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## A BILL FOR AN ACT

MAKING AN APPROPRIATION FOR A HIGH OCCUPANCY AND TOLL REVERSIBLE EXPRESSWAY ON OAHU.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. (a) The legislature finds that the only  
2 effective solution to Oahu's traffic congestion on the leeward  
3 corridor is a two- or three-lane reversible high occupancy and  
4 toll expressway with several ramps, a handful of in-town  
5 underpasses, and a bus rapid transit system. According to Dr.  
6 Panos D. Prevedouros, professor of transportation engineering in  
7 the department of civil and environmental engineering of the  
8 University of Hawaii at Manoa, the bus rapid transit system,  
9 running along King and Beretania Streets, will connect to the  
10 high occupancy and toll expressway at the Hotel Street transit  
11 mall. This integrated high occupancy and toll and bus rapid  
12 transit system will provide flexibility to handle variable  
13 surges of traffic due to commuting flows, special events, or  
14 emergencies.

15           High occupancy and toll expressways are primarily express  
16 high-occupancy-vehicle and public transit highways with the  
17 ability to move traffic along quickly at sixty miles per hour.



1 As a result, buses can travel fifteen miles in about fifteen  
2 minutes. For example, it would take about only twenty minutes  
3 to travel from the Waikele shopping center to Aloha Tower or the  
4 Hotel Street transit mall at the height of the morning rush  
5 hour. No other mass transit facility can provide such speed and  
6 efficiency sufficient to persuade drivers to commute via the  
7 express bus. On high occupancy and toll expressways, all buses  
8 and vanpools would travel free of charge at all times.

9 A two- or three-lane reversible high occupancy and toll  
10 expressway can serve several thousand vehicles per hour. For  
11 example, a two-lane facility can serve about three thousand  
12 buses per hour. Of course, Oahu does not have anywhere near  
13 three thousand buses and vanpools to use the expressway each  
14 hour. Thus, the facility will have a large amount of capacity  
15 to serve low occupancy vehicles. However, too many low  
16 occupancy vehicles using the expressway would jam the facility  
17 and greatly reduce travel speeds. The solution is to charge  
18 variable tolls for low occupancy vehicles, for example, starting  
19 at \$1 and increasing to about \$3.50 at the height of peak travel  
20 hours. These tolls will control the number of vehicles entering  
21 the high occupancy and toll expressway and help maintain overall  
22 service at sixty miles per hour. A three-lane high occupancy



1 and toll expressway can accommodate over four thousand low  
2 occupancy vehicles per hour together with city buses, tour  
3 buses, and vanpool vehicles at the same time. Furthermore,  
4 vehicles opting to use the high occupancy and toll expressway  
5 will free up space for those vehicles choosing to remain on the  
6 H-1 Freeway, thus creating a ten- to fifteen-minute savings for  
7 the latter in peak hour travel time for free.

8       Seen from another perspective, these tolls would enable the  
9 government or other project operator to sell unused expressway  
10 space to low occupancy vehicles, generating a cash flow to pay  
11 for the facility. This feature renders toll expressways  
12 appealing to private investors because they offer a reasonable  
13 return for their upfront investment in construction costs by  
14 generating a steady stream of income. Tolls collected on all-  
15 public high occupancy and toll expressways are also used to  
16 retire some of the bond debt and support express bus operations,  
17 such as in San Diego.

18       High occupancy and toll expressway lanes also offer a form  
19 of traffic congestion insurance. Studies have shown that  
20 travelers from all income groups and professions value having a  
21 fast and reliable travel option for those times when they most  
22 need it.



1 (b) The key to the success of a reversible high occupancy  
2 and toll expressway for the leeward corridor is to design the  
3 on- and off-ramps properly. Ten ramps will serve as on-ramps in  
4 the morning and become off-ramps in the afternoon as follows:

5 (1) Four ramps to provide access to the high occupancy and  
6 toll lanes from the H-1 and H-2 Freeways and  
7 Farrington and Kamehameha Highways;

8 (2) A ramp to what, in Dr. Prevedouros' report, is  
9 referred to as the "Aiea and Hekaha business area";

10 (3) A ramp near Pearl Harbor to serve the heavy  
11 concentration of employment in the area;

12 (4) A ramp into Aloha Stadium to serve events and use the  
13 mostly empty parking lot as a park-and-ride facility  
14 for express buses. This ramp may also combine a  
15 connection to the H-3 Freeway;

16 (5) A ramp onto Lagoon Drive to serve the airport and the  
17 Mapunapuna area;

18 (6) A ramp onto Waiakamilo Road to serve Kalihi; and

19 (7) A ramp onto Nimitz Highway, at the point where it  
20 widens to four lanes, to serve Honolulu's center and  
21 points beyond.



1 In addition, there will be a city bus-only ramp to and from the  
2 Hotel Street transit mall.

3 (c) The reversible high occupancy and toll expressway can  
4 be configured to work in four different ways, depending on  
5 traffic loads and traffic management needs as follows:

6 (1) Full inbound, from Waikele to downtown Honolulu,  
7 during the typical weekday morning travel period;

8 (2) Full outbound, from downtown Honolulu to Waikele,  
9 during the typical weekday afternoon travel period;

10 (3) Split inbound, from Waikele and downtown Honolulu to  
11 Aloha Stadium and the H-3 Freeway, before the start of  
12 a major event at Aloha Stadium and during most  
13 weekends. This configuration will also facilitate  
14 traffic to windward Oahu in case of a major problem on  
15 the Likelike or Pali Highways, or other emergency; and

16 (4) Split outbound, from Aloha Stadium and the H-3 Freeway  
17 to Waikele and downtown Honolulu, at the end of a  
18 major event at Aloha Stadium. This configuration will  
19 help relieve traffic congestion in the adjacent  
20 neighborhoods by half.

21 (d) Part of the proposed reversible high occupancy and  
22 toll expressway system is an in-town bus rapid transit system



1 that will run on priority lanes along King and Beretania  
2 Streets. The proposed routing connects the University of Hawaii  
3 at Manoa and downtown Honolulu more efficiently. For example,  
4 instead of a 4.1 mile route through twenty-four traffic signals  
5 from the University to Tamarind Square via Kapiolani Boulevard,  
6 the King/Beretania route will be twenty per cent faster (about  
7 twenty minutes) along a 3.4 mile route through nineteen traffic  
8 signals. Not only will the proposed bus rapid transit route be  
9 faster, but it will be able to provide the same frequency of  
10 service with six instead of seven buses, a not insignificant  
11 cost savings.

12 The high occupancy and toll expressway-Hotel Street transit  
13 mall-bus rapid transit integrated system can provide a largely  
14 congestion-free Waikele-University-Waikiki path on express buses  
15 at a small fraction of the cost for a similar fixed rail  
16 corridor. It can provide a Kapolei-University connection in  
17 forty-five minutes, a full thirty minutes faster than that  
18 stated in Honolulu's alternative analysis for a fixed rail  
19 system. Furthermore, traffic congestion in town can be reduced  
20 by at least thirty per cent by:

- 21 (1) Optimizing traffic signal operations;



1 (2) Eliminating several left turns that are accident-prone  
2 and that sap intersection capacity; and

3 (3) Constructing a few key underpasses to decongest  
4 "maxed-out" or gridlocked intersections.

5 (e) High occupancy and toll lanes are at the forefront of  
6 national policy for resolving traffic congestion and have been  
7 constructed in Los Angeles, San Diego, and Washington, D.C. San  
8 Francisco is advocating an extensive high occupancy and toll  
9 network. Houston plans to expand its existing high occupancy  
10 and toll lanes. Miami-Dade plans to convert existing high  
11 occupancy vehicle lanes to reversible high occupancy and toll  
12 lanes to provide additional capacity.

13 (f) The purpose of this Act is to require the department  
14 of transportation to perform preparatory work to construct and  
15 implement a reversible high occupancy and toll expressway in the  
16 leeward corridor.

17 SECTION 2. (a) The department of transportation shall  
18 prepare plans, designs, and estimate of costs to construct all  
19 phases of a reversible high occupancy and toll expressway in the  
20 leeward corridor with an integrated bus rapid transit system,  
21 based on the proposal contained in "A Design for a HOT  
22 Expressway coupled to BRT and Other Traffic Congestion Relief



1 Projects for Oahu" authored and updated on October 20, 2007, by  
2 Dr. Panos D. Prevedouros of the department of civil and  
3 environmental engineering of the University of Hawaii at Manoa,  
4 and as outlined in this Act.

5 (b) The plans and design shall include at least the  
6 following:

- 7 (1) An analysis of the optimum number of lanes to be  
8 constructed;
- 9 (2) A determination of the optimal start and end points of  
10 the expressway;
- 11 (3) A determination of the optimum number and location of  
12 on- and off-ramps to the expressway;
- 13 (4) A determination of which types of vehicles shall and  
14 shall not be charged a toll for use of the expressway;
- 15 (5) A proposal for a schedule of tolls to be charged and  
16 collected from non-high occupancy vehicles;
- 17 (6) An identification of all necessary rights of way to  
18 construct the expressway, ramps, and the city bus-only  
19 ramp to and from the Hotel Street transit mall;
- 20 (7) A full estimate of costs, including compensation to  
21 property owners when rights of way are needed to be  
22 acquired by eminent domain;





1           (8) Development of a plan to fund the construction of the  
2           expressway, including use of the state highway fund  
3           established under section 248-8, Hawaii Revised  
4           Statutes, legislative appropriations, federal highway  
5           funds, bonds, private investment funding, and any  
6           other method of funding;

7           (9) Identification and solicitation of private investment  
8           to fund the construction and operation of the  
9           reversible high occupancy and toll expressway;

10          (10) Any necessary proposed legislation, including  
11          appropriations, to implement the construction of the  
12          reversible high occupancy and toll expressway; and

13          (11) Any other plan, design, analysis, evaluation, or  
14          determination that the department deems necessary.

15          (c) The department of transportation shall submit its  
16          plans, design, analysis, evaluations, and estimates outlined in  
17          subsection (b), including any necessary proposed legislation, to  
18          the legislature no later than twenty days prior to the convening  
19          of the regular session of 2009.

20          SECTION 3. There is appropriated out of the general  
21          revenues of the State of Hawaii the sum of \$            or so much  
22          thereof as may be necessary for fiscal year 2008-2009 to the



1 department of transportation to perform preparatory work to  
2 construct and implement a reversible high occupancy and toll  
3 expressway in the leeward corridor as outlined in this Act.

4 The sum appropriated shall be expended by the department of  
5 transportation for the purposes of this Act.

6 SECTION 4. This Act shall take effect upon its approval,  
7 except that section 3 shall take effect on July 1, 2008.

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**Report Title:**

Reversible High Occupancy and Toll Expressway; Appropriation

**Description:**

Requires department of transportation to perform preparatory work to construct a reversible high occupancy and toll expressway in the leeward corridor in conjunction with an integrated bus rapid transit system. Appropriates funds.

