

HAWAIIAN CONNECTIONS



NEWSLETTER OF THE HAWAII LOCAL TECHNICAL ASSISTANCE PROGRAM

VOLUME 3, No. 2

SUMMER 2001

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Please pass this on to other interested parties in your office.

UPDATE ON THE 2000 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), MILLENNIUM EDITION

By Wayne Kaneshiro, FHWA

As you may recall, the Summer 2000 Hawaiian Connections newsletter announced that a major rewrite of the MUTCD was ongoing. The Millennium edition MUTCD has finally been released with the publication of the final rule in the December 18, 2000, Federal Register. However, no printed version is available. Printing is being postponed until the Federal Highway Administration (FHWA) issues an errata to the manual. The manual can be viewed on the Internet at <http://mutcd.fhwa.dot.gov>.

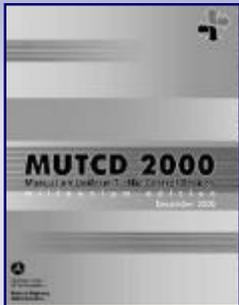
The effective date of the final rule is January 17, 2001. A state will have a two-year period to adopt either the new MUTCD, a State MUTCD, or a State supplement to the MUTCD. The FHWA is allowing phase-in time for a small number of traffic control devices (TCD) to minimize impacts to State and local highway agencies. The phase-in periods vary from three to ten years depending on the TCD and are identified in the December 18, 2000, Federal Register. An example of a TCD with a phase-in period is the School Crosswalk Warning Assembly (S1-1 with downward pointing arrow plaque). The compliance period is 10 years after the effective date of the rule, or effective immediately for all new installations.

The revised MUTCD includes new signs and pavement markings, changes in both standards and guidance, new sections, major

changes to Part 6 (Work Zones), and guidance for the Americans with Disabilities Act and pedestrians. Four new headings - Standard, Guidance, Option, and Support - are introduced. The MUTCD defines these headings as follows:

1. Standard - a statement of required, mandatory, or specifically prohibitive practice regarding a traffic control device. All standards are labeled and the text appears in bold, large type. The verb "shall" is typically used. Standards are sometimes modified by Options.
2. Guidance - a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate.

Continued on page 3



There have been format changes of the MUTCD manual. For more details visit, <http://mutcd.fhwa.dot.gov/kno-millennium.htm>

Walter Lum's Rules of Thumb

Editor's Note: Walter Lum, consulting engineer, through many years of experience has developed quick and easy ways to solve complex problems. He has shared his rules of thumb with us.



A QUICK SLOPE STABILITY ANALYSIS (Part 1 of 3 parts)

Slope stability analysis can be performed very quickly by the following semi-graphical procedure, if the slope and slip surfaces are known and drawn to scale.

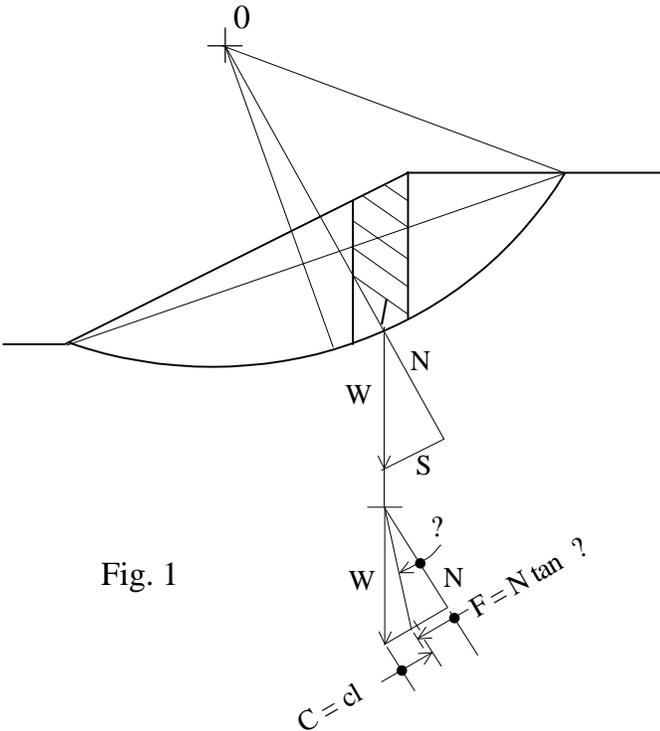


Fig. 1

Given: c = cohesion
 ϕ = friction angle
 γ = unit weight of soil

For F.S. = Factor of Safety of a Slice, Fig. 1

W = weight of slice
 N = normal through the origin "0"
 S = shear required for equilibrium

$C = c \times l$ = cohesion available
 $F = N \times \tan \phi$ = friction available

$$F.S. = (C + F) / S$$

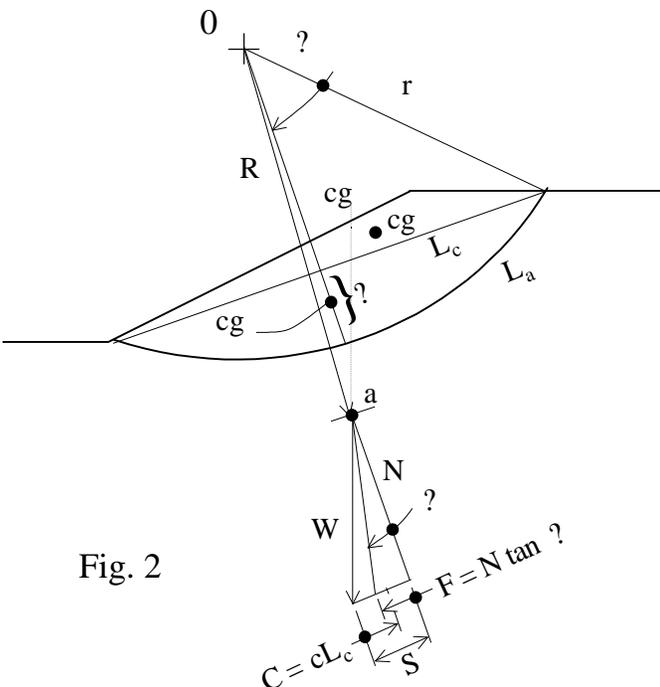


Fig. 2

For F.S. = Factor of Safety of total Slope, Fig. 2

Begin force polygon at point "a", the intersection of weight W and radius R

$$R = r \times L_a / L_c, \quad L_a / L_c = \phi / (57.3 \times \sin \phi)$$

W = weight of triangle and circular segment
 (weight of segment = $\gamma \times r^2 \times L_c \times 0.68$)

cg, center of gravity of slope

cg of triangle by eye
 cg of segment = $0.4 \times r$ from chord, L_c
 cg of total slope by eye

$$F.S. = (c \times L_c + N \times \tan \phi) / S$$

$$F.S. = (C + F) / S$$

Check it out with a known problem and see if it works.

MUTCD Millennium Edition *(Continued from page 1)*

All Guidance statements are labeled and the text appears in large type. Guidance text is the same size as Standard text, but it is not bold. The verb "should" is typically used. Guidance statements are sometimes modified by Options.

3. Option - a statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance. All Option statements are labeled and the text appears in small type. The verb "may" is typically used.

4. Support - an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements are labeled and the text appears in small type. The verbs "shall," "should," and "may" are not used in Support statements.

This article just touches on a few of the changes in the new MUTCD. For a more detailed discussion, go to the MUTCD website, <http://mutcd.fhwa.dot.gov>. The website contains the official version of the MUTCD, a frequently asked questions section, an explanation of the amendment process, and instructions to request permission to experiment. There is also a discussion group where you can express your opinion on various MUTCD subjects. The American Traffic Safety Services Association (ATSSA) also maintains an MUTCD website where you can find Q&As from the recent ATSSA/FHWA videoconference.

Printed copies of the MUTCD will be available for purchase from the following sources:

- The American Association of State Highway and Transportation Officials (AASHTO) - www.transportation.org.
- The Institute of Transportation Engineers (ITE) - www.ite.org.
- The American Traffic Safety Services Association (ATSSA) - www.atssa.org.
- The Government Printing Office (GPO) - www.gpo.gov.



S1-1



W16-7

School Crosswalk
Warning Assembly



W17-1



To better accommodate the needs of Hawaii's transportation agencies, the Hawaii LTAP is providing a workshop request form on the page 11. We hope that you will carefully spend your time to fill out this form should you wish to request a workshop. For more information about the various types of workshops Hawaii LTAP sponsors, contact Juli Kobayashi at (808) 956-9006.

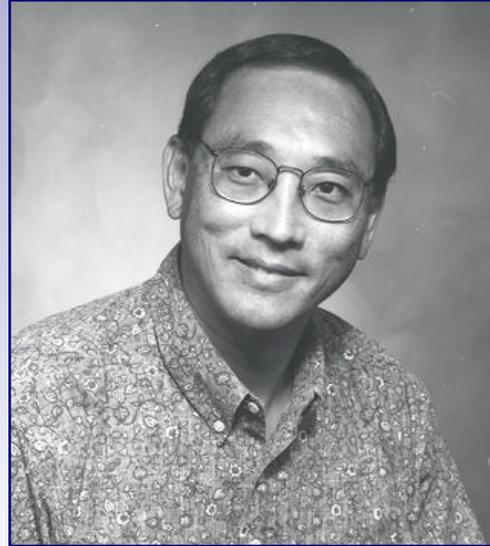
Farewell and Mahalo Jiro Sumada

Earlier this year, Jiro A. Sumada joined W. H. Shipman as a development manager. For the past several years Jiro has served on the Hawaii LTAP advisory board representing the County of Hawaii. In 1995, he had been appointed as Deputy Director of the Department of Public Works, County of Hawaii.

Prior to his employment with the County, Jiro was a Construction Engineer with Willocks Construction Corporation from 1992 to 1995; and a Design Coordinator, overseeing design efforts of State-selected consultants for new facility construction at the Kahului Airport in Maui for Project Managers Hawaii, Inc. from 1988 - 1992. Prior to his civilian employment, Jiro served in the military as a Civil Engineering Staff Officer at Headquarters Pacific Air Forces, Hickam Air Force Base, Hawaii (1983 - 1992), responsible for contingency planning and air base development in support of Air Force combat missions in Japan, Korea and the Philippines; and as a Base Level Engineer with the 475th Civil Engineering Squadron, Yokota Air Base, Japan (1979 - 1983).

Mr. Sumada was born in Lihue, Kauai and raised in Hilo, Hawaii. He graduated from Hilo High School in 1975, and then continued his formal education at the U.S. Air Force Academy where he obtained a B.S. in Civil Engineering in 1979, and at the University of Hawaii, Manoa, where he earned a Masters in Business Administration in 1988.

Mr. Sumada is married to the former Rie Ebara and has two sons.



The Hawaii LTAP program would like to express our appreciation to Jiro for all his help with our advisory committee as well as being a strong advocate for our program. We are sad to see him leave the county but wish him the best in his new position at W. H. Shipman in the land development department.

At W. H. Shipman Jiro plans, implements and coordinates land development projects undertaken by the Company. Jiro directly supervises Land Development Assistant(s), contacts and coordinates with technical and professional personnel, contractors, joint ventures and other involved in projects. He recommends budgets for development projects and coordinates with Treasurer on financing and arranges for marketing of developments.

Once again, thank you for your support and best wishes!

For upcoming workshops and past newsletters, visit our webpage at:

www.eng.hawaii.edu/~hltap

NEWS FROM OUR PARTNERS...

Asphalt Paving Fundamentals Workshop

By Lisa Economy, Executive Director, HAPI

The Hawaii Asphalt Paving Industry (HAPI) and LTAP co-sponsored three Asphalt Paving Fundamentals Workshops on April 24th and 25th on Oahu at the East-West Center Jefferson Hall and on Thursday April 26th in Hilo at the Naniloa Sandalwood Room.

Mr. Robert Campbell, PE, a consulting Engineer with over 30 years of Asphalt Experience was instructor for the course. The course covered a wide range of asphalt related topics, including Materials to Mix Design, Hot Mix Facilities and Compaction Procedures. The workshops were well attended by Design and Project Engineers, Inspectors, Maintenance Supervisors, Salespeople and even a few Engineering Students.

HAPI and LTAP are looking forward to bringing you more workshops and some possible subject matters include:

- Warranties
- Design/Build
- Construction Techniques - present day & future possibilities
- Pavement Maintenance Techniques

Dates and times for future seminars will be announced through both the LTAP Newsletter, the HAPI Newsletter, online at www.eng.hawaii.edu/~hltap and/or www.hawaiiasphalt.com as well as LTAP & HAPI notifications sent by mail, so please keep on the lookout for future workshops that may be of interest to you. HAPI and LTAP are open to any suggestions for potential seminars/workshops so please do not hesitate to let us know where your interests are by giving us a call.



Future HAPI meeting dates are listed below. If planning on attending, please give the Executive Director a call at (808) 961-3196.

July 17th

-DOT Spec Meeting, Highway Construction Office

July 17th

-HAPI Steering Committee Meeting, Hawaiian Bitumals Office

August 15th

-HAPI Steering Committee Meeting, Hawaiian Bitumals Office

September 26th

-HAPI Members Meeting, Location TBA

NATIONAL TRANSPORTATION ASSET MANAGEMENT WORKSHOP PLANNED

"**T**AKING THE NEXT STEP IN ASSET MANAGEMENT" will be the focus of the 4th National Transportation Asset Management Workshop, September 23-25, 2001, in Madison, Wisconsin. The workshop will be open for the first time to county and municipal officials, academic researchers, consultants and transit agency professionals, as well as to state DOT and federal agency officials. The program has been structured to address key issues and facilitate interaction across modes and agency types.

Attendees will participate in the process of setting the research agenda and planning the development of educational curricula in transportation asset management. They will share lessons learned by state Departments Of Transportation, local governments and transit agencies. They will also hear the latest findings and recommendations of the American Association of State Highway and Transportation Officials (AASHTO) and Transportation Research Board (TRB) asset management task forces. The workshop will provide attendees with resources and techniques for overcoming obstacles and taking the next step in implementing an asset management program.

Featured speakers include: Secretary Peter Rahn of the New Mexico Department of Transportation, Director Mary Peters from the Arizona Department of Transportation, and Dr. Donald Kettl of the Brookings Institution and the La Follette School of Public Affairs. U.S. Department of Transportation Secretary Norman Y. Mineta and U.S. Representative Thomas Petri (R-WI) also have been invited to speak.

Transportation Asset Management is a systematic process of operating, maintaining, and upgrading physical assets cost-effectively. It combines engineering and mathematical analysis with

sound business practice and economic theory. Transportation asset management systems are goal-driven and, like the traditional planning process, include components for data collection, strategy evaluation, program selection, and feedback. This asset management model explicitly addresses integration of decisions made across all program areas. Its purpose is simple - to maximize benefits of a transportation program to its customers and users, based on well-defined goals within available resources.



"TAKING THE NEXT STEP IN ASSET MANAGEMENT" is sponsored by AASHTO, Federal Highway Administration, National Association of County Engineers, American Public Transit Association, Midwest Transportation Consortium and the Midwest Regional University Transportation Center. For information contact Ernie Wittwer, Director, MRUTC (Midwest Regional University Transportation Center) at wittwer@engr.wisc.edu.

For more information visit the following website: www.mrutc.org/conferences.htm

HAWAII LTAP WORKSHOP SUMMARY FOR THE SECOND QUARTER

The LTAP program sponsored seven workshops during its second quarter of calendar year 2001. The beginning of this quarter started with a three-day workshop in **Seismic Bridge Retrofit Training**. The course provided guidance in evaluation, design, analysis and strategies for retrofitting highway bridges. Training included hands on design examples of retrofitting bridges and earthquake disaster response and inspection. Below is a picture Mark Yashinsky who was one of the three instructors of the course. He is in charge of Caltrans Post-Earthquake Investigation Team.



At the end of April, LTAP sponsored the **Asphalt Paving Fundamentals** and the **Advanced Transportation Management Technologies DP - 105 workshops**. Asphalt Paving Fundamentals was a one-day course that covered the basic principals of hot mix asphalt pavement construction. The concepts of hot-mix materials, mix production, placing and compaction procedures, quality control/acceptance criteria and causes and cures for segregation was emphasized. FHWA's Demonstration Project 105 workshop focused on ITS technologies that can be deployed in transportation infrastructures. Demonstrations of the available technologies were reviewed along with their ability to control congestion and improve mobility and safety.

From May 15 - 17, the **Statewide Transportation Improvement Program (STIP)** workshop was held with 44 participants. This workshop emphasized the development and administration of the STIP.

The **Value Engineering** workshop was a five-day workshop that covered a systematic process of reviewing and analyzing a project during the design/development phases to reduce the total cost while providing an equal or better quality project. The workshop gave participants the opportunity to work with peers of various disciplines. Their goals were to investigate and analyze the design of an existing project, analyze project functions and costs, produce alternative solutions to perform the various functions, evaluate the best and/or least lifecycle cost alternatives, develop acceptable alternatives into fully supported recommendations and finally group presentations were given.

Ending the second quarter were the **ITS and Turbo Architecture** workshops. The ITS workshop presented the National ITS Architecture as a set of tools that provides a framework to identify components and connections between various ITS components, vocabulary for better communication and guidance to develop a regional ITS Architecture which can be used to identify integration opportunities. The Turbo workshop used software called TURBO Architecture that help to map current inventories to potential National ITS categories. ITS Architecture participants below; Bryan Kimura, Neal Kasamoto and Wayne Kaneshiro.



For a list of upcoming workshops, check out our webpage at: www.eng.hawaii.edu/~hltap

Dennis Lee, Newly Appointed Director of the DPW

Congratulations to Dennis K. W. Lee who is the new Director of the Department of Public Works with the County of Hawaii. Mr. Lee was born and raised in Hilo and received his bachelor's degree in Civil Engineering from the University of Hawaii at Manoa. He is a registered Professional Engineer in Civil Engineering since September of 1975.

Prior to accepting his appointment with the Department of Public Works in January, 2001, he was the Chief of Operations with the Department of Water Supply and also worked as a Supervisory Civil Engineer with the U.S. Department of the Army on the Big Island.

Under Mr. Lee's direction, the Department of Public Works is responsible for all matters relating to engineering; public and private building construction and inspection; wastewater construction and operation and maintenance of wastewater systems; solid waste management and landfill programs; construction, inspection and maintenance of public streets, highways, bridges and

drainage facilities; acquisition of public and private properties for public purposes; design, operation and maintenance of traffic signals and traffic control devices; and all other public works projects, except for matters relating to Parks & Recreation and Water Supply. Public Works is also a key support agency for Civil Defense emergencies.



Mr. Lee is also involved in many community service and professional organizations. He resides in Hilo with his wife Thelma and has four sons and six grandchildren.

College of Engineering Fiscal Staff

The Hawaii LTAP program would like to recognize the College of Engineering fiscal staff for their contributions to our program. With their quick and efficient abilities, LTAP is able to run smoothly and we have been providing outstanding service to the transportation community.

Patricia, an Administrative Officer, has been with the college for 34 years. Marie, also an Administrative Officer, has worked for the university for 5 years. Linda, an Account Clerk, has been with the college for 13 years. Lianne, a former student assistant, is the Fiscal Support Specialist and Lois, who recently joined the college, is the Personnel Clerk.



Patricia Yoseda Lianne Kaneshiro Marie Ohta
Lois Hanohano Linda Uyeda

Director's Note

by C.S. Papacostas

Our records show that during CY 2000 we offered 18 different workshops, seven of which were presented several times. This translates to 604 hours of classroom training, attended by 1,138 participants and resulting in 15,696 person-hours of training.

These workshops addressed a very wide range of topics including program management as well as planning, design, construction and operation of highway facilities.

We consider this aspect to be the heart of our program and we are proud to have far exceeded the minimum of 10 offerings per year that is prescribed by the national LTAP.

To better meet your needs, we have streamlined the procedures we follow to evaluate workshop requests and to handle participant registration.

If you wish to request training in a particular subject, please use our Workshop Request Form (see p. 11). We've discovered that using the information on this form has eliminated two or three preliminary planning steps and has saved us and the requestors valuable time. As a result, we are able to disseminate more accurate and timely information about upcoming activities.

Once an upcoming activity is announced, we kindly ask you to send in your registration request as early as possible. This practice will allow us ample time to provide confirmation and to avoid oversubscription problems.

Finally, you should know that our Program Manager, Juli Kobayashi, gave an excellent presentation about our program at the LTAP regional meeting that was held in Alaska in May.

Program Manager's Note

by Juli Kobayashi

In June, Costas and I attended the Region 9 & 10 LTAP meeting in Girdwood, Alaska. While we were there we visited the Anton Anderson Memorial Tunnel. The Tunnel is located on the Portage Glacier Highway and connects Whittier and Prince William Sound to the Seward Highway and the rest of Southcentral Alaska.

The Anton Anderson Memorial Tunnel is the longest rail-highway tunnel in North America: (13,300' or 2.5 miles). The tunnel is the first to use a computerized traffic-control system that regulates both rail and highway passage. It is a one lane tunnel with a 15 minute alternating schedule between each direction of train and automobile traffic.

The tunnel was also the first in the United States to have a ventilation system that combines jet and portal fans. It is designed to operate in temperatures down to minus 40° F and in winds up to 150 mph.

Once you get through the tunnel, you will be in the small town of Whittier where you can go on sea kayaking adventures or cruises into Prince William Sound. Although it may be difficult to get there, it is worthwhile to see the unique fjords that are home to an astonishing diversity of wildlife and glaciers!

At the meeting, each LTAP center did a short presentation on their programs and some of the special projects that they have. Costas and I gained new insight from the other centers that will help us to improve our program.

We would like to thank the Alaska Local Technical Assistance Program for their hospitality and coordination of this annual meeting.

STAFF

Director:
C.S. Papacostas
Department of Civil Engineering,
University of Hawaii
at Manoa

Program Manager:
Juli Kobayashi

Program Assistant:
Gail Ikeda

Senior Volunteer:
Peter Ho

Graduate Assistants:
Matthew Alonzo
Reid Ikemori
Matt Nakamoto

Student Assistants:
Holly Suyama
Rhen Yamamoto
Lynne Yasui

Comp. Technicians:
Kevin Shin
HongKham Ouane-
sisouk

Website:
<http://www.eng.hawaii.edu/~hltap/>

LTAP REGION 9 & 10 MEETING IN ANCHORAGE, ALASKA



Hawaii and Nevada LTAP staff



Anton Anderson Memorial Tunnel



Inside view of the tunnel

Hawaii LTAP Transportation Library

The Hawaii Local Technical Assistance Program Library is located in Holmes 207A at the University of Hawaii. The library houses over 10,000 transportation-related technical reference materials. Informational and workshop videos may also be found in the library. Reference materials and videos are available to the public and may be borrowed or copied.

Database of all materials may be found on the web at:

Videos –

www.eng.hawaii.edu/~hltap/video.html

Publications –

www.eng.hawaii.edu/~tlib

Website:
<http://www.eng.hawaii.edu/~hltap/>

For more information, please contact Juli Kobayashi at 956-9006.

Staff News



The Hawaii LTAP program would like to congratulate Computer Technician **Kevin Shin** on his graduation in Information and Computer Science. He plans to pursue a career in software development and design. He is currently working with the LTAP program to develop a central database to improve the effectiveness of the transportation library. Congratulations!!

The program would like to welcome back **Lynne Yasui** who was a student assistant last summer. We appreciate her help and cheerfulness she brings to the program. Lynne will be helping the program for the summer and return back to the Washington State University in the Fall. Thank you Lynne!



HongKham Ouaneisouk is the newest member to the LTAP staff. He is currently a student at KCC studying Information Technology and hopes to pursue a career in networking when he graduates. In his spare time, he enjoys reading suspense thriller novels, going to the beach or playing the guitar.

Free Publications

1. **FHWA-HI 98-031:** Hazardous Bridge Coatings, Design and Management of Maintenance and Removal Operations
2. **FHWA-L-UH-98-05:** Reducing Soil Erodibility and Runoff by Use of Polyacrylamides on Hawaiian Soils
3. **Work Zone Safety:** Guidelines for Construction, Maintenance, and Utility Operations.

For free copies (while supplies last) please call (808) 956-9006.



HAWAII LOCAL TECHNICAL ASSISTANCE PROGRAM

REQUEST FOR WORKSHOP/TRAINING FORM

Please complete the form and fax to 956-8851. Attach additional information as needed.

We will canvass our clients to identify their level of interest in the proposed topic(s). Our Executive Board will consider your request at its monthly meeting. We will then inform you of the Board's decision and, if needed, request additional information.

Date: _____

Name/Title: _____

Organization: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____ email: _____

Proposed Topics(s): _____

Target Audience: _____

Justification: _____

Expected number of attendees from your organization: _____

Estimated number from: State: _____ County: _____ Private: _____

Number of Days: _____ Preferred Dates: _____
(list in order of priority)

Preferred Location: _____

Potential Instructors: _____
(include contact information ie. phone, e-mail, etc.)

Estimated cost: _____ Your cost share (if any): _____



HAWAII LOCAL TECHNICAL ASSISTANCE PROGRAM

Executive Committee

Richelle Suzuki
Transportation Engineer
FHWA Hawaii Division
P.O. Box 50206
Honolulu, HI 96850
Tel: (808) 541-2700
Fax: (808) 541-2704

Gary Choy
Chairperson
Materials Testing & Research Engineer
Hawaii Department of Transportation
Materials Testing & Research Branch
2530 Likelike Highway
Honolulu, HI 96819
Tel: (808) 832-3403
Fax: (808) 832-3407

C.S. Papacostas
Director, Hawaii LTAP
Department of Civil Engineering
University of Hawaii
2540 Dole Street - Homes Hall 383
Honolulu, HI 96822
Tel: (808) 956-6538
Fax: (808) 956-5014

Advisory Committee

Gary Choy
Chairperson
Materials Testing & Research Engineer
Hawaii Department of Transportation
Materials Testing & Research Branch
2530 Likelike Highway
Honolulu, Hawaii 96819

Ken Kitabayashi
Chief, Engineering Division
County of Kauai
Department of Public Works
4444 Rice Street
Lihue, HI 96766

Lloyd Lee
Engineering Division Chief
County of Maui
Department of Public Works
200 South High Street
Wailuku, HI 96793

Gordon Lum
Executive Director
Oahu Metropolitan Planning
Organization (OMPO)
Ocean View Center
707 Richards St., #200
Honolulu, HI 96813

Peter Nicholson
Associate Professor
Department of Civil Engineering
University of Hawaii at Manoa
2540 Dole Street
Honolulu, HI 96822

Richelle Suzuki
Transportation Engineer
FHWA Hawaii Division
P.O. Box 50206
Honolulu, HI 96850

R. Paul Won
Chief, Traffic Engineering Division
City & County of Honolulu
Department of Transportation Services
711 Kapiolani Blvd.
Honolulu, HI 96813

Hawaii LTAP Staff

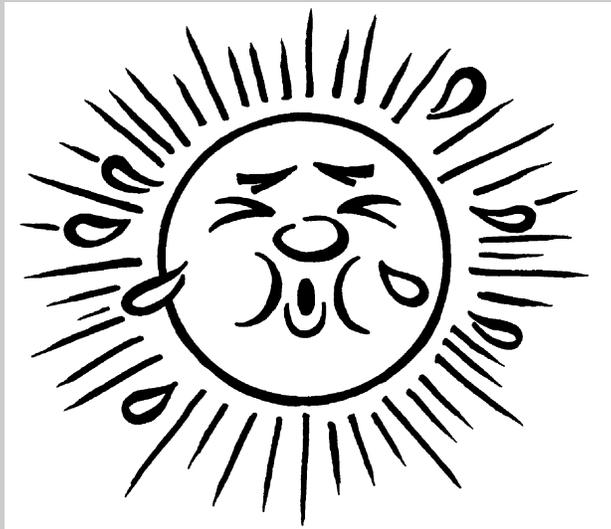
Director: C.S. Papacostas
Program Manager: Juli Kobayashi

Program Assistant: Gail Ikeda
Senior Volunteer: Peter Ho

Graduate Assistants:
Matthew Alonzo Reid Ikemori
Matt Nakamoto

Student Assistants:
Holly Suyama Rhen Yamamoto
Lynne Yasui

Computer Technicians:
Kevin Shin HongKham Ouanesisouk



The Hawaii Local Technical Assistance Program (LTAP) is a cooperative program of the University of Hawaii Department of Civil Engineering, the Hawaii Department of Transportation, Highway Division, State of Hawaii and the U.S. Department of Transportation Federal Highway Administration, Hawaii. The LTAP program provides technical assistance and training programs to local transportation related agencies and companies in order to assist these organizations in providing cost-effective improvements for the nation's highways, roads and bridges. Our office is located at:

*Hawaii LTAP
Department of Civil Engineering
University of Hawaii at Manoa
2540 Dole Street - Holmes Hall 383
Honolulu, Hawaii 96822*

Please contact:
C.S. Papacostas, Director
Tel: (808) 956-6538
Fax: (808) 956-5014
Email: csp@eng.hawaii.edu
or
Juli Kobayashi, Program Manager
Tel: (808) 956-9006
Fax: (808) 956-8851
Email: juli@eng.hawaii.edu

Website:
<http://www.eng.hawaii.edu/~hltap/>

The contents of this newsletter do not necessarily reflect the official views or policies of the HDOT, FHWA or the University of Hawaii. The newsletter is intended to convey useful information to the local highway and transportation personnel. Any references to commercial products or organizations are included only for informational purposes and are not intended as endorsements by the Hawaii LTAP.

Hawaii Local Technical Assistance Program
Department of Civil Engineering
University of Hawaii at Manoa
2540 Dole Street - Holmes Hall 383
Honolulu, Hawaii 96822

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