

DAVID Y. IGE
GOVERNOR



JADE T. BUTAY
DIRECTOR


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

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

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.

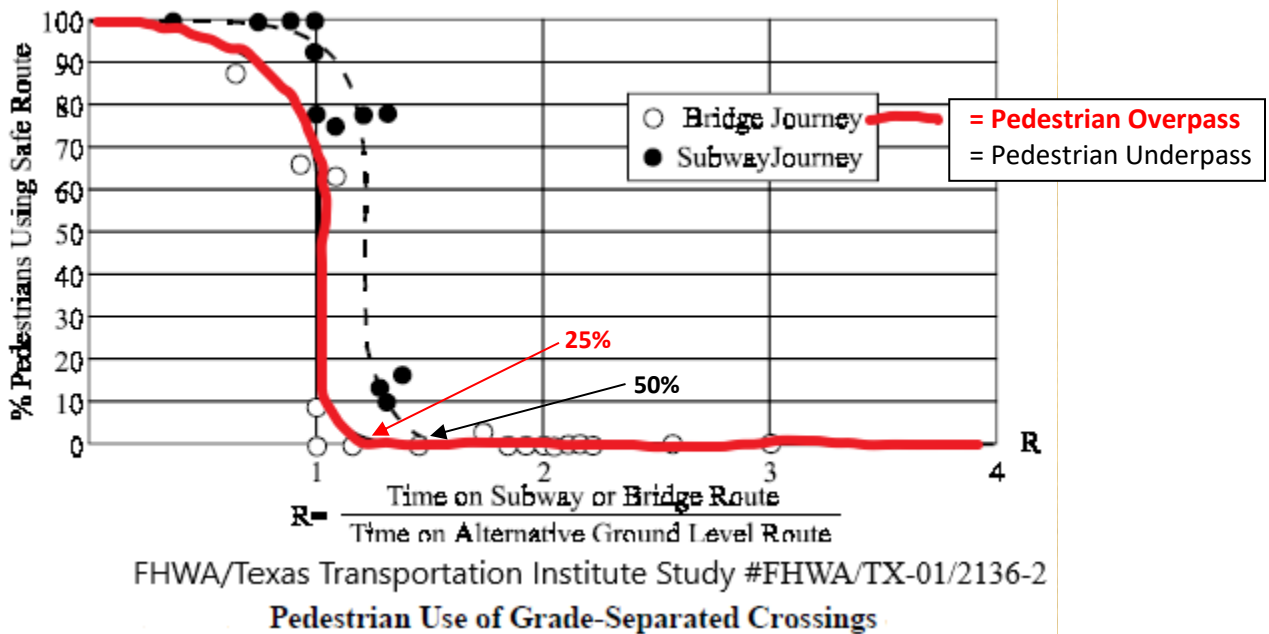
If you have any questions, please contact me at (808) 587-2156 or by email at edwin.h.sniffen@hawaii.gov.

Attachment

EXHIBIT 12

Justification for a Roundabout on Piilani Highway for Kihei High School

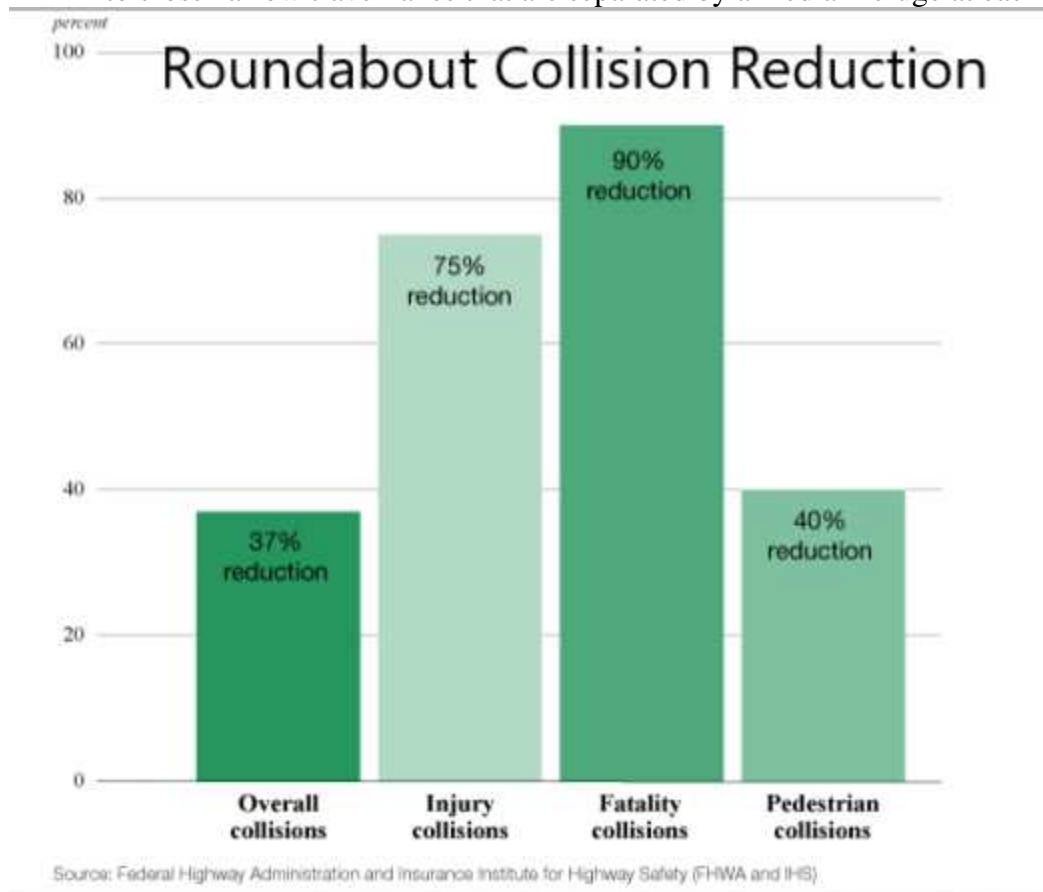
1. Hawaii Department of Transportation (HDOT) does not recommend building an overpass because HDOT has concluded that no one is likely to use the overpass. HDOT determination is based on a FHWA sponsored study (FHWA/TX-01/2136-2) conducted by the Texas Transportation Institute, which found that virtually 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.



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 Kulanihakoia 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. Kualanihakoia Gulch Bridge and Waipulani 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 Piilani Highway. At the Piilani Highway/Uwapo Road and Piilani 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.