

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

PETER B. CARLISLE
MAYOR



WAYNE Y. YOSHIOKA
DIRECTOR

KAI NANI KRAUT, P.E.
DEPUTY DIRECTOR

July 22, 2011

The Honorable Ernest Y. Martin, Chair
and Members
Honolulu City Council
530 South King Street, Room 202
Honolulu, Hawaii 96813

RECEIVED
CITY CLERK
& C OF HONOLULU
2011 JUL 22 PM 1:38

Dear Chair Martin and Councilmembers:

Subject: Resolution 07-258, CD 1 "Urging the Department of Transportation Services to Work with the Oahu Metropolitan Planning Organization (OMPO) to Determine the Feasibility of Implementing Congestion Pricing in Honolulu"

The Department of Transportation Services (DTS) is pleased to provide the Honolulu City Council with the cordon pricing report (congestion pricing) from the Final Alternative Scenarios Summary Report Oahu Regional Transportation Plan 2035 Project. The report is forecasted for year 2035, and reviews congestion pricing on Oahu's regional transportation system. This satisfies Resolution 07-258, CD 1 "Urging the Department of Transportation Services to Work with the Oahu Metropolitan Planning Organization (OMPO) to Determine the Feasibility of Implementing Congestion Pricing." After your review, we look forward to a follow-up meeting to further discuss this matter.

Please let me know if you have any questions.

Very truly yours,

A handwritten signature in black ink, appearing to read "Wayne Y. Yoshioka".

WAYNE Y. YOSHIOKA
Director

Attachments

APPROVED:

A handwritten signature in black ink, appearing to read "Douglas S. Chin".

Douglas S. Chin
Managing Director

DEPT. COM. 548

TRANS

This chapter provides the results of the Cordon Pricing sensitivity scenario.

4.1 Cordon Pricing Scenario Definition

Cordon pricing is a congestion management strategy that involves charging for vehicle access to a particular location (e.g., central business district). Tolls are assessed when vehicles cross a boundary, or cordon line, encircling the pricing area.

For this scenario, the project team set a cordon line (illustrated by the purple line in Figure 4-1) bounding the Honolulu central business district (CBD). All vehicles that enter the CBD by passing this line would be charged a toll, regardless of the time of day. The pricing area and tolled network links are shown in Figure 4-2. Residents of the pricing area would be allowed to travel into and out of the pricing area toll-free. Also, through trips made along the edge of the cordon (e.g., Ala Moana Boulevard / Nimitz Highway) would not be charged a toll. The following three toll rates⁶ were tested in the OahuMPO regional travel demand forecasting model to assess the effects of different pricing levels:

- 1) \$5.00
- 2) \$7.50
- 3) \$10.00

⁶ In 1995 dollars. Dollars are reflected in 1995 dollars as the OahuMPO travel demand model cost components are calibrated to year 1995 conditions.

Figure 4-1. Cordon Pricing Boundary

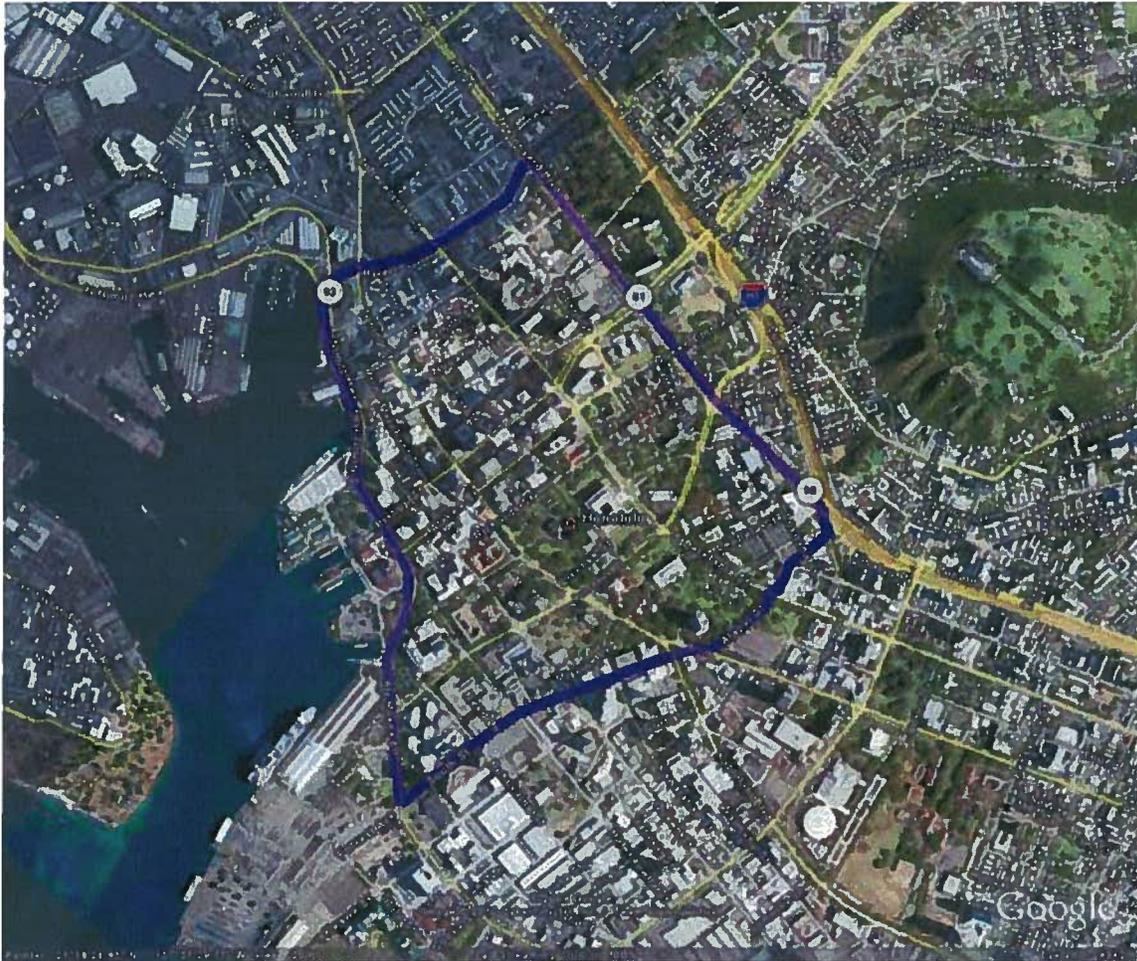


Figure 4-2. Map of Network Links Charged When Entering Cordon Area



4.2 Cordon Pricing Scenario Person Trips by Purpose and Mode

This section describes the basic travel demand forecasting model results such as person trips and mode choice associated with the 2035 Cordon Pricing scenarios, comparing it to the 2035 Baseline scenario results.

4.2.1 Cordon Toll \$5.00

As compared to the Baseline, total system-wide daily person trips remain the same for the 2035 Cordon \$5.00 toll scenario. Transit mode share for total daily trips is also projected to remain similar to the Baseline for the 2035 Cordon \$5.00 toll scenario (Table 4-1).

Table 4-1: Total Daily Person Trips by Mode—2035 Baseline vs. 2035 Cordon \$5.00 Toll

Alternative	2035 Baseline		2035 Cordon \$5 Toll		Percentage Change
	Number	Percent by Category	Number	Percent by Category	
Trips by Residents					
Private automobile	3,335,857	83%	3,325,390	82%	0%
Transit	245,727	6%	252,134	6%	3%
Bike/walk	461,617	11%	465,643	12%	1%
Total Trips by Residents	4,043,201	100%	4,043,167	100%	0%
Trips by Visitors					
Private Automobile	121,092	32%	120,971	32%	0%
Transit	30,235	8%	30,454	8%	1%
Taxi	9,540	3%	9,500	3%	0%
Tour Bus	57,953	16%	57,940	16%	0%
Bike/Walk	154,265	41%	153,797	41%	0%
Total Trips by Visitors	373,085	100%	372,662	100%	0%
Ground Access Trips by Air Passengers					
Private Automobile	28,841	26%	28,847	26%	0%
Transit	4,372	4%	4,378	4%	0%
Taxi	17,269	15%	17,275	15%	0%
Tour Bus	22,486	20%	22,486	20%	0%
Shuttle Bus	39,732	35%	39,714	35%	0%
Total Trips by Air Passengers	112,700	100%	112,700	100%	0%
Truck Trips					
Total Trips by Truck	237,306	100%	237,306	100%	0%
Total Daily Trips (All)	4,766,292	100%	4,765,835	100%	0%

Table 4-2 shows the mode choice results by purpose for residents in the 2035 Cordon \$5.00 Toll scenario model run. This table shows that overall islandwide mode choice is similar to the 2035 Baseline.

Table 4-3 shows the comparison of the 2035 Cordon \$5.00 Toll mode choice results by purpose to the 2035 Baseline alternative results. This table also shows that the overall regional change and the percent change between 2035 Baseline and the Cordon \$5.00 Toll scenario is small.

Table 4-4 shows the mode choice results by trip purpose for the trips to the cordon area only, with Table 4-5 revealing that there is a significant mode share shift to transit and out of the auto modes when looking at only trips to the cordon area. Overall auto trips to the cordon area decreased by 8%, 7%, and 6% respectively for single occupant vehicles, two occupant vehicles, and three-plus occupant vehicles, while transit trips to the cordon area increased between 17% and 26% for the transit modes. In total, there would be 10,500 less auto-person trips entering the pricing area under the \$5.00 cordon price scenario than in the 2035 Baseline. Under this scenario, there would be 6,400 more transit trips and 2,000 more non-motorized trips to the pricing area than in the 2035 Baseline.

Table 4-2: 2035 Cordon \$5 Toll Scenario Mode Choice Summary Results by Trip Purpose for Residents

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	535,273	81,354	161,544	29,189	115,138	2,943	8,252	35,353	112,416	263,590	142,104	1,487,156
	59%	37%	66%	33%	53%	25%	3%	48%	29%	27%	23%	37%
Double-occupant vehicle	149,704	73,698	41,897	33,657	29,705	1,689	65,389	8,339	131,827	299,952	221,268	1,057,125
	17%	33%	17%	38%	14%	14%	23%	11%	34%	30%	35%	26%
Three-or-more occupant vehicle	40,359	46,310	12,528	15,918	11,568	422	104,745	2,778	95,383	246,710	204,388	781,109
	4%	21%	5%	18%	5%	4%	37%	4%	25%	25%	33%	19%
Walk to express transit	3,704	237	2	540	0	0	239	207	0	0	0	4,929
	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Walk to local bus transit	57,169	4,333	7,496	5,234	4,572	4,573	16,117	9,814	9,933	26,650	3,712	149,603
	6%	2%	3%	6%	2%	38%	6%	13%	3%	3%	1%	4%
Walk to fixed guideway transit	28,225	1,879	5,324	1,889	1,710	1,106	3,185	5,902	1,312	10,688	1,867	63,087
	3%	1%	2%	2%	1%	9%	1%	8%	0%	1%	0%	2%
Informal Park-and-ride transit	1,183	50	0	7	0	0	261	100	140	224	0	1,965
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Formal Park-and-ride transit	13,045	-1	0	0	0	0	3	1,642	12	557	0	15,258
	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Kiss-and-ride transit	11,131	258	15	0	1	1	1,550	1,907	753	1,673	3	17,292
	1%	0%	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%
Walk	52,378	10,901	14,069	3,150	53,555	1,255	74,370	4,180	30,211	123,567	51,621	419,257
	6%	5%	6%	4%	25%	10%	26%	6%	8%	13%	8%	10%
Bike	12,782	1,865	979	33	2,141	12	8,472	3,487	2,571	11,489	2,555	46,386
	1%	1%	0%	0%	1%	0%	3%	5%	1%	1%	0%	1%
Total	904,953	220,884	243,854	89,617	218,390	12,001	282,583	73,709	384,558	985,100	627,518	4,043,167

Table 4-3: Comparison of 2035 Cordon \$5 Toll Scenario to 2035 Baseline Mode Choice Results by Purpose for Residents (Change and Percent Change)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-2,911	-49	-671	-59	-699	-13	4	-560	-39	-571	-127	-5,695
	-1%	0%	0%	0%	-1%	0%	0%	-2%	0%	0%	0%	0%
Double-occupant vehicle	-1,082	-53	-196	-81	-199	-19	15	-156	-60	-682	-243	-2,756
	-1%	0%	0%	0%	-1%	-1%	0%	-2%	0%	0%	0%	0%
Three-or-more occupant vehicle	-657	-142	-145	-55	-75	-5	-56	-85	-45	-540	-211	-2,016
	-2%	0%	-1%	0%	-1%	-1%	0%	-3%	0%	0%	0%	0%
Walk to express transit	256	15	0	13	0	0	-1	1	0	0	0	284
	7%	7%	0%	2%	0%	0%	0%	0%	0%	0%	0%	6%
Walk to local bus transit	1,640	75	383	91	99	27	40	337	24	527	41	3,284
	3%	2%	5%	2%	2%	1%	0%	4%	0%	2%	1%	2%
Walk to fixed guideway transit	876	37	291	47	36	-6	-1	185	-10	111	12	1,578
	3%	2%	6%	3%	2%	-1%	0%	3%	-1%	1%	1%	3%
Informal Park-and-ride transit	54	2	0	0	0	0	0	4	1	9	0	70
	5%	4%	0%	0%	0%	0%	0%	4%	1%	4%	0%	4%
Formal Park-and-ride transit	513	-1	0	0	0	0	1	80	0	20	0	613
	4%	0%	0%	0%	0%	0%	50%	5%	0%	4%	0%	4%
Kiss-and-ride transit	467	5	0	0	0	0	-2	69	2	37	0	578
	4%	2%	0%	0%	0%	0%	0%	4%	0%	2%	0%	3%
Walk	668	97	306	41	792	15	-5	62	131	995	509	3,611
	1%	1%	2%	1%	2%	1%	0%	2%	0%	1%	1%	1%
Bike	173	8	29	0	35	0	3	62	4	86	15	415
	1%	0%	3%	0%	2%	0%	0%	2%	0%	1%	1%	1%
Total	-3	-6	-3	-3	-11	-1	-2	-1	8	-8	-4	-34
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 4-4: Comparison of 2035 Cordon \$5 Toll Scenario to 2035 Baseline Mode Choice to Cordon Area Results by Purpose for Residents (Difference in Trips)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-2,799	-75	-726	-72	-673	-24	-1	-447	-5	-464	-254	-5,540
Double-occupant vehicle	-1,213	-101	-226	-105	-182	-22	-22	-166	-63	-612	-415	-3,127
Three-or-more occupant vehicle	-449	-58	-93	-57	-70	-5	-59	-86	-45	-495	-377	-1,794
Walk to express transit	257	16	0	13	0	0	1	0	0	0	0	287
Walk to local bus transit	1,382	66	357	78	97	13	23	210	14	547	39	2,826
Walk to fixed guideway transit	978	47	328	57	57	7	10	183	1	203	21	1,892
Informal Park-and-ride transit	53	2	0	1	0	0	0	5	1	8	0	70
Formal Park-and-ride transit	577	0	0	0	0	0	0	80	0	23	0	680
Kiss-and-ride transit	519	6	0	0	0	0	3	73	3	42	0	646
Walk	429	46	259	32	290	2	18	54	-12	323	203	1,644
Bike	163	7	29	0	35	0	6	60	2	69	15	386
Total	-103	-44	-72	-53	-446	-29	-21	-34	-104	-356	-768	-2,030

Table 4-5: Comparison of 2035 Cordon \$5 Toll Scenario to 2035 Baseline Mode Choice to Cordon Area Results by Purpose for Residents (Percent Change)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-8%	-3%	-6%	-9%	-12%	-27%	-7%	-28%	0%	-4%	-7%	-8%
Double-occupant vehicle	-11%	-4%	-6%	-9%	-12%	-28%	-10%	-29%	-4%	-4%	-7%	-7%
Three-or-more occupant vehicle	-11%	-3%	-5%	-9%	-12%	-25%	-9%	-30%	-4%	-4%	-7%	-6%
Walk to express transit	21%	25%	0%	22%	n/a	n/a	20%	0%	n/a	n/a	n/a	21%
Walk to local bus transit	16%	18%	31%	27%	28%	4%	14%	14%	6%	17%	30%	17%
Walk to fixed guideway transit	17%	21%	29%	26%	31%	5%	16%	17%	3%	16%	33%	19%
Informal Park-and-ride transit	25%	33%	n/a	n/a	n/a	n/a	0%	45%	33%	27%	n/a	26%
Formal Park-and-ride transit	25%	n/a	n/a	n/a	n/a	n/a	n/a	31%	n/a	24%	n/a	25%
Kiss-and-ride transit	22%	24%	0%	n/a	n/a	n/a	16%	31%	18%	20%	n/a	23%
Walk	8%	7%	21%	22%	9%	2%	3%	13%	-2%	6%	13%	8%
Bike	13%	7%	27%	0%	23%	0%	9%	21%	9%	13%	21%	15%
Total	0%	-1%	0%	-2%	-4%	-4%	-1%	-1%	-2%	-1%	-4%	-1%

4.2.2 Cordon Toll \$7.50

As compared to the Baseline, total system-wide daily person trips remain the same for the 2035 Cordon \$7.50 toll scenario. Transit mode share for total daily trips is projected to increase very slightly for the 2035 Cordon \$7.50 toll scenario (Table 4-6).

Table 4-6. Total Daily Person Trips by Mode—2035 Baseline vs. 2035 Cordon \$7.50 Toll

Alternative	2035 Baseline		2035 Cordon \$7.50 Toll		Percentage Change
	Number	Percent by Category	Number	Percent by Category	
Trips by Residents					
Private automobile	3,335,857	83%	3,320,499	82%	0%
Transit	245,727	6%	255,543	6%	4%
Bike/walk	461,617	11%	467,144	12%	1%
Total Trips by Residents	4,043,201	100%	4,043,186	100%	0%
Trips by Visitors					
Private Automobile	121,092	32%	120,907	32%	0%
Transit	30,235	8%	30,343	8%	0%
Taxi	9,540	3%	9,449	3%	-1%
Tour Bus	57,953	16%	57,884	16%	0%
Bike/Walk	154,265	41%	154,155	41%	0%
Total Trips by Visitors	373,085	100%	372,738	100%	0%
Ground Access Trips by Air Passengers					
Private Automobile	28,841	26%	28,816	26%	0%
Transit	4,372	4%	4,388	4%	0%
Taxi	17,269	15%	17,247	15%	0%
Tour Bus	22,486	20%	22,486	20%	0%
Shuttle Bus	39,732	35%	39,762	35%	0%
Total Trips by Air Passengers	112,700	100%	112,700	100%	0%
Truck Trips					
Total Trips by Truck	237,306	100%	237,306	100%	
Total Daily Trips (All)	4,766,292	100%	4,765,930	100%	0%

Table 4-7 shows the mode choice results by purpose for residents in the 2035 Cordon \$7.50 Toll scenario model run. As with the Cordon \$5.00 Toll scenario, this table shows that overall islandwide mode choice is similar to the 2035 Baseline.

Table 4-8 shows the comparison of the 2035 Cordon \$7.50 Toll mode choice results by purpose to the 2035 Baseline alternative results. This table shows the change and the percent change between 2035 Baseline and the Cordon \$7.50 Toll scenario. Like the Cordon \$5.00 Toll scenario, the regional mode choice Cordon \$7.50 Toll Scenario results showed small decreases in auto trips and small increases in transit trips, and the percentage change was also small, yet a little higher than the Cordon \$5.00 Toll changes.

Table 4-9 shows the mode choice results by trip purpose for the trips to the cordon area only, with Table 4-10 revealing that there is a significant mode share shift to transit and out of the auto modes when looking at only trips to the cordon area. Overall auto trips to the cordon area decreased by 11%, 10%, and 9% respectively for single-occupant vehicles, two-occupant vehicles, and three-plus-occupant vehicles, while transit trips to the cordon area increased between 28% and 43% for the transit modes. In total, there would be 15,600 less auto-person trips entering the pricing area under the \$7.50 cordon price scenario than in the 2035 Baseline. Under this scenario, there would be 9,900 more transit trips and 3,700 more non-motorized trips to the pricing area than in the 2035 Baseline. The changes for paying a \$7.50 toll into the cordon area were slightly more pronounced than the \$5.00 toll.

Table 4-7. 2035 Cordon \$7.50 Toll Scenario Mode Choice Summary Results by Trip Purpose for Residents

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	533,929	81,335	161,197	29,156	114,889	2,934	8,255	35,193	112,407	263,312	142,052	1,484,659
	59%	37%	66%	33%	53%	24%	3%	48%	29%	27%	23%	37%
Double-occupant vehicle	149,098	73,668	41,777	33,611	29,638	1,681	65,387	8,257	131,801	299,616	221,185	1,055,719
	16%	33%	17%	38%	14%	14%	23%	11%	34%	30%	35%	26%
Three-or-more occupant vehicle	40,004	46,237	12,446	15,889	11,542	420	104,746	2,725	95,364	246,437	204,311	780,121
	4%	21%	5%	18%	5%	4%	37%	4%	25%	25%	33%	19%
Walk to express transit	3,883	248	2	552	0	0	241	213	0	0	0	5,139
	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Walk to local bus transit	58,029	4,385	7,718	5,284	4,633	4,584	16,136	9,955	9,947	26,937	3,731	151,339
	6%	2%	3%	6%	2%	38%	6%	14%	3%	3%	1%	4%
Walk to fixed guideway transit	28,657	1,903	5,491	1,921	1,744	1,110	3,185	5,947	1,314	10,790	1,878	63,940
	3%	1%	2%	2%	1%	9%	1%	8%	0%	1%	0%	2%
Informal Park-and-ride transit	1,217	51	0	7	0	0	262	103	140	228	0	2,008
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Formal Park-and-ride transit	13,267	0	0	0	0	0	2	1,658	12	570	0	15,509
	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Kiss-and-ride transit	11,388	261	16	0	1	1	1,552	1,935	756	1,695	3	17,608
	1%	0%	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%
Walk	52,603	10,931	14,213	3,167	53,782	1,258	74,330	4,205	30,241	123,978	51,797	420,505
	6%	5%	6%	4%	25%	10%	26%	6%	8%	13%	8%	10%
Bike	12,882	1,872	997	33	2,166	12	8,480	3,520	2,572	11,540	2,565	46,639
	1%	1%	0%	0%	1%	0%	3%	5%	1%	1%	0%	1%
Total	904,957	220,891	243,857	89,620	218,395	12,000	282,576	73,711	384,554	985,103	627,522	4,043,186

Table 4-8. Comparison of 2035 Cordon \$7.50 Toll Scenario to 2035 Baseline Mode Choice Results by Purpose for Residents (Change and Percent Change)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-4,255	-68	-1,018	-92	-948	-22	7	-720	-48	-849	-179	-8,192
	-1%	0%	-1%	0%	-1%	-1%	0%	-2%	0%	0%	0%	-1%
Double-occupant vehicle	-1,688	-83	-316	-127	-266	-27	13	-238	-86	-1,018	-326	-4,162
	-1%	0%	-1%	0%	-1%	-2%	0%	-3%	0%	0%	0%	0%
Three-or-more occupant vehicle	-1,012	-215	-227	-84	-101	-7	-55	-138	-64	-813	-288	-3,004
	-2%	0%	-2%	-1%	-1%	-2%	0%	-5%	0%	0%	0%	0%
Walk to express transit	435	26	0	25	0	0	1	7	0	0	0	494
	13%	12%	0%	5%	0%	0%	0%	3%	0%	0%	0%	11%
Walk to local bus transit	2,500	127	605	141	160	38	59	478	38	814	60	5,020
	5%	3%	9%	3%	4%	1%	0%	5%	0%	3%	2%	3%
Walk to fixed guideway transit	1,308	61	458	79	70	-2	-1	230	-8	213	23	2,431
	5%	3%	9%	4%	4%	0%	0%	4%	-1%	2%	1%	4%
Informal Park-and-ride transit	88	3	0	0	0	0	1	7	1	13	0	113
	8%	6%	0%	0%	0%	0%	0%	7%	1%	6%	0%	6%
Formal Park-and-ride transit	735	0	0	0	0	0	0	96	0	33	0	864
	6%	0%	0%	0%	0%	0%	0%	6%	0%	6%	0%	6%
Kiss-and-ride transit	724	8	1	0	0	0	0	97	5	59	0	894
	7%	3%	7%	0%	0%	0%	0%	5%	1%	4%	0%	5%
Walk	893	127	450	58	1,019	18	-45	87	161	1,406	685	4,859
	2%	1%	3%	2%	2%	1%	0%	2%	1%	1%	1%	1%
Bike	273	15	47	0	60	0	11	95	5	137	25	668
	2%	1%	5%	0%	3%	0%	0%	3%	0%	1%	1%	1%
Total	1	1	0	0	-6	-2	-9	1	4	-5	0	-15
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 4-9. Comparison of 2035 Cordon \$7.50 Toll Scenario to 2035 Baseline Mode Choice to Cordon Area Results by Purpose for Residents (Difference in Trips)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-4,337	-109	-1,092	-103	-929	-32	-2	-657	-18	-746	-308	-8,333
Double-occupant vehicle	-1,829	-148	-353	-152	-252	-29	-32	-240	-90	-948	-503	-4,576
Three-or-more occupant vehicle	-710	-102	-157	-84	-97	-7	-90	-127	-65	-768	-458	-2,665
Walk to express transit	427	26	0	23	0	0	1	6	0	0	0	483
Walk to local bus transit	2,232	110	573	124	159	24	34	346	31	837	60	4,530
Walk to fixed guideway transit	1,449	72	501	88	90	11	15	248	3	302	31	2,810
Informal Park-and-ride transit	87	3	0	1	0	0	1	8	2	13	0	115
Formal Park-and-ride transit	830	0	0	0	0	0	0	103	0	36	0	969
Kiss-and-ride transit	794	9	1	0	0	0	5	102	5	64	0	980
Walk	702	83	418	53	525	5	39	86	23	743	388	3,065
Bike	268	14	47	1	60	0	10	92	4	120	25	641
Total	-87	-42	-62	-49	-444	-28	-19	-33	-105	-347	-765	-1,981

Table 4-10. Comparison of 2035 Cordon \$7.50 Toll Scenario to 2035 Baseline Mode Choice to Cordon Area Results by Purpose for Residents (Percent Change)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-13%	-5%	-9%	-13%	-17%	-36%	-13%	-41%	-2%	-6%	-8%	-11%
Double-occupant vehicle	-16%	-6%	-9%	-13%	-17%	-36%	-15%	-42%	-6%	-7%	-8%	-10%
Three-or-more occupant vehicle	-17%	-5%	-9%	-13%	-17%	-35%	-13%	-44%	-6%	-7%	-8%	-9%
Walk to express transit	35%	41%	0%	39%	n/a	n/a	20%	19%	n/a	n/a	n/a	35%
Walk to local bus transit	26%	30%	50%	42%	46%	8%	21%	22%	14%	26%	45%	28%
Walk to fixed guideway transit	25%	33%	45%	41%	49%	8%	23%	23%	10%	24%	49%	28%
Informal Park-and-ride transit	40%	50%	n/a	n/a	n/a	n/a	33%	73%	67%	43%	n/a	43%
Formal Park-and-ride transit	35%	n/a	n/a	n/a	n/a	n/a	n/a	40%	n/a	38%	n/a	36%
Kiss-and-ride transit	34%	36%	33%	n/a	n/a	n/a	26%	43%	29%	30%	n/a	35%
Walk	14%	13%	34%	37%	17%	6%	6%	21%	4%	13%	25%	16%
Bike	21%	14%	43%	50%	40%	0%	16%	33%	18%	23%	35%	25%
Total	0%	0%	0%	-1%	-4%	-4%	-1%	-1%	-2%	-1%	-4%	-1%

4.2.3 Cordon Toll \$10.00

As compared to the Baseline, total system-wide daily person trips remain the same for the 2035 Cordon \$10 toll scenario. Transit mode share for total daily trips is projected to increase very slightly for the 2035 Cordon \$10 toll scenario (Table 4-11).

Table 4-11. Total Daily Person Trips by Mode—2035 Baseline vs. 2035 Cordon \$10 Toll

Alternative	2035 Baseline		2035 Cordon \$10 Toll		Percentage Change
	Number	Percent by Category	Number	Percent by Category	
Trips by Residents					
Private automobile	3,335,857	83%	3,315,358	82%	-1%
Transit	245,727	6%	259,162	6%	5%
Bike/walk	461,617	11%	468,678	12%	2%
Total Trips by Residents	4,043,201	100%	4,043,198	100%	0%
Trips by Visitors					
Private Automobile	121,092	32%	120,858	32%	0%
Transit	30,235	8%	30,348	8%	0%
Taxi	9,540	3%	9,440	3%	-1%
Tour Bus	57,953	16%	57,908	16%	0%
Bike/Walk	154,265	41%	154,153	41%	0%
Total Trips by Visitors	373,085	100%	372,707	100%	0%
Ground Access Trips by Air Passengers					
Private Automobile	28,841	26%	28,989	26%	1%
Transit	4,372	4%	4,379	4%	0%
Taxi	17,269	15%	17,429	15%	1%
Tour Bus	22,486	20%	22,486	20%	0%
Shuttle Bus	39,732	35%	39,416	35%	-1%
Total Trips by Air Passengers	112,700	100%	112,700	100%	0%
Truck Trips					
Total Trips by Truck	237,306	100%	237,306	100%	
Total Daily Trips (All)	4,766,292	100%	4,765,911	100%	0%

Table 4-12 shows the mode choice results by purpose for residents in the 2035 Cordon \$10.00 Toll scenario model run. As with the Cordon \$5.00 and \$7.50 Toll scenarios, this table shows that overall islandwide mode choice is similar to the 2035 Baseline.

Table 4-13 shows the comparison of the 2035 Cordon \$10.00 Toll mode choice results by purpose to the 2035 Baseline alternative results. This table shows the change and the percent change between 2035 Baseline and the Cordon \$10.00 Toll scenario. Compared to the Cordon \$5.00 and \$7.50 Toll scenarios, the regional mode choice Cordon \$10.00 Toll results showed a higher decrease in auto trips and higher increase in transit trips.

Table 4-14 shows the mode choice results by trip purpose for the trips to the cordon area only, with Table 4-15 revealing that there is a significant mode share shift to transit and out of the auto modes when looking at only trips to the cordon area. Overall auto trips to the cordon area decreased by 15%, 14%, and 12% respectively for single occupant vehicles, two occupant vehicles, and three-plus occupant vehicles, while transit trips to the cordon area increased between 37% and 57% for the transit modes. In total, there would be 20,900 less auto person trips entering the pricing area under the \$10.00 cordon price scenario than in the 2035 Baseline. Under this scenario, there would be 13,600 more transit trips and 5,400 more non-motorized trips to the pricing area than in the 2035 Baseline. The changes for paying a \$10.00 toll into the cordon area was more pronounced than the \$5.00 and \$7.50 toll scenarios.

Table 4-12. 2035 Cordon \$10 Toll Scenario Mode Choice Summary Results by Trip Purpose for Residents

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	532,292	81,303	160,791	29,122	114,631	2,926	8,254	34,960	112,397	263,020	141,994	1,481,690
	59%	37%	66%	32%	52%	24%	3%	47%	29%	27%	23%	37%
Double-occupant vehicle	148,620	73,648	41,666	33,566	29,567	1,674	65,418	8,207	131,776	299,273	221,090	1,054,505
	16%	33%	17%	37%	14%	14%	23%	11%	34%	30%	35%	26%
Three-or-more occupant vehicle	39,696	46,160	12,370	15,860	11,515	419	104,724	2,693	95,346	246,156	204,224	779,163
	4%	21%	5%	18%	5%	3%	37%	4%	25%	25%	33%	19%
Walk to express transit	4,022	258	2	558	0	0	241	213	0	0	0	5,294
	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Walk to local bus transit	58,917	4,439	7,951	5,335	4,703	4,594	16,157	10,059	9,966	27,241	3,754	153,116
	7%	2%	3%	6%	2%	38%	6%	14%	3%	3%	1%	4%
Walk to fixed guideway transit	29,138	1,926	5,687	1,956	1,780	1,114	3,182	6,040	1,316	10,871	1,883	64,893
	3%	1%	2%	2%	1%	9%	1%	8%	0%	1%	0%	2%
Informal Park-and-ride transit	1,245	51	0	7	0	0	263	105	141	233	0	2,045
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Formal Park-and-ride transit	13,563	1	0	0	0	0	1	1,691	11	582	0	15,849
	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Kiss-and-ride transit	11,684	266	16	0	1	1	1,554	1,966	757	1,717	3	17,965
	1%	0%	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%
Walk	52,799	10,964	14,358	3,185	54,008	1,261	74,289	4,236	30,266	124,429	52,000	421,795
	6%	5%	6%	4%	25%	11%	26%	6%	8%	13%	8%	10%
Bike	12,975	1,880	1,015	34	2,194	12	8,487	3,544	2,574	11,591	2,577	46,883
	1%	1%	0%	0%	1%	0%	3%	5%	1%	1%	0%	1%
Total	904,951	220,896	243,856	89,623	218,399	12,001	282,570	73,714	384,550	985,113	627,525	4,043,198

Table 4-13. Comparison of 2035 Cordon \$10 Toll Scenario to 2035 Baseline Mode Choice Results by Purpose for Residents (Change and Percent Change)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-5,892	-100	-1,424	-126	-1,206	-30	6	-953	-58	-1,141	-237	-11,161
	-1%	0%	-1%	0%	-1%	-1%	0%	-3%	0%	0%	0%	-1%
Double-occupant vehicle	-2,166	-103	-427	-172	-337	-34	44	-288	-111	-1,361	-421	-5,376
	-1%	0%	-1%	-1%	-1%	-2%	0%	-3%	0%	0%	0%	-1%
Three-or-more occupant vehicle	-1,320	-292	-303	-113	-128	-8	-77	-170	-82	-1,094	-375	-3,962
	-3%	-1%	-2%	-1%	-1%	-2%	0%	-6%	0%	0%	0%	-1%
Walk to express transit	574	36	0	31	0	0	1	7	0	0	0	649
	17%	16%	0%	6%	0%	0%	0%	3%	0%	0%	0%	14%
Walk to local bus transit	3,388	181	838	192	230	48	80	582	57	1,118	83	6,797
	6%	4%	12%	4%	5%	1%	0%	6%	1%	4%	2%	5%
Walk to fixed guideway transit	1,789	84	654	114	106	2	-4	323	-6	294	28	3,384
	7%	5%	13%	6%	6%	0%	0%	6%	0%	3%	2%	6%
Informal Park-and-ride transit	116	3	0	0	0	0	2	9	2	18	0	150
	10%	6%	0%	0%	0%	0%	1%	9%	1%	8%	0%	8%
Formal Park-and-ride transit	1,031	1	0	0	0	0	-1	129	-1	45	0	1,204
	8%	0%	0%	0%	0%	0%	-50%	8%	-8%	8%	0%	8%
Kiss-and-ride transit	1,020	13	1	0	0	0	2	128	6	81	0	1,251
	10%	5%	7%	0%	0%	0%	0%	7%	1%	5%	0%	7%
Walk	1,089	160	595	76	1,245	21	-86	118	186	1,857	888	6,149
	2%	1%	4%	2%	2%	2%	0%	3%	1%	2%	2%	1%
Bike	366	23	65	1	88	0	18	119	7	188	37	912
	3%	1%	7%	3%	4%	0%	0%	3%	0%	2%	1%	2%
Total	-5	6	-1	3	-2	-1	-15	4	0	5	3	-3
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 4-14. Comparison of 2035 Cordon \$10.00 Toll Scenario to 2035 Baseline Mode Choice to Cordon Area Results by Purpose for Residents (Difference in Trips)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-6,000	-146	-1,505	-136	-1,183	-40	-3	-857	-29	-1,047	-365	-11,311
Double-occupant vehicle	-2,457	-201	-490	-201	-321	-36	-41	-308	-114	-1,303	-597	-6,069
Three-or-more occupant vehicle	-955	-152	-218	-113	-123	-9	-121	-161	-82	-1,055	-543	-3,532
Walk to express transit	564	35	0	30	0	0	2	7	0	0	0	638
Walk to local bus transit	3,117	161	805	176	227	33	46	444	49	1,145	82	6,285
Walk to fixed guideway transit	1,946	98	701	121	127	16	20	339	5	399	42	3,814
Informal Park-and-ride transit	118	4	0	1	0	0	1	9	2	17	0	152
Formal Park-and-ride transit	1,133	0	0	0	0	0	0	136	0	50	0	1,319
Kiss-and-ride transit	1,104	13	1	0	0	0	7	133	7	87	0	1,352
Walk	974	127	584	75	749	7	57	109	59	1,196	588	4,525
Bike	376	21	66	1	88	0	15	115	6	172	37	897
Total	-80	-40	-56	-46	-436	-29	-17	-34	-97	-339	-756	-1,930

Table 4-15. Comparison of 2035 Cordon \$10.00 Toll Scenario to 2035 Baseline Mode Choice to Cordon Area Results by Purpose for Residents (Percent Change)

Mode	Purpose											Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	
Single-occupant vehicle	-18%	-7%	-13%	-18%	-21%	-45%	-20%	-54%	-2%	-8%	-9%	-15%
Double-occupant vehicle	-22%	-8%	-12%	-17%	-21%	-45%	-19%	-55%	-8%	-9%	-9%	-14%
Three-or-more occupant vehicle	-22%	-7%	-12%	-17%	-21%	-45%	-17%	-56%	-8%	-9%	-9%	-12%
Walk to express transit	47%	55%	0%	51%	n/a	n/a	40%	23%	n/a	n/a	n/a	47%
Walk to local bus transit	36%	44%	70%	60%	66%	11%	29%	29%	22%	36%	62%	39%
Walk to fixed guideway transit	33%	45%	62%	56%	70%	11%	31%	32%	17%	32%	67%	37%
Informal Park-and-ride transit	55%	67%	n/a	n/a	n/a	n/a	33%	82%	67%	57%	n/a	57%
Formal Park-and-ride transit	48%	n/a	n/a	n/a	n/a	n/a	n/a	53%	n/a	53%	n/a	49%
Kiss-and-ride transit	48%	52%	33%	n/a	n/a	n/a	37%	56%	41%	41%	n/a	48%
Walk	19%	20%	47%	52%	24%	8%	8%	26%	10%	21%	38%	23%
Bike	30%	21%	61%	50%	59%	0%	23%	41%	27%	33%	51%	35%
Total	0%	0%	0%	-1%	-4%	-4%	-1%	-1%	-2%	-1%	-4%	-1%

4.3 Cordon Pricing Scenario Assignment Results

This section describes the assignment results such as VMT, VHT, VHD, and transit boardings by mode associated with the 2035 Cordon Pricing sensitivity test scenario, comparing it to the 2035 Baseline results. The previous mode choice section showed that the overall differences differed slightly between the \$5, \$7.50, and \$10 toll, with an approximately linear mode shift effect across the three alternatives, thus showing no clear differentiation among the three. For these reasons, the remainder of this document describes results obtained for the \$7.50 toll alternative.

4.3.1 Cordon Pricing Scenario Highway Assignment

The highway assignment in the model produces summaries of the total islandwide daily VMT by motorized vehicles (automobiles, buses, and commercial vehicle) as estimated by the travel demand forecasting model for the 2035 sensitivity test scenarios. Table 4-16 shows the summary of the daily VMT by facility type and area type.⁷

Table 4-17 shows that the overall VMT is forecasted to remain similar to the 2035 Baseline scenario. However, the collectors in area type 1 (Downtown area) showed a 12% increase over the Baseline, as some autos were shifting to collector roadways to avoid the cordon pricing area.

Table 4-18 shows VHT by facility type and area type in 2035, and Table 4-19 shows the percent change in VHT from 2035 Baseline scenario to 2035 Cordon Pricing scenario. The model forecasts 463,130 hours of travel in the 2035 Cordon Pricing scenario, similar to the 2035 Baseline scenario. The collectors in area type 1 show a 40% increase in VHT over the Baseline as autos shift to avoid the cordon pricing area.

Table 4-20 shows 2035 Cordon Pricing scenario VHD forecasted by the travel demand forecasting model, and Table 4-21 shows the percent change in VHD between the 2035 Baseline and the 2035 Cordon Pricing scenarios. Overall VHD is projected to remain similar to the Baseline, but the collectors in area type 1 (Downtown area) and area type 3 (areas surrounding the Downtown area) increased 157% and 27% respectively as vehicles used these roadways to avoid being charged.

Figure 4-3 shows differences in AM 2-hour volumes between the Baseline and Cordon \$7.50 Toll scenario in the cordon pricing area. Clearly, South King Street and Beretania Street had less volume in the Cordon \$7.50 Toll scenario compared to the Baseline, while Vineyard Boulevard and Nimitz Highway/Ala Moana Boulevard

⁷ See Appendix Table A - 1 for area type definitions.

had increased volumes in the Cordon \$7.50 Toll scenario to go around the cordon area.

Figure 4-4 shows the auto travel time to Downtown for the 2035 Cordon \$7.50 Toll scenario from the static equilibrium two-hour AM peak period highway assignment. Figure 4-5 shows that the difference in auto time to Downtown between the Baseline and cordon \$7.50 toll scenario is minimal as can be seen by the ranges in the legend. The largest negative difference was 9 minutes while the largest positive difference was 0.7 minutes.

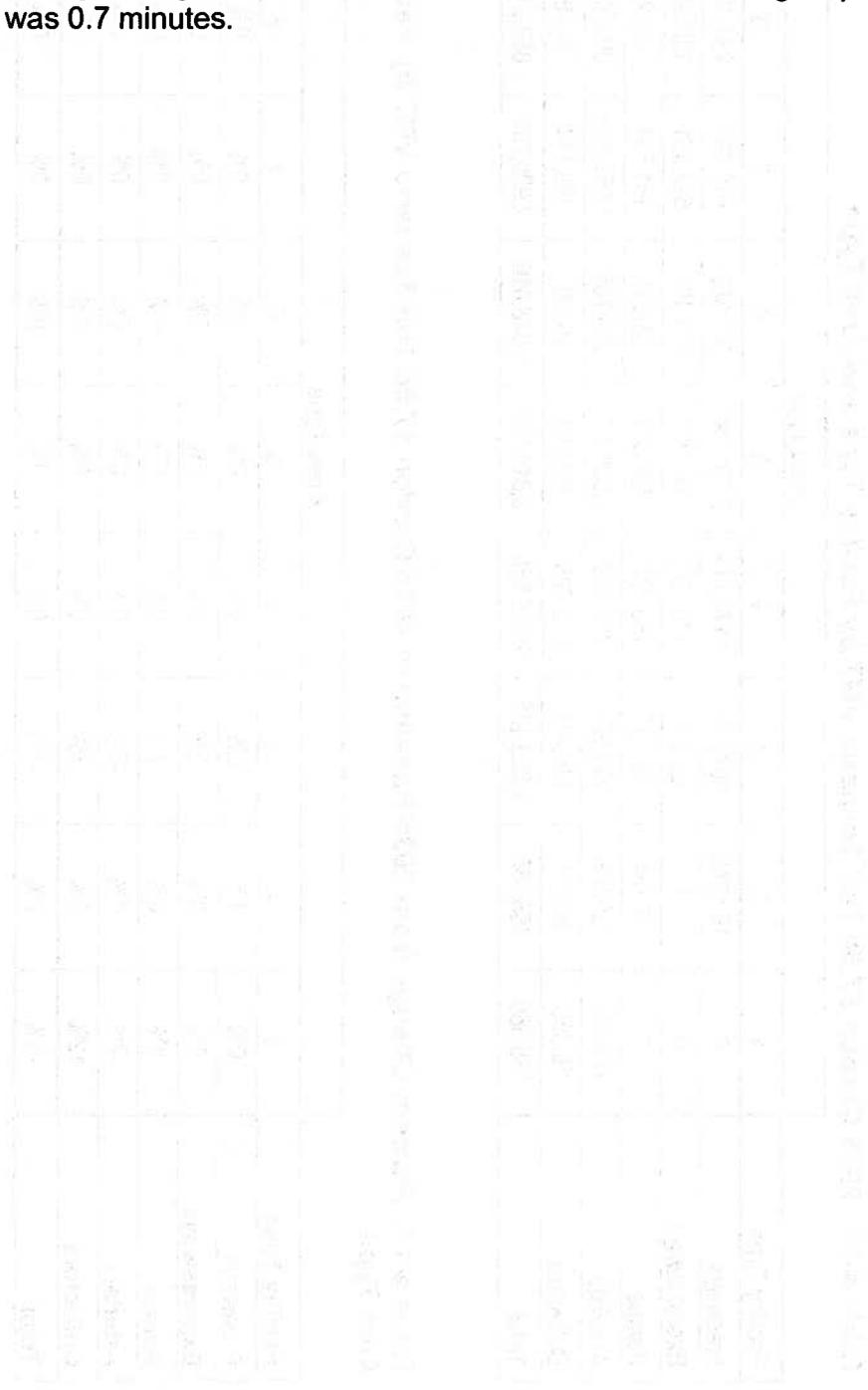


Table 4-16. 2035 Cordon \$7.50 Toll Scenario VMT by Facility Type and Area Type

Facility Type	Area Type								All Areas
	1	2	3	4	5	6	7	8	
Freeways	0	153,755	507,973	1,174,775	2,703,192	367,382	812,792	234,459	5,954,328
Expressways	0	0	36,336	170,188	447,050	371,101	513,451	159,584	1,697,710
Ramps	0	17,154	36,207	165,975	366,351	28,305	161,534	18,027	793,553
Arterials	119,014	250,035	598,521	722,049	1,520,471	260,788	1,052,879	399,338	4,923,095
Collectors	16,355	35,011	144,448	372,598	773,793	19,240	388,134	39,464	1,789,043
Total	135,369	455,955	1,323,485	2,605,585	5,810,857	1,046,816	2,928,790	850,872	15,157,729

Table 4-17. Percent Change from 2035 Baseline to 2035 Cordon \$7.50 Toll Scenario VMT by Facility Type and Area Type

Facility Type	Area Type								All Areas
	1	2	3	4	5	6	7	8	
Freeways	0%	1%	0%	0%	0%	0%	0%	0%	0%
Expressways	0%	0%	-3%	0%	0%	0%	0%	0%	0%
Ramps	0%	0%	2%	0%	0%	-1%	0%	0%	0%
Arterials	-7%	-1%	-3%	0%	0%	0%	0%	0%	-1%
Collectors	12%	5%	3%	0%	0%	-1%	0%	0%	0%
Total	-5%	0%	-1%	0%	0%	0%	0%	0%	0%

Table 4-18. 2035 Cordon \$7.50 Toll Scenario VHT by Facility Type and Area Type

Facility Type	Area Type								All Areas
	1	2	3	4	5	6	7	8	
Freeways	0	4,154	16,920	25,162	55,544	6,895	16,178	4,686	129,539
Expressways	0	0	811	5,176	10,471	9,073	10,703	3,108	39,342
Ramps	0	1,699	2,767	10,141	17,198	649	7,578	860	40,892
Arterials	5,520	12,407	27,716	28,302	54,858	7,508	30,200	9,332	175,843
Collectors	1,015	2,810	7,908	17,403	34,132	683	12,553	1,010	77,514
Total	6,535	21,070	56,122	86,184	172,203	24,808	77,212	18,996	463,130

Table 4-19. Percent Change from 2035 Baseline to 2035 Cordon \$7.50 Toll Scenario VHT by Facility Type and Area Type

Facility Type	Area Type								All Areas
	1	2	3	4	5	6	7	8	
Freeways	0%	10%	4%	-1%	-1%	0%	-1%	0%	0%
Expressways	0%	0%	-6%	-1%	0%	-1%	-1%	-1%	-1%
Ramps	0%	4%	8%	-1%	0%	-1%	0%	-1%	0%
Arterials	-5%	-2%	-4%	0%	-1%	0%	0%	0%	-1%
Collectors	40%	7%	9%	0%	1%	-1%	0%	0%	2%
Total	0%	1%	0%	0%	0%	-1%	0%	0%	0%

Table 4-20. 2035 Cordon \$7.50 Toll Scenario VHD by Facility Type and Area Type

Facility Type	Area Type								All Areas
	1	2	3	4	5	6	7	8	
Freeways	0	1,633	8,592	6,214	12,635	1,063	3,277	965	34,379
Expressways	0	0	185	2,293	3,020	2,888	2,285	492	11,163
Ramps	0	1,139	1,724	5,564	8,664	79	3,963	477	21,610
Arterials	760	2,406	3,772	7,912	11,888	983	5,848	833	34,402
Collectors	362	1,410	2,129	4,669	7,180	108	2,424	133	18,415
Total	1,122	6,588	16,402	26,652	43,387	5,121	17,797	2,900	119,969

Table 4-21. Percent Change from 2035 Baseline to 2035 Cordon \$7.50 Toll Scenario VHD by Facility Type and Area Type

Facility Type	Area Type								All Areas
	1	2	3	4	5	6	7	8	
Freeways	0%	26%	7%	-1%	-2%	1%	-2%	-1%	2%
Expressways	0%	0%	-15%	-2%	-1%	-3%	-3%	-4%	-2%
Ramps	0%	5%	12%	-1%	0%	-2%	0%	-2%	1%
Arterials	9%	-6%	-7%	-1%	-1%	0%	-1%	-1%	-2%
Collectors	157%	9%	27%	0%	3%	-3%	0%	2%	6%
Total	34%	6%	6%	-1%	-1%	-2%	-1%	-1%	1%

Figure 4-3. Map of AM 2-Hour Flow Differences Between Baseline and Cordon \$7.50 Toll Scenarios

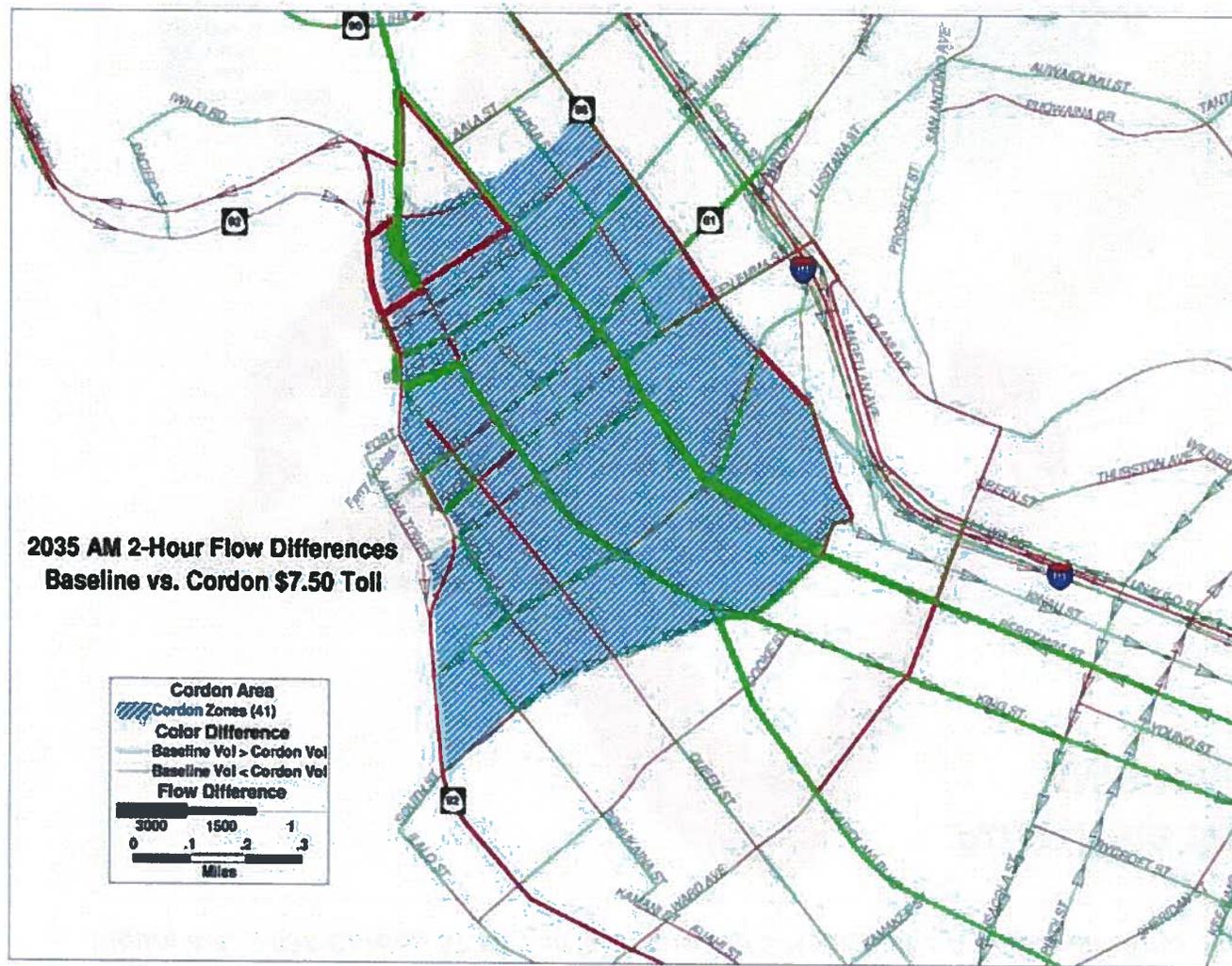


Figure 4-4. 2035 Cordon \$7.50 Toll Scenario AM 2-Hour Static Assignment Auto Time to Downtown

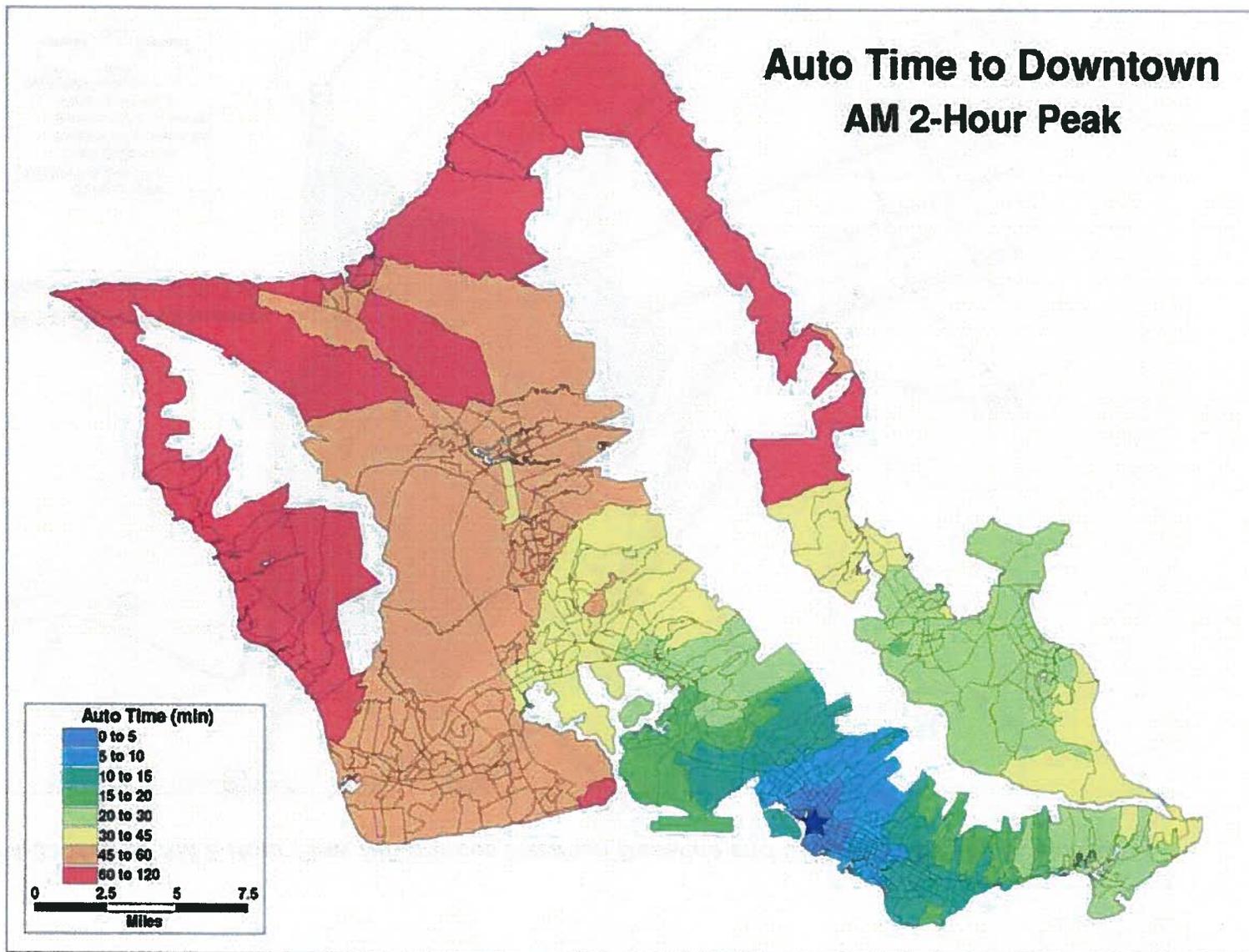
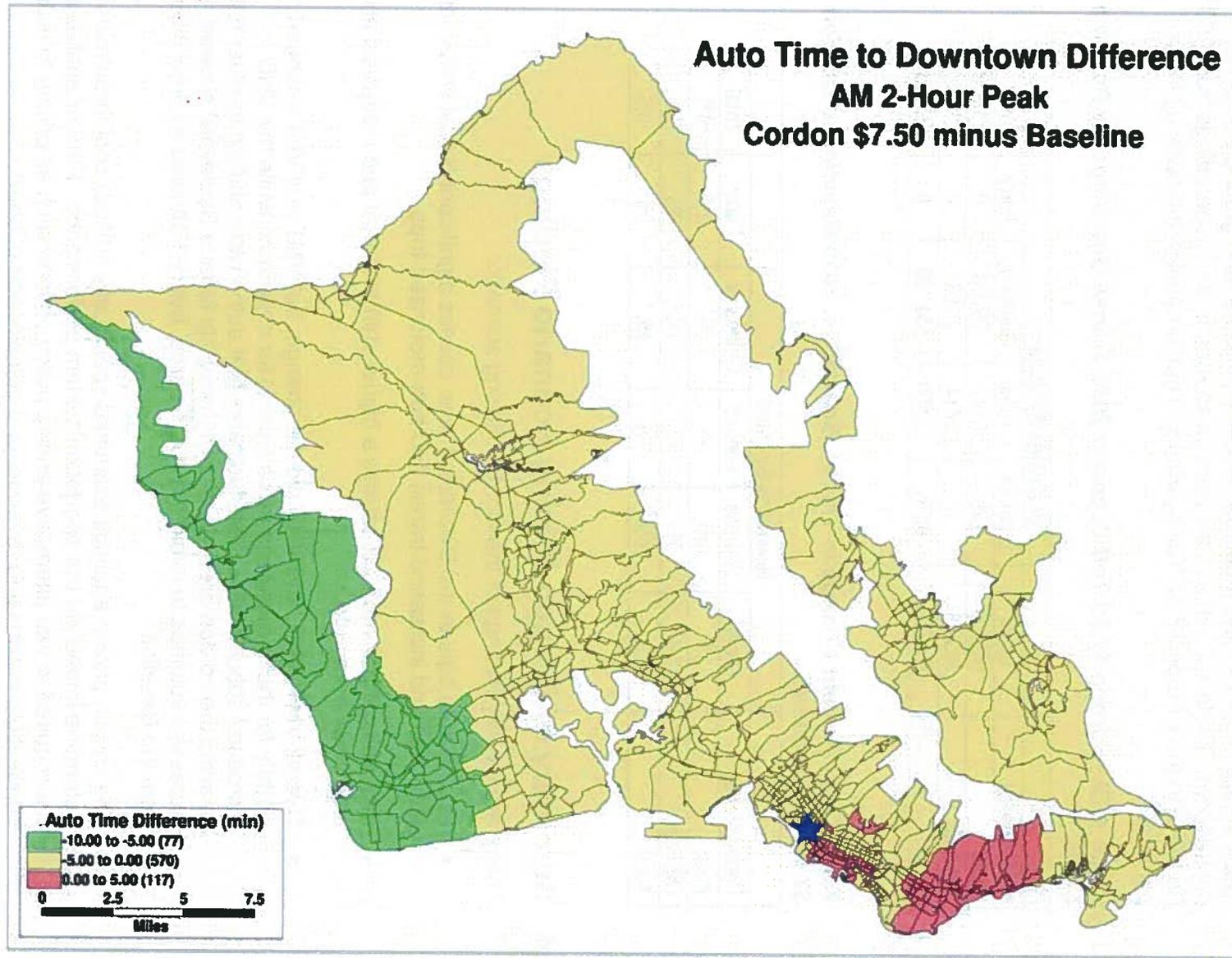


Figure 4-5. Difference in AM 2-Hour Static Assignment Auto Time to Downtown – Cordon \$7.50 Toll vs. Baseline



4.3.2 Cordon Pricing Scenario Transit Assignment

Table 4-22 shows 2035 Cordon \$7.50 Toll scenario transit boardings by period (peak versus off-peak) and mode for residents, visitors, and ground access air passengers. Table 4-23 shows the percent change in transit boardings from 2035 Baseline to the Cordon \$7.50 Toll scenario. Total boardings increase by three percent.

Table 4-22. Cordon \$7.50 Toll Scenario 2035 Transit Boardings By Period and Mode

Period/Mode	Boardings By Mode					Total
	Local	Express	Limited	Guideway	Ferry	
Peak	179,557	8,291	7,142	76,333	0	271,323
Off-Peak	94,468	0	5,414	27,863	0	127,745
Total	274,025	8,291	12,556	104,196	0	399,068

Table 4-23. Percent Change in Transit Boardings, 2035 Baseline to Cordon \$7.50 Toll Scenario

Period/Mode	Boardings By Mode					Total
	Local	Express	Limited	Guideway	Ferry	
Peak	3%	10%	5%	5%	0%	4%
Off-Peak	1%	0%	7%	1%	0%	1%
Total	2%	10%	6%	4%	0%	3%

4.4 Summary of Cordon Pricing Scenario Findings

These are the key findings of the Cordon Pricing scenario:

- Pricing auto trips to the Downtown area causes significant modal shifts; fewer auto trips and increased transit and non-motorized trips.
- Increasing the cordon toll causes a higher shift to transit and motorized and a shift away from auto.
- Overall VMT, VHT, and VHD did not change, but VMT and VHT changed slightly for the cordon area (area type 1) for collectors, while the VHD increased substantially. This indicates that autos were shifting to other roads to avoid the cordon area. Nimitz Highway/Ala Moana Boulevard showed increased volumes to avoid the cordon area, but H-1 showed minimal change from the Baseline.
- The cordon pricing analysis examined specifically artificial cost thresholds to determine impact on transportation system performance. Further analyses are required to test alternative pricing policy options such as pricing to reduce congestion, maximizing revenue, or a combination of both.

Appendix

Table A - 1. Area-Type Definitions Based on Population and Employment Densities

Employment Category (Employees per Square Mile)		1	2	3	4	5	6	7	8
		≤12	≤93	≤397	≤1,615	≤6,202	≤22,630	≤78,500	>78,500
Population Category (Population per Square Mile)									
1	0	8	8	7	6	4	4	2	1
2	≤192	8	8	6	6	4	4	2	1
3	≤1,623	7	7	7	6	4	4	2	1
4	≤4,975	7	7	7	7	4	4	2	1
5	≤11,588	5	5	5	5	5	4	2	1
6	≤24,000	5	5	5	5	5	5	2	1
7	≤42,866	3	3	3	3	3	3	3	1
8	>42,866	3	3	3	3	3	3	3	1

Bibliography

Oahu Metropolitan Planning Organization (OahuMPO). 2010. *Sensitivity Test Scenarios Definition Technical Memorandum*.

Oahu Metropolitan Planning Organization (OahuMPO). 2007. *Oahu Regional Transportation Plan 2030 with Amendment #1*.



RESOLUTION

URGING THE DEPARTMENT OF TRANSPORTATION SERVICES TO WORK WITH THE OAHU METROPOLITAN PLANNING ORGANIZATION (OMPO) TO DETERMINE THE FEASIBILITY OF IMPLEMENTING CONGESTION PRICING IN HONOLULU.

WHEREAS, a 2006 report by the Victoria Transport Policy Institute notes that:

“A basic economic principle is that consumers should pay directly for the costs they impose as an incentive to use resources efficiently. Urban traffic congestion is often cited as an example: if road space is unpriced traffic volumes will increase until congestion limits further growth. For decades economists have recommended road congestion pricing (special tolls for driving on congested roadways) as a way to encourage more efficient use of the transport system, and address congestion and pollution problems, providing net benefits to society”;

and

WHEREAS, in 2002, a poll paid for by London's city council found traffic congestion was residents' top complaint, overshadowing housing costs and crime; and

WHEREAS, on February 17, 2003, London initiated congestion pricing within a designated central London "congestion zone" during weekday hours; and

WHEREAS, London's congestion pricing has reduced traffic congestion, prompted people to use public transportation, increased bicycling, cut pollution, and generated revenues to fund transportation improvements as reflected in the following statistics:

- From 2002 to 2006, the number of vehicles entering London has decreased 16.4%;
- Driving became more efficient, with the average driving speed increasing 21% from 2002 to 2003, while peak period congestion delays declined 30% and bus ridership increased 14%;
- Bicycling in London has increased 50%, with 24,000 cyclists per day in 2006 compared to 16,000 cyclists per day in 2002;
- Pollution has decreased, with carbon dioxide emissions falling 16.4% from 2002 to 2003; and



RESOLUTION

- The system has generated net revenues of \$246 million per year that were invested in public transportation improvements;

and

WHEREAS, London's congestion pricing system includes the following characteristics:

- A fee equal to about \$16 is charged on weekdays between 7:00 a.m. and 6:00 p.m. to drive within London's 15 square-mile congestion zone, which is indicated by road markings and signs;
- Drivers may pay the fee at convenience stores, by phone, via cell phone text messaging, or online no later than midnight of the following day;
- Motorcycles, taxis, buses, police cars, ambulances, vehicles carrying disabled people, and alternative fuel vehicles are exempt from the fee. Congestion zone residents receive a 90% discount for their vehicles;
- Fines for nonpayment are \$205, reduced to \$102 if paid within two weeks; and
- Fees are enforced through a network of more than 700 video cameras that record vehicle license plates and subsequently cross-reference a database to determine whether payment has been made;

and

WHEREAS, despite growing support over the last four years, criticism of London's congestion pricing system continues, including:

- Claims by certain businesses and sectors that they have been harmed by the system because fewer people are driving into town. The London Chamber of Commerce and Industry, a business group, says it has anecdotal evidence that the charge is hurting shops, even though a 279-page study by Transport for London, the government agency that administers the program, concluded that businesses have not been harmed by the system;



RESOLUTION

- Concerns that congestion may increase on nearby roads due to diverted traffic;
- Arguments that road pricing is unfair because it constitutes “double charging” since motorists already pay registration and fuel taxes, and is unfair to lower-income people who must drive; and
- Fears that the network of video cameras and the system for tracking vehicles within London is an invasion of privacy;

and

WHEREAS, nevertheless, London’s experience shows that congestion pricing is technically feasible and effective, and that it is possible to overcome political and institutional resistance to such pricing, thereby providing a precedence for other cities to follow; and

WHEREAS, of several U.S. cities that are seriously considering congestion pricing in their downtown areas, of note is New York City, which has recently received approval from state lawmakers to study Mayor Michael Bloomberg’s proposal to charge motorists \$8 to drive in the central business district (Manhattan Island below 86th Street) on weekdays between 6:00 a.m. and 6:00 p.m.; and

WHEREAS, New York City’s proposed plan:

- Uses a combination of video cameras and EZ Pass electronic vehicle identification for enforcement;
- Is intended to reduce congestion, lower pollution, and create a steady source of revenue for mass transit improvements;
- Is dependent on a balance of city, state and federal government involvement, including between \$200 and \$500 million in federal funding to pay for start-up costs; and
- Must receive critical action and funding approvals by March 31, 2008;

and



RESOLUTION

WHEREAS, London's four-year old congestion pricing system and New York City's proposed plan provide platforms from which other cities can learn and glean information when considering congestion pricing options of their own; and

WHEREAS, as part of OMPO's Oahu Regional Transportation Plan (ORTP) update for 2035, OMPO will be examining congestion pricing as a possible traffic relief measure; and

WHEREAS, Honolulu is faced with high levels of congestion in its urban core and may be a candidate now or in the near future for congestion pricing; now, therefore,

BE IT RESOLVED by the Council of the City and County of Honolulu that the city department of transportation services is urged to work with OMPO in its planned update of the ORTP to study both the use of congestion pricing in London, England, as well as the proposed plan for congestion pricing in New York City, and determine the feasibility of implementing congestion pricing in Honolulu; and

BE IT FURTHER RESOLVED that the department of transportation services, in partnership with OMPO and as part of the ORTP update, analyze and identify potential congestion zones in Honolulu; and

BE IT FURTHER RESOLVED that the department of transportation services submit its findings and recommendations to the council within 60 days after the completion of the OMPO study; and



RESOLUTION

BE IT FINALLY RESOLVED that copies of this Resolution be transmitted to the executive director of OMPO, the director of the department of transportation services, the managing director, and the mayor.

INTRODUCED BY:

Charles Djou

DATE OF INTRODUCTION:

August 20, 2007
Honolulu, Hawaii

Councilmembers

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII
CERTIFICATE

RESOLUTION 07-258, CD1

Introduced: 08/20/07 By: CHARLES DJOU

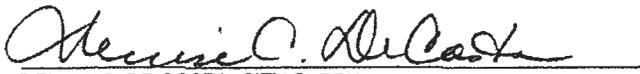
Committee: TRANSPORTATION &
PUBLIC WORKS

Title: RESOLUTION URGING THE DEPARTMENT OF TRANSPORTATION SERVICES TO WORK WITH THE OAHU METROPOLITAN PLANNING ORGANIZATION (OMPO) TO DETERMINE THE FEASIBILITY OF IMPLEMENTING CONGESTION PRICING IN HONOLULU.

Links: [RES07-258](#)
[RES07-258, CD1](#)

TRANSPORTATION AND PUBLIC WORKS	6/26/08	RESOLUTION DEFERRED IN COMMITTEE.				
TRANSPORTATION AND PUBLIC WORKS	7/31/08	CR-241 (2008) – RESOLUTION REPORTED OUT OF COMMITTEE FOR ADOPTION AS AMENDED IN CD1 FORM.				
COUNCIL	8/20/08	CR-241 (2008) AND RESOLUTION AS AMENDED (RESOLUTION 07-258, CD1) WERE ADOPTED.				
	APO Y	CACHOLA Y	DELA CRUZ Y	DJOU Y	GARCIA Y	
	KOBAYASHI Y	MARSHALL E	OKINO Y	TAM A		

I hereby certify that the above is a true record of action by the Council of the City and County of Honolulu on this RESOLUTION.


DENISE C. DE COSTA, CITY CLERK


BARBARA MARSHALL, CHAIR AND PRESIDING OFFICER