Ever asked if Oahu has a transportation master plan? Ever wondered who determines which transportation projects receive federal funds? Ever heard of the Oahu Metropolitan Planning Organization?

The Oahu Metropolitan Planning Organization, or OMPO, is one of approximately 300-400 regional transportation planning agencies located throughout the United States responsible for setting transportation priorities for their areas. Based on the federal mandate that established these agencies, OMPO has a strong focus on programming and planning federal funding for surface transportation projects.

OMPO has recently produced four documents that identify transportation priorities and emphasis areas for Oahu that are described below. To view these documents or learn more about OMPO, log on to our web site at:

http://www.eng.hawaii.edu/~csp/OMPO/

Transportation for Oahu Plan 2025 (TOP 2025) - A 25-year blueprint of Oahu’s surface transportation network is contained in OMPO’s report, TOP 2025. This report utilized future population and economic projections to forecast where our transportation problems will be and to determine what transportation projects would be required to address our congestion, safety, transit, bike, maintenance, operational, community planning, circulation, second access, and other needs. We found that our projected revenues covered half of those needs. A constrained list of projects totaling over $3.6 billion was eventually selected based upon technical evaluations and public input.

Oahu Transportation Improvement Program FYs 2002, 2003, and 2004 (TIP) - The Oahu TIP FYs 2002, 2003, and 2004 programs federal funds for various phases of city and state transportation projects. Generally speaking, a (Continued on page 4.)
A QUICK SLOPE STABILITY ANALYSIS WITH SEEPAGE  (Part 3 of 3 parts)

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

Given:  
\( c = \) cohesion  
\( \phi = \) friction angle  
\( \gamma = \) unit weight of soil

For F.S. = Factor of Safety of a Slice

\( \alpha = \) inclination of slope  
\( W = \) weight of slice of unit width  
\( N = \) normal to slope  
\( S = \) shear required for equilibrium  
\( w = \) weight of seepage water  
\( U = \) water force

\[ C = c \times l = \frac{c}{\cos \alpha} = \text{cohesion available} \]

\[ F = (N - U) \times \tan \phi = \text{friction available} \]

\[ \text{F.S.} = \frac{[c \times l + (N - U) \times \tan \phi]}{S} \]

\[ \text{F.S.} = \frac{(C + F)}{S} \]

Check it out with a known problem, it really works!
The Superintendents/Overseers conference was held from November 7 - 9 in Hilo to help meet the varied needs of local transportation work forces. It was apparent that all counties endured the problems of flooding, inadequate/improper drainage, endless road repairs and budgetary matters stated by Steven Arce from the Molokai district. First time attendee John Prito from the county of Maui found that every county had something in common and was glad to find everyone was willing to share good and bad experiences.

Leonard Costa from the county of Maui said, "The heart to heart sharing of ideas, problems, frustrations, successes and personal experiences, made everyone feel like a Statewide Team."

Big Island Mayor, Harry Kim, gave a presentation at the conference and challenged public workers to step to the plate and do more with less according to James Perry, Hana district supervisor. Participants had the opportunity to go on field excursions to the lava flow sites and Hilo's baseyard. After seeing the lava flow's destruction, the amount of work put out by the County of Hawaii was outstanding James also commented.

The equipment at Hilo's baseyard was widely appreciated. Participants were impressed with Walter Lucas' portable vehicle lift. There was discussion on equipment purchases and deciding how to get the right equipment for the job.

The conference never ended, it continued through breaks, lunches, dinners and field trips. There wasn't enough time to say everything they wanted to say. In fact, people were already talking about the next year's conference which will be held on Kauai.

The Hawaii LTAP would like to express a big mahalo to Stanley, Kelly, Bobby, Lori, and Shirley from the Big Island for all their hard work in coordinating this extremely successful event

Note: This article was compiled from participants feedback.
surface transportation project on Oahu must be identified in the TIP to be eligible for federal funds.

The Oahu TIP FYs 2002, 2003, and 2004 identifies transportation programs and projects totaling almost $490 million for the three-year period. FY 2002 projects represent those with the highest implementation priority on Oahu. State-sponsored projects in FY 2002 total about $90 million, which includes approximately $60 million in federal funds. City-sponsored projects in FY 2002 total approximately $70 million, with $40 million in federal funds.

FY 2002 Overall Work Program (OWP) - The federal mandate that established agencies such as OMPO also requires that various planning activities be conducted to ensure a comprehensive, cooperative, and continuing planning process. These planning activities as well as priority city and state planning studies for the current fiscal year are contained in the FY 2002 OWP.

Environmental Justice in the OMPO Planning Process - Environmental justice is not a new concept or program. It has its roots in Title VI of the Civil Rights Act of 1964, which bars discrimination. In an effort to evaluate if the metropolitan planning process meets the requirements of environmental justice and Title VI, OMPO developed a program that is documented in the Environmental Justice in the OMPO Planning Process report.

Essentially, Title VI and environmental justice are about fairness. Fairness means no group bears more than its share of negative environmental, social, or economic effects, and no group receives more than its share of benefits. The Environmental Justice in the OMPO Planning Process report documents how OMPO evaluated the effectiveness of the metropolitan planning process in meeting Title VI and environmental justice requirements and implemented a process to analyze the distribution of benefits and disproportionate impacts of planned transportation investments in the TOP 2025 and TIP.

Merry Christmas!

Wishing you a happy holiday season!
Happy Holidays! The Cement and Concrete Products Industry of Hawaii (CCPI) concluded this year’s activities with its annual meeting event at the JW Marriott Hotel Ko’Olina Resorts. We are proud of our partnership with LTAP and appreciate C.S. Papacostas’ participation at this year’s event, which was themed, ‘Concrete for Sustainable Construction’.

We recently co-sponsored, with SEAOH, a seminar on the Design of Concrete Buildings for Earthquake and Wind Forces per UBC 1997. It was nice to see a good contingent of UH engineering students attending the seminar.

Recently, I had the pleasure of presenting a lecture session for Dr. Phillip Ooi’s class. I take great pride to support and promote the UH College of Engineering students.

CCPI looks forward to our continuing relationship with LTAP and our next joint workshop on the ‘Construction of Concrete Pavements’ to be held early next year.

Until then, have a safe holiday ...Wishing you all a Merry Christmas and a Happy New Year!

Mahalo!
Wayne Kawano

Structural Engineers Association of Hawaii (SEAOH)

The Structural Engineers Association of Hawaii (SEAOH) will be convening their 2002 Annual Convention in Tokyo, Japan on November 9 to 16, 2002. The purpose of holding the convention in Japan is to provide members with a unique educational opportunity and experience to observe the various structural framing types and innovative construction methods utilized in Japan. It is intended to provide a balance of public and private sector construction tours of both large and small projects. Structures constructed with the major building materials (concrete, masonry, steel and wood) will be included. The Japan Convention Planning committee under the chairmanship of Glenn Miyasato has been finalizing the schedule and details for the 4 days of technical tours. The following is a brief preview of a couple of the tours that are being planned for the convention:

1. **Tokyo Wan Aqua-Line**: Dr. Harold Hamada and his Japan colleagues have been planning a field trip to this 15 kilometer bridge-tunnel crossing of Tokyo Bay. The expressway, which was completed in 1997 at a cost of about $10 billion, consists of two man-made islands, 9.6 kilometer undersea tunnel and a 4.4 kilometer steel-slab continuous box girder bridge. More information can be found at [http://www.aqua-line.com/eng/index.html](http://www.aqua-line.com/eng/index.html)

2. **Prefabricated House Erection / Manufacturing Plant**: Steve Duddles of Simpson Strong-Tie is assisting the committee by arranging a field trip to an erection of a prefabricated home or a tour of a prefabricated house plant. Steve indicated that the Japanese have developed innovative residential construction details and is coordinating the tour with Seksui Homes, a Japan home builder that constructs about 15,000 homes per year.

Other technical tours being planned are Minami-Hommaku Pier (the world’s largest shipping container facility), a major subway station under construction in Yokohama and construction projects for various medium and low-rise commercial buildings. Additional information for the convention may be obtained from Glenn Miyasato (glenn@mkellc.com) or Dennis Hanatani (dhanatani@aol.com).
Highway Inventory System Using GIS with Data Integration for Inventory and Maintenance

By Matt Nakamoto, Hawaii LTAP

In the year 2000, the Hawaii LTAP was asked to provide assistance in creating a prototype database/GIS/graphical user interface that would be able to assist in inventoring and maintenance log operations for highway infrastructure for the Hawaii’s most populated island, Oahu.

Geographic Information Systems (GIS) are used in many applications, such as for mapping purposes, and census information. One such application is for highway infrastructure inventorying and management. Currently, many State Departments of Transportation across the nation employ GIS systems for this purpose.

Data is collected via numerous methods, such as specially equipped vans, data collectors on foot using backpacks, or satellite pictures. These methods incorporate various mechanical and computerized data gathering technology such as Distance Measuring Devices, Global Positioning Systems, and Bar-coding (for unique facility entity identification).

Although data can be gathered in the field, existing databases can also be incorporated. Databases that contain information that exists in a format consistent with that of a highway inventory system may be imported, and viewed directly on a GIS-generated map, as shown in figure 1, given the right software.

The task given to the Hawaii LTAP was to create a system that would take advantage of data that resulted from previous efforts and existed in database form, while also allowing for new data to be brought in. The scope of work included the following roadway facility types:

- Overhead Signs*
- Culverts
- Roadside Signs
- Lightposts/Lights
- Guardrails*

* Partial data set available at the time of research.

The prototype system is currently in its final stages of development for submission to the Hawaii Department of Transportation, Oahu District Office. This system has successfully accomplished the following tasks:

- Created an easy-to-use data input screen
- Developed interfaces that allow the user to generate queries based both on prespecified criteria and from scratch
- Helped identify attributes (data fields) important to each facility type
- Created maintenance log system, cognizant of time, with multiple entries associated with a single facility entity. This was done using the concept of one-to-many-joins, where one table is joined to another table based on common values between joined fields.
The Highway Maintenance Division of the County of Hawaii Department of Public Works was the recipient of a prestigious "2001 Project of the Year Award." The award for "Emergency Detour to Pahala" was presented by the Hawaii Chapter of the American Public Works Association (APWA) in the less than 2 million dollar disaster or emergency construction category.

On November 1 and 2, 2000, the Big Island of Hawaii was subjected to an extreme rainfall event estimated to represent a 100+ year storm. The Ka'u District was inundated with over 37 inches of rain in a single 24-hour period. Among the casualties of the storm was the 80-foot long Keaiwa Stream Bridge in the town of Pahala. The bridge was replaced in a record-breaking time of 7 months (see Fall 2001 issue of our newsletter).

The impressive restoration of this vital transportation link, however, would not have been possible without the rapid construction of a temporary bypass to the damaged state highway.

Following the passage of the storm on November 2, superintendent of highway maintenance Stanley Nakasone met with Civil Defense officials to address island-wide rescue and public safety issues, and to assess the damage wrought by the storm. Using a four-wheel drive vehicle, after an initial reconnaissance from the air, Nakasone negotiated access rights with private landowners and laid out the 11.5-mile detour route.

Aided by crew supervisors Nicholas Rapoza and Raymond Kodani, Puna/Ka'u Districts overseer Ralph Fike deployed crews, equipment and materials to begin construction. By November 9, one-way traffic began to use the road while the dedicated public work crews continued to improve the road.

With signage in place, the $300,000 road was opened to two-way heavy traffic on Saturday, November 11.

Congratulations to all involved for a well-deserved award!
HAWAII LTAP WORKSHOP SUMMARY
FOR THE FORTH QUARTER

By Matthew Alonzo, Hawaii LTAP

With our partners, the American Society of Civil Engineers (ASCE) and the American Public Works Association (APWA), the American with Disabilities Act: Public Rights-of-Way workshop was made possible. There were 173 participants. The focus of this workshop was on the design of public civil works to meet the ADA requirements on public rights of way. Hawaii leads the nation in lawsuits for non-compliance with ADA. State and City & County presentations in conjunction with discussion lead by the Public Rights of Way Access Advisory Committee (PROWAC) were some highlights. Mark Obatake, one of the speakers at the workshop, spoke of some of his experiences and the physical challenges that all of us may someday face which will impact our decisions on designing public rights-of-way.

The ITS Procurement workshop was held immediately after the ADA workshop. Instructors for this workshop were Glen Fromm and Erin Ehlinger. The workshop discussed the inability of the traditional procurement procedures for design and construction of roads and bridges to accommodate ITS projects. The instructors provided case studies and described lessons learned from past ITE projects and explained how this can be incorporated to help ensure successful ITE procurement. The ITS Procurement workshop was a companion to the ITS Software Acquisition workshop. Most importantly, participants learned innovative contracting mechanisms and flexibilities to mitigate barriers.

Every year LTAP sponsors the Superintendents/Overseers Conference. This year it was held in Hilo. The conference is an opportunity for all participants to gather valuable information and experience from fellow peers. Highlights from this year conference can be seen on page 3.

Ending our 4th quarter was the Hawaii Traffic Safety Forum. The Department of Transportation, LTAP, and other agencies worked together to put on this important event. This 3-day conference possessed valuable information to all transportation agencies as well as the public. This year's forum focused on traffic safety-related issues such as DUI Sentencing, Kids and Speed, Distracted Driving and Red Light Running, Photo Enforcement, Safer Work Zones with the MUTCD to mention a few. On the final day of the
conference, 5 individuals were awarded the prestigious Alaka‘i Highway Safety Award:

   Senator Cal Kawamoto for Education
   Paul Hamamoto for Engineering
   Lt. Charles Hirata for Enforcement
   Jan Meeker for Education
   David Sandler for Enforcement

The Hawaii LTAP would like to thank the planning chairs, Marilyn Kali, Gordon Hong, C.S. Papacostas, David Sandler, and the rest of the committee for such a smooth running event. This forum was truly a team effort.

And that's a wrap for the year 2001. LTAP would like to extend our warmest mahalo and aloha to all instructors, our partners and most of all to our valuable participants.

**Happy holidays and have a safe winter break!**

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**Better Mousetrap?**

Have you or one of your co-workers built a better mouse trap recently? A modified gadget? An improved way to do a job?

Please let us know about it. The best entries will be featured in a future issue of Hawaiian Connections.
Director’s Note  
_by C.S. Papacostas_

As the year is drawing to a close, I am happy to report that the program has been able to expand its services, topping a record-breaking 2000 (see Program Manager’s note).

Among the activities we co-sponsored during the last quarter was the second annual superintendent/overseer conference in Hilo (p.3). This peer-exchange program brought together people from all of Hawaii’s counties and allowed them to share information about common practices and approaches to similar issues. It was possibly the only professional conference I’ve ever attended where the participants were so involved in their deliberations that they almost missed lunch!

A nightfall trip over the county-built Kalapana access road, followed by a 20-minute hike, led to a spectacular view of Kilauea’s lava flowing into the ocean, a sight unmatched by anything like it in the world.

Based on the wealth of ideas generated at the conference, we decided to revive our "Better Mousetrap" feature (see p.9): I’ve challenged those present to submit to us descriptions of the various devices and machine modifications they invented so that everybody can gain from the resulting improvements in efficiency. A committee will be set up to select the best among these for recognition at next year’s meeting in Kauai.

Season’s Greetings and Happy 2002!

Program Manager’s Note  
_by Juli Kobayashi_

Happy Holidays!! This year was very busy and successful for the Hawaii Local Technical Assistance Program. We have held over 22 workshops that have resulted in 32,784 hours of training with over 1,796 participants.

We have added the Hawaii Society of Professional Engineers (HSPE) and the Structural Engineers Association of Hawaii (SEAOH) to our growing list of partners in providing transportation information and training opportunities to the State. Our partnerships have resulted in several successful workshops such as, "ADA: Designing Public Rights of Way", "Asphalt Paving Fundamentals", "Concrete Pavement Design", "ACI Certification" and "Warranties and Hot Mix Database" to mention just a few. In addition, LTAP has sponsored 89 participants from the neighbor islands to attend workshops that were held on Oahu. This truly helps in spreading technical information throughout the State.

The Hawaii LTAP would like to congratulate Matt Nakamoto, our hard working graduate student who has completed his thesis defense entitled, "Highway Inventory System Using GIS with Data Integration for Inventory and Maintenance". He will soon receive his Masters degree in Civil Engineering during Spring 2002.

As we wrap up the year, we wish all of you a very happy and safe holiday season. We look forward to seeing you at one of our workshops in 2002!
Staff News

Hawaii LTAP would like to welcome our newest staff member Ian McAuslin as the assistant network administrator. Studying for his MIS degree he enjoys surfing, sailing and diving. He would like to someday work as an IT consultant. Ian is originally from Rhode Island and has been in Hawaii for 5 years.

LTAP would also like to congratulate and bid farewell to graduate assistant, Matt Nakamoto. Matt has been with the program for 2 years. He will be graduating in Spring 2002 in the Master’s program. His thesis entitled “Highway Inventory System Using GIS with Data Integration for Inventory and Maintenance”, was developed to help the DOT. Matt is currently working for Austin Tsutsumi & Associates.

Free Publications

1. Hawaii Traffic Safety Forum handouts on the MUTCD:
3. FHWA-OP-01-020: Case Study: Michigan Intelligent Transportation System Center Use of a Design/Build/Warranty Contract
4. FHWA-OP-01-021: Case Study: The Las Vegas Freeway and Arterial Management System Use of a Systems Manager Contractor to Procure ITS
5. FHWA-OP-01-022: Case Study: Chart II Software Upgrade Using a Design Competition to Procure ITS Software

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