
Total %	3.9	23.8	0.2	0	2.9	3.3	5.4	0	11.7	14.5	25.8	2.7	0.8	43.8	0.2	2.5	13.8	0	16.5	

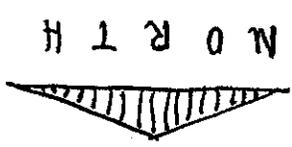
Start Time	Kula Highway Southbound				Haleakala Highway Westbound				Kula Highway Northbound				Old Haleakala Highway Eastbound							
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds				
03:45 PM	21	108	2	0	12	13	20	0	45	60	126	10	0	196	0	4	56	0	60	432
04:00 PM	23	116	1	0	9	21	35	0	65	51	127	4	1	183	1	11	70	0	82	470
04:15 PM	27	140	0	0	18	11	30	0	59	64	137	13	0	214	0	19	76	0	95	535
04:30 PM	17	133	2	0	12	15	14	0	41	61	90	10	0	161	1	11	70	0	82	436
04:45 PM	16	105	1	0	11	12	20	0	43	64	115	12	0	191	1	11	62	0	74	430
Total	88	497	5	0	51	60	99	0	210	236	480	37	0	753	2	45	272	0	319	1872
% App. Total	14.9	84.2	0.8	0	24.3	28.6	47.1	0	11.7	14.5	25.8	2.7	0.8	43.8	0.2	2.5	13.8	0	16.5	
PHF	.815	.888	.625		.708	.714	.707		.808	.922	.876	.712		.880	.500	.592	.895		.839	.875

Peak Hour Analysis From 02:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 03:45 PM

KING KEARLINE HIGH SCHOOL
WEST GATE



A C C E S S R O A D



Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, Hawaii

Counted By: JS, CM
 Counter: D4-5672, D4-5676
 Weather: Clear

File Name : Kekaulike H.S. West Entrance AM
 Site Code : 00000003
 Start Date : 10/23/2012
 Page No : 1

Groups Printed- Unshifted

Start Time	Kula Highway Southbound						Kekaulike H.S. West Entrance Westbound						Kula Highway Northbound						Access Road Eastbound					
	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	8	79	0	0	87	1	1	0	0	0	1	0	0	129	1	0	130	1	0	0	0	0	0	2
06:45 AM	22	93	1	1	117	3	0	0	11	0	14	0	0	162	6	0	168	0	0	0	1	0	1	1
Total	30	172	1	1	204	4	0	0	11	0	15	0	0	291	7	0	298	1	0	0	1	1	1	3
07:00 AM	39	191	0	0	230	5	5	0	29	0	34	0	0	212	17	0	229	0	0	0	0	0	0	0
07:15 AM	76	246	0	0	322	6	6	0	48	0	54	0	0	222	26	3	251	1	0	0	0	0	0	1
07:30 AM	85	197	1	1	284	7	0	0	53	0	60	0	0	180	19	4	203	0	0	0	1	1	1	2
07:45 AM	33	181	2	0	216	4	0	0	28	0	32	0	0	179	18	0	197	1	0	0	0	0	0	1
Total	233	815	3	1	1052	22	0	0	158	0	180	0	0	793	80	7	880	2	0	0	1	1	1	4
08:00 AM	10	107	0	0	117	0	0	1	10	0	11	0	0	130	2	0	132	1	0	1	0	0	0	2
08:15 AM	7	114	1	0	122	0	0	0	7	0	7	0	0	149	4	0	153	1	1	1	0	0	0	2
Grand Total	280	1208	5	2	1495	26	1	1	186	0	213	0	0	1363	93	7	1463	5	5	1	3	2	11	11
Approch %	18.7	80.8	0.3	0.1		12.2	0.5	87.3	0	0	6.7	0	0	93.2	6.4	0.5	46	45.5	9.1	27.3	18.2	0.1	0.1	0.3
Total %	8.8	38	0.2	0.1	47	0.8	0	5.8	0	0	6.7	0	0	42.8	2.9	0.2	46	0.2	0	0	0.1	0.1	0.1	0.3

Start Time	Kula Highway Southbound						Kekaulike H.S. West Entrance Westbound						Kula Highway Northbound						Access Road Eastbound					
	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	39	191	0	0	230	5	5	0	29	0	34	0	0	212	17	0	229	0	0	0	0	0	0	0
07:15 AM	76	246	0	0	322	6	6	0	48	0	54	0	0	222	26	3	248	1	0	0	0	0	0	1
07:30 AM	85	197	1	1	283	7	0	0	53	0	60	0	0	180	19	4	199	0	0	0	1	1	1	1
07:45 AM	33	181	2	0	216	4	0	0	28	0	32	0	0	179	18	0	197	1	0	0	0	0	0	1
Total Volume	233	815	3	1	1051	22	0	0	158	0	180	0	0	793	80	7	873	2	0	0	1	1	1	3
% App. Total	22.2	77.5	0.3	0		12.2	0	87.8	0	0	6.7	0	0	90.8	9.2	0	66.7	66.7	0	0	33.3	0	0	3
PHF	.685	.828	.375		.816	.786	.000	.000	.745	.750	.750	.000	.893	.893	.769	.880	.500	.000	.250	.750	.750	.750	.843	

Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:00 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, Hawaii

File Name : Kekaulike H.S. West Entrance PM
 Site Code : 00000003
 Start Date : 11/1/2012
 Page No : 1

Counted By: JY, CM
 Counter: D4-5676, D4-5672
 Weather: Clear

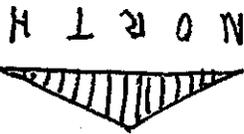
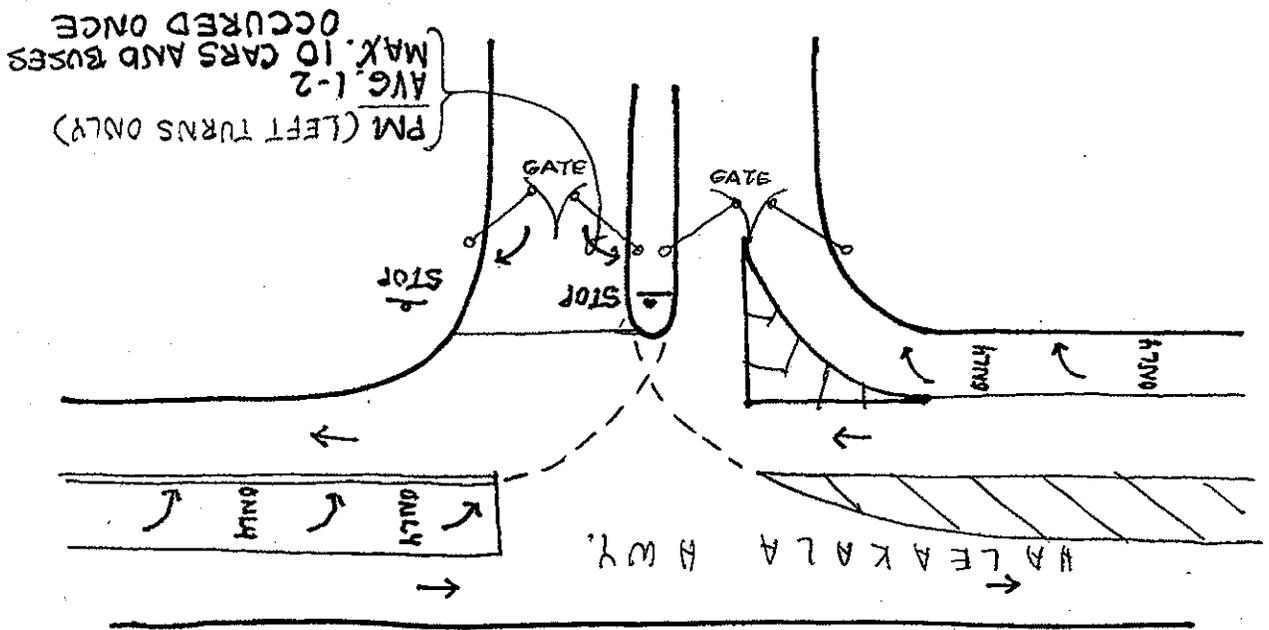
Groups Printed - Unshifted

Start Time	Kula Highway Southbound				Kekaulike H.S. West Entrance Westbound				Kula Highway Northbound				Access Road Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:00 PM	29	114	1	6	150	18	1	77	0	96	0	104	4	2	110	2	0	0	0	2	358
02:15 PM	25	156	0	0	181	8	0	41	0	49	0	134	2	3	139	0	0	1	0	1	370
02:30 PM	11	164	3	0	178	5	0	21	0	26	0	159	0	0	159	1	0	0	0	1	364
02:45 PM	5	146	1	0	152	1	0	6	0	7	0	169	1	4	174	0	0	1	1	2	395
Total	70	580	5	6	661	32	1	145	0	178	0	566	7	9	582	3	0	2	1	6	1427
03:00 PM	2	144	1	0	147	0	0	7	0	7	0	143	5	0	148	1	0	1	0	2	304
03:15 PM	8	148	1	0	157	4	0	2	0	6	0	105	0	0	105	0	0	1	0	1	289
03:30 PM	3	159	0	0	162	2	0	8	0	10	0	152	1	0	153	1	0	0	0	1	326
03:45 PM	1	158	0	0	157	1	0	3	0	4	1	154	1	0	156	0	0	0	0	0	317
Total	14	607	2	0	623	7	0	20	0	27	1	554	7	0	562	2	0	2	0	4	1216
04:00 PM	5	183	0	0	188	4	1	11	0	16	0	174	0	0	174	3	0	0	0	0	381
04:15 PM	2	218	1	0	221	0	0	1	0	1	0	152	1	0	153	1	0	0	0	1	376
04:30 PM	0	216	0	0	216	1	0	1	0	2	0	178	1	0	179	0	0	0	0	0	397
04:45 PM	2	154	0	0	156	1	0	2	0	3	0	162	1	0	163	0	0	0	0	0	322
Total	9	771	1	0	781	6	1	15	0	22	0	666	3	0	669	4	0	0	0	0	1476
Grand Total	93	1958	8	6	2065	45	2	180	0	227	1	1786	17	9	1813	9	0	4	1	14	4119
Approach %	4.5	94.8	0.4	0.3		19.8	0.9	79.3	0		0.1	98.5	0.9	0.5		64.3	0	28.6	7.1	0	
Total %	2.3	47.5	0.2	0.1	50.1	1.1	0	4.4	0	5.5	0	43.4	0.4	0.2	44	0.2	0	0.1	0	0.3	

Start Time	Kula Highway Southbound				Kekaulike H.S. West Entrance Westbound				Kula Highway Northbound				Access Road Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	5	183	0	0	188	4	1	11	0	16	0	174	0	0	174	3	0	0	0	3	381
04:15 PM	2	218	1	0	221	0	0	1	0	1	0	152	1	0	153	1	0	0	0	1	376
04:30 PM	0	216	0	0	216	1	0	1	0	2	0	178	1	0	179	0	0	0	0	0	397
04:45 PM	2	154	0	0	156	1	0	2	0	3	0	162	1	0	163	0	0	0	0	0	322
Total Volume	9	771	1	0	781	6	1	15	0	22	0	666	3	0	669	4	0	0	0	4	1476
% App. Total	1.2	98.7	0.1			27.3	4.5	86.2	0		0.00	99.6	0.4			100	0	0	0		99.9
PHF	.450	.884	.250		.863	.375	.250	.341		.344	.000	.935	.750		.934	.333	.000	.000		.333	.929

Peak Hour Analysis From 02:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

KING KEARU LIKE HIGH SCHOOL
EAST GATE



Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, Hawaii

File Name : Kekaulike H.S. East Entrance AM
 Site Code : 00000001
 Start Date : 10/23/2012
 Page No : 1

Counted By:KT
 Counter:D4-5673
 Weather:Clear

Groups Printed- Unshifted															
Start Time	Old Haleakala Highway Westbound					Kekaulike High School East Entrance Northbound					Old Haleakala Highway Eastbound				
	Left	Thru	Right	App. Total	Southbound App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
06:30 AM	1	27	0	28	0	2	0	0	2	0	12	4	16	16	46
06:45 AM	2	21	0	23	0	10	0	0	10	0	19	14	33	33	66
Total	3	48	0	51	0	12	0	0	12	0	31	18	49	49	112
07:00 AM	17	51	0	68	0	23	0	6	29	0	22	27	49	49	146
07:15 AM	44	80	0	124	0	41	0	21	62	0	52	41	93	93	279
07:30 AM	40	96	0	136	0	33	0	24	57	0	66	34	100	100	293
07:45 AM	11	84	0	95	0	24	0	11	35	0	35	19	54	54	184
Total	112	311	0	423	0	121	0	62	183	0	175	121	296	296	902
08:00 AM	0	62	0	62	0	1	0	0	1	0	20	1	21	21	84
08:15 AM	0	40	0	40	0	0	0	0	0	0	24	0	24	24	64
Grand Total	115	461	0	576	0	134	0	62	196	0	250	140	390	390	1162
Approch %	20	80	0	68.4	0	68.4	0	31.6	16.9	0	64.1	35.9	33.6	33.6	
Total %	9.9	39.7	0	49.6	0	11.5	0	5.3	16.9	0	21.5	12	33.6	33.6	

Start Time	Old Haleakala Highway Westbound					Kekaulike High School East Entrance Northbound					Old Haleakala Highway Eastbound				
	Left	Thru	Right	App. Total	Southbound App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
07:00 AM	17	51	0	68	0	23	0	6	29	0	22	27	49	49	146
07:15 AM	44	80	0	124	0	41	0	21	62	0	52	41	93	93	279
07:30 AM	40	96	0	136	0	33	0	24	57	0	66	34	100	100	293
07:45 AM	11	84	0	95	0	24	0	11	35	0	35	19	54	54	184
Total Volume	112	311	0	423	0	121	0	62	183	0	175	121	296	296	902
% App. Total	28.5	73.5	0	66.1	0	66.1	0	33.9	18.3	0	59.1	40.9	33.6	33.6	
PHF	.636	.810	.000	.778	.000	.738	.000	.646	.738	.000	.663	.738	.740	.740	.770

Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:00 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, Hawaii

Counted By:KT
 Counter:D4-5677
 Weather:Clear

File Name : Kekaulike H.S. East Entrance PM
 Site Code : 00000001
 Start Date : 10/23/2012
 Page No : 1

Groups Printed- Unshifted

Start Time	Heleakala Highway Westbound					Kekaulike H.S. East Entrance Northbound					Old Haleakala Highway Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:00 PM	15	29	0	0	44	50	0	22	0	72	0	30	19	0	49	165
02:15 PM	6	42	0	0	48	21	0	11	1	33	0	51	26	0	77	168
02:30 PM	3	37	0	0	40	17	0	3	3	23	0	66	6	0	72	135
02:45 PM	2	33	0	0	35	9	0	4	0	13	0	77	9	0	86	134
Total	26	141	0	0	167	97	0	40	4	141	0	224	60	0	284	592
03:00 PM	2	44	0	0	46	4	0	2	0	6	0	55	7	0	62	114
03:15 PM	1	54	0	0	55	13	0	2	0	15	0	38	6	0	44	114
03:30 PM	2	40	0	0	42	8	0	1	0	9	0	38	16	0	54	105
03:45 PM	1	42	0	0	43	9	0	1	0	10	0	38	18	0	56	109
Total	6	180	0	0	186	34	0	6	0	40	0	169	47	0	216	442
04:00 PM	4	36	0	0	40	25	0	4	0	29	0	48	29	0	77	146
04:15 PM	2	34	0	0	36	15	0	2	0	17	0	38	21	0	59	112
04:30 PM	0	34	0	0	34	10	0	2	0	12	0	30	29	0	59	105
04:45 PM	3	27	0	0	30	10	0	1	0	11	0	38	22	0	60	101
Total	9	131	0	0	140	60	0	9	0	69	0	154	101	0	255	464
Grand Total	41	452	0	0	493	191	0	55	4	250	0	547	208	0	755	1498
Approach %	8.3	91.7	0	0		76.4	0	22	1.6		0	72.5	27.5	0		
Total %	2.7	30.2	0	0	32.9	12.8	0	3.7	0.3	16.7	0	36.5	13.9	0	50.4	

Start Time	Heleakala Highway Westbound					Kekaulike H.S. East Entrance Northbound					Old Haleakala Highway Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:00 PM	15	29	0	0	44	50	0	22	0	72	0	30	19	0	49	165
02:15 PM	6	42	0	0	48	21	0	11	1	33	0	51	26	0	77	168
02:30 PM	3	37	0	0	40	17	0	3	3	23	0	66	6	0	72	135
02:45 PM	2	33	0	0	35	9	0	4	0	13	0	77	9	0	86	134
Total	26	141	0	0	167	97	0	40	4	141	0	224	60	0	284	592
03:00 PM	2	44	0	0	46	4	0	2	0	6	0	55	7	0	62	114
03:15 PM	1	54	0	0	55	13	0	2	0	15	0	38	6	0	44	114
03:30 PM	2	40	0	0	42	8	0	1	0	9	0	38	16	0	54	105
03:45 PM	1	42	0	0	43	9	0	1	0	10	0	38	18	0	56	109
Total	6	180	0	0	186	34	0	6	0	40	0	169	47	0	216	442
04:00 PM	4	36	0	0	40	25	0	4	0	29	0	48	29	0	77	146
04:15 PM	2	34	0	0	36	15	0	2	0	17	0	38	21	0	59	112
04:30 PM	0	34	0	0	34	10	0	2	0	12	0	30	29	0	59	105
04:45 PM	3	27	0	0	30	10	0	1	0	11	0	38	22	0	60	101
Total	9	131	0	0	140	60	0	9	0	69	0	154	101	0	255	464
Grand Total	41	452	0	0	493	191	0	55	4	250	0	547	208	0	755	1498
Approach %	8.3	91.7	0	0		76.4	0	22	1.6		0	72.5	27.5	0		
Total %	2.7	30.2	0	0	32.9	12.8	0	3.7	0.3	16.7	0	36.5	13.9	0	50.4	

Peak Hour Analysis From 02:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 02:00 PM

Start Time	Heleakala Highway Westbound					Kekaulike H.S. East Entrance Northbound					Old Haleakala Highway Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:00 PM	15	29	0	0	44	50	0	22	0	72	0	30	19	0	49	165
02:15 PM	6	42	0	0	48	21	0	11	1	32	0	51	26	0	77	167
02:30 PM	3	37	0	0	40	17	0	3	3	20	0	66	6	0	72	132
02:45 PM	2	33	0	0	35	9	0	4	0	13	0	77	9	0	86	134
Total Volume	26	141	0	0	167	97	0	40	4	137	0	224	60	0	284	588
% App. Total	15.6	84.4	0	0		70.8	0	29.2	0		0	78.9	21.1	0		
PHF	.433	.839	.000	.000	.870	.485	.000	.465	.577	.476	.000	.727	.577	.828	.891	

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	≤ 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	>80.0

Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

**Table 1: Level-of-Service Criteria for
Unsignalized Intersections**

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

APPENDIX C

**CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK PERIOD TRAFFIC ANALYSIS**

HCM Signalized Intersection Capacity Analysis

1: Kula Hwy & Old Haleakala Hwy/Haleakala Hwy

11/30/2012



Movement	EBL	EBT	EBF	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗
Volume (vph)	1	89	409	74	176	182	212	600	130	77	570	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fr _t Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1862	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Fr _t Permitted		1.00	1.00	0.69	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1858	1583	1285	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	1	103	476	86	205	212	247	698	151	90	663	5
RTOR Reduction (vph)	0	0	320	0	0	97	0	0	34	0	0	3
Lane Group Flow (vph)	0	104	156	86	205	115	247	698	117	90	663	2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)		16.5	16.5	16.5	16.5	16.5	18.0	49.9	49.9	7.9	39.8	39.8
Effective Green, g (s)		16.5	16.5	16.5	16.5	16.5	18.0	49.9	49.9	7.9	39.8	39.8
Actuated g/C Ratio		0.18	0.18	0.18	0.18	0.18	0.20	0.56	0.56	0.09	0.45	0.45
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		343	292	237	344	292	356	1041	884	156	830	705
v/s Ratio Prot					c0.11		c0.14	0.37		0.05	c0.36	
v/s Ratio Perm		0.06	0.10	0.07		0.07			0.07			0.00
v/c Ratio		0.30	0.53	0.36	0.60	0.39	0.69	0.67	0.13	0.58	0.80	0.00
Uniform Delay, d1		31.4	32.9	31.8	33.3	32.0	33.1	13.9	9.4	39.1	21.3	13.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	1.9	0.9	2.8	0.9	5.8	1.7	0.1	5.1	5.4	0.0
Delay (s)		31.9	34.8	32.8	36.1	32.9	38.9	15.6	9.5	44.2	26.7	13.7
Level of Service		C	C	C	D	C	D	B	A	D	C	B
Approach Delay (s)		34.3			34.2			20.0			28.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	89.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 1: Kula Hwy & Old Haleakala Hwy/Haleakala Hwy

11/30/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↙	↘	↖	↗	↘	↖	↗	↘	↖
Volume (vph)	2	45	272	51	60	99	236	480	37	88	497	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1859	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted		0.99	1.00	0.72	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1842	1583	1346	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	51	309	58	68	112	268	545	42	100	565	6
RTOR Reduction (vph)	0	0	268	0	0	97	0	0	19	0	0	3
Lane Group Flow (vph)	0	53	41	58	68	15	268	545	23	100	565	3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)		9.7	9.7	9.7	9.7	9.7	17.6	40.6	40.6	8.0	31.0	31.0
Effective Green, g (s)		9.7	9.7	9.7	9.7	9.7	17.6	40.6	40.6	8.0	31.0	31.0
Actuated g/C Ratio		0.13	0.13	0.13	0.13	0.13	0.24	0.55	0.55	0.11	0.42	0.42
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		243	209	178	246	209	424	1031	876	193	787	669
v/s Ratio Prot					0.04		0.15	0.29		0.06	0.30	
v/s Ratio Perm		0.03	0.03	0.04		0.01			0.01			0.00
v/c Ratio		0.22	0.20	0.33	0.28	0.07	0.63	0.53	0.03	0.52	0.72	0.00
Uniform Delay, d1		28.4	28.3	28.8	28.6	27.9	24.9	10.3	7.4	30.8	17.5	12.2
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	0.5	1.1	0.6	0.1	3.1	0.5	0.0	2.3	3.1	0.0
Delay (s)		28.9	28.8	29.9	29.3	28.0	28.0	10.8	7.4	33.2	20.7	12.2
Level of Service		C	C	C	C	C	C	B	A	C	C	B
Approach Delay (s)		28.8		28.8			16.0			22.5		
Approach LOS		C		C			B			C		

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	73.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

2: School East Entrance & Haleakala Hwy

11/30/2012



Movement	EBT	EBP	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Volume (veh/h)	175	121	112	311	121	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	227	157	145	404	157	81
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1311					
pX, platoon unblocked						
vC, conflicting volume			227			922 227
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			227			922 227
tC, single (s)			4.1			*5.4 *5.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			89			55 91
cM capacity (veh/h)			1341			347 866

Direction Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	227	157	145	404	238
Volume Left	0	0	145	0	157
Volume Right	0	157	0	0	81
cSH	1700	1700	1341	1700	525
Volume to Capacity	0.13	0.09	0.11	0.24	0.45
Queue Length 95th (ft)	0	0	9	0	58
Control Delay (s)	0.0	0.0	8.0	0.0	18.9
Lane LOS	A			C	
Approach Delay (s)	0.0		2.1	18.9	
Approach LOS				C	

Intersection Summary					
Average Delay			4.8		
Intersection Capacity Utilization			32.1%	ICU Level of Service	A
Analysis Period (min)	15				

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis

2: School East Entrance & Haleakala Hwy

11/30/2012



Movement	EBT	EBP	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Volume (veh/h)	224	60	26	141	97	40
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	252	67	29	158	109	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	1311					
pX, platoon unblocked						
vC, conflicting volume			252		469	252
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			252		469	252
tC, single (s)			4.1		*5.4	*5.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		82	95
cM capacity (veh/h)			1314		618	845

Direction Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	252	67	29	158	154
Volume Left	0	0	29	0	109
Volume Right	0	67	0	0	45
cSH	1700	1700	1314	1700	872
Volume to Capacity	0.15	0.04	0.02	0.09	0.18
Queue Length 95th (ft)	0	0	2	0	16
Control Delay (s)	0.0	0.0	7.8	0.0	11.3
Lane LOS			A	B	
Approach Delay (s)	0.0		1.2	11.3	
Approach LOS				B	

Intersection Summary		
Average Delay	3.0	
Intersection Capacity Utilization	30.5%	ICU Level of Service A
Analysis Period (min)	15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis

3: Kula Hwy & School West Entrance-Access Road/School West Entrance

11/30/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕	↗	↖	↕	
Volume (veh/h)	2	0	1	22	0	158	0	793	80	233	815	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	2	0	1	26	0	188	0	944	95	277	970	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL				None
Median storage (veh)								2				
Upstream signal (ft)												1300
pX, platoon unblocked	0.75	0.75	0.75	0.75	0.75		0.75					
vC, conflicting volume	2659	2471	972	2470	2473	944	974			944		
vC1, stage 1 conf vol	1527	1527		944	944							
vG2, stage 2 conf vol	1132	944		1526	1529							
vCu, unblocked vol	3040	2790	798	2789	2792	944	801			944		
tC, single (s)	6.1	6.5	5.2	6.1	6.5	5.2	4.1			4.1		
tC, 2 stage (s)	5.1	5.5		5.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	56	100	100	73	100	55	100			62		
cM capacity (veh/h)	5	49	364	98	78	415	619			727		

Direction Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	4	26	188	944	95	277	974
Volume Left	2	26	0	0	0	277	0
Volume Right	1	0	188	0	95	0	4
cSH	8	98	415	619	1700	727	1700
Volume to Capacity	0.45	0.27	0.45	0.00	0.06	0.38	0.57
Queue Length 95th (ft)	23	25	57	0	0	45	0
Control Delay (s)	655.9	54.5	20.6	0.0	0.0	13.0	0.0
Lane LOS	F	F	C			B	
Approach Delay (s)	655.9	24.8		0.0		2.9	
Approach LOS	F	C					

Intersection Summary		
Average Delay		4.5
Intersection Capacity Utilization	98.1%	ICU Level of Service F
Analysis Period (min)		15

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis

3: Kula Hwy & School West Entrance-Access Road/School West Entrance

11/30/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SBR
Lane Configurations		↔			↕	↗		↕	↗	↖	↖	
Volume (veh/h)	4	0	0	6	1	15	0	666	3	9	771	1
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	0	0	6	1	16	0	716	3	10	829	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL				None
Median storage (veh)								2				
Upstream signal (ft)												1300
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	1582	1565	830	1565	1566	716	830			716		
vC1, stage 1 conf vol	849	849		716	716							
vC2, stage 2 conf vol	733	716		848	849							
vCu, unblocked vol	1604	1583	644	1582	1584	716	645			716		
tC, single (s)	6.1	6.5	6.2	6.1	5.5	5.2	4.1			4.1		
tC, 2 stage (s)	5.1	5.5		5.1	4.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	98	100	97	100			99		
cM capacity (veh/h)	323	277	370	333	348	527	737			885		

Direction	EB 1	WB 1	WB 2	NB 1	NB 2	SE 1	SB 2
Volume Total	4	8	16	716	3	10	830
Volume Left	4	6	0	0	0	10	0
Volume Right	0	0	16	0	3	0	1
cSH	323	335	527	737	1700	885	1700
Volume to Capacity	0.01	0.02	0.03	0.00	0.00	0.01	0.49
Queue Length 95th (ft)	1	2	2	0	0	1	0
Control Delay (s)	16.3	16.0	12.0	0.0	0.0	9.1	0.0
Lane LOS	C	C	B			A	
Approach Delay (s)	16.3	13.3		0.0		0.1	
Approach LOS	C	B					

Intersection Summary	
Average Delay	0.3
Intersection Capacity Utilization	57.3% ICU Level of Service B
Analysis Period (min)	15

* User Entered Value

APPENDIX D

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2015 PEAK PERIOD TRAFFIC ANALYSIS**

HCM Signalized Intersection Capacity Analysis
 1: Kula Hwy & Old Haleakala Hwy/Haleakala Hwy

11/30/2012



Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Lane Configurations		↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (vph)	1	103	459	82	197	204	237	670	144	88	640	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1862	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted		1.00	1.00	0.65	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1859	1583	1210	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	1	120	534	95	229	237	276	779	167	102	744	5
RTOR Reduction (vph)	0	0	295	0	0	95	0	0	35	0	0	3
Lane Group Flow (vph)	0	121	239	95	229	142	276	779	132	102	744	2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1		6
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)		19.7	19.7	19.7	19.7	19.7	20.1	56.7	56.7	9.7	46.3	46.3
Effective Green, g (s)		19.7	19.7	19.7	19.7	19.7	20.1	56.7	56.7	9.7	46.3	46.3
Actuated g/C Ratio		0.19	0.19	0.19	0.19	0.19	0.20	0.56	0.56	0.10	0.46	0.46
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		362	308	235	363	308	351	1044	887	169	853	724
v/s Ratio Prot					0.12		0.16	0.42		0.06	0.40	
v/s Ratio Perm	0.07	0.15	0.08		0.09				0.08			0.00
v/c Ratio	0.33	0.77	0.40	0.63	0.46	0.79	0.75	0.15	0.60	0.87	0.00	
Uniform Delay, d1		35.1	38.6	35.6	37.4	36.0	38.5	16.8	10.6	43.9	24.7	14.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	11.5	1.1	3.6	1.1	11.0	2.9	0.1	6.0	9.8	0.0
Delay (s)		35.6	50.1	36.7	40.9	37.1	49.5	19.7	10.7	49.8	34.5	14.9
Level of Service		D	D	D	D	D	D	B	B	D	C	B
Approach Delay (s)		47.4			38.6			25.2			36.2	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	101.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 1: Kula Hwy & Old Haleakala Hwy/Haleakala Hwy

11/30/2012



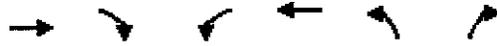
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SBR
Lane Configurations		↖	↗	↖	↗	↗	↖	↗	↗	↖	↗	↗
Volume (vph)	2	51	302	57	68	112	262	534	41	100	553	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1860	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted		0.99	1.00	0.72	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1845	1583	1337	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	58	343	65	77	127	298	607	47	114	628	7
RTOR Reduction (vph)	0	0	299	0	0	111	0	0	20	0	0	4
Lane Group Flow (vph)	0	60	44	65	77	16	298	607	27	114	628	3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)		10.5	10.5	10.5	10.5	10.5	19.9	46.8	46.8	9.0	35.9	35.9
Effective Green, g (s)		10.5	10.5	10.5	10.5	10.5	19.9	46.8	46.8	9.0	35.9	35.9
Actuated g/C Ratio		0.13	0.13	0.13	0.13	0.13	0.24	0.58	0.58	0.11	0.44	0.44
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		238	204	172	240	204	433	1072	911	195	822	699
v/s Ratio Prot					0.04		c0.17	0.33		0.06	c0.34	
v/s Ratio Perm		0.03	0.03	c0.05		0.01			0.02			0.00
v/c Ratio		0.25	0.22	0.38	0.32	0.08	0.69	0.57	0.03	0.58	0.76	0.00
Uniform Delay, d1		31.9	31.7	32.4	32.2	31.2	27.9	10.9	7.4	34.4	19.1	12.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.6	0.5	1.4	0.8	0.2	4.5	0.7	0.0	4.4	4.3	0.0
Delay (s)		32.4	32.3	33.8	32.9	31.3	32.4	11.6	7.5	38.8	23.4	12.7
Level of Service		C	C	C	C	C	C	B	A	D	C	B
Approach Delay (s)		32.3			32.4			17.9			25.6	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	81.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

2: School East Entrance & Haleakala Hwy

11/30/2012



Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (veh/h)	194	128	117	345	125	64
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	252	166	152	448	162	83
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None		None			
Median storage veh						
Upstream signal (ft)	1311					
pX, platoon unblocked						
vC, conflicting volume			252		1004	252
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			252		1004	252
tC, single (s)			4.1		5.4	5.2
tC, 2 stage (s)						
iF (s)			2.2		3.5	3.3
p0 queue free %			88		48	90
cM capacity (veh/h)			1313		315	845

Direction/Lane	EB-1	EB-2	WB-1	WB-2	NB-1
Volume Total	252	166	152	448	245
Volume Left	0	0	152	0	162
Volume Right	0	166	0	0	83
cSH	1700	1700	1313	1700	476
Volume to Capacity	0.15	0.10	0.12	0.26	0.52
Queue Length 95th (ft)	0	0	10	0	72
Control Delay (s)	0.0	0.0	8.1	0.0	21.8
Lane LOS			A	C	
Approach Delay (s)	0.0		2.1	21.8	
Approach LOS				C	

Intersection Summary		
Average Delay	5.2	
Intersection Capacity Utilization	33.6%	ICU Level of Service A
Analysis Period (min)	15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis

2: School East Entrance & Haleakala Hwy

11/30/2012



Movement	EBT	EBR	WBL	WBT	NBL	NEB
Lane Configurations	↑	↗	↖	↑	↖	↗
Volume (veh/h)	249	63	27	157	100	41
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	280	71	30	176	112	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	1311					
pX, platoon unblocked						
vC, conflicting volume			280		517	280
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			280		517	280
tC, single (s)			4.1		*5.4	*5.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		81	94
cM capacity (veh/h)			1283		586	822

Direction Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	280	71	30	176	158
Volume Left	0	0	30	0	112
Volume Right	0	71	0	0	46
cSH	1700	1700	1283	1700	826
Volume to Capacity	0.16	0.04	0.02	0.10	0.19
Queue Length 95th (ft)	0	0	2	0	18
Control Delay (s)	0.0	0.0	7.9	0.0	11.7
Lane LOS			A	B	
Approach Delay (s)	0.0		1.2	11.7	
Approach LOS				B	

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	32.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis

3: Kula Hwy & School West Entrance-Access Road/School West Entrance

11/30/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NEF	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Volume (veh/h)	2	0	1	23	0	164	0	880	83	245	905	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	2	0	1	27	0	195	0	1048	99	292	1077	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL				None
Median storage (veh)								2				
Upstream signal (ft)												1300
pX, platoon unblocked	0.68	0.68	0.68	0.68	0.68		0.68					
vC, conflicting volume	2905	2710	1079	2710	2712	1048	1081			1048		
vC1, stage 1 conf vol	1662	1662		1048	1048							
vC2, stage 2 conf vol	1243	1048		1662	1664							
vCu, unblocked vol	3577	3288	878	3287	3291	1048	881			1048		
tC, single (s)	*6.1	6.5	*5.2	*6.1	6.5	*5.2	4.1			4.1		
tC, 2 stage (s)	5.1	5.5		5.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	58	100	48	100			56		
cM capacity (veh/h)	2	13	301	65	51	373	519			664		

Direction Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	4	27	195	1048	99	292	1081
Volume Left	2	27	0	0	0	292	0
Volume Right	1	0	195	0	99	0	4
cSH	3	65	373	519	1700	664	1700
Volume to Capacity	1.31	0.42	0.52	0.00	0.06	0.44	0.64
Queue Length 95th (ft)	30	40	73	0	0	56	0
Control Delay (s)	2285.9	95.2	24.8	0.0	0.0	14.6	0.0
Lane LOS	F	F	C			B	
Approach Delay (s)	2285.9	33.5		0.0		3.1	
Approach LOS	F	D					

Intersection Summary			
Average Delay		7.2	
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)		15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis

3: Kula Hwy & School West Entrance-Access Road/School West Entrance

11/30/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NET	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	4	0	0	7	1	16	0	740	4	10	856	1
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	0	0	8	1	17	0	796	4	11	920	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked	0.73	0.73	0.73	0.73	0.73		0.73					
vC, conflicting volume	1756	1738	921	1738	1739	796	922			796		
vC1, stage 1 conf vol	942	942		796	796							
vC2, stage 2 conf vol	813	796		942	943							
vCu, unblocked vol	1850	1826	708	1825	1827	796	709			796		
tC, single (s)	*6.1	6.5	6.2	*6.1	*5.5	*5.2	4.1			4.1		
tC, 2 stage (s)	5.1	5.5		5.1	4.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	97	100	96	100			99		
cM capacity (veh/h)	280	239	318	290	306	485	651			826		

Direction Lane	EBL	WB 1	WB 2	NB 1	NE 2	SB 1	SB 2
Volume Total	4	9	17	796	4	11	922
Volume Left	4	8	0	0	0	11	0
Volume Right	0	0	17	0	4	0	1
cSH	280	292	485	651	1700	826	1700
Volume to Capacity	0.02	0.03	0.04	0.00	0.00	0.01	0.54
Queue Length 95th (ft)	1	2	3	0	0	1	0
Control Delay (s)	18.1	17.7	12.7	0.0	0.0	9.4	0.0
Lane LOS	C	C	B			A	
Approach Delay (s)	18.1	14.4		0.0		0.1	
Approach LOS	C	B					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Appendix C- Pre-Consultation for Draft Environmental Assessment

Pre-Consultation for Draft Environmental Assessment

Pre-Consultation letters were sent in July 2012 to initiate the environmental review process. The following is a list of agencies and other parties that were presented notice of the proposed project or were contacted during the pre-consultation period of the Draft EA. Comments received during this pre-consultation process are also provided.

State of Hawaii Office of Planning P.O. Box 2359 Honolulu, Hawaii 96804	University of Hawaii Environmental Center Krauss Annex 19 2500 Dole Street Honolulu, Hawaii 96822	Department of Transportation Aliiimoku Building 869 Punchbowl Street Honolulu, HI 96813
Office of Hawaiian Affairs - Maui 33 Lono Avenue, Suite 480 Kahului, HI 96732	Office of the Chairperson Department of Land & Natural Resources 1151 Punchbowl Street Rm. 130 Honolulu, HI. 96813	Department of Public Safety 919 Ala Moana Boulevard, Rm 400 Honolulu, Hawaii 96814
Office of Hawaiian Affairs 711 Kapiolani Blvd Suite 500 Honolulu, Hawaii 96813	Division of Conservation & Resource Enforcement Department of Land & Natural Resources 1151 Punchbowl Street Room 311 Honolulu, HI. 96813	Department of Human Services 1390 Miller Street, Room 209 Honolulu, HI 96813
State Historic Preservation Division Department of Land & Natural Resources Kakuihewa Building 601 Kamokila Blvd., Suite 555 Kapolei, HI 96707	Bureau of Conveyances Department of Land & Natural Resources 1151 Punchbowl Street Room 121 Honolulu, HI. 96813	Department of Accounting & General Services Kalanimoku Building 1151 Punchbowl Street Honolulu, Hawaii 96813
Department of Health Kinau Hale 1250 Punchbowl Street Honolulu, Hawaii 96813	Division of Forestry & Wildlife Department of Land & Natural Resources 1151 Punchbowl Street Room 325 Honolulu, HI. 96813	Department of Accounting & General Services Maui District 755 Mua Street Kahului, HI 96732
Department of Health Maui Branch 54 South High Street Rm. #301 Wailuku, Maui, HI 96793	Land Division Department of Land & Natural Resources 1151 Punchbowl Street Rm 220 Honolulu, HI. 96813	Division of State Parks Department of Land & Natural Resources 1151 Punchbowl Street Rm 310 Honolulu, HI. 96813
Department of Hawaiian Homelands Hale Kalaniana'ole 91-5420 Kapiolani Parkway Kapolei, Hawaii. 96707	Department of Agriculture 1428 South King Street Honolulu, Hawaii 96814	Department of Defense 3949 Diamond Head Road Honolulu, HI 96816
Department of Business Economic Development & Tourism P.O. Box 2359 Honolulu, HI 96804	Office of Conservation and Coastal Lands Department of Land & Natural Resources 1151 Punchbowl Street Room 131 Honolulu, HI. 96813	Bishop Museum 1525 Bernice Street Honolulu, Hawaii 96817

Office of the Mayor 200 S. High St. Kalana O Maui Bldg 9th Fl. Wailuku, HI 96793	Maui County Environmental Coordinator's Office 200 South High St. Kalana O Maui Bldg 9th Fl Wailuku, HI 96793	Department of Environmental Management 2200 Main St. One Main Plaza Bldg Suite 100 Wailuku, HI 96793-2155
Department of Fire and Public Safety 200 Dairy Road Kahului, HI 96733	Department of Housing and Human Concerns 2200 Main St. One Main Plaza Bldg, Suite 546 Wailuku, HI 96793	Department of Management 200 South High St. Kalana O Maui Bldg, 9th Fl Wailuku, HI 96793
Department of Parks and Recreation 700 Halia Nakoia St. War Memorial Complex Wailuku, HI 96793	Department of Planning 250 S. High St Kalana Pakui Bldg Ste 200 Wailuku, HI 96793]	Police Department 55 Mahalani Street Wailuku, HI 96793
Department of Public Works 200 South High St. Kalana O Maui Bldg 4th fl Wailuku, HI 96793	Department of Transportation 2145 Kaohu St. David Trask Bldg Ste 102 Wailuku, HI 96793	Department of Water Supply 200 S. High St Kalana O Maui Bldg. 5th Floor Wailuku, HI 96793-2155
Gladys C. Baisa Council Member Kalana O Maui Building 200 South High St. Eighth Floor Wailuku, Hawaii 96793	Kyle T. Yamashita House District 12 Hawaii State Capitol Room 422 Honolulu, HI 96813	Manger, EPA –PICO 300 Ala Moana Blvd. Rm. 1302 Honolulu, Hawaii 96850
Pacific Islands Administrator Fish & Wildlife Svc. Dept. of Interior 300 Ala Moana Blvd., Rm. 3108 Honolulu, Hawaii 96813		

LEO A DALY

PLANNING
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WASHINGTON DC
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July 9, 2012

Department of Transportation
2145 Kaohu St.
David Trask Bldg Ste 102
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

ALAN M. ARAKAWA
Mayor



JO ANNE JOHNSON-WINER
Director

MARC I. TAKAMORI
Deputy Director

Telephone (808) 270-7511

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
200 South High Street
Wailuku, Hawaii, USA 96793-2155

July 11, 2012



Mr. Leo A Daly
1357 Kapiolani Blvd
Suite 1230
Honolulu, Hawaii 96814

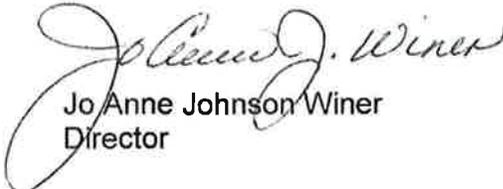
Subject: King Kekaulike High School Performing Arts Center

Dear Mr. Daly,

Thank you for the opportunity to comment on this project. We have no comments to make at this time.

Please feel free to contact me if you have any questions.

Sincerely,


Jo Anne Johnson Winer
Director

LEO A DALY

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SACRAMENTO
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August 15, 2012

Jo Anne Johnson Winer, Director
Department of Transportation
2145 Kaohu St.
David Trask Bldg., Suite 102
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Ms. Winer:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 11, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand that your Department has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Transportation
Aliiimoku Building
869 Punchbowl Street
Honolulu, HI 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL ABERCROMBIE
GOVERNOR



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

GLENN M. OKIMOTO
DIRECTOR

Deputy Directors
JADE T. BUTAY
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

IN REPLY REFER TO:

STP 8.0925

July 27, 2012

Mr. Nick Deeley
LEO A DALY
1357 Kapiolani Boulevard, Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley:

Subject: King Kekaulike High School Performing Arts Center
Pre-Assessment Consultation
TMK: (2) 2-3-007:032

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project. DOT understands the Department of Education plans to construct a new performing arts center on the campus of the King Kekaulike High School. The project will consist of two phases. Phase 1 will include a 400-seat performance facility totaling 22,123 square feet. Phase 2 will include instructional and administrative offices totaling 12,288 square feet.

Given the project location, DOT anticipates that Kula and Haleakala Highways will be impacted. The DEA should address traffic impacts and mitigation measures resulting from the subject project.

DOT appreciates the opportunity to provide initial comments on the subject project. If there are any questions, including the need to meet with DOT Highways Division staff, please contact Mr. Garrett Smith of the DOT Statewide Transportation Planning Office at (808) 831-7976.

Very truly yours,

A handwritten signature in black ink, appearing to read "Glenn M. Okimoto".

GLENN M. OKIMOTO, Ph.D.
Director of Transportation



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August 15, 2012

Glenn M. Okimoto, Director
Department of Transportation
Aliiimoku Building
869 Punchbowl Street
Honolulu, HI 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Okimoto:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 27, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

As requested, the Draft Environmental Assessment will address traffic impacts caused by the subject project and will explore mitigation measures.

A copy of your letter will be included in the Draft Environmental Assessment. If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Water Supply
200 S. High St
Kalana O Maui Bldg. 5th Floor
Wailuku, HI 96793-2155

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

ALAN M. ARAKAWA
Mayor



DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org



July 25, 2012

LEO A DALY
1357 Kapiolani Blvd., Suite 1230
Honolulu, HI 96814
Attention: Mr. Nick Deeley

Dear Mr. Deeley:

RE: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center – Pukalani, Maui, Hawaii
Tax Map Key (2) 2-3-007:032

Thank you for the opportunity to provide the following comments on the referenced project.

Source Availability

The project is located in an area affected by the finding of inadequate water supply issued on March 16, 1993 (Maui County Administrative Rule, Title 16, Chapter 106, Water Meter Issuance Rule for the Upcountry Water System). The area has insufficient water supply developed for fire protection, domestic, and irrigation purposes to take on new or additional services without the detriment to those already in the regulated area. Should a meter upgrade be required, the applicant must submit an application for Upcountry Water Service.

Also, during the building permit process, the applicant will be required to submit domestic and irrigation calculations (approved and stamped by a licensed architect or engineer) to determine proper meter sizing.

System Infrastructure

The project site is served by a 12-inch waterline, private fire hydrants, a 4-inch water meter, and the 1-million gallon Kealaloa tank.

Pollution Prevention

The project site overlies the Makawao aquifer. The Department of Water Supply's goal is to protect the integrity of surface and groundwater resources. To achieve this, mitigation measures must be implemented to prevent any potential water pollution

"By Water All Things Find Life"



Mr. Nick Deeley
Page 2
July 25, 2012

related impacts. Best management practices for construction should, therefore, be applied.

Conservation

The Department of Water Supply (DWS) encourages the applicant to consider the following conservation measures in the project design, as well as during construction:

- Utilize reclaimed or non-potable water for dust control, irrigation and other non-potable uses.
- Water after 7:00 p.m. and before 10:00 a.m.
- Utilize low-flow fixtures and devices – Maui County Code Subsection 16.20.680 requires the use of low-flow fixtures and devices including faucets, showerheads, urinals, water closets, and hose bibs. Even more efficient and consumer tested models are available. Check WaterSense listings at: <http://www.epa.gov/watersense/pp/index.htm> for efficient fixture listings when buying or replacing fixtures.
- Prevent over-watering by automated systems - Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evaporation rates at the site. As an alternative, provide more automated, soil-moisture sensors on controllers.
- Maintain fixtures to prevent leaks - A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons per day.
- Limit irrigated turf - Low-water use shrubs and ground cover can be equally attractive and require substantially less water than turf.
- Select climate adapted native plant species for landscaping - Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species.

Should you have any questions, please contact Arnold Y. Imae, Staff Planner, at Arnold.Imae@co.maui.hi.us or at (808) 463-3110.

Sincerely,



David Taylor, P.E., Director
ayi

c: DWS Engineering Division
DWS WRPD file

LEO A DALY

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August 15, 2012

David Taylor, Director
Department of Water Supply
200 S. High Street
Kalana O Maui Bldg. 5th Floor
Wailuku, HI 96793-2155

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

Dear Mr. Taylor:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 25, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand your Department's comments concerning Source Availability, System Infrastructure, Pollution Prevention, and Conservation. The Draft Environmental Assessment will provide water demands and calculations, and discuss these impacts and explore mitigation methods.

A copy of your letter will be included in the Draft Environmental Assessment. If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Planning
250 S. High St
Kalana Pakui Bldg Ste 200
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

August 6, 2012



Mr. Nick Deeley
LEO A DALY
1357 Kapiolani Boulevard Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley:

**SUBJECT: REQUEST FOR PRE-ASSESSMENT CONSULTATION FOR THE
KING KEKAULIKE HIGH SCHOOL PERFORMING ARTS CENTER, AT
PUKALANI, MAUI, HAWAII; TMK: (2) 2-3-007:032 (RFC 2012/0109)**

The Department of Planning has reviewed the proposed action and has no comments to offer at this time.

In your letter dated July 9, 2012, please make a correction to the Tax Map Key to reflect the above TMK nomenclature.

Thank you for your cooperation. If additional clarification is required, please contact Staff Planner Paul Fasi at paul.fasi@mauicounty.gov or at (808) 270-7814.

Sincerely,

Handwritten signature of Clayton I. Yoshida in black ink.

CLAYTON I. YOSHIDA, AICP
Planning Program Administrator

for WILLIAM SPENCE
Planning Director

xc: Paul F. Fasi, Staff Planner (PDF)
Project File
General File

WRS:CIY:PFF:cr
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August 15, 2012

Clayton Yoshida, Program Administrator
Department of Planning
250 S. High Street
Kalana Pakui Bldg., Suite 200
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Yoshida:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of August 6, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

The correction to the Tax Map Key will be made as requested and understand that your Department has no further comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Parks and Recreation
700 Halia Nakoia St.
War Memorial Complex
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

ALAN M. ARAKAWA
Mayor



GLENN T. CORREA
Director

PATRICK T. MATSUI
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nako Street, Unit 2, Wailuku, Hawaii 96793



July 16, 2012

Nick Deeley, Planner
Leo A. Daly
1357 Kapiolani Blvd. Suite 1230
Honolulu, HI 96814

Dear Mr. Deeley:

**SUBJECT: Pre-Assessment Consultation for King Kekaulike High School
Performing Arts Center, Pukalani, Maui, HI TMK (2) 2-3-007:032**

Thank you for the opportunity to review and comment on the Pre-Assessment Consultation for the King Kekaulike High School Performing Arts Center in Pukalani. We have no comment to be noted at this time.

Should you have any questions or concerns, please feel free to contact me, or Steve Grogan, Capital Improvements Project Coordinator, at stephen.grogan@co.maui.hi.us or 808-270-6158.

Sincerely,

A handwritten signature in black ink, appearing to read "Glenn T. Correa".

GLENN T. CORREA
Director of Parks & Recreation

c: Robert Halvorson, Chief of Planning & Development

GTC:RH:sg

LEO A DALY

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August 15, 2012

Glenn T. Correa, Director of Parks & Recreation
Department of Parks and Recreation
700 Halia Nakoia St.
War Memorial Complex
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Correa:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 16, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand that your Department has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

University of Hawaii
Environmental Center
Krauss Annex 19
2500 Dole Street
Honolulu, Hawaii 96822

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

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John Cusick

808-956-3980

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Water Resources Research Center
Environmental Center



UNIVERSITY
of HAWAII
MĀNOA

July 27, 2012
NC PAC: 2012-07-09

Nick Deeley, Planner
Leo A Daly
357 Kapiolani Blvd. Suite 1230
Honolulu, HI 96814
FAX 521-3757

Dear Mr. Deeley:

**Pre-Assessment Consultation for King Kekaulike High School Performing Arts Center
Pukalani, Maui, Tax Map Key (2)-03-007:032**

Thank you for your letter dated July 09, 2012 inviting the Environmental Center to participate in the Pre-Assessment Consultation for the proposed High School Performing Arts Center in Pukalani, Maui. We will not comment at this time due to resource constraints; however we look forward to reading the EA or EISPN when it becomes available.

Sincerely,

A handwritten signature in cursive script that reads 'David Penn'.

David Penn
Assistant Specialist

copy: Chittaranjan Ray, Interim Director, Water Resources Research Center, UH Manoa
Sara Bolduc, Environmental Center

LEO A DALY

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August 15, 2012

David Penn
University of Hawaii
Environmental Center, Krauss Annex 19
2500 Dole Street
Honolulu, HI 96822

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Penn:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 27, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand that your Department has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

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July 9, 2012

Department of Hawaiian Homelands
Hale Kalaniana'ole
91-5420 Kapiolani Parkway
Kapolei, Hawaii. 96707

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL ABERCROMBIE
GOVERNOR
STATE OF HAWAII



JOBIE M. K. MASAGATANI
CHAIRMAN DESIGNATE
HAWAIIAN HOMES COMMISSION

MICHELLE K. KAUHANE
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P. O. BOX 1879
HONOLULU, HAWAII 96805

July 13, 2012

LEO A DALY
Attn Mr. Nick Deely
1357 Kapiolani Blvd., Suite 1230
Honolulu, Hawaii 96814

Subject: Pre-Assessment Consultation King Kekaulike High
School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

Dear Mr. Deely

Thank you for the opportunity to review the Pre-Assessment
Consultation for the King Kekaulike High School Performing
Arts Center in Pukalani, Maui.

The Department of Hawaiian Home Lands has no comment to offer
at this time. If you have any questions, please contact our
Planning Office at (808) 620-9480.

Aloha,

A handwritten signature in black ink, appearing to read "Jobie M. K. Masagatani".

Jobie M. K. Masagatani, Chairman Designate
Hawaiian Homes Commission



LEO A DALY

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August 15, 2012

Jobie M. K. Masagatani, Chairman Designate
Department of Hawaiian Homelands
Hale Kalaniana'ole
91-5420 Kapiolani Parkway
Kapolei, HI 96707

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Masagatani:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 13, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand that your department has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Housing and Human Concerns
2200 Main St.
One Main Plaza Bldg, Suite 546
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
HOUSING DIVISION
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor
JO-ANN T. RIDAO
Director
JAN SHISHIDO
Deputy Director

35 LUNALILO STREET, SUITE 102 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7351 • FAX (808) 270-6284

July 16, 2012



Mr. Nick Deeley, Planner
LEO A DALY
1357 Kapiolani Blvd., Suite 1230
Honolulu, Hawaii 96814

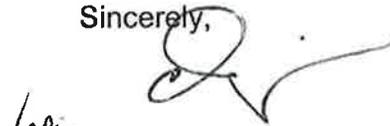
Dear Mr. Deeley:

Subject: Pre-Assessment Consultation for King Kekaulike High School Performing Arts Center, Pukalani, Maui, Hawaii at TMK: (2) 03-007:032

The Department has reviewed the request for Pre-Assessment Consultation for the above subject project. Based on our review, we have determined that the subject project is not subject to Chapter 2.96, Maui County Code. At the present time, the Department has no additional comments to offer.

Please call Mr. Veranio Tongson Jr. of our Housing Division at (808) 270-1741 if you have any questions.

Sincerely,


WAYDE T. OSHIRO
Housing Administrator

cc: Director of Housing and Human Concerns

LEO A DALY

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August 15, 2012

Wayde T. Oshiro, Housing Administrator
Department of Housing and Human Concerns
2200 Main Street
One Main Plaza Bldg., Suite 546
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Oshiro:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 16, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We recognize that your Department has determined that the subject project is not subject to Chapter 2.96, Maui County Code and that your Department has no additional comments at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Accounting & General Services
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL ABERCROMBIE
GOVERNOR



DEAN H. SEKI
COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUL 18 2012

(P)1152.2

Mr. Nick Deeley, Planner
Leo A. Daly
1357 Kapiolani Blvd., Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley:

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center
Pukalani, Maui, Hawaii
TMK: (2)-03-007:032

Thank you for the opportunity to provide comments for the subject project. This project does not impact any of the Department of Accounting and General Services projects or existing facilities in the general area, and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Alva Nakamura of the Public Works Division at 586-0488.

Sincerely,

A handwritten signature in blue ink, appearing to read "D. Seki".

DEAN H. SEKI
Comptroller



LEO A DALY

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August 15, 2012

Dean H. Seki, Comptroller
Department of Accounting & General Services
Kalanimoku Building
1151 Punchbowl Street
Honolulu, HI 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Seki:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 18, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand that your Department has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Human Services
1390 Miller Street, Room 209
Honolulu, HI 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL ABERCROMBIE
GOVERNOR



PATRICIA McMANAMAN
DIRECTOR

BARBARA A. YAMASHITA
DEPUTY DIRECTOR



STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment & Support Services Division
820 Milliani Street, Suite 606
Honolulu, Hawaii 96813

August 1, 2012

Refer to 12:0450

Mr. Nick Deeley, Planner
LEO A DALY
1357 Kapiolani Blvd., Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley:

Thank you for your letter dated July 9, 2012 that requests the Department review the Pre-Assessment Consultation for the King Kekaulike High School Performing Arts Center in Pukalani, Maui. The Director of the Department of Human Services (DHS) has forwarded your letter to me for a response.

After a review of the proposed project, we do not have any recommendations or concerns to approve the project. We, also, do not foresee any impact on any child care services in the community at this time.

If you have any questions or need further information, please contact Ms. Kathy Ochikubo, Child Care Program Specialist, at (808) 586-7058.

Sincerely,

A handwritten signature in blue ink that reads "Scott Nakasone".

Scott Nakasone
Assistant Division Administrator

c: Patricia McManaman, DHS Director

LEO A DALY

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August 15, 2012

Scott Nakasone, Assistant Division Administrator
Department of Human Services
1390 Miller Street, Room 209
Honolulu, HI 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Nakasone:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of August 1, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand that your Department has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Health
State of Hawaii
Kinau Hale
1250 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

July 13, 2012

In reply, please refer to:
File:

12-124
King Kekaulike HS

LEO A DALY
1357 Kapiolani Blvd., Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

Dear Mr. Deeley:



**SUBJECT: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center – Pukalani, Maui
Tax Map Key (2) -03-007: 032**

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter, dated **July 9, 2012**. Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

The United States Environmental Protection Agency (EPA) provides a wealth of information on their website including strategies to help protect our natural environment and build sustainable communities at: <http://water.epa.gov/infrastructure/sustain/>. The DOH encourages State and county planning departments, developers, planners, engineers and other interested parties to apply these strategies and environment principles whenever they plan or review new developments or redevelopments projects. We also ask you to share this information with others to increase community awareness on healthy, sustainable community design. If there are any questions about these comments please contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Laura Leialoha Phillips McIntyre".

Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office Manager
Environmental Health Administration
Department of Health
919 Ala Moana Blvd., Ste. 312
Honolulu, Hawaii 96814
Phone: 586-4337
Fax: 586-4370
laura.mcintyre@doh.hawaii.gov

LEO A DALY

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August 15, 2012

Laura Leialoha Phillips McIntyre, Office Manager
Environmental Health Administration
Department of Health
919 Ala Moana Blvd., Suite 312
Honolulu, HI 96814

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Ms. McIntyre:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 13, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We will review all of your standard comments on your Department's website and will adhere to all comments specifically applicable to the subject project.

A copy of your letter will be included in the Draft Environmental Assessment. If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Fire and Public Safety
200 Dairy Road
Kahului, HI 96733

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

ALAN M. ARAKAWA
MAYOR



JEFFREY A. MURRAY
CHIEF

ROBERT M. SHIMADA
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE • WAILUKU, HAWAII 96793
(808) 244-9161 • FAX (808) 244-1363

July 25, 2012

Leo Daly
1357 Kapiolani Blvd. Suite 1230
Honolulu, HI 96814



Re: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center
Pukalani, Maui
TMK: (2) 2-3-007: 032

Dear Leo:

Thank for the allowing the Department of Fire and Public Safety the opportunity to comment on the proposed project. At this time, our office provides the following comments:

Our office reserves the right to comment on this project formally when engineered plans are submitted for approval during the building permit process. At that time, our office will review this project for proper fire apparatus access, fire flows, and proper location of fire protection equipment. Our office will also review plans for the installation of any life safety systems associated with this project.

Please reference The Hawaii State Fire Code and appropriate National Fire Protection Association standards for the proper design of this project.

If there are any questions or comments, please feel free to contact me at 244-9161 ext. 23.

Sincerely,

A handwritten signature in cursive script, appearing to read "Paul Haake".

Paul Haake
Captain, Fire Prevention Bureau
Department of Fire and Public Safety, Maui County

LEO A DALY

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August 15, 2012

Paul Haake, Captain
Fire Prevention Bureau
Department of Fire and Public Safety
313 Manea Place
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Captain Haake:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 25, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

The subject project will reference the Hawaii State Fire Code and appropriate National Fire Protection Association Standards to ensure the proper design. We understand your Department's right to comment on the project formally when engineered plans are submitted during the building permit process.

A copy of your letter will be included in the Draft Environmental Assessment. If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Environmental Management
2200 Main St.
One Main Plaza Bldg Suite 100
Wailuku, HI 96793-2155

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012,

Very truly yours,

LEO A DALY

Nick Deeley

ALAN M. ARAKAWA
Mayor
KYLE K. GINOZA, P.E.
Director
MICHAEL M. MIYAMOTO
Deputy Director



TRACY TAKAMINE, P.E.
Solid Waste Division
ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

**COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT**

2200 MAIN STREET, SUITE 100
WAILUKU, MAUI, HAWAII 96793

July 25, 2012

Mr. Nick Deeley
Leo A Daly
1357 Kapiolani Blvd., Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley

**SUBJECT: KING KEKAULIKE HIGH SCHOOL PERFORMING ARTS CENTER
PRE-ASSESSMENT CONSULTATION
TMK (2) 2-3-007:032, PUKALANI, MAUI**

We reviewed the subject application and have the following comments:

1. Solid Waste Division comments:
 - a. Address options to minimize construction waste.
2. Wastewater Reclamation Division (WWRD) comments:
 - a. None. The County does not have a wastewater system in the area of the subject project.

If you have any questions regarding this memorandum, please contact Michael Miyamoto at 270-8230.

Sincerely,


KYLE K. GINOZA, P.E.
Director of Environmental Management



LEO A DALY

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WASHINGTON DC
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August 15, 2012

Kyle K. Ginoza, Director
Department of Environmental Management
2200 Main Street
One Main Plaza Bldg., Suite 100
Wailuku, HI 96793-2155

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Ginoza:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 25, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

The Draft Environmental Assessment will address option to minimize construction waste, as requested by the Solid Waste Division. We also understand that the Wastewater Reclamation Division has no comments at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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WASHINGTON DC
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July 9, 2012

Land Division
Department of Land & Natural Resources
1151 Punchbowl Street Room 220
Honolulu, HI. 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL AHERCROMBIE
GOVERNOR OF HAWAII



WILLIAM J. AHLA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 9, 2012

LEO A. DALY
Attention: Nick Deeley, Planner
1357 Kapiolani Blvd., Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley;

SUBJECT: King Kekaulike High School Performing Arts Center
TMK: (3) 2-3-007:032

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (a) Commission on Water Resources Management and (b) Engineering Division on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files





STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 221
HONOLULU, HAWAII 96809
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

July, 20, 2012

MEMORANDUM

~~TO:~~
FR:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Maui District
- Historic Preservation

2012 JUL 23 PM 12:12

TO:

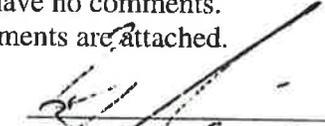
~~FROM:~~ Russell Y. Tsuji, Land Administrator
 SUBJECT: King Kekaulike High School Performing Arts Center
 LOCATION: Pukalani, Island of Maui; TMK: (2) 2-3-007:032
 APPLICANT: Leo A. Daly on behalf of the State of Hawaii Department of Education

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 8, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: 
 Print Name: William J. Aha, Jr.
 Date: 26 July 2012

cc: Central Files

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



WILLIAM L. ALAN, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July, 20, 2012

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division**
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Maui District
- Historic Preservation

RECEIVED
 LAND DIVISION
 2012 AUG - 2 P 2: 27
 DEPT. OF LAND &
 NATURAL RESOURCES
 STATE OF HAWAII

FROM: *Russell Y. Tsuji*, Land Administrator
 SUBJECT: King Kekaulike High School Performing Arts Center
 LOCATION: Pukalani, Island of Maui; TMK: (2) 2-3-007:032
 APPLICANT: Leo A. Daly on behalf of the State of Hawaii Department of Education

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 8, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Carty Chang*
 Print Name: CARTY CHANG, CHIEF ENGINEER
 Date: 8/1/12

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji

Ref.: Pre-Assessment Consultation For Prop King Kekaulike HS Performing Arts Center, Pukalani
Maui.002

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- (X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.**
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- () Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
- () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Ms. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.

- () The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
- (X) **The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.**

- () Additional Comments: _____

- () Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: 
CARTY S. CHANG, CHIEF ENGINEER

Date: 8/27/12

LEO A DALY

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August 15, 2012

Russell Y. Tsuji, Land Administrator, Land Division
Department of Land & Natural Resources
1151 Punchbowl Street Room 220
Honolulu, HI 96813

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Tsuji:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 13, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

As requested, we will provide the water demands and calculations to the Engineering Division so it can be included in the State water Projects Plan Update and recognize that the project site is located in flood Zone X.

We understand that the Commission on Water Resources Management has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment. If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Defense
3949 Diamond Head Road
Honolulu, HI 96816

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL ABERCROMBIE
GOVERNOR

MAJOR GENERAL DARRYLL D. M. WONG
DIRECTOR OF CIVIL DEFENSE

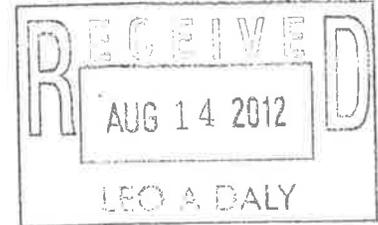
DOUG MAYNE
VICE DIRECTOR OF CIVIL DEFENSE



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

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

August 10, 2012



Mr. Nick Deeley, Planner
LEO A DALY
1357 Kapiolani Boulevard
Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley:

Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center
Tax Map Key: (2)-03-007:032 Pukalani, Maui, Hawaii

Thank you for the opportunity to comment on this proposed project. The location of the proposed project lies within existing siren arc coverage. We anticipate reading the Draft Environmental Impact Statement when it is available.

If you have any questions, please contact Ms. Havinne Okamura, Hazard Mitigation Planner, at (808) 733-4300, extension 556.

Sincerely,

DOUG MAYNE
Vice Director of Civil Defense

LEO A DALY

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WACO
WASHINGTON DC
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August 15, 2012

Doug Mayne, Vice Director
Department of Defense
3949 Diamond Head Road
Honolulu, HI 96816

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Dear Mr. Mayne:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of August 10, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

We understand that your Department has no comment at this time. A copy of your letter will be included in the Draft Environmental Assessment.

If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,
LEO A DALY

Nick Deeley

LEO A DALY

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July 9, 2012

Department of Public Works
200 South High St.
Kalana O Maui Bldg 4th fl
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955



COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

August 24, 2012



Mr. Nick Deeley
LEO A DALY
1357 Kapiolani Boulevard, Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley:

**SUBJECT: PRE-ASSESSMENT CONSULTATION
KING KEKAULIKE HIGH SCHOOL PERFORMING ARTS
CENTER, PUKALANI, MAUI; TMK (2) 2-3-007:032**

We reviewed the subject consultation request and offer the following comments:

Comments from Development Services Administration's Building Inspectors:

1. Permit No. B2004-1596 Open - No Inspections.
2. Permit No. B2007-0229 Open - No Inspections.

Please call Rowena M. Dagdag-Andaya at (808) 270-7845 if you have any questions regarding this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "David C. Goode".

DAVID C. GOODE
Director of Public Works

DCG:RMDA:jtc

xc: Highways Division
Engineering Division

S:\LUCA\CMZ\MDraft Comments\23007032_king_kekaulike_high_school_performing_arts_center_pre_assessment_jtc.wpd

LEO A DALY

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July 9, 2012

Police Department
55 Mahalani Street
Wailuku, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley



ALAN M. ARAKAWA
MAYOR

OUR REFERENCE
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411



GARY A. YABUTA
CHIEF OF POLICE

CLAYTON N.Y.W. TOM
DEPUTY CHIEF OF POLICE

August 21, 2012



Mr. Nick Deeley
Planner
LEO A DALY
1357 Kapiolani Blvd., Suite 1230
Honolulu, HI 96814

Dear Mr. Deeley:

SUBJECT: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center – Pukalani
TMK (2) 03-007:032

Thank you for your letter of July 9, 2012, requesting comments on the above subject.

We have reviewed the information submitted for this project and have enclosed a copy of our comments. Thank you for giving us the opportunity to comment on this project.

Very truly yours,

Assistant Chief Victor K. Ramos
for: Gary A. Yabuta
Chief of Police

c: William Spence, Maui County Planning Department

Enclosure

TO : GARY YABUTA, CHIEF OF POLICE, COUNTY OF MAUI

VIA : CHANNELS

FROM : MARJORIEANN KAHOOKELE-PEA, POIII, COMMUNITY POLICE OFFICER

SUBJECT : REQUEST FOR COMMENTS REGARDING A PRE-ASSESSMENT CONSULTATION FOR PROPOSED KING KEKAULIKE HIGH SCHOOL PERFORMING ARTS CENTER LOCATED IN PUKALANI, MAUI, HAWAII, TMK: (2)-03-007:032

*Answer
with recommendations - Acl, r
08/16/12*

This communication is being submitted as a response to a request for comments regarding a proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui at the existing King Kekaulike High School, in compliance with Environmental Impact Statement, Hawaii Revised Statutes, Chapter 343. This is being requested by Leo A DALY, Nick DEELEY, Planner located at 1357 Kapiolani Blvd. Suite 1230, Honolulu, Hawaii, 96814.

PROJECT : KING KEKAULIKE HIGH SCHOOL PERFORMING ARTS CENTER
TMK(s) # : (2) 03-007:032
APPLICANT : Leo A. Daly

The proposed project consists of building a new Performing Arts Center for King Kekaulike High School in two phases. Phase 1 of the project includes a 400-seat performance facility with a lobby, house, stage, and back-of-house support functions totaling 22,123 SF. Phase 2 consists of building a black box, instructional functions and administrative offices totaling 12,288 SF.

This project site is located north of the school's main drop of area between the Administrative Offices and Tennis Courts. The school's master plan have included a learning center for the visual and performing arts, which serves to showcase student performances to faculty, staff, parents, friends and to the surrounding community. The Performing Arts Center will also offer space for guest users for various uses including artists workshops and displays, professional development workshops, scholastic and interscholastic meets and events, presentations and forums.

COMMENTS:

In review of the submitted documents, concerns from the police perspective are upon the safety of pedestrian and vehicular movement especially during the times that events are scheduled which would increase traffic flow into the High School.

During the event of scheduled performances, exhibits or public events that will be held at the school, there is the concern that traffic and pedestrian safety would be of concern as the school's parking has limited parking. This would cause motorists to park along the highways and other areas which would increase safety hazards

on Kula and Kekaulike Highways for both pedestrian and vehicular traffic.

There should not be a significant increase in traffic as a result of the building of the Performance Center as its primary use is for school students and classes.

RECOMMENDATIONS:

Recommendations from a police standpoint would be preparation of traffic Off-Duty Officers and security be used for the events that would increase traffic such as May Day, Sporting Events and graduation to monitor and keep traffic flowing smooth as well as assist pedestrians cross the highways.

There are no other concerns for the proposed project.

Respectfully Submitted,

Marjorieann Kahookale-PEA
Ofc. Marjorieann KAHOOKELE-PEA 15206
Community Oriented Police
August 7th, 2012 @ 1216 Hours

OK 8/16/12

SUGGEST OFF. KAHOOKELE-PEA'S
RECOMMENDATIONS BE
TAKEN INTO CONSIDERATION.
LARGE-SCALE EVENTS AT
KULA KEKAULIKE ROUTINELY
HAVE SPECTATORS/PARTICIPANTS
PARKING ALONG KULA HWY.

Sgt. Mark Frank
8-8-12 @ 1535

NOTED.
LT. B. [Signature]
8-9-12 @ 1415

LEO A DALY

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July 9, 2012

Department of Health - Maui
State of Hawaii
54 South High Street Rm. #301
Wailuku, Maui, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2)-03-007:032

To Concerned Parties:

On behalf of the State of Hawaii Department of Education and in compliance with Environmental Impact Statement, Hawai'i Revised Statutes, Chapter 343, LEO A DALY is soliciting your comments on the proposed King Kekaulike High School Performing Arts Center in Pukalani, Maui.

A project summary sheet and location maps of the project site are enclosed for your information. You may submit your comments by fax to 808-521-3757 or mail your written comments to:

LEO A DALY
1357 Kapiolani Blvd. Suite 1230
Honolulu, Hawaii 96814

Attention: Nick Deeley, Planner

We ask that you send your comments on, or by August 10, 2012.

Very truly yours,

LEO A DALY

Nick Deeley

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H.
DISTRICT HEALTH OFFICER

**STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE**
54 HIGH STREET
WAILUKU, HAWAII 96793

July 17, 2012



Mr. Nick Deeley, Planner
Leo A. Daly
1357 Kapiolani Boulevard, Suite 1230
Honolulu, Hawaii 96814

Dear Mr. Deeley,

**Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center-
Pukalani, Maui
TMK: (2) 2-03-007:032**

Thank you for the opportunity to review this project. We have the following comments to offer:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage maybe required for this project. The Clean Water Branch should be contacted at 808 586-4309.
2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control." A noise permit may be required and should be obtained before the commencement of work. The Indoor & Radiological Health Branch should be contacted at 808 586-4700.

It is strongly recommended that the Standard Comments found at the Department's website: <http://hawaii.gov/health/environmental/env-planning/landuse/landuse.html> be reviewed, and any comments specifically applicable to this project should be adhered to.

Mr. Nick Deeley
July 17, 2012
Page 2

Should you have any questions, please call me at 808 984-8230 or E-mail me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

A handwritten signature in cursive script that reads "Patti Kitkowski".

Patti Kitkowski
District Environmental Health Program Chief

c EPO

LEO A DALY

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August 15, 2012

Patti Kitkowski, Program Chief
Department of Health - Maui
State of Hawaii
54 South High Street Rm. #301
Wailuku, Maui, HI 96793

Subject: Pre-Assessment Consultation
King Kekaulike High School Performing Arts Center - Pukalani, Maui
Tax Map Key (2) 2-03-007:032

Ms. Kitkowski:

On behalf of the applicant, the Department of Education, we thank you for your Department's letter of July 17, 2012 concerning the Draft Environmental Assessment for King Kekaulike High School Performing Arts Center.

As requested, we will contact the Clean Water Branch as a National Pollutant Elimination System (NPDES) permit maybe be required for the subject project, and that the Indoor & Radiological Health Branch will be contacted as noise permit may also be required due to noise created during the construction phase of the project (Hawaii Administration Rules (HAR) Chapter 11-46, "Community Noise Control").

We will review the Standard Comments found at your Department's website. A copy of your letter will be included in the Draft Environmental Assessment. If additional clarification is required, please contact me at (808) 521-8889.

Very truly yours,

LEO A DALY

Nick Deeley