CLARE E. CONNORS 7936
Attorney General
State of Hawai'i

STUART N. FUJIOKA 4223 RYAN W. ROYLO 6329 MELISSA J. KOLONIE 10209 HOLLY T. SHIKADA 4017

Deputy Attorneys General

235 S. Beretania Street, Room 304

Honolulu, Hawai'i 96813 Telephone: (808) 586-1255 Facsimile: (808) 586-1488

Email: Stuart.N.Fujioka@hawaii.gov

Ryan.W.Roylo@hawaii.gov Melissa.J.Kolonie@hawaii.gov Holly.T.Shikada@hawaii.gov

Attorneys for Petitioner
DEPARTMENT OF EDUCATION,
STATE OF HAWAI'I



BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of

DEPARTMENT OF EDUCATION, STATE OF HAWAI'I,

To Amend the Agricultural Land Use District Boundaries into the Urban Land Use District for Approximately 77.2 acres of land at Kihei, Maui, Hawai'i, Maui Tax Map Key Nos. 2-2-02: 81 and 83. DOCKET NO. A11-794

PETITIONER DEPARTMENT OF EDUCATION, STATE OF HAWAII'S MOTION TO AMEND THE LAND USE COMMISSION'S FINDINGS OF FACT, CONCLUSIONS OF LAW AND DECISION AND ORDER FILED JULY 29, 2013; MEMORANDUM IN SUPPORT OF MOTION; EXHIBITS "I"-"9"; VERIFICATION OF RANDALL M. TANAKA; DECLARATION OF STUART N. FUJIOKA; CERTIFICATE OF SERVICE

PETITIONER DEPARTMENT OF EDUCATION, STATE OF HAWAII'S MOTION TO AMEND THE LAND USE COMMISSION'S FINDINGS OF FACT, CONCLUSIONS OF LAW AND DECISION AND ORDER FILED JULY 29, 2013

TO THE HONORABLE LAND USE COMMISSION OF THE STATE OF HAWAI'I:

Petitioner Department of Education, State of Hawai'i (HIDOE), by and through its attorneys undersigned, respectfully moves that the Land Use Commission of the State of Hawai'i (Commission), in accordance with §§15-15-70 and 15-15-94 of the Commission's Rules, issue an order amending paragraph 1(b) of the Findings of Fact, Conclusions of Law and Decision and Order filed on July 29, 2013, to allow, pursuant to the recommendation of the State of Hawai'i Department of Transportation (HDOT), for the construction of a roundabout and ground level crosswalks, instead of a grade-separated pedestrian crossing (GSPC).

This motion is supported by the arguments and authorities presented in the attached memorandum, as well as the entire record. HIDOE requests that this matter be placed on the Commission's calendar for hearing.

Dated: Honolulu, Hawai'i, August 20, 2020.

STUART N. FUJIOKA RYAN W. ROYLO MELISSA J. KOLONIE HOLLY T. SHIKADA Deputy Attorneys General

Attorneys for Petitioner
DEPARTMENT OF EDUCATION,
STATE OF HAWAI'I

BEFORE THE LAND USE COMMISSION

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In the Matter of the Petition of

DEPARTMENT OF EDUCATION, STATE OF HAWAI'I,

To Amend the Agricultural Land Use District Boundaries into the Urban Land Use District for Approximately 77.2 acres of land at Kihei, Maui, Hawai'i, Maui Tax Map Key Nos. 2-2-02: 81 and 83. DOCKET NO. A11-794

MEMORANDUM IN SUPPORT OF MOTION

MEMORANDUM IN SUPPORT OF MOTION

I. <u>INTRODUCTION</u>

Petitioner Department of Education, State of Hawai'i (HIDOE) commenced Docket No. All-794 to obtain a Land Use District Boundary Amendment for the reclassification of approximately 77.2 acres of land at Kihei, Maui, Hawai'i, identified as Maui Tax Map Key Nos. (2) 2-2-002: 81 and 83, from the State Land Use Agricultural District to the State Land Use Urban District for the development and construction of Kihei High School, a public high school (Project).

On July 29, 2013, the Land Use Commission (Commission) filed its Findings of Fact,

Conclusions of Law and Decision and Order (2013 Order), which granted the Boundary

Amendment (parts of which are attached as Exhibit 1), including Condition 1(b), which states in part:

The pedestrian route study and analysis shall be completed and approved prior to Petitioner executing a contract for the design of Phase I of the Project. Petitioner shall cause to be constructed, or ensure that there is an available above or below ground pedestrian crossing and implement such mitigation or improvements as may be required or recommended by the study and analysis to the satisfaction of DOT prior to opening Phase I of the Project. (Emphasis added).

HIDOE also sought a corresponding change to Maui County (County) zoning and a Community Plan Amendment. Accordingly, the Maui County Council approved Ordinances 4134 and 4135 in 2014 to allow the rezoning. Under the 2013 Order, the School is to be built in two phases. Phase I involves all design and construction up to the opening of the School to a point where 800 students can be accommodated. Phase II will occur some time later, and involves the construction of additional buildings and facilities to the point where 1,650 students can be accommodated.

It is HIDOE's understanding that the County expected HIDOE to design and construct or make available an above or below ground grade-separated pedestrian crossing (GSPC) before opening Phase I of the Project. However, at the present, State of Hawai'i Department of Transportation (HDOT) rejects the building of an overpass or underpass, and instead recommends a roundabout be developed to address pedestrian safety. (See Exhibit 9, HDOT's Letter of August 5, 2020)

A. <u>Pedestrian Route Study and Analysis</u>

To comply with rezoning requirements, HIDOE engaged the Walkable and Liveable Communities Institute to conduct a Pedestrian Route Study and Analysis.

The report recommends that the Department of Transportation approve an at-grade crossing that includes all roadway users at Pi'ilani Highway and Kulanihako'i Street, a location where pedestrians need to be included first and foremost at-grade.

Pedestrian overpasses and underpasses allow for pedestrian

movement separate from vehicle traffic. However, they are usually considered as a last resort measure. It is more appropriate to install safe crossings that are accessible to all pedestrians and bicyclists at-grade. Due to the local topography and community in-put this report also recommends an underpass, although this will take partnership with state and county government agencies, private landowners and the community of Kihei to complete the pedestrian network so that the underpass is used. (Emphasis added).

WALC, "Safe Routes to Kihei High School: Pedestrian Route Study, 2014," Exhibit 2 at p. 7-8.

HDOT did not approve this Pedestrian Route Study due to incompleteness. (See Exhibit 3, HDOT's letter of October 1, 2015).

To further complete the Pedestrian Route Study, HIDOE engaged Fehr & Peers (F&P). The October 25, 2016 F&P review is attached as Exhibit 4 and states in pertinent part:

In 2018, when the proposed high school is projected to open, no GSPC warrants are definitively met. Warrant #3, the warrant regarding safe crossing distances, is met only if planned improvements are not made. Warrants # 5 and 8, regarding lighting and funding, are not currently met but may be met by 2018 depending on future planning. In 2028, however, primary warrants regarding pedestrian and vehicle volumes at the proposed high school access driveway either are met or may be met depending on student pedestrian mode split. Therefore, the need for a GSPC should be viewed as long-term. (Emphasis added).

Exhibit 4, October 25, 2016 F&P review, p. 7.

The F&P review was addressed to HDOT and assumed a start date of 2018. Viewing the need for a GSPC as "long-term" appears consistent with the other recommendations that it is not needed for Phase I and should be considered in light of available data prior to construction of Phase II.

B. HDOT Rejects GSPC

On July 18, 2017, the HDOT Director wrote a letter to HIDOE's Public Works

Administrator regarding review of the Pedestrian Route Study/GSPC Study. In this letter,

HDOT approved the study, and appeared satisfied that conditions 1(a) and 1(b) have been adequately addressed. HDOT conveyed an expectation that the following would be complied with:

The GSPC study was supplemented by a review by Fehr & Peers (F&P) with respect to whether the GSPC, pedestrian traffic, and road conditions would meet various applicable warrants for a GSPC. The result of the F&P review was that a GSPC would not meet applicable warrants during Phase I of the KHS though the F&P review suggested that a GSPC may meet applicable warrants during Phase II of the KHS. No pedestrian crossing measures for Phase I were proposed by F&P; the HDOT assumes F&P recommends the traffic signal will accommodate an at-grade crossing and that a median pedestrian refuge will be installed for Phase I.

Prior to Phase II, the GSPC warrants should be re-evaluated and if met then a GSPC should be funded and provided by the HDOE.

See Exhibit 5, p. 1-2.

C. The Commission Reaffirmed the GSPC Requirement

On February 1, 2019, Maui County Council adopted Resolution 19-20, which reads in part:

BE IT RESOLVED by the Council of the County of Maui:

- 1. That it requests the State Land Use Commission to issue a Declaratory Ruling reiterating and affirming the requirement for a pedestrian overpass or underpass to allow safe access to Kihei High School;
- 2. That it requests that the Department of Planning, with the representation of the Department of the Corporation Counsel, submit as soon as possible to the Land Use Commission a Petition for a Declaratory Ruling reiterating and affirming the requirement for a pedestrian overpass or underpass to allow safe access to Kihei High School;...

Exhibit 6, Resolution 19-20.

On February 22, 2019, pursuant to Resolution 19-20, the County's Department of Planning filed a Petition for Declaratory Order, Land Use Commission Docket No. DR 19-65. The County sought an affirmation from the Commission that the 2013 Order required the construction of a GSPC prior to the opening of Phase I of the Project.

On April 25, 2019, after considering the matter at its meeting on April 3, 2019, the Commission filed its "Order Granting Petitioner Department of Planning, County of Maui's Petition for Declaratory Order" (2019 Order) in which it confirmed that the 2013 Order required the construction of a GSPC prior to opening Phase I of the Project. The 2019 Order stated, in pertinent part:

...this Commission ORDERS that the Petition be GRANTED and it is declared that under the particular facts of this case, that Condition 1(b) of the Decision and Order of July 29, 2013, Docket No. A11-794 DOE Kihei High School requires that a pedestrian overpass or underpass be constructed before the opening of the first phase of the new high school in Kihei and that construction of the overpass or underpass was a mandatory requirement and was not optional. In addition, the DOE is required to get approval from DOT of its Pedestrian and Traffic plans. (emphasis added).

Exhibit 7, 2019 Order.

As required by the 2019 Order, HIDOE has consulted with the HDOT for approval of its pedestrian traffic plans. Based in part on the report of HDOT's consultant, which is described below and is largely consistent with the advice of HIDOE's consultants, HIDOE has been advised that a roundabout is safer and more practical than a GSPC.

D. Further Analysis by HDOT Supports a Roundabout

The June 2020 Traffic Evaluation by WSP USA was prepared at the request of the HDOT and states at page A:

The installation of the roundabout will help to lower vehicle speed on Pillani Highway. The slower speeds and horizontal deflection

at the roundabout will enhance pedestrian/bicycle safety at conflict points with vehicles. The at-grade pedestrian crossing will replace the previously-proposed grade-separated pedestrian crossing which will be underutilized.

Exhibit 8, June 2020 Traffic Evaluation.

The initial Pedestrian Route Study by WALC, the supplement by F&P, and the most recent evaluation by WSP USA, all recommend the use of a roundabout over GSPC during Phase I of the Project. In addition, as noted above, as early as July 18, 2017, the HDOT advised that a GSPC should be considered if warranted, prior to the construction of Phase II instead of before the opening of Phase I. As such, HDOT will not approve HIDOE's pedestrian safety plans if they include a GSPC.

II. <u>DISCUSSION</u>

HIDOE proposes the following modification to Condition 1(b) of the 2013 Order, with language to be deleted lined through, and proposed added language in bold text.

- 1. Highway and Road Improvements. Petitioner will work cooperatively with DOT to reach mutually agreeable solutions. Petitioner shall abide by, complete and/or submit the following:
 - b. Petitioner shall complete a pedestrian route study for Phase I of the Project which includes ingress and egress of pedestrians through defined location(s) approved by DOT and shall analyze compliance with the proposed warrants in FHWA/RD84/082 (July 1984) to the satisfaction of DOT. The pedestrian route study and analysis shall be completed and approved prior to Petitioner executing a contract for the design of Phase I of the Project. Petitioner-shall cause to be constructed, or ensure that there is an available above or below ground pedestrian crossing Petitioner shall cause to be constructed a roundabout with at-grade pedestrian crossings and raised crosswalks as appropriate at the intersection of Pi'ilani Highway and Kulanihako'i Street, and implement such mitigation or improvements as may be required or recommended by the study and analysis to the satisfaction of DOT prior to opening Phase I of the Project. Petitioner shall conduct an assessment and reevaluation of the necessity, appropriateness, and utility of a grade-separated

pedestrian crossing prior to the start of the construction of Phase II of the Project.

The proposed amended language is consistent with the requirements of the HDOT, which are based on the findings of reliable studies conducted, and clearly establish that a GSPC is not necessary at this time. Working cooperatively, the roundabout has emerged as a "mutually agreeable solution" between HIDOE and HDOT. Furthermore, HIDOE fully understands that even if the subject motion is granted, HIDOE must again evaluate and consider this most costly and complicated measure of constructing a GSPC prior to the commencement of Phase II.

A. HIDOE Meets the Standard for Modification

Pursuant to Commission Rule 15-15-94(b), "for good cause shown, the commission may act to modify or delete any of the conditions imposed or modify the commission's order." No study indicated that a GSPC is feasible or necessary for the construction of Phase I of the School, and according to the current information provided, the 2013 Order and the 2019 Order should be modified to require a roundabout with at-grade pedestrian crossings. As an additional safety measure, by way of this motion, HIDOE proposes to add raised crosswalks.

B. There is Good Cause for a Roundabout Instead of GSPC

HDOT has determined that based on available information and studies, pedestrians are not likely to use the GSPC contemplated for the area, and that a roundabout will be safer in terms of reducing auto-pedestrian collisions. See Exhibit 9, a letter from the HDOT dated August 5, 2020, which includes the July 15, 2020 recommendations of HDOT Highways Division licensed engineers. The 2019 Order states that HIDOE must build a GSPC, but it also says "the DOE is required to get approval from HDOT of its pedestrian and traffic plans." Thus, HIDOE is in a position where if it were to comply with the 2019 Order and submit its pedestrian and traffic

9

plans with a GSPC, HDOT would not approve such plans. In fact, HDOT has rejected the GSPC as it will not enhance the safety of motorists and pedestrians, and is not likely to be used by pedestrians. Accordingly, there is good cause to remove the requirement from the 2013 Order as requested herein.

In its recommendations, HDOT presents cogent arguments for the use of a roundabout instead of GSPC. (See Exhibit 9) That analysis takes into account the measures implemented by HDOT to enhance safety in the area, such as signaling, striping and lighting improvements, and concludes that a GSPC could actually increase danger when pedestrians attempt high-risk atgrade crossings in order to avoid the additional time it takes to use a GSPC.

The findings of WSP USA, the consultant engaged by HDOT, and HDOT itself, advise against the building of a GSPC in connection with Phase I of development. This conclusion is consistent and perhaps even more emphatic than the findings of the consultants WALC in 2014 and F&P in 2016, who also expressed reservations about the construction of a GSPC.

At this time, HIDOE seeks to address the issues of pedestrian traffic safety by implementing the recommended measures of a roundabout and raised crosswalks prior to the opening of Phase I. As mentioned, the GSPC is a long-range or last resort solution, and HIDOE remains fully committed to reevaluating its necessity, appropriateness, and utility before the start of the construction of Phase II of the Project.

Based on the preceding, there are differing opinions as to which pedestrian safety measure is necessary and appropriate for the Project. On one hand, the 2013 and 2019 Orders require the construction of a GSPC. However, HDOT will not approve a pedestrian safety plan that includes the construction of a GSPC. On the other, the Pedestrian Route Study by WALC, the supplement by F&P, and the most recent evaluation by WSP USA, all recommend the

construction and use of a roundabout for pedestrian safety for Phase I of the Project. As such, it is clear that there is good cause to amend or clarify the 2013 Order as requested herein.

III. <u>CONCLUSION</u>

Based on the foregoing, HIDOE respectfully requests that the Commission amend paragraph 1(b) of the 2013 Order in accordance with the language proposed herein, to allow the construction of a roundabout and ground level raised crosswalks instead of a GSPC prior to the opening of Phase I of the Project and for the assessment and reevaluation of the necessity, appropriateness, and utility of a GSPC prior to the start of the construction of Phase II of the Project.

DATED: Honolulu, Hawai'i, August 20, 2020.

STUART N. FUJIOKA RYAN W. ROYLO MELISSA J. KOLONIE HOLLY T. SHIKADA Deputy Attorneys General

Attorneys for Petitioner
DEPARTMENT OF EDUCATION,
STATE OF HAWAI'I

BEFORE THE LAND USE COMMMISSION OF THE STATE OF HAWAI'I

In the Matter of the Petition of:) DOCKET NO. A11-794	+	
STATE OF HAWAI'I, DEPARTMENT OF EDUCATION) FINDINGS OF FACT,) CONCLUSIONS OF LA	FINDINGS OF FACT, CONCLUSIONS OF LAW AND	
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FINDINGS OF FACT, CO AND DECISION	JUL 29 P 2:	ATE OF HAWAI	

for land use district boundary amendment on December 20, 2011, and an amended petition for land use district boundary amendment (collectively "Petition") on February 7, 2013, pursuant to Chapter 205, Hawai'i Revised Statutes ("HRS"), and Chapter 15-15, Hawai'i Administrative Rules ("HAR"), to amend the State Land Use District boundary to reclassify approximately 77.2 acres of land at Kīhci, Maui, Hawai'i, identified as Maui Tax Map Key Nos. 2-2-02: 81 and 83 ("Petition Area"), from the State Land Use Agricultural District to the State Land Use Urban District for the development and construction of Kīhei High School, a public high school

STATE OF HAWAI'I, DEPARTMENT OF EDUCATION ("Petitioner"), filed a pergion

The Land Use Commission of the State of Hawai'i ("Commission"), having heard and examined the testimony, evidence and arguments of counsel presented during the hearings, along with the pleadings filed herein, and the stipulated findings of fact, conclusions of law and decision and order filed by Petitioner, agreed to by the Department of Planning, County of Maui

A11-794 State of Hawai'i, Department of Education Findings of Fact, Conclusions of Law, Decision and Order

("Project").

- 5. Article XI, Section 3, of the Hawai'i Constitution requires the State to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands.
- 6. Article XI, Section 7, of the Hawai'i Constitution states that the State has an obligation to protect the use of Hawai'i's water resources for the benefit of its people. Kīhei High School will not adversely affect the Kama'ole Aquifer System.

DECISION AND ORDER

It is Hereby Ordered that the Petition Area, consisting of approximately 77.2 acres of land situated at Kihei, Island of Maui, State of Hawai'i, identified as Maui Tax Map Key Nos: 2-2-02: 81 and 83 and shown approximately on Exhibit "A," attached hereto and incorporated by reference herein, shall be and is hereby reclassified to the State Land Use Urban District, and the State Land Use District boundaries shall be amended accordingly.

Based upon the findings of fact and conclusions of law stated herein, it is hereby determined that the reclassification of the Petition Area will not significantly affect or impair the preservation or maintenance of natural systems and habitats or the valued cultural, historical, agricultural, and natural resources of the area.

IT IS FURTHER ORDERED that the reclassification of the Petition Area from the State Land Use Agricultural District to the State Land Use Urban District shall be subject to the following conditions:

 Highway and Road Improvements. Petitioner will work cooperatively with DOT to reach mutually agreeable solutions. Petitioner shall abide by, complete and/or submit the following:

- The TIAR shall be revised and accepted by DOT prior to Petitioner executing a a. contract for the design of Phase I of the Project. The TIAR shall be structured to show assumptions about, traffic impacts of, and mitigations for both Phase I of the Project only and also the full build out of the Project. Petitioner shall submit three updated TIARs for the Project: the first one full year after opening of Phase I of the Project, the second with DOT approval prior to the issuance of any certificate of occupancy for Phase II of the Project, and the third with DOT approval one full year after full build out of Phase II of the Project. Should there be delays over three years between preparation of the updated TIAR one full year after opening of Phase I and the scheduled issuance of the certificate of occupancy for Phase II or any potential later Phasing, Petitioner shall submit an additional updated TIAR at DOT's request. All requirements and criteria for the TIAR and updated TIARs shall be agreed and approved by DOT. All project generated traffic shall be mitigated at Petitioner's expense as recommended or required in any of the TIARs approved by DOT. Petitioner shall submit copies of all TIARs and TIAR updates to the State of Hawai'i DOT for review and approval, and to the County of Maui Department of Public Works for review and comment.
- b. Petitioner shall complete a pedestrian route study for Phase I of the Project which includes ingress and egress of pedestrians through defined location(s) approved by DOT and shall analyze compliance with the proposed warrants in FHWA/RD-84/082 (July 1984) to the satisfaction of DOT. The pedestrian route study and analysis shall be completed and approved prior to Petitioner executing a contract for the design of Phase I of the Project. Petitioner shall cause to be constructed, or ensure that there is an available above or below ground pedestrian crossing and

implement such mitigation or improvements as may be required or recommended by the study and analysis to the satisfaction of DOT prior to opening Phase I of the Project. Petitioner shall submit three updated pedestrian route studies and analyses for the Project: the first one full year after opening of Phase I of the Project, the second with DOT approval prior to the issuance of any certificate of occupancy for Phase II of the Project, and the third with DOT approval one full year after full build out of Phase II of the Project. Should there be delays over three years between preparation of the updated pedestrian route study one full year after opening Phase I and the scheduled issuance of the certificate of occupancy for Phase II or any potential later Phasing, Petitioner shall submit an additional updated pedestrian route study at DOT's request. Petitioner shall implement such mitigation or improvements as may be required or recommended by the updated studies and analyses to the satisfaction of DOT. Petitioner shall submit copies of the studies and analyses to the State of Hawai'i DOT for review and approval, and to the County of Maui Department of Public Works for review and comment.

the intersection of Kūlanihāko'i Street and Pi'ilani Highway acceptable to DOT and as set forth in the current and revised TIAR for Phase I of the Project, including full funding of improvements and dedication of land prior to the issuance of a certificate of occupancy for Phase I of the Project. The access road to the high school shall be perpendicular to Pi'ilani Highway for a minimum distance of 200 feet. For improvements as required or recommended in an updated TIARs for any other Phase of the Project, Petitioner shall provide all required transportation improvements to support the planned enrollment of the school, and complete all

Stepping into a new future

Safe Routes to Kihei High School: Pedestrian Route Study

Kihei, Maui, 2014



The last sixty-plus years have focused on applying advanced engineering to move more cars and to move them faster. Most roadways have been designed primarily for automobile and truck travel, which in many cases has made streets less safe for pedestrians, older adults, children, people with disabilities, and bicyclists. The overall result is streets that accommodate cars and that deter people from active transportation. Land settlement practices—strip centers, cul-de-sacs, poorly sited schools, and single-use zoning—compound the problem, producing auto dependency. Our auto dependency is furthered by development patterns that have changed the form of communities from walkable, transit oriented, street grid systems to strip and single-family development accessed by regional automobile corridors. Emphasis on only one mode and not fully integrating other users into the design of roadways has severely impeded the safety of pedestrians and the overall connectivity for non-motor vehicle users.

Various trends are changing the projections for future travel demands; that is, they are changing our understanding of the type of transportation systems people will want and need in the future. Aging population, a millennial generation who is choosing not to drive, rising fuel prices, growing traffic problems, increasing safety, health and environmental concerns, and changing consumer preferences are all increasing demand for walking, cycling and transit. When we restore streets as places that are safe for children, we will also be supporting communities that are vibrant and safe for all.

Taking the steps to include pedestrians and biayclists in street design

Kihei High School, projected to open in 2018, will be located mauka (mountainside) of Pi'ilani Highway at Kulanihako'i Street between the Kulanihakoi and Waipuilani gulches. Today, the majority of the population of Kihei is concentrated on the makai (seaside) of the Pi'ilani Highway. Students and community members will be traveling along and across the highway to access the school. Because the Kihei High School campus is envisioned as a place for the community to gather, the main issue facing the community of Kihei is how students will cross Pi'ilani Highway on foot or bike. The State Land Use Commission and Maui County Council have imposed zoning conditions requiring a Pedestrian Route Study (regarding FHWA/RD-84/082, see Supporting Documents page 66) and require an overpass or underpass be provided, as well as at-grade improvements. This report was created to address the above conditions and is intended for the Department of Transportation's approval.

The report recommends that the Department of Transportation approve an atgrade crossing that includes all roadway users at Pr'ilani Highway and Kulaniha-ko'i Street, a location where pedestrians need to be included first and foremost at-grade. Pedestrian overpasses and underpasses allow for pedestrian movement separate from vehicle traffic. However, they are usually considered as a last resort measure. It is more appropriate to install safe crossings that are accessible to all pedestrians and bicyclists at-grade. Due to the local topography and community in-

The State Land Use Commission and May County Council condition, in part, reads:

cation | shall complete for Phase 1 of the Pro which includes ingress and egress of pades trians through defined location(s) approved by DOT and shall are yze compliance with FHWA/RD-84/082 (liu of DOT. The pedestri route study and analy shall be completed a approved prior to De partment of Education executing a contract for the design of Phase I of the Project."

put this report also recommends an underpass, although this will take partnership with state and county government agencies, private landowners and the community of Kihei to complete the pedestrian network so that the underpass is used.

The safety of all street users, especially the most vulnerable users (children, elderly, and disabled) and modes (pedestrians and bicyclists) should be paramount in any design of the roadway. The safety of streets can be dramatically improved through appropriate geometric design and operations. A Federal Highway Administration safety review found that streets designed with sidewalks, raised medians, better bus stop placement, and traffic calming, such as roundabouts and raised medians, improves pedestrian safety while still allowing it to move efficiently and effectively: a virtuous cycle.⁵

Ensuring people are included in the design of our streets

As Dr. Richard Jackson, author of *Designing Healthy Communities* states, "The metric needs to be people. The purpose of transportation is not to move cars and other vehicles; it's to move people; it's to move people using automobiles, buses, bicycle and their own feet. If you make people the benchmark you end up making better decisions."

The overarching principle of this report is: all streets and intersections should be studied and designed with the expectation that pedestrians and bicyclists will use them, along with motor vehicles. Designs should create an environment that is conducive to walking and bicycling, encourages people to walk and bike, and where the street becomes a place people want to be. This is reinforced in Hawaii State Complete Streets Policy, Maui County Complete Streets Resolution, Maui County General Plan and Hawaii's State Pedestrian Plan, which states the following vision: "Hawaii's integrated and multi-modal transportation system provides a safe and well-connected pedestrian network that encourages walking among all ages and abilities. The system promotes a positive pedestrian experience; promotes environmental, economic and social sustainability; fosters healthy lifestyles; and conserves energy. More people in Hawaii choose to walk for both transportation and recreation as a result of enhanced walking environments, mobility, accessibility, safety, and connectivity throughout the transportation system." A new opportunity exists for the Department of Transportation to put these policies and plans into action by including people—especially youth—on foot and bicycle in the design of the intersection at Pi'ilani Highway at Kulanihako'i Street.

Hawaii State Complete Streets Act 54 (2009), focuses on a multi-modal transportation system:

"to accommodate convenient access and mobility for all users of the public highway, including pedestrians, bicyclists, transit users, motorists, and persons of all ages and abilities."

⁵ B.J. Campbell, et al. (2004), A Review of Pedestrian Safety Research in the United States and Abroad, Federal Highway.

Administration.



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

FORD N. FUCHIGAMI DIRECTOR

DEPUTY DIRECTORS

JADE T, BUTAY

ROSS M. HIGASHI

EDWIN H SNIFFEN

DARRELL T. YOUNG

HWY-PS 2.0716

October 1, 2015

TO:

THE HONORABLE KATHRYN S. MATAYOSHI

SUPERINTENDENT

DEPARTMENT OF EDUCATION

FROM:

FORD N. FUCHIGAMI

DIRECTOR OF TRANSPORTATION

SUBJECT:

KIHEI HIGH SCHOOL

LAND USE COMMISSION TRAFFIC CONDITIONS AND ISSUES KIHEI, MAUI, HAWAII, TMK NOS: (2) 2-2-002: 081 AND 083

As a follow-up to the Department of Transportation (DOT) memorandum of July 14, 2015 (HWY-PS 2.0175), we are sending you our comments on the Traffic Impact Report (TIR) and Pedestrian Route Study previously submitted by the Department of Education (DOE). Both a TIR and a pedestrian study are required by Condition No. 1 (a) and (b), Decision and Order of the Land Use Commission (LUC) Docket No. A11-794.

The DOT has the following comments:

Traffic Impact Report:

We acknowledge receipt of the DOE's submittal on November 18, 2014, of the October 2014 Revised TIR. However, we regret to inform you that the Revised TIR has not been accepted by the DOT due to the concerns as follows:

- 1. The DOT has reviewed the Revised TIR's Traffic Signal Warrant Study for the proposed signalization at the intersection of Piilani Highway and Kulanihakoi Street. We found that the study used warrants that were not applicable, including an incorrect assessment containing right turn volumes discussed in Item 101 of the LUC Findings of Fact.
- 2. The Revised TIR should also assess warrants that are relevant to the anticipated school/pedestrian crossings discussed in Item 105 of the LUC Findings of Fact. The DOT would be supportive of signalization if warrants are met in the Revised TIR.

Pedestrian Route Study:

We acknowledge receipt of the DOE's submittal on November 18, 2014, of the 2014 Pedestrian Route Study in accordance with the LUC Docket Condition 1b. However, the DOT is not able to accept this study due to its incompleteness.

The Pedestrian Route Study needs to be comprehensive and consider preserving the existing and future integrity of Piilani Highway, which is functionally classified as a principal arterial. The analysis in the Pedestrian Route Study needs to consider all modes of travel and evaluate the proposed alternatives based on all criteria, so to make a balanced and comprehensive assessment.

We do look forward to your collaboration and submittal of a Revised TIR and Pedestrian Route Study to satisfactorily address DOT's concerns discussed above. We recommend that any further details with study revision concerns be coordinated with the DOT Highways Division.

If you have any questions, please contact Edwin Sniffen, Deputy Director, Highways Division at (808) 587-2156.

c: Christina Ruotola, Group 70 Mr. Duane Kashiwai, DOE Facilities Development Branch

FEHR & PEERS

MEMORANDUM

Date:

October 25, 2016

To:

Ken Tatsuguchi, P.E. and Nami J.H. Wong, P.E., State of Hawaii Department of

Transportation – Highways Division – Planning Branch

From:

Rachel Neumann and Netai Basu

Subject:

Kihei High School Grade Separated Pedestrian Crossing Feasibility Study

Ref: LA15-2746

This technical memorandum summarizes the results of a grade-separated pedestrian crossing ("GSPC") feasibility study conducted in preparation for the opening of a proposed high school in Kihei, Hawaii on the west coast of the island of Maui. The Hawaii State Department of Transportation ("HDOT") is concerned about school-related impacts to the transportation system. The State Land Use Commission ("Land Use Commission") and Maui County Council have imposed zoning conditions requiring an overpass or underpass be provided to facilitate pedestrian access to the proposed school. DOT has directed this GSC feasibility study to be completed in compliance with Federal Highway Administration ("FHWA") Report # FHWA/RD-84/082 Warrants for Pedestrian Over and Underpasses ("FHWA/RD-84/082") as a condition of approval for a District Boundary Amendment necessary to develop the school.

PROJECT DESCRIPTION

Currently, high school-age students from the community of Kihei on the island of Maui attend school in either Kahului or Wailuku. The Hawaii Department of Education (HDOE) has plans to construct a new high school in Kihei to be located mauka of Piilani Highway. The school is projected to open in 2018, with an initial enrollment of 800 students. Full enrollment of 1,650 students is anticipated in 2028. Access to the high school will be provided via a new access roadway off Piilani Highway at the intersection with Kulanihakoi Street.

Within the vicinity of the proposed high school, Piilani Highway is a predominantly four-lane, two-way roadway generally oriented in the north south direction that provides direct access through Kihei. Within the vicinity of the proposed high school, the posted speed limit is 40 miles per hours ("mph") and the design speed is 55 mph. Due to the high speeds of the vehicular traffic, the 8-foot wide shoulders, which were designated as bicycle lanes, are not utilized by bicyclists. There

are no sidewalks or pedestrian facilities on Pillani Highway. A Pedestrian Route Study ("Ped Route Study") was conducted to address bicycle and pedestrian access and safety issues at the proposed school access roadway. The Ped Route Study recommended a redesign of the intersection at Pillani Highway and Kulanihakoi Street to provide optimum service the highest level of protection for bicycles and pedestrians, including a traffic signal and high-visibility crosswalks at a minimum and a roundabout at a maximum. The Land Use Commission additionally required that a GSC feasibility study be conducted in compliance with the proposed warrants in FHWA/RD-84/082 to examine the feasibility of providing grade-separated non-motorized crossing opportunities from the makai to mauka sides of Pillani Highway. The Waipuilani and Kulanihakoi Gulches, respectively located north and south of the intersection with Kulanihakoi Street, were recommended as preferred GSPC locations, and the feasibility of providing GSPCs at these specific locations will be explored in this memo.

GSPC WARRANTS

FHWA/RD-84/082 identifies the following eight warrants for grade-separated pedestrian over or undercrossings.

- Pedestrian volume should be a total of over 300 in the 4 highest continuous hour period
 if vehicle speed is over 40 miles per hour and the proposed sites are in urban areas and
 not over or under a freeway. Otherwise, pedestrian volume should be a total of over 100
 pedestrians in the 4 highest continuous hour period.
- 2. Vehicle volume should be over 10,000 in the same 4 hour period used for the pedestrian volume warrant or ADT over 35,000 if both vehicle speed is over 40 mph and the proposed sites are in urban areas. If the two conditions are not met, vehicle volume should be over 7,500 in 4 hours or ADT over 25,000.
- 3. A proposed site should be at least 600 feet from the nearest alternative "safe" crossing. A "safe" crossing is where a traffic control device stops vehicles to create adequate gaps for pedestrians to cross. Another "safe" crossing is an existing over or underpass near the proposed one.
- 4. A physical barrier to prohibit at-grade crossing of the roadway is desirable as part of overpass or underpass design plan.
- Artificial lighting should be provided to reduce potential crime against users of underpasses and overpasses. It may be required to light underpasses 24 hours a day and overpasses all night.
- Topography of the proposed site should be such that elevation changes are minimal to users of overpasses and underpasses and construction costs are not excessive. Elevation change is a factor effecting the convenience of the users.
- 7. A specific need should exist or be projected for a GSPC based on existing or proposed land use(s) adjoining the proposed site which generate pedestrian trips. These land use(s) should have direct access to the GSPC.

Funding for construction of the pedestrian overpass or underpass must be available prior to construction commitment.

An excerpt from FHWA/RD-84/082 summarizing the warrants is included in this memo as Appendix A.

IS A GSPC WARRANTED?

Pedestrian Volumes

The posted speed limit on Piilani Highway is 40 mph, it is located in an urban area, and is not a freeway. Therefore, in order to meet the pedestrian volume warrant, at least 300 or pedestrians must utilize the crossing in the highest continuous four-hour period.

No existing pedestrian counts across Piilani Highway at Kulanihakoi Street were available for review during the preparation of this report. For the purposes of this analysis, it was assumed that pedestrian activity at this location is today not present, as there are no existing nearby destinations mauka of Piilani Highway, nor are sidewalks or crossing facilities provided. Therefore, there is no baseline pedestrian volume and all future estimates rely exclusively on school-generated trips assumed to occur during school opening and dismissal times.

In testimonial response to the *Kihei High School Petition for Land Use District Boundary Amendment*, HDOT estimated that 20 percent of Kihei high school students would walk to the proposed school. No data about existing Maui student journey-to-school mode splits is available to support this estimate. Additionally, future development in Kihei is expected to fuel the dramatic growth in the student population between 2018 and 2028, and much of this development is planned for mauka of Piilani Highway. Students drawn from developments mauka of Piilani Highway would likely access the school from a future roadway planned even further inland of the school site, from other planned direct connections, or via sidewalks on the east side of Piilani Highway, meaning that the pool of students who may utilize grade-separated crossings to get to school is much smaller than the total school population. Thus, it is very likely that a 20 percent pedestrian mode split at the proposed school represents an overestimate.

Future pedestrian volume estimates were prepared for this analysis based on a five, 10, and 20 percent student pedestrian mode split. Staff/visitor pedestrian volume estimates were calculated based on American Community Survey 2013 5-year estimate Journey-to-Work data for Kihei CDP (Census-Designated Place). Total student, staff, and visitor numbers for the proposed high school were based on the traffic impact analysis report ("TIAR") prepared by Wilson Okamoto Corporation for Group 70 in 2014. The volumes presented below still likely represent an overestimate as they assume that all students, staff, and visitors originate makai of Piilani Highway.

As illustrated in Table 1, the pedestrian volume warrant is not met in 2018 under any likely conditions. In 2028, at least 18 percent of students must walk to school in order to meet the pedestrian volume warrant.

TABLE 1. Pedestrian Volumes by Student Mode Split

Year	Enroliment	Pedestrian Volumes by Student Mode Split		
		5%	10%	20%
2018	800	41	81	161
2028	1,650	85	168	333

Vehicle Volumes

As Piilani Highway is located in an urban area and the posted speed limit is 40 mph, to meet the vehicle volume warrant, vehicle volumes on Piilani Highway at Kulanihakoi Street must equal or exceed 10,000 vehicles within the same four-hour period as the highest pedestrian volumes occur, or 35,000 vehicles in an entire 24-hour day.

Since no baseline pedestrian counts exist, there was no pre-determined four-hour period in which to measure the 10,000 vehicles. Based on vehicle counts collected in the TIAR prepared by Group 70, the highest four-hour period for vehicles occurs between 1:30 and 5:30 PM, encompassing the school dismissal period during which school-related pedestrian volumes could be expected to peak.

Existing counts indicate that Piilani Highway carries fewer than 8,700 vehicles during the highest four-hour period, and just over 32,000 vehicles per day. The TIAR estimated ambient traffic growth along Piilani Highway for both 2018 and 2028. In 2018, Piilani Highway can be expected to carry just over 9,500 vehicles during the highest four-hour period and just under 34,700 vehicles per day. In 2028, Piilani Highway can be expected to carry just over 15,500 vehicles during the highest four-hour period and more than 55,000 vehicles per day.

The vehicle volume warrant is not met in 2018, and is met in 2028.

Distance to the Nearest Safe Crossing

The intersection of Piilani Highway and Kulanihakoi Street is side-street stop-controlled. Traffic traveling north and south on Piilani Highway is uncontrolled and does not stop. No marked crossing across Piilani Highway is provided. The nearest existing marked crossings across Piilani Highway are located 0.96 miles away at Ohukai Road in the north and 0.75 miles away at Piikea Avenue in the south.

The intersection of Piilani Highway and Kulanihakoi Street is planned to be signalized ahead of the proposed school's opening. The intersection improvement is assumed, for this analysis, to include marked pedestrian crossings. If the intersection is improved as planned, the warrant regarding safe crossing distances is not met. Should the intersection improvement not occur, the nearest marked crossings will continue to be located more than 600' from the proposed school driveway. Under such conditions, the warrant regarding safe crossing distances is met.

Physical Barriers

A physical barrier to prohibit at-grade crossing of the roadway is desirable as part of the grade separated crossing design plan.

No physical barrier will exist at Kulanihakoi Street to prevent at-grade pedestrian crossings. Even if marked pedestrian crossings are not including in the previously described intersection improvement, the planned signalization of the intersection will in fact facilitate at-grade crossings. Therefore, the physical barrier warrant is not met in either study year.

Lighting

Lighting GSPCs along Waipuilani and/or Kulanihakoi Gulch is feasible. Thus, while GSPC facilities have yet to be designed, the lighting warrant is met.

Topography

United States Geological Survey ("USGS") quadrangle maps for the Kihei area were obtained. The maps indicate that Waipuilani and Kulanihakoi Gulches, which are located between a half and three-quarters of a mile from the coast, have elevations between 20 and 40 feet above sea level. The level of detail of the map is 20 feet. The exact topography of the gulches is not available at this time, but it is likely that elevation changes are gentle enough to provide a grade-separated crossing. Based on this assumption, the topography warrant is met. More detailed information is needed to verify this assumption.

Adjacent Land Uses

Existing or projected adjoining land uses to the GSPC should generate pedestrian trips, and should have direct access to the planned GSPC. Uses such as a school are generally high pedestrian generators.

For planning purposes, HDOE estimates that one high school student is generated from approximately six single-family homes or twenty multi-family units. Residential development immediately makai of Piilani Highway is primarily single-family, with some multi-family development further makai. It would require approximately 2,000 single-family homes adjacent to the GSPC to generate the 300 students necessary to meet the pedestrian warrant assuming a

pedestrian mode split for those students of 100% (which is not realistic but is used here to define the limits of the warrant evaluation). Adjacent is assumed to mean within a ½-mile travel distance from the school, as this is generally acknowledged to be a reasonable walking distance. Based on an aerial review, it does not appear that 2,000 single-family homes exist adjacent to the proposed GSPC. Additionally, given that the pedestrian mode split for student journeys to school is typically far less than 50%, the number of housing units required to generate 300 student pedestrians is in actual fact far greater than 2,000 single-family homes. Although some multi-family units exist in this area, the student generation rate for this type of housing is lower and the use of single-family homes for this calculation provides the highest number of potential pedestrians.

The discontinuous and disconnected nature of the roadway network makai of Piilani Highway means that, unless a robust pedestrian network is developed in addition to the GSPC, relatively few students will have direct access to the GSPC.

Mauka of Piilani Highway, the opening of the proposed school in 2018 ensures that the adjoining land use warrant is met. Makai of Piilani Highway, however, low residential density and a disconnected roadway network do not meet this warrant in 2018.

Funding

No funding has been committed for construction of the GSPC at this time. The funding warrant is not currently met, but may be met in the future.

GSPC PHYSICAL FEASIBILITY

Detailed cross-sectional elevation drawings of either Waipuilani or Kulanihakoi Gulch were not available for review during preparation of this report. Therefore, when assessing GSPC physical feasibility, it was assumed that no vertical clearance is currently available at either gulch.

GSPC design requirements were determined based on the 2001 FHWA report *Designing Sidewalks* and *Trails for Access: Best Practices Design Guide* ("FHWA 2001") and the 2004 American Association of State Highway and Transportation Officials ("AASHTO") *Guide for the Planning, Design, and Operation of Pedestrian* Facilities ("AASHTO 2004").

Undercrossings require provision of 10' of vertical clearance, measured from the top of the floor to the bottom of the ceiling. Pathways must be a minimum of 16' wide. Ramp slope cannot exceed an 8.33% grade, equal to one foot of landing for every inch of rise. Five foot deep landings must be provided for every 30" of ramp rise.

For the purposes of this analysis, it was assumed that the entirety of the required 10' of vertical clearance will need to be excavated at either gulch. In order to provide 10' of vertical clearance, 140' of ramp will need to be provided on either side of Piilani Highway, including a minimum of four landings. Sufficient public right-of-way is available on both sides of Piilani Highway to

accommodate the required ramp lengths and USGS quadrangle maps suggest that the topography does not preclude ramp construction. Detailed engineering surveys will be required to determine ultimate feasibility.

Overcrossings require provision of 16' of vertical clearance above street grade, measured from the top of the roadway to the bottom of the overcrossing bridge ceiling. Pathways must be a minimum of 16' wide. Ramp slope cannot exceed an 8.33% grade, equal to one foot of landing for every inch of rise. Five foot deep landings must be provided for every 30" of ramp rise.

For the purposes of this analysis, it was assumed that Pillani Highway is at-grade. In order to provide 16' of vertical clearance, 227' of ramp will need to be provided on either side of Pillani Highway, including a minimum of six landings. Sufficient public right-of-way is available on both sides of Pillani Highway to accommodate the required ramp lengths and USGS quadrangle maps suggest that the topography does not preclude ramp construction. Detailed engineering surveys will be required to determine ultimate feasibility.

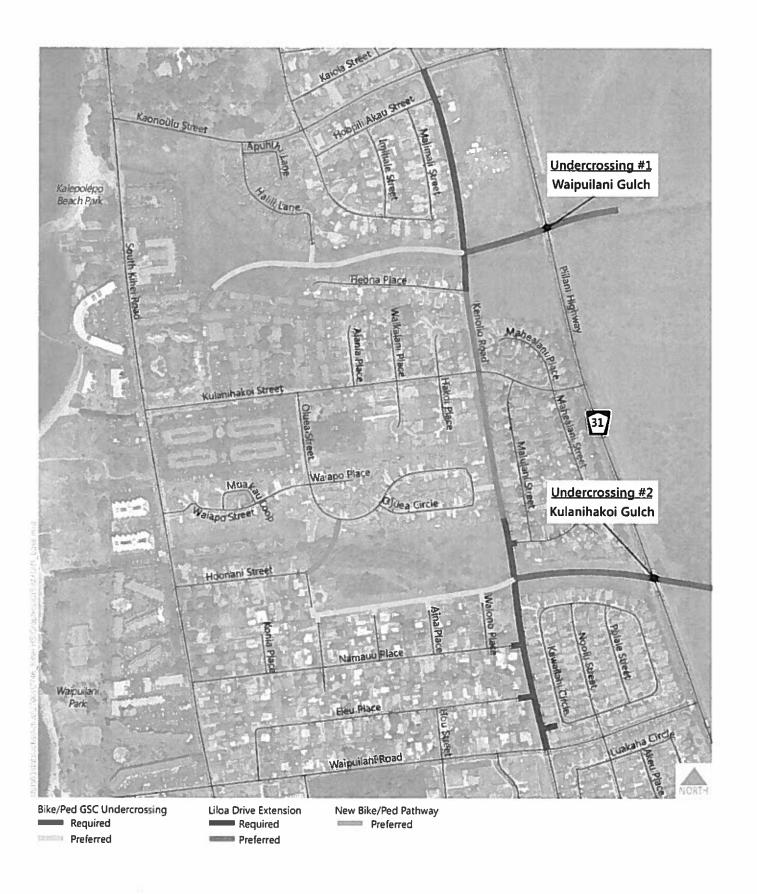
Undercrossings are generally preferred to overcrossings as they require shallower slopes and thus shorter ramp lengths, which results in both reduced construction costs and easier access for those with mobility challenges If an overcrossing were selected as the preferred configuration, the ideal location for its placement is at the intersection with Pillani Highway and Kulanihakoi Street to provide the most direct connection and serve the greatest number of pedestrians and cyclists. A detailed feasibility analysis for this location has not been conducted, but an aerial review indicates that there is insufficient right-of-way available makai of Pillani Highway to land the ramps connecting residential neighborhoods to the overcrossing.

RECOMMENDATIONS

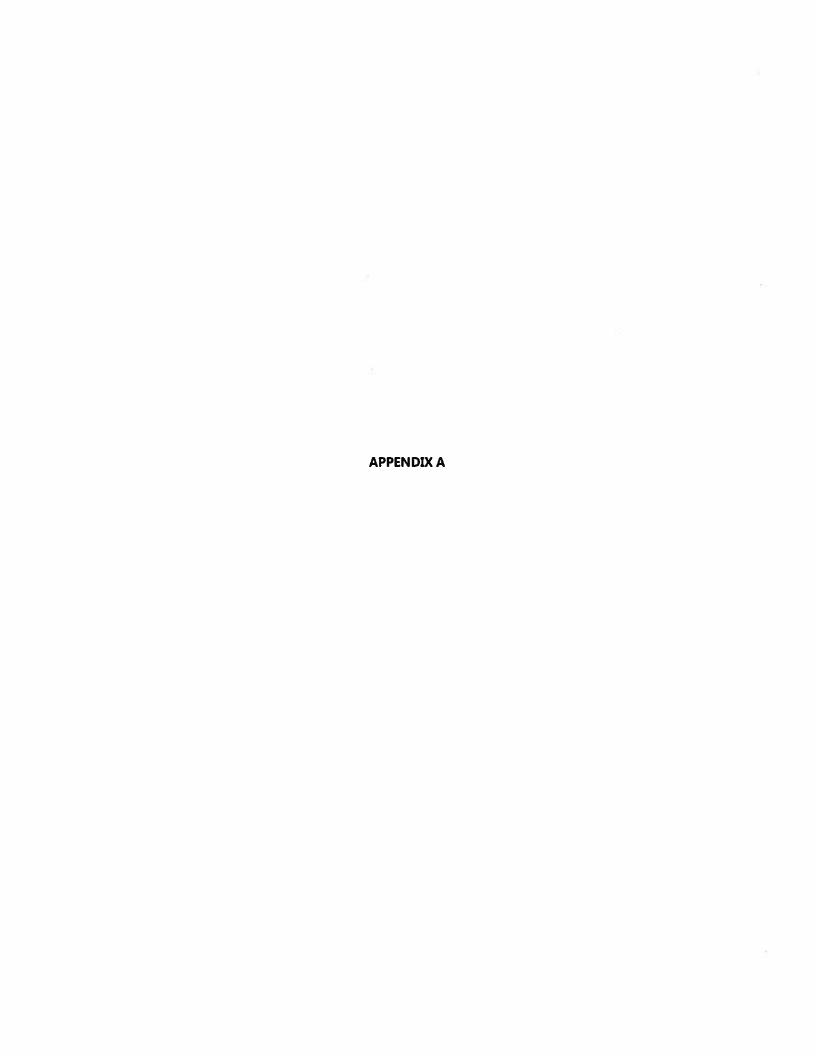
In 2018, when the proposed high school is projected to open, no GSPC warrants are definitively met. Warrant #3, the warrant regarding safe crossing distances, is met only if planned improvements are not made. Warrants # 5 and 8, regarding lighting and funding, are not currently met but may be met by 2018 depending on future planning. In 2028, however, primary warrants regarding pedestrian and vehicle volumes at the proposed high school access driveway either are met or may be met depending on student pedestrian mode split. Therefore, the need for a GSPC should be viewed as long-term.

It is likely that constructing a GSPC at either Waipuilani or Kulanihakoi Gulch is physically feasible, however a detailed engineering survey is recommended to determine ultimate feasibility. Without a survey, the preferability of constructing a GSPC in one gulch over another cannot be determined. Waipuilani Gulch is located approximately 750' north of the proposed high school access driveway, and Kulanihakoi Gulch is located approximately 1,250' south of the driveway. Priority should ultimately be given to the GSPC that would facilitate the maximum number of pedestrian crossings based on adjacent student residential density and pedestrian network connectivity. A

GSPC should augment, rather than replace, an at-grade crossing opportunity, by facilitating crossings for students originating from disconnected neighborhoods to the north and south of the proposed high school access driveway. In order to be effective, the GSPC cannot be constructed in isolation, but must be part of a robust pedestrian network providing connectivity that the existing vehicle roadway network does not. The higher the level of connectivity, the higher the GSPC use and attendant student pedestrian mode split. Development of such a network will require interagency coordination between HDOE, future Kihei High School administrators, Kihei transportation and planning officials, HDOT, the County of Maui, and other agencies, and should take into account planned improvements including completion of the Liloa Drive extension and the Hawaii Statewide Bikeway Network. An example of a robust network that would facilitate the highest use rate is illustrated in Figure 1, below.







1.0 PURPOSE

The purpose of this research is to establish warrants which will consider factors that influence the effective use of pedestrian over and underpasses or grade separated pedestrian crossings (GSPCs). Currently there are no established nationally acceptable warrants to serve as standards in deciding whether or not to build a GSPC.

2.0 INTRODUCTION

There are cases where GSPCs have been built for situations that did not need them. Ultimately, these GSPCs have been abandoned or removed. The GSPCs that satisfy a particular need tend to be effectively utilized. The need for a GSPC may exist such as on a safe route to and from school where better alternative routes are not possible. An example of a GSPC built to satisfy a need is an overpass between Eleanor Roosevelt High School and the planned community of Greenbelt, MD. This overpass is over four (4) lanes of high speed traffic on the Baltimore-Washington Parkway. An overpass is the only means to walk safely to the school from the community. Additionally, there may be a greater demand anticipated because of planned development or a proposed transportation network.

The need for a GSPC may be present, but certain factors may prevent it from being effectively utilized. In Omaha, NE, the walkway structure of some safe route to school overpasses is an open grid. The open grid is excellent for snow removal in that snow simply falls through the grid down to the roadway. However, pedestrians feel uneasy seeing moving vehicles and feeling the vibrations of the walkway. This type of factor discourages usage even with an existing need for the GSPC. The impact on the usage will vary with the desirability of the location and the alternatives present.

2.1 Research Approach

The objective of the research is to develop and validate warrants which can provide a basis for determining when GSPCs would most likely be successful and well-utilized by pedestrians. In order to accomplish this objective,

criteria were developed and validated which determine whether a GSPC would be effectively utilized. Based on these criteria, warrants were developed and validated.

The research was divided into four parts. The first part was a state-of-the-art review consisting of two subparts: a literature review and an assessment of current practices. The literature review, section 3.0, involved an examination of available sources of information on potential criteria and warrants for GSPCs. A warrant is considered more quantitative and specific than a criteria which is qualitative and less specific. The useful literature was grouped by level of applicability to GSPC warrants and listed in the bibliography in Appendix A. The potential criteria for GSPCs were summarized. The different types of warrants were identified as threshold, priority ranking (i.e., assigned points or exposure indexes), economic, system, policy, and political.

The assessment of the current practices, section 4.0, evaluated the state-of-the-practice through an analysis of literature and discussions with research, state, and local transportation professionals representing different regions of the United States. Each type of warrant was discussed along with a list of existing warrants. A panel of advisors, consisting of five (5) transportation professionals from different cities, was asked to comment on the existing warrants for GSPCs. The ease of application (i.e., complexity, data requirements, etc.) and appropriateness (i.e., reasonable pedestrian or vehicular volume levels) for these warrants were assessed from their comments. The assessment was used as a validation tool in the fourth part, section 7.0, where the comments of the panel of advisors were summarized.

In the second part, behavioral perceptions of risks and convenience were collected and analyzed for emerging patterns in section 5.0. These patterns were used to develop candidate warrants. Informal inquiries of pedestrians were conducted to obtain their perceptions at 37 of 40 sample GSPC sites in five cities. At the same time, site characteristics data were collected at all 40 GSPC sites including pedestrian usage/nonusage volume and spot vehicle counts.

The third part, section 6.0, included the development and validation of criteria and warrants for installation of GSPCs. Criteria and warrants were developed from the synthesis of those factors that influence the utilization of GSPCs. The factors were selected from potential criteria in section 3.0, existing warrants in section 4.0, and analysis of site data from 20 of the 40 sample GSPC sites used for criteria/warrant development. The site data analysis process identified those criteria and warrants that are most frequently associated with successful GSPC installations. Site characteristics, pedestrian usage/nonusage volumes, and volume of vehicular traffic conflicting with pedestrian movements from the second part were analyzed with contigency table and chi-square hypothesis testing technique in this part. Twelve (12) candidates warrants were derived or adopted from existing ones. The panel of advisors was asked to comment on the candidate warrants in the same manner as they did for the existing warrants.

The fourth part, section 7.0, included the validation of candidate warrants to assure that they provide a basis for determining when a GSPC installation would most likely be successful. Four methods were used to evaluate the candidate warrants: study of behavioral patterns from section 5.0, contigency table and chi-square analyses of site characteristics from the other 20 sample GSPC sites, comparison of candidate warrants with corresponding site characteristics of the GSPC sites, and evaluation of comments given by the panel of advisors on existing and candidate warrants. These warrants must be simple and straightforward in order to be useful to transportation professionals. The proposed warrants were recommended to help predict the real world experience if a GSPC would be built.

2.2 Summary of Findings

The high cost of construction for GSPCs, between \$40,000 and 250,000, limits their use as pedestrian vehicle separators except where funding is available and political influence/policy decisions favor their installation. Therefore, there are few established quantitative warrants for GSPCs. San Diego, CA developed threshold warrants (i.e., with minimum pedestrian and vehicular volume levels), and Seattle, WA developed a priority ranking system

(i.e., assigning points to measurable characteristics such as volume and accidents). Most jurisdictions use system-type warrants (i.e., based on master plans).

Warrants were developed and validated as described in section 2.1 above and the following summarizes the proposed warrants:

- 1. Pedestrian volume should be a total of over 300 in the 4 highest continuous hour period if vehicle speed is over 40 mph and the proposed sites are in urban areas and not over or under a freeway. Otherwise, pedestrian volume should be a total of over 100 pedestrians in the 4 highest continuous hour period.
- 2. Vehicle volume should be over 10,000 in the same 4 hour period used for the pedestrian volume warrant or ADT over 35,000 if both vehicle speed is over 40 mph and the proposed sites are in urban areas. If the two conditions are not met, vehicle volume should be over 7,500 in 4 hours or ADT over 25,000.
- 3. A proposed site should be at least 600 feet from the nearest alternative "safe" crossing. A "safe" crossing is where a traffic control device stops vehicles to create adequate gaps for pedestrians to cross. Another "safe" crossing is an existing over or underpass near the proposed one.
- 4. A physical barrier to prohibit at-grade crossing of the roadway is desirable as part of overpass or underpass design plan.
- 5. Artificial lighting should be provided to reduce potential crime against users of underpasses and overpasses. It may be required to light underpasses 24 hours a day and overpasses all night.
- 6. Topography of the proposed site should be such that elevation changes are minimal to users of overpasses and underpasses and construction costs are not excessive. Elevation change is a factor effecting the convenience of the users.
- 7. A specific need should exist or be projected for a GSPC based on existing or proposed land use(s) adjoining the proposed site which generate pedestrian trips. These land use(s) should have direct access to the GSPC.
- 8. Funding for construction of the pedestrian overpass or underpass must be available prior to construction committment.

TO:



17 JIL 18 P3:49

FORD N. FUCHIGAMI DIRECTOR

Deputy Directors
JADE T BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:

HWY-PS 2.5214

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

869 PUNCHBOWL STREET

HONOLULU, HAWAII 96813-5097

July 18, 2017

Planning Section Rec'd

JUL 18 2017

Fac. Dev. Branch

DUANE Y. KASHIWAI

PUBLIC WORKS ADMINISTRATOR FACILITIES DEVELOPMENT BRANCH

DEPARTMENT OF EDUCATION

FROM: FORD N. FUCHIGAMI

DIRECTOR OF TRANSPORPATION

SUBJECT: KIHEI HIGH SCHOOL

TRAFFIC AND PEDESTRIAN STUDIES AND IMPROVEMENTS

KIHEI. MAUI

TMK: (2) 2-2-002:081

The Hawaii Department of Transportation (HDOT) reviewed the Traffic Impact Analysis Report (TIAR) (by Wilson Okamoto, Updated October 2014), and the Pedestrian Route Study/Grade-Separated Pedestrian Crossing (GSPC) Study for the Kihei High School (KHS) to be constructed in Kihei, Maui, mauka of Piilani Highway, State Route 31, at Kulanihakoi Street.

The review was conducted to satisfy Decision and Order, Docket A11-794, July 29, 2013, condition 1(a): "The TIAR shall be revised and accepted by DOT prior to Petitioner executing a contract for the design of Phase I of the Project" and 1(b): "The pedestrian route study and analysis shall be completed and approved prior to Petitioner executing a contract for the design of Phase I of the Project".

The HDOT has been coordinating with the Hawaii Department of Education (HDOE) and is satisfied that the stated portions of condition 1(a) and 1(b) have been adequately addressed. The HDOE has assured the HDOT that HDOE will continue to cooperate to address traffic impacts and other subparts of Condition 1, as applicable.

The HDOT expects that the above agreement will be consistent with the following understandings:

The GSPC study was supplemented by a review by Fehr & Peers (F&P) with respect to whether the GSPC, pedestrian traffic, and road conditions would meet various applicable warrants for a GSPC. The result of the F&P review was that a GSPC would not meet applicable warrants during Phase I of the KHS though the F&P review suggested that a GSPC may meet applicable warrants during Phase II of the KHS. No pedestrian crossing measures for Phase I were proposed by F&P; the HDOT assumes F&P recommends the traffic signal will accommodate an at-grade crossing and that a median pedestrian refuge will be installed for Phase I.

Prior to Phase II, the GSPC warrants should be re-evaluated and if met then a GSPC should be funded and provided by the HDOE.

The TIAR included a traffic signal warrant study that was not acceptable to the HDOT due to including Signal Warrant 3, Peak Hour, which was not considered applicable in this situation. However, the study indicated that a signal was warranted under Signal Warrant 2, 4-Hour Vehicular Volume.

Per the TIAR, KHS shall implement the recommendations for improvements as described and listed in the TIAR (Wilson Okamoto, September 2011, Revised April 2012, Updated October 2014) which would include but not be limited to:

- 1. Provide a left-turn and shared through/right-turn on the west-bound approach to the Piilani Highway and Kulanihakoi Street intersection.
- 2. Provide a channelized north-bound deceleration and acceleration lane for Kulanihakoi Street on Piilani Highway at the intersection.
- 3. Provide a south-bound channelized left-turn lane on Piilani Highway.
- 4. Provide two east-bound lanes on Kulanihakoi Street departure from Piilani Highway.
- 5. Provide a left-turn and a shared through/right-turn lane on the east-bound approach to Piilani Highway.
- 6. Provide a traffic signal system at the intersection of Piilani Highway and Kulanihakoi Street.

Note that all improvements shall be consistent, applicable highway design standards, and approved by the HDOT.

If there are any questions, please contact Ken Tatsuguchi, Engineering Program Manager, Highways Division, Planning Branch, at (808) 587-1830. Please reference file review number PS 2014-252.

OFFICE OF THE COUNTY CLERK

COUNTY OF MAUI 200 SOUTH HIGH STREET WAILUKU, MAUI, HAWAII 96793 www.mauicounty.gov/county/clerk MARGARET C. CLARK Deputy County Clerk

LAND USE COMMISSION STATE OF HARAN

7019 FEB - 6 A 8: 11

February 1, 2019

State Land Use Commission State of Hawaii P.O. Box 2359 Honolulu, HI 96808-2359

Dear Sir:

Transmitted herewith is a certified copy of Resolution No. 19-20, which was adopted by the Council of the County of Maui, State of Hawaii, on February 1, 2019.

Respectfully,

JOSIAH K. NISHITA County Clerk

/lks

Enclosure

Resolution LAND LISE COMMISSION STATE OF HAVAIL

No. 19-20

2019 FEB -6 A 8: 11

REQUESTING THE STATE LAND USE COMMISSION TO ISSUE A DECLARATORY RULING REITERATING AND AFFIRMING THE REQUIREMENT FOR A PEDESTRIAN OVERPASS OR UNDERPASS TO ALLOW SAFE ACCESS TO KIHEI HIGH SCHOOL

WHEREAS, in obtaining land use entitlements for the development of the proposed Kihei High School, the State Department of Education promised the State Land Use Commission and the Maui County Council that an overpass or underpass would be constructed to provide students with safe pedestrian access across Pillani Highway; and

WHEREAS, the Land Use Commission approved the corresponding District Boundary Amendment on July 29, 2013, in Docket A11-794, with 25 conditions, including Condition 1(b), which reads in part:

Petitioner shall cause to be constructed, or ensure that there is an available above or below ground pedestrian crossing and implement such mitigation or improvements as may be required or recommended by the study and analysis to the satisfaction of DOT ("Department of Transportation") prior to opening Phase I of the Project.; and

WHEREAS, the Council approved the corresponding Change in Zoning by the enactment of Ordinance 4135 (2014), which included the Land Use Commission's Condition 1(b) as a County zoning condition; and

WHEREAS, during a public meeting on the proposed Change in Zoning bill that became Ordinance 4135, on October 30, 2013, the Council's Land Use Committee received assurances from representatives of the State that an overpass or underpass would be provided pursuant to the Land Use Commission's conditions; and

WHEREAS, according to the official minutes of the Land Use Committee meeting on October 30, 2013, a planning consultant representing the State, stated the following:

The State Land Use District Boundary Amendment, the Land Use Commission found that the site did warrant the criteria to become classified as Urban. There were 26 [sic] conditions placed on the approval. So these are some of the key conditions and as was mentioned before, there was a requirement that the . . . that there be provided a pedestrian overpass or underpass prior to opening of Phase I; and

WHEREAS, Land Use Committee Report 14-61, which recommended passage of the Change in Zoning bill, included the following passage:

The State Land Use Commission ("LUC") incorporated 25 conditions on the State Land Use District Boundary Amendment from Agriculture to Urban. One of the conditions required construction of an above- or belowground pedestrian crossing prior to the opening of Phase I, to allow pedestrians to cross Pillani Highway to access the school.; and

WHEREAS, the Land Use Commission is tentatively planning to have a public meeting on February 20, 2019, to receive a status update on the project, including the State's compliance with Condition 1(b); and

WHEREAS, to ensure compliance with both Condition 1(b) and the conditions of Ordinance 4135, it would be beneficial for the Land Use Commission to issue a Declaratory Ruling to reiterate and affirm the requirement of a pedestrian overpass or underpass for Kihei High School; now, therefore.

BE IT RESOLVED by the Council of the County of Maui:

- 1. That it requests the State Land Use Commission to issue a Declaratory Ruling reiterating and affirming the requirement for a pedestrian overpass or underpass to allow safe access to Kihei High School;
- 2. That it requests that the Department of Planning, with the representation of the Department of the Corporation Counsel, submit as soon as possible to the Land Use

Commission a Petition for a Declaratory Ruling reiterating and affirming the requirement for a pedestrian overpass or underpass to allow safe access to Kihei High School; and;

3. That certified copies of this resolution be transmitted to Mayor Michael P. Victorino, Acting Corporation Counsel Patrick K. Wong, Acting Planning Director Michael McLean, State Senator Rosalyn Baker, State Representative Tina Wildberger, and the State Land Use Commission.

APPROVED AS TO FORM AND LEGALITY

Deputy Corporation Counsel County of Maui

paf:dmr:19-007d

COUNCIL OF THE COUNTY OF MAU!

WAILUKU, HAWAII 96793

CERTIFICATION OF ADOPTION

It is HEREBY CERTIFIED that RESOLUTION NO. 19-20 was adopted by the Council of the County of Maui, State of Hawaii, on the 1st day of February, 2019, by the following vote:

MEMBERS	Kelly T. KING Chair	Koeni N. W. RAWLINS+ FERNANDEZ Vico-Chair	G. Riki HOKAMA	Natello A. KAMA	Alice L. LEE	Michael J. MOLINA	Tamara A. M. PALTIN	Shane M. SINENCI	Yuki Lei K. SUGIMURA
ROLL CALL	Аув	Aye	Aye	Aye	Aye	Aye	Aye	Aye	Aye

COUNTY CLERK



LARD USE OF FIRMS THE

2019 APR 25 A 7:48

BEFORE THE LAND USE COMMISSION OF THE STATE OF HAWAI'I

In the Matter of the Petition of

DEPARTMENT OF PLANNING, COUNTY OF MAUI,

To issue a declaratory order that Condition 1 (b) of the State of Hawaii Land Use Commission's Decision and Order filed July 29, 2013, in Docket No. A11-794, granting the Land Use District Boundary Amendment for 77.182 acres identified for real property tax purposes as tax map(2) 2-2-002:081, Kihei, Maui, Hawaii, requires an available above or below ground pedestrian crossing.

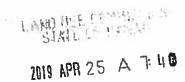
DOCKET NO. DR 19-65
ORDER GRANTING PETITIONER
DEPARTMENT OF PLANNING,
COUNTY OF MAUI'S PETITION FOR
DECLARATORY ORDER;
AND CERTIFICATE OF
SERVICE

ORDER GRANTING PETITION FOR DECLARATORY ORDER

<u>AND</u>

CERTIFICATE OF SERVICE





BEFORE THE LAND USE COMMISSION OF THE STATE OF HAWAI'I

In the Matter of the Petition of

DEPARTMENT OF PLANNING, COUNTY OF MAUI,

To issue a declaratory order that Condition 1 (b) of the State of Hawaii Land Use Commission's Decision and Order filed July 29, 2013, in Docket No. A11-794, granting the Land Use District Boundary Amendment for 77.182 acres identified for real property tax purposes as tax map(2) 2-2-002:081, Kihei, Maui, Hawaii, requires an available above or below ground pedestrian crossing.

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ORDER GRANTING PETITIONER
DEPARTMENT OF PLANNING,
COUNTY OF MAUI'S PETITION FOR
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SERVICE

ORDER GRANTING PETITION FOR DECLARATORY ORDER

On February 22, 2019, the Department of Planning- Maui County ("County"), through its attorney Tom Kolbe, Deputy Corporation Counsel, filed a Petition For Declaratory Order ("Petition"), pursuant to Hawai'i Revised Statutes ("HRS") Section 91-8, and Hawai'i Administrative Rules ("HAR"), Section 15-15-98 et seq.,; Exhibits 1 – 8, and Certificate of Service. County sought a declaratory ruling from the Commission reiterating and reaffirming that condition 1(b) to the Commission's July 29, 2013 Findings of Fact, Conclusions of Law,

Decision and Order requires an available above or below ground pedestrian crossing to allow pedestrians to safely cross the Piilani Highway, prior to the opening of Phase I.

On March 4, 2019, the Commission mailed a Notice of Docket filing and filing deadlines to all potential interested parties as identified by Petitioner.

On March 15, 2019, the Department of Education ("DOE") filed its Notice of Appearance of Counsel.

On March 20, 2019, the DOE filed a Petition to Intervene and a Motion to Continue

Hearing and Deferral of Ruling on Petitioner Department of Planning.

On March 25, 2019, the State of Hawai'i Office of Planning ("OP") filed its Response to DOE's Petition to Intervene and Motion to Continue Hearing and Deferral of Ruling on Petitioner Department of Planning. On this same day, the Commission mailed a Meeting Notice and agenda to Parties and the Statewide and Maui mailing lists for the April 3, 2019 meeting on Maui.

On March 29, 2019, the Commission received DOE's withdrawal of its Petition to Intervene and Motion to Continue Hearing and Deferral of Ruling on Petitioner Department of Planning.

On April 3, 2019, the Commission met in Kahului, Maui Hawai'i, to consider the Petition pursuant to Section 15-15-100, HAR. Tom Kolbe, Esq., appeared on behalf of County. The following individuals provided oral and/or written testimony: Andrew Beerer, Patricia Stillwell, John Laney, Diane Laney, Judy Williams, Mike Moran, James Williams, Brendan Brown, Cindy Dellefave, Calden Norman, and William Sams. The Commission also heard public testimony on the Petition from Dawn Takeuchi-Apuna, Esq., on behalf of OP. There were no representatives for the Department of Education.

Mr. Kolbe described the basis for County's requesting a declaratory ruling and noted that during the process of County's attempt to pass a corresponding change to County zoning and a Community Plan Amendment (Maui County Ordinance 4135), representations were made to the Maui Council's Land Use Committee by the DOE, reassuring the Council that an overpass or underpass would be provided pursuant to the conditions included in the Land Use Commission's *Decision and Order*. However, despite the assurances, by letter dated July 18, 2017, the Director of the State Department of Transportation ("DOT") notified Duane Y. Kashiwai, Public Works Administrator, Facilities Development Branch, DOE and the parties to the Docket that "No pedestrian crossing measures for Phase I were proposed by their transportation consultant, Fehr & Peers ("F&P"); and the DOT assumes F&P recommended that the traffic signal will accommodate an at-grade crossing and that a median pedestrian refuge will be installed for Phase I".

The condition 1(b) mandate for an "above or below ground pedestrian crossing", and this recommendation of an "at grade" crossing instead created a controversy as to the legal significance of condition 1(b). The County sought clarification on February 1, 2019 and passed Resolution No. 19-20 "REQUESTING THE LAND USE COMMISSION TO ISSUE A DECLARATORY RULING REITERATING AND AFFIRMING THE REQUIREMENT FOR A PEDESTRIAN OVERPASS OR UNDERPASS TO ALLOW SAFE ACCESS TO KIHEI HIGH SCHOOL".

Mr. Kolbe referenced LUC Docket No. A11-794, July 29, 2018 *Decision and Order* and described how Petitioner was to complete a pedestrian route study and analysis prior to executing a contract for Phase I of the Project; and how Petitioner shall cause to be constructed, or ensure that there is an available above or below ground pedestrian crossing and implement such

mitigation or improvements as may be required or recommended by the study and analysis to the satisfaction of DOT prior to opening Phase I of the Project. Mr. Kolbe also described how County had relied on DOE's representations and had approved the proposed Change in Zoning and Community Plan amendment for the project via ordinances 4134 and 4135.

In its discussion and deliberations on the Petition, the Commission confirmed the terms and conditions of the original decision and order. It was first noted that the DOE was no longer debating the issue and, by its actions, appears to agree with the County of Maui's interpretation of the condition and does not object to its interpretation. The Commission confirmed that at the time of hearing the original D&O, the LUC clearly intended the condition to be mandatory. A plain reading of the text supports such a conclusion.

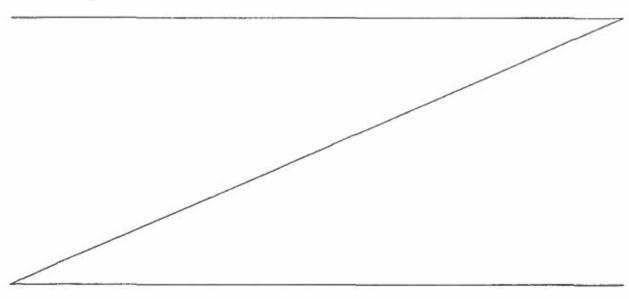
During its discussions on the matter, the LUC Commissioners noted that condition 1(b) had a "clear and unambiguous meaning" and was intended to protect the lives of the precious members of the community. The clause had in effect two parts. One was the requirement of an above or below ground crossing. The second was that part of the condition subsequent to the word "and". The sentence structure would indicate the original D&O intended that in addition to the grade separated crossing, any additional requirements of DOT were also to be met.

The Commission noted that the safety concerns voiced by the community were genuine and concluded the plain language of the condition in the decision and order was specific that either an overpass or underpass was required prior to the opening of Phase I. The Commission also affirmed the intent of condition 1(b) and urged the community to continue to advocate for safe access to the high school and for funding from the legislature to provide for whatever type of overpass/underpass infrastructure was decided upon.

Thereafter, a motion was made and seconded to GRANT the Petition pursuant to Section 15-15-100(a)(2), HAR. Following discussion by the Commissioners, a vote was taken on this motion. There being a vote tally of 8 ayes and 0 nays, the motion carried.

<u>ORDER</u>

Having duly considered the Petition and the written and oral arguments presented by County, the pleadings filed by OP, as well as public comments received, and a motion having been made at a meeting conducted on April 3, 2019, in Kahului, Maui, Hawai'i, and the motion having received the affirmative votes required by Section 15-15-13, HAR, and there being good cause for the motion, this Commission ORDERS that the Petition be GRANTED and it is declared that under the particular facts of this case, that Condition 1(b) of the Decision and Order of July 29, 2013, Docket No. A11-794 DOE Kihei High School requires that a pedestrian overpass or underpass be constructed before the opening of the first phase of the new high school in Kihei and that construction of the overpass or underpass was a mandatory requirement and was not optional. In addition, the DOE is required to get approval from DOT of its Pedestrian and Traffic plans.



ADOPTION OF ORDER

This ORDER shall take effect upon the date this ORDER is certified by this Commission.

Done at Kahului, Maui, Hawai'i, this __25th ____, day of _April, 2019, per motion on

April 3, 2019.

LAND USE COMMISSION

APPROVED AS TO FORM

STATE OF HAWAI'I

Randow S. Alshiyama

Deputy Attorney General

By

JONATHAN SCHEUER

Chairperson and Commissioner

Filed and effective on:

04/25/2019

Certified by:

DANIEL ORODENKER

Executive Officer



CARDIES CHAME THE

2019 APR 25 A 7:41

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of

DEPARTMENT OF PLANNING, COUNTY OF MAUI.

To issue a declaratory order that Condition 1 (b) of the State of Hawaii Land Use Commission's Decision and Order filed July 29, 2013, in Docket No. A11-794, granting the Land Use District Boundary Amendment for 77.182 acres identified for real property tax purposes as tax map(2) 2-2-002:081, Kihei, Maui, Hawaii, requires an available above or below ground pedestrian crossing.

DOCKET NO. DR 19-65
ORDER GRANTING PETITIONER
DEPARTMENT OF PLANNING,
COUNTY OF MAUI'S PETITION FOR
DECLARATORY ORDER;
AND CERTIFICATE OF
SERVICE

ORDER GRANTING PETITION FOR DECLARATORY ORDER AND

CERTIFICATE OF SERVICE

THIS IS TO CERTIFY THAT THIS IS A TRUE AND CORRECT COPY OF THE DOCUMENT ON FILE IN THE OFFICE OF THE STATE LAND USE COMMISSION, HONOLULU, HAWAI'I.

Date 04/25/2019

DANIEL ORODENKER

Executive Officer



LARD HE COMPOSITORS

2019 APR 25 A 7:41

OF THE STATE OF HAWAI'I

In the Matter of the Petition of

DEPARTMENT OF PLANNING, COUNTY OF MAUI,

To issue a declaratory order that Condition 1 (b) of the State of Hawaii Land Use Commission's Decision and Order filed July 29, 2013, in Docket No. A11-794, granting the Land Use District Boundary Amendment for 77.182 acres identified for real property tax purposes as tax map(2) 2-2-002:081, Kihei, Maui, Hawaii, requires an available above or below ground pedestrian crossing.

DOCKET NO. DR 19-65 CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that an <u>ORDER GRANTING PETITION FOR DECLARATORY ORDER</u> was served upon the following by either hand delivery or depositing the same in the U.S. Postal Service by regular or certified mail as noted:

DEL.:

MARY ALICE EVANS, Director

State Office of Planning

P. O. Box 2359

Honolulu, Hawai'i 96804-2359

REGULAR

DAWN TAKEUCHI-APUNA, Esq.

MAIL:

Deputy Attorney General

425 Queen Street

Honolulu, Hawai'i 96813

Attorney for State Office of Planning

CERT.

DEPARTMENT OF EDUCATION

MAIL:

STATE OF HAWAII Ryan W. Roylo #6329 Holly T. Shikada 4017 Deputy Attorney General

235 S. Beretania Street, Room 304

Honolulu, HI 96813

CERT. MAIL: THOMAS KOLBE, Esq. Deputy Corporation Counsel

County of Maui 250 South High Street Wailuku, HI 96793

REGULAR

MAIL:

Michele McClean Director of Planning

Department of Planning

County of Maui

250 South High Street Wailuku, Hawaii 96793

Dated: Honolulu, Hawai'i, _

04/25/2019

DANIEL ORODENKER

Executive Officer

Draft

TRAFFIC EVALUATION

Kihei High School Intersection

Kihei, Maui, HAWAII

June 2020



TRAFFIC EVALUATION

Kihei High School Intersection

Kihei, Maui, Hawaii

June 2020

Prepared For:
State of Hawaii
Department of Transportation
Highways Division, Planning Branch
869 Punchbowl Street, Room 301
Honolulu, HI 96813

Prepared By:
WSP USA
American Savings Bank Tower
1001 Bishop Street Suite 2400
Honolulu, HI 96813
(808) 531-7094

Draft

Project Description

HDOT is proposing to install a roundabout at the future Kihei High School access at the Piilani Highway/Kulanihakoi Street intersection. The intersection is currently an unsignalized tee-intersection with stop control at Kulanihakoi Street approach which is located on the west leg of the intersection. Kulanihakoi Street is an east-west collector roadway that provides access to single- and multi-family residential.

The roundabout will be a 2-lane roundabout. At-grade pedestrian crossing will be provided at the south Piilani Highway leg of the roundabout along with the Kulanihakoi Street and Kihei High School driveway approaches. Pedestrian and bicycle crossings will occur at these crosswalks. Two lanes will be provided at all approaches. Right turn bypass lanes are being considered for the Piilani Highway approaches and the eastbound Kulanihakoi Street approaches. The roundabout will be able to accommodate WB-67 design vehicles.

Project Purpose

The purpose of the project is to provide traffic control at the entrance to the Kihei High School access and traffic calming measures at the roundabout by slowing down motorists while improving pedestrian and bicycle safety at this intersection. The posted speed limit along Piilani Highway is 40 miles per hour. The installation of the roundabout will help to lower vehicle speed on Piilani Highway. The slower speeds and horizontal deflection at the roundabout will enhance pedestrian/bicycle safety at conflict points with vehicles. The atgrade pedestrian crossing will replace the previously-proposed grade-separated pedestrian crossing which will be underutilized.

Draft

Traffic Analysis Results

The Piilani Highway/Kulanihakoi Street intersection was analyzed with the two-lane roundabout configuration for two analysis years:

- 2021 Kihei High School's initial opening year with 800 student enrollment
- 2031 Enrollment of 1650 students

Two roundabout configurations were examined:

- 2-lane roundabout with 2-lane approaches and no bypass lanes and with at-grade pedestrian crossings; and
- Optimized 2-lane roundabout with 2-lane approaches and bypass lanes at the Piilani
 Highway approaches and the eastbound Kulanihakoi Street approaches and with atgrade pedestrian crossings.

HCM 6 methodologies were used in SIDRA 9. At opening in 2021, the 2-lane approach roundabout is projected to operate at LOS E/D during the AM and PM peaks, respectively, with LOS F conditions at the Kulanihakoi Street approach without bypass lanes. The optimized roundabout is projected to operate at LOS C overall during both peaks. In 2031, the roundabout is projected to operate at LOS F during both peaks, with or without bypass lanes. It should be noted that while both roundabout configurations result in LOS F conditions, the bypass lanes help to lower anticipated delays.

Conclusions

The two-lane approach roundabout minimizes right-of-way needs with lower construction costs and minimizes pedestrian crossings distances at the cost of higher delay. The optimized alternative with bypasses requires additional right-of-way on the east side of Piilani Highway, has a larger footprint, and would require a longer stretch of Piilani Highway to be shifted east but would provide lower traffic delays. Pedestrians would have longer crossing distances and bypass lane motorists would have higher operating speeds.

Summary Table, Delay/LOS, Year 2021 HCM6

Piilani Hwy/Kulanihakoi St	Piilani Hw	Pillani Hwy - South	Kihei H	Kihei HS Drwy	Piilani Hwy - North	y - North	Kulanihakoi St	akoi St	Overall	rall
	Delay	SO1	Delay	ros	Delay	ros	Delay	LOS	Delay	ros
Year 2021 - Single Lane - AM	19.8	٥	17.2	C	31.8	O	6'601	F	57.2	F
Year 2021 - Single Lane - PM	28.6	Q	56.6	Q	26.3	D	166.9	F	35.2	ш
Year 2021 - Two Lane - AM	22.5	C	15.3	C	31.8	D	142.0	J. F.	36.6	Ш
Year 2021 - Two Lane - PM	29.2	٥	24.2	C	26.3	D	78.4	E	30.5	۵
Year 2021 - Two Lane w/ West Bypasses - AM	22.5	C	15.3	2	28.1	٥	18.2	U	24.8	U
Year 2021 - Two Lane w/ West Bypasses - PM	29.2	Q	24.2	C	20.8	C	9.5	٧	24.1	U
Year 2021 - Two Lane w/ East Bypasses - AM	16.4	_ c	12.6	В	31.8	٥	142.0	F	34.2	۵
Year 2021 - Two Lane w/ East Bypasses - PM	26.9	O	19.3	C	26.3	0	78.4	F	29.4	۵
Year 2021 - Two Lane Optimized - AM	16.4	C	15.3	C	28.1	۵	18.2	U	22.4	U
Year 2021 - Two Lane Optimized - PM	26.9	O	24.2	С	20.8	C	9.5	A	23.1	υ

Notes: 1) Model results from SYDRA with HCM 6 Delay, v/c, and LOS method

HCM 6 Unsignalized intersection delays for LOS.

3) All options have two approach lanes on Pillani Highway and two circulating lanes in roundabout.

4) Single Lane is one combined approach lane on Kulanihakoi St and Kihei HS approaches.

5) Two Lane is two approaches, one for left turn and through, and second for right-turns.

6) Two lane with west bypass has right-turn lanes with bypass on to neighborhood.

7) Two lane with east bypass has right-turn lanes with bypass to the highschool.

8) Two lane optimized, has right-turn bypasses to neighborhood and northbound right-turn to highschool.

Summary Table, Delay/LOS, Year 2031 HCM6

Pillani Hwy/Kulanihakoi St	Pillani Hw	Pillani Hwy - South	Kihei HS Drwy	S Drwy	Pillani Hwy - North	y - North	Kulanihakoi St	akoi St	Overall	Ila
	Delay	ros	Delay	LOS	Delay	ros	Delay	LOS	Defay	SOT
Year 2031 - Single Lane - AM	86.9	F	39.2		118.8	9	671.8	THE REAL PROPERTY.	148.2	THE RE
Year 2031 - Single Lane - PM	93.3	3	46.9	E	75.6	1 8	270.0		92.7	3
Year 2031 - Two Lane - AM	116,5		22.2	C	1.17.1	F	236,9	A F	122.5	F
Year 2031 - Two Lane - PM	100.7	1 1 1	32.8	D	75.2	F	120.8		88.4	1
Year 2031 - Two Lane w/ West Bypasses - AM	125.6	5	22.0	C	105.9	F	47.3	E	108.1	F
Year 2031 - Two Lane w/ West Bypasses - PM	101.2	F	32.7	D	54.7	F	13.2	8	73.9	F
Year 2031 - Two Lane w/ East Bypasses - AM	50.1	F	29.4	٥	121.9		228.4	F	98.4	100
Year 2031 - Two Lane w/ East Bypasses - PM	87.1	F	29.3	D	15.9	F	119.9	S. H. S.	82,2	4
Year 2031 - Two Lane Optimized - AM	54.7	F	33.4	۵	110.3	F	45.5	E	79.8	F
Year 2031 - Two Lane Optimized - PM	87.5	F	35.4	Waste (1988)	55.2	F	13.2	8	67.8	F

Notes: 1) Model results from SYDRA with HCM 6 Delay, v/c, and LOS method

2) HCM 6 Unsignalized intersection delays for LOS.

3) All options have two approach lanes on Pillani Highway and two circulating lanes in roundabout.

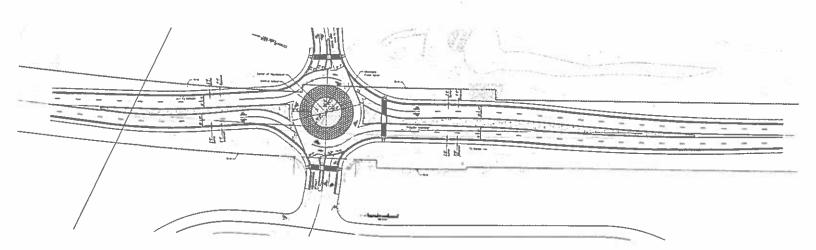
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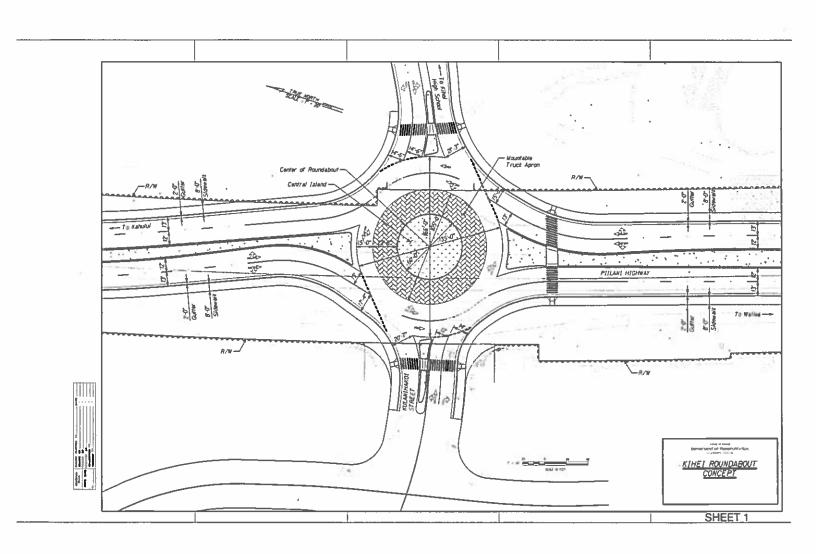
5) Two Lane is two approaches, one for left turn and through, and second for right-turns.

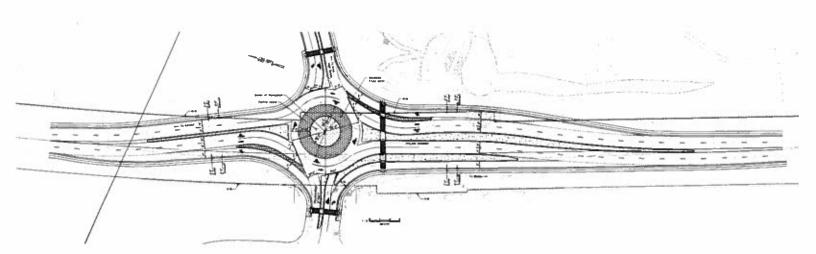
6) Two lane with west bypass has right-turn lanes with bypass on to neighborhood.

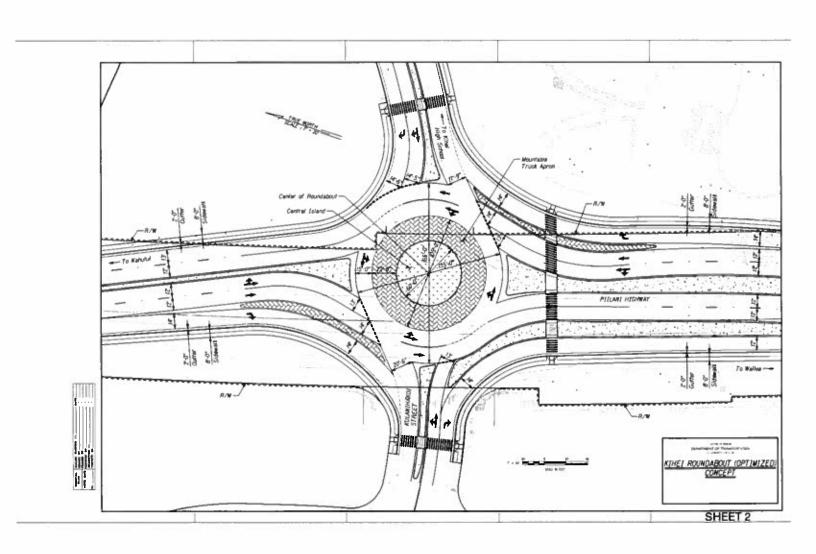
7) Two lane with east bypass has right-turn lanes with bypass to the highschool.

8) Two lane optimized, has right-turn bypasses to neighborhood and northbound right-turn to highschool.









Summary Table, Delay/LOS, Year 2031 SIDRA

Pillani Hwy/Kulanihakoi St	Piitani Hw	Pillani Hwy - South	Kihei HS Drwy	S Drwy	Piilani Hwy - North	y - North	Kulanihakoi St	akoi St	Overall	rail
	Delay	105	Delay	LOS	Delay	105	Delay	LOS	Delay	SOI
Year 2031 - Single Lane - AM	9:65	3	31.2	С	1.68	E F	589.0	F	113.6	F
Year 2031 - Single Lane - PM	63.1	3	29.6	С	42.1	D	231.9	F	60.9	Ш
Year 2031 - Two Lane - AM	88.9	SUPEL	16.1	B	5'98	F F	68.4	Ε	82.8	4
Year 2031 - Two Lane - PM	70.3	F	19.0	В	41.8	0	32.4	C	54.2	3
Year 2031 - Two Lane w/ West Bypasses - AM	94.3	F	15.9	B	18.6	8	39.6	D	49.8	Q
Year 2031 - Two Lane w/ West Bypasses - PM	71.2	F	19.0	В	7.1	A	15.1	В	37.7	Q
Year 2031 - Two Lane w/ East Bypasses - AM	8.7	٧	13.7	В	89.0	Con Fred	66.1	E	52.3	ш
Year 2031 - Two Lane w/ East Bypasses - PM	6.0	٧	19.9	В	45.1	D	31.4	U	25.6	U
Year 2031 - Two Lane Optimized - AM	9.5	¥	15.0	B	19.8	В	40.0	۵	17.1	60
Year 2031 - Two Lane Optimized - PM	6.1	A	21.9	С	7.6	A	15.2	В	7.6	V
							L = 44.			

Notes: 1) Model results from SIDRA Standard with SIDRA Delay and LOS method

2) SIDRA Roundabout LOS delays for roundabout LOS.

3) All options have two approach lanes on Pillani Highway and two circulating lanes in roundabout.

4) Single Lane is one combined approach lane on Kulanihakoi St and Kihei HS approaches.

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

JADE T, BUTAY DIRECTOR

Deputy Director LYNN A.S. ARAKI-REGAN DEREK J. CHOW ROSS M. HIGASHI EDWIN H. SNIFFEN

IN REPLY REFER TO: HWY-P 2.3739

August 5, 2020

TO:

RANDALL TANAKA

ASSISTANT SUPERINTENDENT

OFFICE OF FACILITIES AND OPERATION

DEPARTMENT OF EDUCATION

FROM:

EDWIN H. SNIFFEN

DEPUTY DIRECTOR, HIGHWAYS DIVISION

SUBJECT:

LAND USE COMMISSION MOTION

KIHEI HIGH SCHOOL, NEW SCHOOL

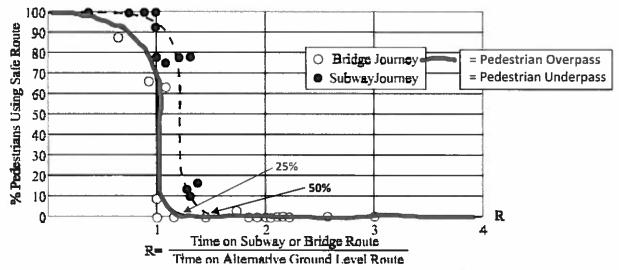
For the upcoming Land Use Commission meeting on the Kihei High School motion to amend in August of this year, the Hawaii Department of Transportation (HDOT) provides the attached justification. The attachment has been developed by HDOT Highways Division licensed engineers, Ken Tatsuguchi the Engineering Program Manager for the Planning Branch, Bryan Kimura the Engineering Program Manager for the Traffic Branch and Robin Shishido the Maui District Engineer.

If you have any questions, please contact me at (808) 587-2156 or by email at edwin.h.sniffen@hawaii.gov.

Attachment

Justification for a Roundabout on Pillani Highway for Kihei High School

- 1. Hawaii Department of Transportation (HDOT) does not recommend building an overpass because HDOT has concluded that no one is likely to use the overpass. HDOT determination is based on a FHWA sponsored study (FHWA/TX-01/2136-2) conducted by the Texas Transportation Institute, which found that virtually no one will use a pedestrian overpass if it takes 25% longer to cross compared to crossing at grade. See the graph below. Using an overpass at this location will take 130% longer with stairs and 510% longer with ramps. Pedestrians prefer to limit walking distance and will often take usual short cuts to save even a few steps and seconds of time. Because it will take significantly longer to cross using the overpass compared to at-grade, pedestrians avoiding the overpass will attempt to dangerously cross the traffic--a condition that should be avoided.
- 2. HDOT does not recommend building an underpass. In particular, use of Kulanihakoi Gulch for an underpass presents security issues as well as concerns for pedestrian safety in the event of a storm.

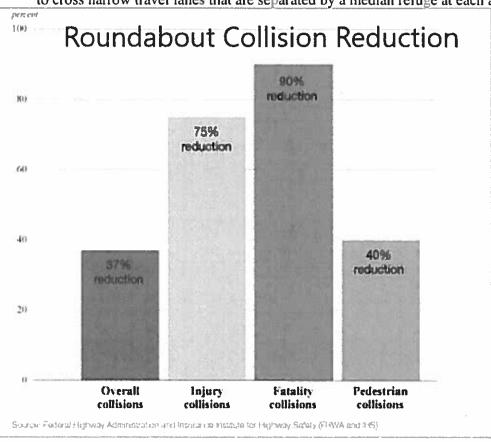


FHWA/Texas Transportation Institute Study #FHWA/TX-01/2136-2
Pedestrian Use of Grade-Separated Crossings

3. HDOT recommends a roundabout be developed instead. The roundabout at-grade pedestrian crossing is about a 130 feet distance, and the grade-separated overpass pedestrian crossing is about a 235 feet distance and a 760 feet distance for the stairway and ramp crossings, respectively.

Between a signalized intersection and roundabout, HDOT recommends a roundabout because it is substantially safer than a signalized intersection. According to the American Association of State Highway Transportation Officials (AASHTO) Highway Safety Manual roundabouts reduce the types of crashes where people are seriously hurt or killed

by 78-82% when compared to conventional stop-controlled and signalized intersections. Federal Highway Administration and Insurance Institute for Highway Safety studies show that properly designed roundabouts result in a 37% reduction in overall collisions, a 40% reduction in pedestrian collisions, and a 90% reduction in fatalities over more traditional signalized and stop-controlled intersections. See the chart below. In addition to lowering vehicle speeds, roundabouts make intersections safer for pedestrians of all ages by minimizing conflicts, eliminating crashes caused by drivers disregarding traffic signals and stop signs, and minimizing pedestrian exposure to traffic by enabling people to cross narrow travel lanes that are separated by a median refuge at each approach.



- 4. HDOT does not recommend the use of Kulanihakoa Gulch Bridge or Waipulani Gulch Bridge as an underpass since the purpose of the gulch is to pass hydraulic flows, and not as a pedestrian crossing. In the case of heavy rains, the gulches will be passing water which will cause for a hazardous and unsafe condition for pedestrians using either of these bridges as an underpass crossing. Furthermore, if the travel time using the underpass crossing takes 50% longer than the time to cross at-grade, no pedestrians will use the underpass. Kualanihakoi Gulch Bridge and Waipuilani Gulch Bridge are 1,000 feet and 1,200 feet from the proposed Kihei High School entrance, respectively. The at-grade pedestrian roundabout crossing is about 130 feet.
- 5. HDOT is presently taking action to improve traffic safety on Pillani Highway. At the Pillani Highway/Uwapo Road and Pillani Highway/Ohukai Road intersections, HDOT is

adjusting the signal timing coordination to slow down traffic. At Piilani Highway/Moi Place, the only uncontrolled crosswalk on Piilani Highway, HDOT is adding signing, striping, and lighting improvements to improve pedestrian safety. The proposed roundabout will provide additional traffic slowing and calming measures in the corridor to improve safety.

- 6. The roundabout and the intersection will operate about the same vehicular levels during the AM and PM peak hours. However, during non-peak hours the roundabout is expected to work less efficiently by adding minimal travel time due to slowing down to go through the roundabout versus going through the green phase of a traffic signal. However, HDOT believes the benefit trade-off towards pedestrian safety than vehicular travel time is a higher priority.
- 7. Building a school on the mauka side, which was previously unoccupied, changes the traffic conditions by adding vehicle turning trips and pedestrian crossings that did not occur previously. The proposed roundabout and pedestrian crossing safety measures will substantially minimize the traffic impacts of this land use change.

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of

DEPARTMENT OF EDUCATION, STATE OF HAWAII,

To Amend the Agricultural Land Use District Boundaries into the Urban Land Use District for Approximately 77.2 acres of land at Kihei, Maui, Hawai'i, Maui Tax Map Key Nos. 2-2-02: 81 and 83. **DOCKET NO. A11-794**

VERIFICATION OF RANDALL M. TANAKA

VERIFICATION

STATE OF HAWAI'I)	
)	SS
CITY AND COUNTY OF HONOLULU)	

RANDALL M. TANAKA, being first duly sworn upon oath, deposes and says that:

- 1. I am an Assistant Superintendent of the State of Hawai'i Department of Education.
- 2. I have read the Motion to Amend or Clarify the Findings of Fact, Conclusions of Law and Decision and Order Dated July 29, 2013, am familiar with its contents, and state that it is true to the best of my knowledge, information and belief.
- 3. I have personal knowledge of the matters set forth in the foregoing motion and am qualified and competent to make this verification.

4. This verification is made pursuant to section 15-15-39 of the Hawaii Administrative
Rules.
Further affiant sayeth naught.
Randall M. Tanaka
Subscribed and sworn to before me this 20 Miday of August, 2020. Notary Public, State of Hawai'i C. Kajiwara Printed Name of Notary My commission expires: 04/03/2023
Document Date: wordstad No. of Pages: 2 Notary Name: Kajiwara, FIRST Circuit (Printed) Document Description: Vuilication of Landal M. Landka
Notary Signature Date No. 84-111 No. 84-111

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of

DOCKET NO. A11-794

DEPARTMENT OF EDUCATION, STATE OF HAWAII,

To Amend the Agricultural Land Use District Boundaries into the Urban Land Use District for Approximately 77.2 acres of land at Kihei, Maui, Hawai'i, Maui Tax Map Key Nos. 2-2-02: 81 and 83. DECLARATION OF STUART N. FUJIOKA

DECLARATION OF STUART N. FUJIOKA

Stuart N. Fujioka, an attorney duly licensed in this jurisdiction, hereby declares that the following is true and based on personal knowledge.

- 1. I am a Deputy Attorney General for the State of Hawai'i and am authorized to make this declaration on behalf of the State of Hawai'i Department of Education (HIDOE).
- The document attached as Exhibit I consists of true copies of selected pages from
 Findings of Fact, Conclusions of Law and Decision and Order filed in this matter on
 July 29, 2013.
- 3. The document attached as Exhibit 2 consists of true copies of selected pages from the report of the Walkable and Livable Communities Institute (WALC) report entitled "Safe Routes to Kihei High School: Pedestrian Route Study," Kihei, Maui 2014.

- 4. Exhibit 3 is a true copy of a letter from the Department of Transportation (HDOT) to HIDOE dated October 1, 2015.
- Exhibit 4 is a true copy of the Kihei High School Grade Separated Pedestrian
 Crossing Feasibility Study dated October 25, 2016.
- 6. Exhibit 5 is a true copy of a letter from HDOT to HIDOE dated July 18, 2017.
- 7. Exhibit 6 is a true copy of Maui County Council Resolution No. 19-20 which was adopted on February 1, 2019.
- 8. Exhibit 7 is a true copy of the Commission's Order Granting Petitioner Department of Planning, County of Maui's Petition for Declaratory Order filed on April 25, 2019 in Docket No. 19-65.
- Exhibit 8 is a true copy of the Traffic Evaluation for the Kihei High School
 Intersection prepared by WSP USA in June of 2020 at the request of HDOT.
- Exhibit nine is a true copy of the analysis of the justification for a roundabout on
 Piilani Highway for Kihei High School which was prepared by HDOT on or about
 July 15, 2020.

Dated: Honolulu, Hawai'i, August 20, 2020.

Stuart N. Fujioka

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of Petition of

DEPARTMENT OF EDUCATION, STATE OF HAWAI'I,

To Amend the Agricultural Land Use District Boundaries into the Urban Land Use District for Approximately 77.2 acres of land at Kihei, Maui, Hawai'i, Maui Tax Map Key Nos. 2-2-02: 81 and 83. DOCKET NO. A11-794

CERTIFICATE OF SERVICE RE:
PETITIONER DEPARTMENT OF
EDUCATION, STATE OF HAWAII'S
MOTION TO AMEND THE FINDINGS OF
FACT, CONCLUSIONS OF LAW AND
DECISION AND ORDER FILED JULY 29,
2013

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT a copy of PETITIONER DEPARTMENT OF EDUCATION, STATE OF HAWAII'S MOTION TO AMEND THE FINDINGS OF FACT, CONCLUSIONS OF LAW AND DECISION AND ORDER FILED JULY 29, 2013 was duly served via U.S. mail upon the following at:

Patrick W. Wong, Esq.,
Acting Corporation Counsel
Thomas Kolbe, Esq.
Michael K. Hopper, Esq.
Deputies Corporation Counsel
County of Maui
200 South High Street
Wailuku, Maui, Hawai'i 96793

Attorneys for Respondent DEPARTMENT OF PLANNING, COUNTY OF MAUI

DATED: Honolulu, Hawai'i, August 20, 2020.

STUART N. FUJIOKA RYAN W. ROYLO MELISSA J. KOLONIE HOLLY T. SHIKADA Deputy Attorneys General

Attorneys for Petitioner
DEPARTMENT OF EDUCATION,
STATE OF HAWAI'I

Docket No. A11-794; In the Matter of the Petition of Department of Education, State of Hawai'i, before the Land Use Commission of the State of Hawai'i; PETITIONER DEPARTMENT OF EDUCATION, STATE OF HAWAII'S MOTION TO AMEND THE LAND USE COMMISSION'S FINDINGS OF FACT, CONCLUSIONS OF LAW AND DECISION AND ORDER FILED JULY 29, 2013; MEMORANDUM IN SUPPORT OF MOTION; EXHIBITS "I"-"9"; VERIFICATION OF RANDALL M. TANAKA; DECLARATION OF STUART N. FUJIOKA; CERTIFICATE OF SERVICE