Testimony of
Honglong Li
Parsons Brinckerhoff, Inc.
SLUC Docket No. A10-787 Maui R&T Partners, LLC.

In the Matter of the Petition of Maui R&T Partners, LLC. to Amend the State Land Use District Boundary of Lands Situated at Kihei, Island of Maui, State of Hawaii, Consisting of 253.05 Acres from the Agricultural District to the Urban District,
Tax Map Key Nos. (2) 2-2-024: 016 and 017, and (2) 2-2-002: 054 (por.)

My name is Honglong Li and I am a Licensed Professional Civil Engineer and Senior Supervising Engineer for Parsons Brinckerhoff. I have been directly involved in managing engineering projects in Hawaii since 2005 and have served as Manager of Transportation Planning and Traffic Engineering at Parsons Brinckerhoff since 2008. Maui R&T Partners retained Parsons Brinckerhoff to undertake a traffic impact analysis that would identify and assess the potential traffic impacts and needed mitigation measures resulting from the development of the Proposed Maui Research and Technology Park (MRTP) Master Plan Update. Towards this end, I oversaw and was responsible for the preparation of the *Traffic Impact Assessment Report for the Maui Research and Technology Park* (Revised February 2013) (included as Appendix G in the Final Environmental Impact Statement). A copy of my resume is attached.

I will briefly summarize the methodology, findings and recommendations of the report:

Existing Roadway System

Piilani Highway provides primary regional and sub-regional access to the MRTP study area. Within the study area, Lipoa Parkway/Lipoa Street provides east-west traffic circulation, and Piilani Highway, South Kihei Road, and Liloa Drive provide north-south traffic circulation. Between Mokulele Highway to the north and Kilohana Drive to the south, Piilani Highway is a four-lane major principal arterial roadway. Lipoa Parkway provides access to the MRTP. In addition, there are two other points along Piilani Highway where access from MRTP is permitted, but a roadway connection has not yet been made. The first permitted-access point is located near the northern end of the MRTP project area, roughly opposite the East Waipuilani Road/ Piilani Highway intersection, and the second permitted-access is located at the southerly end of the project in the vicinity of the old Welakahao Road intersection with Piilani Highway.

EXHIBIT "40"

Existing Traffic Volumes

Traffic turning movement counts were conducted at study area intersections in November 2010 during the AM and PM peak hours. Additional counts were conducted in November 2012 and January 2013 to satisfy comments from HDOT and comments from Victoria Huffman.

Overall the study area intersections operate well in the existing condition with a couple of exceptions. Two issues were identified under the existing conditions:

- Piilani Highway/Piikea Avenue - During the AM peak hour, the northbound Piilani left turn is projected to operate at LOS E. During the PM peak hour, the eastbound Piikea left turn is projected to operate at LOS E. The delay is caused by high volumes and a long cycle length which contributes to the delay.
- Piilani Highway unsignalized intersections - Eastbound left turns to Piilani Highway at unsignalized intersections are projected to operate at LOS E-F. Refuge lanes are provided to reduce the delay.

The MRTP project was analyzed in two phases through 2034. Phase 1 was analyzed through 2024 and Phase 2 was analyzed through 2034. For each phase, four scenarios were analyzed based on our consultation with HDOT:

- Scenario 1 - No Build. The No Build scenario represents the background conditions without MRTP development scenario. Only existing roadways and those roadways committed by other developments, the State, and the County are included.
- Scenario 2 - Build. The Build scenario adds MRTP development generated trips to the No Build scenario. The assumed roadway network is the same as in the No Build scenario.
- Scenario 3 - Build with MRTP Roadway Improvements. This scenario represents the Build scenario with additional transportation improvements committed by MRTP.
- Scenario 4 - Build with MRTP and Regional Roadway Improvements. The final scenario represents the Build with MRTP Roadway Improvements with other needed regional transportation improvements in the analysis year (2024 for Phase 1 and 2034 for Phase 2).

Projected Traffic Conditions - Phase 1 (Year 2024)

The Year 2024 background traffic volumes were derived using existing traffic along with trip generation obtained from the Maui Travel Demand Forecasting Model and specific developments' Traffic Impact Analysis Report (TIAR). The future Year 2024 background traffic assumes the presence of the following developments:

- Kihei High School

- Piilani Promenade
- Downtown Kihei
- Maui Lu Resort
- Kenolio 6
- Kaiwahine Village
- A&B N. Kihei Residential
- Honua'ula
- Wailea Resort
- Makena Resort

Scenario 1 No Build - Phase 1

The No Build scenario represents the background conditions without MRTP development scenario. Only existing roadways and those roadways committed by other developments, the State, and the County are included.

Scenario 2 Build - Phase 1

The Build scenario adds MRTP development Phase 1 generated trips to the No Build scenario. The assumed roadway network is the same as in the No Build scenario. Phase 1 consists of residential, mixed-use commercial, and the employment core, as well as an elementary school and business hotel. The *Institute of Transportation Engineers (ITE), Trip Generation, 8th edition* was used to estimate the number of trips generated by the MRTP development based on land uses identified in the conceptual development plan.

An internal capture rate was devised using ITE methodology. MRTP has been working with HDOT to estimate the external trips based on the assumed low, medium, and high internal capture rates in order to gauge the traffic impact by different levels of internal capture. In addition, the development will utilize the principles of new urbanism and smart growth providing diverse housing options within close proximity of the park's employment and integrating neighborhood serving retail, civic and commercial uses in a manner that encourages bicycling and walking. The residential component of the development will be targeted at the employees of the tech park that will eliminate the need for workers to drive to and from work. Conservatively, 15% of internal capture was applied to residential and office land uses.

Internal capture for local school, community shopping center, and business hotel are not clearly defined by the ITE Trip Generation Manual. The planned elementary school will be built largely for MRTP. It is not anticipated that the school will generate a significant amount of external trips with Kihei Elementary School located just makai of Piilani Highway. It was assumed that 41% of school trips are internal. Similarly the community shopping center as currently planned is not visible from Piilani Highway and will mostly serve the MRTP itself. The planned hotel

targets only those patrons who will have businesses such as meetings, seminars, and conferences in MRTP. With other more convenient shopping centers, and plenty of hotels located makai of Piilani Highway, an internal capture rate of 42% for community shopping center and 50% for hotel was assumed. An internal trip capture analysis based on consultation with HDOT suggested the internal capture rates of 32% to 39% for Phase 1. For the purpose of this analysis, the low internal capture of 32% that would result in highest external trips was used. There is no transit trips assumed in this analysis. In summary, the planned MRTP Phase 1 will generate 1,285 trips during AM peak hour and 1,056 during PM peak hour.

A summary of regional travel patterns within the Kihei area was created from the Maui travel demand model. MRTP traffic was assigned to the projected roadway network using this distribution. Internal traffic was distributed between the residential, hotel, school, employment, and retail commercial land uses. These distributions were applied to the trips generated.

Scenario 3 Build with MRTP Roadway Improvements - Phase 1

The Build with Project Roadway Improvements scenario represents the Build scenario with additional transportation improvements committed by MRTP. As described in the Build Scenario, Phase 1 consists of residential, mixed-use commercial, and the employment core along with an elementary school and business hotel. The roadway network assumptions are nearly identical to Scenario 2. Additional improvements assumed to be the responsibility of MRTP include improvements at the following intersections: Piilani Highway/Hookena Street; Piilani Highway/Piikea Avenue; and Piilani Highway/Lipoa Parkway.

Scenario 4 Build with MRTP and Regional Roadway Improvements - Phase 1

The Build with Project and Regional Roadway Improvements scenario represents the Build scenario with additional transportation improvements committed by MRTP as well as regional roadway improvements. In this scenario, it is assumed that the project-related improvements described in Scenario 3 are in place along with the Liloa Drive extension between Kaonoulu Street and Kanani Road.

Liloa Drive from Waipuilani Road to Lokelani School is already built. According to the Maui County 2013 Capital Improvement Program budget approved by the Maui County Council, the North South Collector Road (makai collector) is budgeted from fiscal year 2015 to 2018 at a cost of $18.2 million with two phases. Phase 1 will be the segment from Kaonoulu Street to Waipuilani Road and Phase 2 will be the segment from Lokelani School to Kanani Road. The County DPW, HDOT Maui, and the applicant held a meeting on this subject on October 16, 2012. At that meeting, the Director of Public Works said that the Mayor and his administration support construction of the roadway. We believe the Liloa Drive Extension is committed by the

County and will be placed in the future Statewide Transportation Improvement Program (STIP).

Summary of Results for Year 2024 Scenarios

The construction of the Liloa Drive Extension (Makai collector) will relieve congestion on Piilani Highway. The makai collector is projected to improve the traffic operation on Piilani Highway to an acceptable LOS except at Kaonoulu Street during PM peak hour. Without makai collector, traffic operation on Piilani Highway would fail with or without MRTP. Along with the Makai collector, the MRTP project-related improvements are also essential to overall traffic operations on Piilani Highway, especially at the intersections with Piikea Avenue and Lipoa Parkway.

Maui Island Plan has identified the Liloa Drive Extension as Kihei North-South Collector Road. The County of Maui has included Liloa Drive Extension in its Fiscal Year (FY) 2013 Capital Improvement Project Proposal. $18.2 million was budgeted for design and construction from FY 2015 to 2018.

The project is not included in the Hawaii State DOT's current Statewide Transportation Improvement Program (STIP) because the STIP is a three-year program. The current STIP encompasses FY 2014 to 2016. Liloa Drive Extension is not included in the current STIP because the County of Maui's CIP includes FY 2015 to 2018, a timeframe beyond the current STIP. Extensive consultation and discussions with the County indicated that Liloa Drive Extension project will be the County's priority and will be programmed into future STIP.

Projected Traffic Conditions – Phase 2 (Year 2034)

The Year 2034 background traffic volumes were derived using existing traffic along with trip generation obtained from the Maui Travel Demand Forecasting Model. The future Year 2034 background traffic assumes the presence of the developments described in the 2024 background conditions.

Scenario 1 No Build – Phase 2

The No Build scenario represents the without project scenario. Only existing roads and regional roadways identified in the STIP are included. The roadway network assumptions are the same as the 2024 Scenario 4.

Scenario 2 Build – Phase 2

The Build scenario consists of the No Build scenario with Phases 1 and 2 of MRTP. The Build scenario adds MRTP development generated trips to the No Build scenario. The assumed roadway network is the same as in the No Build scenario. Building upon the residential, mixed-

use, and employment land uses in Phase 1, Phase 2 is planned to consist of expansion of residential and employment land uses on either side of Lipoa Parkway. As with the Year 2024 scenario, the *Institute of Transportation Engineers (ITE), Trip Generation, 8th edition* was used to estimate the number of trips generated by the Maui R&T Park development based on land use types in Phase 2. In summary, an internal trip capture analysis based on consultation with HDOT suggested the internal capture rates of 24% to 30% for Phase 2. For the purpose of this analysis, the low internal capture of 24% that would result in highest external trips was used. There is no transit trips assumed in this analysis. In summary, in addition to the trips generated by Phase 1, the planned MRTP Phase 2 will generate 835 trips during AM peak hour and 878 during PM peak hour. The traffic generated by the proposed MRTP Development was directionally distributed and assigned to the future roadway network based on the Maui travel demand model.

Scenario 3 Build with MRTP Roadway Improvements – Phase 2

This scenario represents the Build scenario with additional transportation improvements committed by MRTP. The roadway network assumptions are nearly identical to Scenario 2. Additional improvements included and assumed to be the responsibility of MRTP include improvements at Piilani Highway/Old Welakahao Road.

Scenario 4 Build with MRTP and Regional Roadway Improvements – Phase 2

The Build with MRTP and Regional Roadway Improvements scenario represents the Build scenario with additional transportation improvements committed by MRTP as well as other regional roadway improvements. In this scenario, it is assumed that the project-related improvements described in Scenario 3 are in place along with the following additional regional roadway improvements in Maui's Long-Range Transportation Plan and Maui Island Plan

- Liloa Drive extension as a two-lane roadway between Kaonoulu Street and Kanani Road is completed.
- Kihei Upcountry Road as a four-lane roadway connecting Upcountry Maui to Kihei at Kaonoulu Street;
- Mauka Collector as a two-lane roadway between Mokulele Highway and Piilani Highway at a point somewhere south of MRTP.

Further clarifying information regarding the Mauka collector roadway is provided below. The roadway is not included in the current STIP, as it is not anticipated to be necessary for many years. However, the community and county government have carefully planned for and considered the eventual need for the road. Also, the Kihei Upcountry Road must be included in this scenario because it is included in Maui's Long-Range Transportation Plan and Maui Island Plan, but it should be noted that the Kihei Upcountry Road does not affect the MRTP and is not required to mitigate the impacts of the MRTP.

The MRTP project is located within the urban growth boundary, and is sited within an area of directed growth adjacent to existing development and required infrastructure. The plan further identifies MRTP as an important employment center, and includes the broad theme of infrastructure (which would include roads) improvements being prioritized and allocated to directed growth areas.

Maui County strongly supports an interconnected Kihei Mauka transportation network. A North South roadway mauka of Piilani, to be constructed as growth in the region warrants, is also identified as being supported in the 1998 Kihei-Makena Community Plan.

The Maui Island Plan also contemplates a future north south roadway in several sections with potential alignments. The directed growth chapter description of the Maui Research and Technology Park, states "the build-out of MRTP should be coordinated with the development of the neighboring Kihei Mauka planned growth area to ensure efficient intra- and inter-regional transportation connectivity for both motorized and non-motorized transportation". Similar directions are included in the project descriptions of Kihei Mauka and the North Kihei residential planned growth areas to the north of MRTP. The applicant has initiated discussions with other landowners about providing a continuous in-tract mauka collector roadway as directed by the Maui Island Plan.

In addition to the documents above, community testimony in support of an interconnected mauka transportation corridor has been provided to the Regional Long Range Land Transportation Plan project for Maui, and additional testimony will be provided in favor of the concept when the draft plan is circulated.

Summary of Results for Year 2034 Scenarios

Piilani Highway will continue to encounter conditions of congestion and excessive delays with and without MRTP by Year 2034 due to regional growth. The construction of the Mauka collector between Mokulele Highway and a point somewhere south of MRTP on Piilani Highway will aid north-south mobility in Kihei because it would provide much needed additional capacity and divert regional trips away from Piilani Highway. The issues associated with the operating condition of the intersections along Piilani Highway would become an element of the overall regional transportation planning issue associated with all the major arterials in Kihei. Because these issues are long range and of a regional nature, they must be addressed collectively by the State, the County, the land owners, and other stakeholders as part of the long-range highway planning documents.

The 1998 Kihei-Makena Community Plan identifies the need for a North-South roadway mauka of Piilani. The Maui Island Plan includes the Mauka Collector. MRTP has initiated discussions with other landowners about providing a continuous in-tract mauka collector roadway as directed by the County general plan. MRTP is willing to work with other land owners located mauka of Piilani Highway to coordinate on Mauka collector cost sharing and alignment.

Project Mitigation Phase 1 – Year 2024

Based on the intersection operational analyses, it is recommended that MRTP construct the following necessary transportation improvements to mitigate Phase 1 project generated impacts along Piilani Highway:

1. Piilani Highway/Hookena Street Access
    a. Construct 2-lane Hookena Street from within MRTP to intersect Piilani Highway across from East Waipuilani Road;
    b. Configure the westbound Hookena approach as a right-in/right-out access with stop control;
    c. Provide acceleration and deceleration lanes to and from Piilani Highway;
    d. Maintain existing delineators on Piilani Highway to prevent left turns from East Waipuilani Road or Hookena Street from crossing the center line of Piilani Highway.
2. Piilani Highway/Piikea Avenue
    a. Construct an additional eastbound Piikea Avenue left turn lane (two total);
    b. Retime the traffic signal accordingly to optimize the intersection operation.
3. Piilani Highway/Lipoa Parkway
    a. Construct an additional southbound Piilani left turn lane (two total);
    b. Widen westbound Lipoa Parkway to provide for left, through, and right turn lanes;
    c. Widen and/or restripe eastbound Lipoa Street to provide left, through, and right turn lanes;
    d. Adjust signal timing and phasing to provide leading protected left turn phases for the east and westbound Lipoa left turn movements;
    e. Add the missing crosswalk on north Piilani leg of the intersection to improve pedestrian connectivity.
4. Internal Kihei High School Access
    a. Construct an internal Kihei High School Access from within MRTP;
    b. Provide bicycle and pedestrian connectivity between the school and MRTP

Project Mitigation Phase 2 - Year 2034

Based on the intersection operational analyses, it is recommended that MRTP construct the following necessary transportation improvements to mitigate Phase 2 project generated impacts along Piilani Highway:

1. Piilani Highway/Old Welakahao Road
    a. Construct 2-lane Old Welakahao Road as MRTP's direct access to Piilani Highway;
    b. Signalize the intersection and provide a leading protected left turn phase for the southbound Piilani Highway left turn into Old Welakahao Road;
    c. Provide southbound left turning lane from Piilani Highway to Old Welakahao Road and westbound left turning lane from Old Welakahao Road to Piilani Highway;
    d. Provide acceleration and deceleration lanes to and from Piilani Highway.
2. Mauka collector within MRTP property
    a. Construct the two-lane mauka collector within MRTP property and additional two-lane in-tract roadway when warranted;
    b. Construct three mauka-bound access points to the mauka collector with proper intersection spacing within MRTP property;.

Future TIAR's

MRTP will be required to submit revised TIAR's to DOT and DPW in the future. DOT acceptance of the revised TIAR and the execution of a Memorandum of Agreement outlining the agreement between DOT and MRTP should occur no sooner than final subdivision approval of lots intended for above ground construction, excluding roads, utilities and infrastructure. This will allow the Project to mature to the point of having the requisite details and specifications needed to provide DOT with an acceptable revised TIAR.

The timing of the future revised TIAR's should be based upon DOT's need for updated traffic information and analysis. An arbitrary deadline of updating TIAR's every 5 years or some other set interval would be inefficient and potentially detrimental if a revised TIAR is needed prior to an arbitrary fixed deadline.

HONGLONG (HONG) LI, PH.D, PE, PTOE

Senior Supervising Engineer, Professional Associate

Years of Experience

13 (7 with PB, 6 with others)

Education

Ph.D., Civil Engineering, University of Hawaii at Manoa, 2001. Concentration: Traffic Engineering.
M.S., Transportation Engineering, College of Transportation, Southeast University, China, 1998.
B.S., Traffic Engineering, Xian Highway University, China, 1995.

Professional Affiliations

Institute of Transportation Engineers, Hawaii Section Board Director, 2012 to present;
Institute of Transportation Engineers, Hawaii Section President, 2010 - 2012;
Institute of Transportation Engineers, Hawaii Section Vice President, 2009-2010;
American Civil Engineer Society;
Transportation Research Board

Professional Registrations

PE (10938.C) Hawaii, 2003
PTOE (Professional Traffic Operation Engineer) Hawaii, 2005

Key Qualifications

Hong Li is a supervising engineer with Parsons Brinckerhoff (PB) and serves as the manager of the Honolulu Office's transportation planning and traffic engineering department. Prior to his affiliation with PB, he worked as transportation project manager with another consulting firm.

He has had considerable experience in transportation planning and traffic engineering for both public sector and private sector projects. Hong has experience in traffic analysis, signal design, micro-simulation, transportation planning, traffic modeling, statistics, traffic safety, and traffic calming studies. He also taught several courses at the Civil and Environmental Engineering Department of University of Hawaii at Manoa.

His research effort in traffic simulation and signal control systems has been recorded in the Journal of Transportation Research Board (TRB) of the National Research Council and American Society of Civil Engineers (ASCE). He has served as a reviewer for the TRB Signal Systems Committee and the Traffic Flow Theory Committee for years. He has served as a Simulation Model subcommittee member of TRB Signal Systems Committee since 2005 and led the effort of authoring Simulation Guidance for the committee.

Transit/Rail

- Honolulu High Capacity Transit Corridor Project Final Environmental Impact Statement/Preliminary Engineering (FEIS/PE), Honolulu, Hawaii: transportation engineer and discipline leader responsible for traffic data collection, review/QC the FEIS Transportation Technical Report, review/QC the Transit Mitigation Plan and intelligent transportation systems (ITS) plans, assist in public presentations, calibration of the Travel Demand Forecast Model, technical report writing, and traffic management plan (TMP) lead in general engineering consulting for the West Oahu Farrington Highway Segment.
- Honolulu High Capacity Transit Corridor Project, Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS), Honolulu, Hawaii: senior traffic engineer responsible for the AA data collection, quality control (QC) review for the Transportation Technical Report, assist in public presentations, and calibration of the travel demand forecast model.

Traffic Impact Analysis

- Natural Energy Laboratory of Hawaii Authority (NELHA) Airport Connector Road Traffic Analysis, Hawaii, Hawaii: traffic lead for the traffic scope of work that involves data collection, volume projection, traffic analysis, and basis of design.
- Lowe's Iwilei Development, Honolulu, Hawaii: Project Manager for Traffic Impact Analysis Report
- University of Hawaii West Oahu Campus, Oahu, Hawaii: Project Manager. Traffic Analysis Report for University of Hawaii West Oahu Campus Master Plan.
- Victoria Ward Villages, Honolulu, Hawaii: Project Manager. Scope of work includes developing Traffic Impact Analysis Report, Pedestrian Safety/Circulation Study, Signal Designs, Temporary Traffic Management Plan
- Debartolo Development Alii Makana, Kapolei, Hawaii: Project Manager: Developed Traffic Impact Analysis Report for the planned commercial development in East Kapolei.
- Royal Kunia Phase II, Oahu, Hawaii: Project Manager: Developed Traffic Impact Analysis Report for the planned Royal Kunia Phase II in Kunia.
- Maui Lani Shopping Center, Maui, Hawaii: Project Manager. Scope of work includes developing Traffic Impact Analysis Report and Pedestrian Safety/Circulation Study
- Waiawa Ridge Development Traffic Analysis, Oahu, Hawaii: Traffic Task Lead. Scope of work includes developing cast-sharing strategy based on traffic analysis
- Kehalani Mauka, Maui, Hawaii: Project Manager. Scope of work includes developing Traffic Impact Analysis Report and Signal Designs
- Ewa by Gentry, Ewa, Hawaii: Project Manager. Scope of work includes developing Traffic Impact Analysis Report, Signal Designs, Signal Warrant Study

Transportation Planning

- Ewa Regional Roadway Connectivity Study, Honolulu, Hawaii: Project Manager. The scope of work includes: Identfy Missing Links and Constraints; Recommend connectivity standards; Prepare a prioritized list and implementation timeframe; Coordination with major stakeholders.
- Kuakini Highway Widening Environmental Assessment (EA), Kailua-Kona, Hawaii: transportation lead responsible for the traffic analysis required for an EA that evaluated two alternatives and featured an assessment of dense archaeological resources in the project area. The EA and associated Section 106 process made preservation and protection recommendations for the historic resources.
- Kihei Upcountry Maui Highway Design, Maui, Hawaii: transportation lead responsible for the traffic analysis report and basis of design report for the proposed Kihei Upcountry Highway.
- Paia Bypass Road EIS, Maui, Hawaii: Project Manager for the transportation analysis report for the proposed Paia Bypass EIS. The scope of work involves data collection, existing and future conditions analysis, alternative analysis.
- Honolulu International Airport Master Plan Update, Honolulu, Hawaii: project manager responsible for the transportation evaluation for groundside parking, terminal road traffic, and airport roadway circulation.
- Nani Kailua Road Extension Makai Phase I Environmental Document, Island of Hawaii, Hawaii: senior transportation engineer providing advice on micro-simulation for existing and horizon year traffic analysis.

- Waimea Circulation Plan, Island of Hawaii, Hawaii: senior transportation engineer responsible for prioritizing the projects committed in the Waimea Area and developing a phased transportation plan in conjunction with the major local stakeholders.

Traffic Engineering

- Kamehameha Highway Improvement, Center Drive to Waihona Street, Oahu, Hawaii: deputy project manager responsible for identifying capital improvement projects; prioritizing the projects; and proposing interim congestion mitigation projects including signal optimization, contraflow, and intersection improvements. The project took a context sensitive approach in developing the projects.
- Nimitz Highway Flyover, Oahu, Hawaii: senior transportation engineer responsible for traffic analysis, and micro-simulation for the existing condition and the proposed alternatives.

Previous Experience

Prior to his affiliation with PB, he worked as transportation project manager with another consulting firm. His relevant projects include:

Traffic Engineering

- Traffic Congestion Evaluation on the Islands of Maui and Hawaii, State Hawaii Department of Transportation: Project Manager - these twin projects have the similar scope of work at two different locations. The projects were to optimize a heavily traveled corridor consisting of 12 intersections at each island. The data collection were conducted to calibrate the model and to facility before and after comparison. A data collecting crew as many as 14 persons were operated. The data collected included speed/travel time profile by using GPS devices, turning movement counts, and 24-hour volume counts. Synchro/SimTraffic was used to optimize the coordinated signal plan. The optimal plan significantly mitigates the level of congestion on two corridors.
- Bus Bay Improvements at various bus routes, City and County of Honolulu: Traffic Engineer - More than 50 bus stops were surveyed and a bus bay feasibility study was conducted. A decision-making matrix considering stop utilization, traffic interference, signal safety, cost, etc. was developed to rank the priority of all bus bay candidates. As a result of the report, six bus bay improvements were determined and Lyon Associates also provided design services.
- Traffic Calming Studies at Various Locations, City and County of Honolulu, Hawaii: traffic engineer for the project which responded to the outcry from the community suffering speeding and cut-through traffic. The traffic engineers recorded and classified traffic patterns at the sites and provided detailed analysis and recommendations for traffic calming.
- Traffic Safety Improvement at the Intersection of Kuilima and Kamekameka Highway, Oahu, Hawaii: traffic engineer for the project which was initiated from the high-crash rate at the intersection. The alternatives to improve safety, such as replacement of bridge, lane addition, signalization, and lane reconfiguration were proposed and evaluated.
- Kaukonahua Road Traffic Safety Improvements, City and County of Honolulu, Hawaii: traffic engineer for the project which was to improve traffic safety along a winding 10-mile stretch of a highway. Completed project tasks include: traffic operations report, conceptual plans, construction cost estimate and environmental assessment.
- Investigation of Limited Ramp Closures along the H-1 Freeway, Oahu, Hawaii: research assistant for the project is to identify potential ramps on the most central segment of the H-1 freeway between Koko Head Avenue and Middle Street which, if closed would cause a significant improvement of the flow conditions on the freeway without causing major congestion on adjacent city streets. Freeway and network simulation by computer is used to 1) assess existing conditions, 2) identify ramps whose closure will yield major benefits to the

freeway flow, and 3) select ramps whose closure will be both beneficial to freeway flow and not significantly detrimental to flow conditions on city streets.

- Evaluation of the Effects of Experimental Closure of the Bingham Street off-ramp, Honolulu, Hawaii: research assistant for the project. The Hawaii Department of Transportation (HDOT) closed the Bingham St. off-ramp throughout October 2000 in response to complaints by residents about speeding and other adverse effects caused by off-ramp vehicular traffic. The objective of the experimental closure is to ascertain whether a permanent closure is feasible. The evaluation consists of analysis and before-after comparisons of volume patterns, speeds, queues, and residents' and motorists' perceptions.

Transportation Planning

- Refinement of Civil Right Title VI and Environmental Justice Monitoring Plan, Oahu, Hawaii: deputy project manager for the project. The purpose of project was to assess transportation equity in the transportation plans. The scope of the project included the following: refine and update title vi & environmental justice populations; update the travel demand forecasting model; refine and update performance measures: accessibility, mobility, safety, population policy, equity, and public involvement; refine the GIS analysis tool; development of methodology for evaluating existing programs; evaluation and assessment of existing programs; documentation and training.
- Paratransit System Study on the Island of Hawaii, Hawaii: project manager for the project. The purpose of the project was to develop a rural paratransit plan for two districts of Hawaii County. The scope of work included establishing a steering committee; data collection; develop database of public transportation and paratransit services and needs; assessing the benefits of a coordinated public transportation and paratransit system; developing alternative and assess effectiveness of coordinated public transportation and paratransit system.
- Statewide Scenic Byway Program, State Hawaii Department of Transportation: project manager for the development of a process for scenic byways designation through an extensive public outreach program; identification of four top priority corridor for designation and subsequent protection and enhancement; develop grading criteria for designating a scenic byway that includes consideration of intrinsic quality and additional factors such as safety and maintenance; and develop a Corridor Management Plan Guideline to provide a clear understanding and expectation of proposed route and the community responsibility to preserve and enhance them.

Traffic (Pedestrian) Safety

- CEE 696 Traffic Safety, Department of Civil and Environmental Engineering, University of Hawaii, Honolulu, Hawaii: instructor for the course which covered roadway design principles for safety, crash analysis methodologies, and traffic safety measures to improve the safety and livability of urban areas. Work zone safety and Intelligent Transportation System (ITS) safety applications were also discussed. Several case studies excerpted from real projects were introduced.
- Traffic Calming Studies at Various Locations, City and County of Honolulu, Hawaii: traffic engineer for the project which responded to the outcry from the community suffering speeding and cut-through traffic. Data of traffic patterns at the sites was recorded and classified, then a detailed analysis and recommendations for traffic calming was completed. Upon approval of the reports and design analysis, it is anticipated that detail design and construction documents will be prepared.
- Evaluation of LightGuard© Flashing Lights at Pedestrian Crossings, State Hawaii Department of Transportation: research assistant for the project. The Hawaii Department of Transportation (HDOT) installed experimental flashing lights at an unsignalized pedestrian crossing along Pali Highway in response to recent pedestrian fatalities. The purpose of the lights was to increase

the awareness of the motorists on their responsibility to yield to pedestrians in crosswalks. The lights are activated by pedestrians using push-buttons akin to those at signalized intersections. LightGuard are in-pavement LED devices that light in the direction of on-coming traffic. A detailed evaluation of the effects of LightGuard on pedestrian safety was conducted.

Publications & Conferences

- Honglong Li, Chris Wellander, and Shenghong Li. Freeway Traffic Demand Under Oversaturated Conditions, 2nd International Symposium of Freeway and Tollway , Honolulu, June 2009
- Honglong Li, Jennifer Russell, Roger Morton, and etc. BUILD OR NO BUILD?-Debates on Honolulu High-Capacity Transit Project. ASCE Transportation & Development Institute, First International Symposium on Transportation and Development Innovative Best Practices, Beijing, 2008
- Lin Zhang, Honglong Li, and Panos D. Prevedouros. Signal Control for Oversaturated Intersections Using Fuzzy Logic. ASCE Transportation & Development Institute, First International Symposium on Transportation and Development Innovative Best Practices, Beijing, 2008
- Lin Zhang, Panos D. Prevedouros, and Honglong Li. Warrants for Protected Left-Turn Phasing. 10th International Conference on Applications of Advanced Technologies in Transportation, Athens Greece, 2008
- Honglong Li, Steve Young, Shevaun Low, and Gordon Lum. Environmental Justice Assessment in Racially Diverse Areas. TRB, Transportation Research Journal 1983 Washington, D. C. 2006
- Honglong Li, Steve Young, Shevaun Low, and Gordon Lum. Environmental Justice Assessment in Racially Diverse Areas. TRB, Transportation Research Journal 1983 Washington, D. C. 2006
- Honglong Li, Lin Zhang, and Nathan Gartner. Comparative Evaluation of Three Adaptive Control Strategies: OPAC, TACOS, FLC. 85th annual meeting of TRB, Washington, D. C. 2006
- Lin Zhang, Honglong Li, and Panos D, Prevedorous. Signal Control for Oversaturated Intersections Using Fuzzy Logic. 84th annual meeting of TRB, Washington, D. C. 2005
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