February 6, 2009

Part I — "All reasonable alternatives" were not studied.

"There's small choice in rotten apples."

This line from Shakespeare's *The Taming of the Shrew* is, appropriately, the opening line in the FTA's introduction to *Evaluation of the Alternatives*.[1]

We believe that insufficient alternatives were considered during the Alternatives Analysis. Each prior rail transit effort in Honolulu from the 1970s on has suffered from the same problem; the range of alternatives studied was inadequate and disinterested experts have all commented on it.

> *Finally, the most serious deficiency of analyses done to date is the failure to devise and evaluate meaningful alternatives to HART [Honolulu Area Rapid Transit]. The so-called "alternatives analysis" is seriously deficient and the bus alternative considered in them can only be considered as "straw men."*
> *Dr. John Kain, Chair, Economics Department, Harvard. 1978.*[2]

> *In particular, what is lacking is a serious investigation of several viable dedicated busway options.*
> *Dr. Robert Cervero, Professor of Urban and Regional Planning, UC-Berkeley. 1991.*[3]

Many more examples in a similar vein are available from experts' critiques of the 1990 Alternatives Analysis.[4]

The National Environmental Policy Act (NEPA) process requires that the City & County of Honolulu (City),

> *Rigorously explore and objectively evaluate all reasonable alternatives ... Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits ... Include reasonable alternatives not within the jurisdiction of the [City].*[5]

The Council on Environmental Quality's (CEQ) comments on 1502.14 is as follows:

> *Section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.*[6] *(emphasis added)*

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1 http://www.fta.dot.gov/documents/Evaluation_of_Alternatives.pdf

2 Seminar on Urban Mass Transit (transcript). Office of the Legislative Auditor, State of Hawaii. January 1978.

3 Quoted from "An Evaluation of the Honolulu Rapid Transit Development Project's Alternative Analysis and Draft Environmental Impact Statement." Hawaii Office of State Planning and University of Hawaii. May 1990. Robert Cervero, Professor of Urban and Regional Planning at the University of California, Berkeley, and a member of the Editorial Board, Journal of the American Planning Association.

4 An Evaluation of the Honolulu Rapid Transit Development Project's Alternative Analysis and Draft Environmental Impact Statement. Hawaii Office of State Planning and University of Hawaii.May 1990. Available at the Honolulu Municipal Library.

5 40CFR1502.14

6 Question 2A in CEQs 40 Q&As. http://www.mnrg.gov/meetings/2005cimpacts/pdfs/40Questions.pdf

In addition to rail transit and No-Build, there are at least three other alternatives that should have been considered in the Draft EIS:

1. The Reversible Managed Lane Alternative
2. The 2003 Bus/Rapid Transit Project
3. The EZway plan.

1. The Reversible Managed Lane Alternative.

> *The draft EIS shall evaluate all reasonable alternatives to the action and discuss the reasons why other alternatives, which may have been considered, were eliminated from detailed study. (23CFR771.123)*

The reasons given for the elimination of the Managed Lane Alternative from the Draft EIS are insufficient since little supporting data is given for the conclusions reached and no reference is given to any other publication that might have it. It is not surprising since there was little in the Alternatives Analysis or in the documents regarding the second Scoping when we first found that the Managed Lane Alternative had been eliminated.

For example, the Draft EIS tells us *"that the Managed Lane Alternative would provide slightly more benefit [than TSM] at a substantial cost."* We can only guess at what that means.

A Bus/Rapid Transit (BRT) bus would travel at 55mph while on the Managed Lanes and, say, 15 mph when on city streets. If the distance traveled on city streets is one-half of that traveled on the Managed Lanes the average speed would be 29 mph — faster than trains. But the benefit to users of trains is supposedly three times that of the Bus/Rapid Transit on Managed Lanes?

Also two, or possibly three, additional lanes managed through dynamic pricing would each have a vehicle throughput close to twice that of each of the nearby congested freeway lanes according to the Federal Highways Administration (FHWA).[7] Such lanes would add the equivalent of four to six lanes to the current (and projected through 2030) five regular freeway lanes. And we are supposed to believe that traffic congestion[8] will be far worse with Managed Lanes? There is no support for this in the Draft EIS nor any reference to other documents.

We made the original proposal for a reversible dynamically-tolled highway which led to its inclusion in the First Scoping authorized in the federal Notice of Intent of December 5, 2005.

The concept that we proposed to the City was what Reason Foundation's Robert Poole, termed a *Virtual Exclusive Busway* where buses and vanpools have priority and go free of toll charges and all others pay a dynamically-priced toll. It has all the virtues of an exclusive busway, while also having a significant impact on automobile traffic congestion in the Corridor.

The City's Chief Transportation Planner said that he used the map of our proposed route from our website and that, *"This is what HONOLULUTRAFFIC.COM requested us to study and this is exactly what we studied."*[9]

However, our original proposal was only a conceptual one; at the time we did not have the technical expertise to do anything else and we certainly did not have the resources to submit a comprehensive design. Far from being a design, a cursory look at our original map shows a freehand line drawn none too steadily along the route with a black marker pen. It never crossed our minds that Parsons Brinckerhoff would not apply its expertise to provide the best possible alternative.

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7 FHWA's *Congestion Pricing — A Primer.* At: http://www.honolulutraffic.com/congestionpricing.pdf p. 3.

8 See Vehicle Hours of Delay in Table 2-1, Draft EIS.

9 League of Women Voters Forum video, http://www.brightcove.tv/title.jsp?title=1301088850&channel=293897125 5:00 minute mark of 10 minute video.

We had forecast a cost of $900 million for a 10-mile two-lane version. This estimate of cost came from a one-day conference that Governor Lingle asked us to conduct in December 2002 to evaluate whether the reversible tolled transitway concept was worth pursuing. Some of Hawaii's and the nation's leading experts[10] on this issue were represented at the conference. The concept and cost estimates met with the general approval of the attendees and accordingly we recommended to the Governor that the project be further developed to a higher level of detail.

In December 2005, the FTA issued the first Notice of Intent and it stated,

> *Alternatives proposed to be considered in the AA [Alternatives Analysis] and draft EIS include No Build, Transportation System Management, Managed Lanes, and Fixed Guideway Transit.*

After the first Scoping, the Scoping Report of April 6, 2006[11] issued and confirmed that the Managed Lane Alternative would be studied in both the Alternatives Analysis and the Draft EIS.

Subsequently, the Alternatives Analysis was produced in November 2006 and recommended that the Fixed Guideway Alternative be adopted as the Locally Preferred Alternative and shortly thereafter the City Council chose the Fixed Guideway Alternative with termini at West Kapolei, University of Hawaii at Manoa and Waikiki.

However, the Managed Lane Alternative was not objectively studied in the Alternatives Analysis. Rather, the Managed Lane Alternative was setup as a classic "straw man," contrived to make it look ineffective in comparison to rail transit.

Professor John Kain, co-author of the classic *The Urban Transportation Problem,* who wrote extensively about such tactics, wrote in his *The Use of Straw Men in the Economic Evaluation of Rail Transport Projects,*[12]

> *Nearly all, if not all, assessments of rail transit systems have used costly and poorly designed all-bus alternatives to make the proposed rail systems appear better than they are.*

Out of the blue, on March 15, 2007, the FTA issued a second Notice of Intent[13] but this time excluded the Managed Lane Alternative. This was the first intimation we had of its rejection. Both the first Notice of Intent[14] and the first Scoping Report[15] had stated that the Managed Lane Alternative would be studied in the Draft EIS.

Mr. David Glater, then the recently retired Chief Counsel of the US DOT's Volpe Center, who had been appointed to be the Transportation Analyst for the City Council's Transit Advisory Task Force, and who wrote the Task Force Report, must have also been surprised since his Appendix 3, attached hereto as Appendix B, is titled, *"Suggestions for further development of the Managed Lane Alternative."*

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10 In attendance: Mike Schneider, Executive Vice President of PB Consult, Mel Miyamoto, Vice President, Heavy Construction, Dillingham Corporation, Roger Morton, General Manager of OTS Inc, operators of the City's bus system, Bruce Turner, Assistant Division Administrator, Hawaii Division FHWA, Robert Poole, Director of Transportation Studies, Reason Foundation, Glenn Yasui, Highways Division, Hawaii Dept. of Transportation (Hawaii DOT). By phone: Patrick DeCorla-Souza, AICP, Team Leader, Highway Pricing and System Analysis, Office of Transportation Policy Studies FHWA, C. Kenneth Orski., Urban Mobility Corporation, consultant and publishers of *Innovation Briefs.*

11 http://www.honolulutraffic.com/ScopingReport.pdf

12 Kain, John F. *The Use of Straw Men in the Economic Evaluation of Rail Transport Projects.* American Economic Review, Vol. 82, No. 2, Papers and Proceedings of the Hundred and Fourth Annual Meeting of the American Economic Association (May, 1992) , pp. 487-493. At: http://www.honolulutraffic.com/kainrail.pdf

13 www.honolulutraffic.com/noi0307.pdf

14 www.honolulutraffic.com/NOI051205.pdf

15 http://www.honolulutraffic.com/ScopingReport.pdf

The second Notice of Intent did not even want comments on alternatives that were *"previously studied and eliminated for good cause."* While not named, one can reasonably assume it referred to the Managed Lane Alternative.

On March 18, 2007, we wrote to the FTA protesting that the process used by the City for assessing the Managed Lane Alternative in the Alternatives Analysis was flawed.[16] We also protested the issuance of two Notices of Intent to perform the same Draft EIS. We received no response to these communications.

Honolulu found itself in the strange position of beginning Scoping while having already selected its Locally Preferred Alternative.

The second Scoping Report that issued May 30, 2007[17] implies that the Managed Lane Alternative was rejected at least in part because,

> *The Honolulu High-Capacity Transit Corridor Project analysis is meant to evaluate project alternatives that may be constructed within the authorization of Act 247, enacted by the Hawai'i State Legislature in 2005. The act prohibits the construction of a non-transit project with the authorized excise-tax surcharge. Projects with the purpose of providing roadway mobility for automobiles and commercial vehicles are not fundable by Act 247; therefore, they will not be added to the purpose of the Honolulu High-Capacity Transit Corridor Project*[18].

However, this is the first mention of Act 247 through two Notices of Intent and two SIPs and the first Scoping Report. In any case, is this reason for rejection not in conflict with the following?

> *An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. Section 1506.2(d). Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies.*[19]

The second Scoping Information Package describes the Fixed Guideway Alternative as follows:

> *The fixed guideway system is planned to operate between 4 a.m. and midnight, with a train arriving in each direction at each station between every three and ten minutes ... The system is planned to operate with multicar trains approximately 175 to 200 feet in length, with each train capable of carrying a minimum of 300 passengers. This would provide a peak capacity of at least 6,000 passengers per hour per direction.*[20]

Since at this point the *de facto* decision to select trains as the preferred mode alternative had already been made, does not the issuance of a new Notice of Intent circumvent the requirement that NEPA *not be used to rationalize or justify decisions already made?* [21]

The second Scoping Report states,

As stated in the Notice of Intent issued on March 15, 2007, that Notice of Intent superceded [sic] the one published on December 5, 2005.[22]

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16 www.honolulutraffic.com/AAMLcomments5.pdf
17 http://www.honolulutraffic.com/NEPAScopingReport.pdf
18 The second Scoping Report, p. 5-1. Act 247 is at
19 http://www.nepa.gov/nepa/regs/40/1-10.HTM#2
20 Scoping Information Package. 4-1&2. http://www.honolulutraffic.com/ScopingInformationPackage.pdf
21 "Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." 40CFR1502.2[g]

This is not true; the second Notice of Intent states no such thing.

The second Scoping Report also states that,

> *City Council Resolution 07-039 defined the First Project as extending from East Kapolei to Ala Moana Center.*[23]

Resolution 07-039 uses the term "Minimum Operable Segment" to describe the shortened project and never mentions "First Project"; the term in the second Scoping Report only serves to confuse the issue.

Also federal regulations require that, *"Draft environmental impact statements shall be prepared in accordance with the scope decided upon in the scoping process."*[24]

The first Notice of Intent was not superseded and the Alternative Analysis states that its alternatives were developed *"during a formal project scoping process held that would satisfy the requirements of the National Environmental Policy Act (NEPA) ..."*[25]

The second Scoping Information Package and the second Scoping Report suggest that the first Notice of Intent was to merely satisfy Hawaii Revised Statutes 343, even though there is no mention of that in either of the two federal Notices of Intent or the subsequent Scoping Report. In any case, that does not wash since, if satisfying Hawaii Revised Statutes 343 was the only intent of the first Notice of Intent, would not the FTA's issuance of it have been unnecessary?

In addition, this action by FTA would appear to violate 40CFR1506 which requires agencies

> *... to the fullest extent possible to reduce duplication between NEPA and state and local requirements.*

And NEPA §1500.6 makes it clear that,

> *The phrase "to the fullest extent possible" in section 102 means that each agency of the Federal Government shall comply with that section unless existing law applicable to the agency's operations expressly prohibits or makes compliance impossible.*

This requirement is, in part, to avoid the kind of time consuming and confusing situation we now have.

Neither the FTA nor the City has made any attempt to clarify why FTA issued the second Notice of Intent. While the first Notice of Intent initiated the NEPA review process, the second Notice of Intent informed us that the NEPA review was *"initiated through this scoping notice."* Have we not been in the NEPA process since December 2005? Why was a second scoping necessary?

The City did not make the case in the second scoping documents that re-scoping was being conducted because the first was inadequate or unsatisfactory. And if it had been inadequate would not the second scoping merely have been to supplement the first scoping and not to replace it?

There has obviously been insufficient *"public involvement,"* as required by SAFETEA-LU, if we cannot even find out whether the NEPA review process started on December 5, 2005, or March 15, 2007. Why cannot the public be told why the second scoping was authorized and if it invalidated the findings of the first Scoping?

We believe that the City and Parsons Brinckerhoff had the second Notice of Intent issued in an attempt to evade the more stringent investigative requirements of the NEPA process for the Managed Lane Alternative and possibly also for the purpose and needs statement.

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22 Second Scoping Report, p. 5-1, at http://www.honolulutraffic.com/NEPAScopingReport.pdf
23 Resolution 07-039. http://www4.honolulu.gov/docushare/dsweb/Get/Document-59472/23mk1ljh.pdf
24 40CFR1502.9.
25 www.honolulutraffic.com/AAD.pdf p. 2-2.

Six specific ways in which the Managed Lane Alternative was contrived to fail are listed below.

a) Zipper lane inexplicably removed:
b) Excessive Managed Lane Alternative capital costs:
c) Inflated operating costs:
d) Effects on vanpools not considered.
e) Inefficient ingress/egress ramps:
f) Avoidance of due diligence:

a) Zipper lane inexplicably removed

In November 2006, the City Council convened a Transit Advisory Task Force (Task Force) to advise it on the technical aspects of the Alternatives Analysis. Mr. David Glater, retired Chief Counsel of the U.S. Department of Transportation's Volpe Center, and Transportation Analyst for the Task Force, wrote in his Final Report to the City Council,

> *The description of the Managed Lane Alternative in Chapter 2 of the Alternatives Analysis states that, 'The H-1 zipper lane would be maintained in the Two-direction Option but discontinued in the Reversible Option.' (p. 2-4). However, no explanation is provided as to why the zipper lane would not be continued in the Reversible Option. The Managed Lane Reversible Option's addition of two Koko Head-bound elevated lanes for the morning commute appears to result in a net increase of only one lane if the inbound zipper lane were removed.*[26]

Why was the zipper lane taken out? When it remains in, it alone negates the conclusions of the Alternatives Analysis that the Managed Lane Alternative was inferior to rail in traffic congestion reduction as can be seen from the table below. With the zipper lane reinstated traffic on the H-1 freeway regular lanes would be less with the Managed Lane Alternative than the Fixed Guideway Alternative.

Congestion relief together with energy consumption, both of which are required to be analyzed by statute,[27] would be significantly improved with the Managed Lane Alternative. The following table is identical to the data in Table 3-12 in the Alternatives Analysis with the exception of the center column showing the zipper lane reinstated and a new line at the bottom of the page to total all traffic.

The only changes made to original column, which is to its left, are those in the grayed out cells. These reflect the same zipper lane traffic as in the Rail column and reduction of that same amount of traffic in the H-1 Freeway traffic. It shows that with the zipper lane reinstated the H-1 traffic is less than the traffic in the Rail Alternative.

For example, the single major freeway into downtown Honolulu from the far end of the study Corridor is H-1. It has seven lanes inbound during the morning peak hours, of which one is a zipper lane, one is an HOV lane, and five lanes are regular freeway lanes.

With the zipper lane reinstated the Managed Lane Alternative would provide two, or possibly three, additional lanes managed through dynamic pricing. Each lane would have a vehicle throughput close to twice that of each of the nearby congested freeway lanes.[28] Such lanes would add the equivalent of four to six lanes to the current (and projected through 2030) five regular freeway lanes (this is not provided for in the table that follows).

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[26] Task Force Final Report. http://www.honolulutraffic.com/TaskForceReport.pdf
[27] 119 STAT. 1576 (d) (3) (D) http://bulk.resource.org/gpo.gov/laws/109/publ059.109.txt
[28] FHWA Congestion Pricing Primer, www.honolulutraffic.com/congestionpricing.pdf

	2030 Managed Lanes			2030 Managed Lanes			Rail		
	Reversible Option			Reversible Option with the zipper lane reinstated			Kamokila - Airport - Dillingham King with a Waikiki branch		
SCREENLINE/FACILITY	Forecast Volume (vph)	Volume/ Capacity Ratio	Level of Service	Forecast Volume (vph)	Volume/ Capacity Ratio	Level of Service	Forecast Volume (vph)	Volume/ Capacity Ratio	Level of Service
Kalauao Stream Koko Head bound									
H-1 Fwy	18,419	1.94	F	16,235	1.71	F	17,414	1.83	F
H-1 Fwy (HOV)1	2,769	1.46	F	2,769	1.46	F	2,701	1.42	F
H-1 Fwy (Zipper) 1	NA	NA	NA	2,154	1.13	F	2,154	1.13	F
Moanalua Rd	966	0.57	A	966	0.57	A	756	0.44	A
Kamehameha Hwy	3,121	0.9	E	3,121	0.9	E	2,923	0.85	D
Managed Lane	3,457	0.79	C2	3,457	0.79	C2	NA	NA	NA
Total General Purpose Traffic	22,507	1.39	F	20,322	1.39	F	21,093	1.31	F
Total HOV Traffic	2,769	1.46	F	4,923	1.46	F	4,855	1.28	F
Total Managed Lane Traffic	3,457	0.79	C2	3,457	0.79	C2	NA	NA	NA
Total All Traffic	28,733			28,702			25,948		

The grayed cells are the only ones changed from the Alternatives Analysis, Table 3-12.

The Total All Traffic was not provided in the original. Others may wish to check our addition.

Changes made were to reinstate the zipper lane using vehicle data from the fully built out rail option.

Then reduce the H-1 Fwy forecast by a like amount. Other changes are merely recalculation of totals.

The congestion mitigation effects of these additional lanes to the seven-lane H-1 freeway are too obvious for the effect not to have been noticed during the Alternatives Analysis process.

b) Excessive Managed Lane Alternative capital costs

Parsons Brinckerhoff and the City grossly inflated the capital costs of the Managed Lane Alternative with the result that, if correct, it would result in it having twice the cost per lane-mile of any highway ever built in the U.S.

Parsons Brinckerhoff and the City also added unnecessary costs to the project by only using a 16-mile facility while not testing the viability of shorter 10 to 12-mile versions.

The City's projected cost of $2.6 billion in 2006 dollars for the Managed Lane Alternative was excessive. It was twice as expensive as the H-3 freeway per lane mile, almost as much per mile as the rail transit line, and seven times as much as the Tampa Expressway, a similar but even larger facility. And the City made it 50 percent longer than necessary. Further, the normal due diligence expected for a project of this magnitude was not undertaken.

Had the Managed Lane Alternative been projected at 11 miles long and priced to be the same as H-3 per lane mile (allowing for inflation), the projected cost would have been only $915 million (still twice as much as the Tampa Expressway). Of this amount half could have been paid for with toll revenue bonds and the other half with less than three years of the ½ percent GE tax revenues (assuming the unlikely scenario of Senator Inouye being unable to obtain any federal funds).

And the city did not study the effects of the Managed Lane Alternative having three lanes. Tampa added the third lane after finding that this 50 percent increase in lane space would cost only 20 percent more than two lanes.

Anyone who has ever travelled the H-3 will find it absurd that the City's cost estimate of the Managed Lane Alternative could be the same as the H-3 (inflation-adjusted). The City's projected costs for the Managed Lane Alternative were calculated without any attempt to justify this high cost by comparing it to similar facilities in Hawaii or on the Mainland.

As discussed earlier, our cost projection was $900 million for a 10-mile two-lane elevated highway, or $90 million per mile in 2002. This cost when inflated using the *Price Trends for Federal-aid Highway Construction Index*,[29] results in $134.7 million per mile in 2006 dollars.

However, this estimate was made before we were aware of the astonishing cost savings offered by the new construction method devised by Figg Bridge Company and used to construct the Tampa Expressway.

Tampa Expressway:

> *The actual contract price for the 17.5 lane miles of bridge structure was just over $100 million. At approximately $120 million, the deck cost for the segmental bridge portion of the project was approximately $65 per square foot, far below the average cost for structures in Florida during the past 20 years. The average cost per lane mile for the reversible bridge is approximately $7 million and is among the lowest for bridges constructed in the U.S.*[30]

The Figg Bridge Company tells us they "*have experienced savings of approximately 40 percent to 50 percent when using precast segmental span-by-span construction in urban settings when compared to segmental balanced cantilever construction.*"[31]

Using 45 percent as the average of these savings reduces our $134.7 million per mile projection to $74.1 million per mile in 2006 dollars, or $37.0 million per lane-mile.

Recently Figg Bridge, which is familiar with Hawaii conditions, told us they believe there is no reason why the Managed Lane Alternative should not be built for the same cost per mile that they are experiencing in Florida for 2008 given the addition of a further 32 percent for the construction cost differential between Hawaii and Florida.

The 14-mile Expressway cost $320 million in 2006 (net of an impending award of $100 million for a sub-contractor's error). Using the same *Price Trends for Federal-Aid Highway Construction Index* that the City uses, and allowing the mid-point of costs to be 2004, we calculate that the cost to build it in 2006 would have been $458.7 million.

The cost comparison index used to inflate Florida construction costs to Hawaii's level is an additional 32 percent, that being the rate given in the current *Civil Works Construction Cost Index*.[32] Applying this factor to the inflation adjusted cost, results in $605 million as the cost of constructing the facility in Honolulu. Dividing this by its 14-mile length results in $43.2 million per mile.

While Tampa has three lanes, the Expressway Authority tells us that the third lane only added 20 percent more to their costs than if they had only built two lanes. We have, therefore, divided the Tampa cost per mile by only 2.4 instead of three to arrive at a cost for a two-lane facility. It

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29 http://www.fhwa.dot.gov/programadmin/pt2006q4.cfm

30 Prevedouros, Panos D., PhD and Martin Stone, PhD, AICP. *Reversible Express Lanes.* Yearbook of Science and Technology 2008. McGraw-Hill, pp. 288-291, 2008.

31 Personal Communication, CEO, Figg Bridge Company.

32 http://www.usace.army.mil/publications/eng-manuals/em1110-2-1304/entire.pdf p. A-34.

results in a cost of $18.0 million per lane-mile as a comparable cost for building such a facility in Honolulu.

Hawaii's H-3 Freeway:

The 16.1-mile H-3 freeway is a divided highway with two lanes in each direction and its construction required boring two miles of tunnels through the solid rock of the Koolau Mountains. The total cost was $1.3 billion at completion in 1997 making it the most expensive highway per mile ever built in the U.S.

Lacking a distribution of costs by year, we have allowed the mid-point of construction cost as occurring in 1991. Inflating the $1.3 billion to 2006 dollars using the *Price Trends for Federal-Aid Highway Construction Index*[33], results in $2.7 billion.

This amount divided by the 16.1 mile length equals $166.2 million per mile and dividing that by the four lanes results in $41.6 million per lane-mile.

Capital costs summary:

We show below an adjusted cost per lane-mile comparison with two highway facilities, one from Tampa, Florida and the other, the H-3 freeway in Honolulu together with both the City and our Managed Lane Alternative cost projections.

The table below summarizes our calculations of all four facility costs per lane-mile after being adjusted for construction inflation costs and location cost differentials. This enables us to directly compare one with the other. The full calculation is given in detail in Appendix A.

Adjusted cost per lane-mile in 2006 dollars[34]	
Facility	**$millions**
Tampa Expressway actual, adjusted to Honolulu costs	$18.0
H-3 Freeway actual, adjusted	$41.6
Our Managed Lane Alternative estimate, adjusted	$37.0
City's Managed Lane Alternative estimate	$80.5

Note that our Managed Lane Alternative estimate is within ten percent of the adjusted H-3 freeway cost. In consideration of the extensive trans-Koolau tunneling required for H-3 one would anticipate that our Managed Lane Alternative estimate should be somewhat less.

Even allowing for inflation and location cost differences, the adjusted Tampa Expressway cost is still less than half of either the H-3 or our Managed Lane Alternative estimate.

However, the most striking comparison is that the City Managed Lane Alternative estimate is twice that of the H-3 freeway and over four times that of the Tampa Expressway — after all adjustments. We do not believe that this projected cost would ever pass scrutiny by any members of the professional engineering community.

Our cost calculations for the Managed Lane Alternative, while compelling, need more work at a level of detail requiring resources that are not available to us. Our concern is that the City and Parsons Brinckerhoff did not make any serious effort to investigate it at any level of detail, as the section of lack of due diligence demonstrates.

At the behest of FTA, Booz Allen investigated the Fixed Guideway Alternative and the Managed Lanes Alternative construction costs. They produced a preliminary 8-page draft in April 2007 and later followed that in May 2007 with a 38-page full report.[35]

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[33] http://www.fhwa.dot.gov/programadmin/pt2006q4.cfm

[34] See Appendix A for details of cost adjustments for construction inflation and location differences.

[35] FTA PROJECT MANAGEMENT OVERSIGHT PROGRAM, Contract No. DTFT60-04-D-00013 Project No. DC-27-5041 Task Order No. 10

The 8-page draft does mention the Tampa Expressway and also Dr. Stone's comments,

> *Dr. Marty Stone [PhD AICP], planning director for the Tampa-Hillsborough County Expressway Authority, wrote a lengthy defense of the construction of his agency's reversible, elevated toll lanes in Tampa for HawaiiReporter.com on November 21, 2006. Dr. Stone criticized rail proponents in Honolulu for what he perceived as misrepresentation of the Tampa project in order to discredit the managed-lanes alternative in Honolulu.*

However, neither Tampa nor Dr. Stone appear in the subsequent full report. This is a shame because it would have been interesting to know why an award-winning public planning official would go out on a limb to criticize fellow public officials.

The full report begins by telling us that the primary objective was to, *"confirm absence of bias in cost estimation between the Fixed Guideway and Managed Lanes alternatives."* Not to determine whether there was any bias, but rather to confirm that there was none.

Booz Allen's 38-page report covers a wide variety of cost estimating material but evades a very important and most awkward fact, and that is the cost of the Tampa Expressway was $300 million.

The investigator does not grapple with this fact; the word Tampa cannot be found in this document. The group that put together the expressway, the Tampa-Hillsborough Expressway Authority and Figg Bridge have won just about every national award possible[36] and built it at a remarkably low cost.

The Tampa cost is a stubborn and intractable fact, one that will never go away until rail proponents confront it instead of evading it as the City has, as the Transit Advisory Task Force did and as Booz Allen does in this case.

To be credible an assessment of the Managed Lane Alternative costs must be performed with "scientific accuracy" and has to reconcile the $300 million for the Tampa Expressway (even to include the $120 million error) with a similar project in Honolulu for $2.6 billion. Allowance can be made for construction costs inflation, location differences, and other smaller issues but an honest appraisal is unlikely to be able to bridge this widest of chasms.

A credible assessment could start by talking to Figg Bridge to ask them how they did it and whether it could be done in Hawaii. No one involved in the pricing, and the validation of the pricing, of the Managed Lane Alternative — the City, the Council Task Force, or Booz Allen — has ever contacted Figg Bridge.

c) Inflated Managed Lane Alternative operating costs

Parsons Brinckerhoff and the City also inflated Managed Lane Alternative operating costs to make the project appear uncompetitive with the Fixed Guideway Alternative.

The Alternatives Analysis had forecast that operating costs for the Managed Lane Alternative would be greater than the FGA. These high operating costs occur because,

> *Transit operating costs for the Managed Lane Alternative would range between approximately $251 and $261 million as a result of additional buses that would be put in service under that alternative.*[37]

The Alternatives Analysis projects that the Managed Lane Alternative will need a fleet of 906 buses versus the No-Build Alternative requiring 614 buses.[38] This would result in the Managed

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[36] http://www.tampa-xway.com/documents/Awards/REL%20Awards.pdf

[37] Alternatives Analysis, page S-4, at: http://www.honolulutraffic.com/AAD.pdf

Lane Alternative having 50 percent more buses than the No-Build Alternative yet the City projects only 5 percent greater ridership for it.[39] This small increase is projected despite the Managed Lane Alternative offering bus users the advantage of a congestion free bus ride from the H-1/H-2 merge to Downtown. It begs the question, why would the Managed Lanes Alternative offering much faster bus service than the No-Build not generate many more riders?

Fundamentally, the Managed Lane Alternative provides the existing bus system with a faster method of transiting the Corridor. Buses would be able to travel Koko Head bound in the AM peak on the Managed Lane Alternative at three times the current 20 mph operating speed of buses on the H-1 freeway. Buses can then return to their original departure point via the H-1 freeway in the Ewa Bound direction in relatively uncongested traffic.

This will allow some express buses to make two round trips in the time it presently takes to make one. One might anticipate that such efficiency would allow a considerable increase in ridership to be achieved at about the same operating costs as is experienced *currently*, allowing for inflation.

Instead, the Alternatives Analysis forecasts that the Managed Lane Alternative would require the operation of 48 percent more buses[40] than the No-Build Alternative while carrying only five percent more trips[41] and that this would cost 36 percent more in operating costs than the No-Build and even more than the FGA.

In addition, the Alternatives Analysis projected a totally unnecessary 5,200 parking stalls for the Managed Lane Alternative, only slightly less than the 5,700 stalls projected for the entire rail line other than a pro-rata increase in the 529 stalls presently available, nor is there any need for bus stations on Managed Lane Alternative.[42]

The City's and Parsons Brinckerhoff's plan has been to simply drive up operating costs to project that the Managed Lane Alternative is uneconomical in comparison with rail transit.

d) Effects on vanpools not considered.

The same benefits accruing to buses, including and freedom from toll charges, will also apply to vanpools. Such travel time savings can increase bus and van ridership and decrease both the amount of traffic and the share of low occupancy vehicles.

Vanpools have by far the lowest use of energy of any form of mechanized transportation using only 1,322 BTUs per passenger mile.[43] That is less than one-third of that used by the unweighted average of rail transit lines and so offers a significant opportunity to reduce energy use, reduce emissions, reduce traffic congestion, and since vanpools require no operating subsidy, an opportunity to reduce TheBus operating losses.

e) Ingress/egress insufficiently studied

Parsons Brinckerhoff and the City engineered the ingress and egress ramps in a way that could only result in heavy traffic congestion at the Koko Head end of the Managed Lane Alternative.

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38 Alternatives Analysis, Table 2-1, at: http://www.honolulutraffic.com/AAD.pdf

39 The bus fleet data is taken from the Alternatives Analysis, Table 2-1, and the daily trips data from the Alternatives Analysis, Table 3-7. The percentages shown are calculated from these data. At: http://www.honolulutraffic.com/AAD.pdf

40 Alternatives Analysis, Table 2-1.

41 The bus fleet data is taken from the Alternatives Analysis, Table 2-1, and the daily trips data from the Alternatives Analysis, Table 3-7. The percentages shown are calculated from these data.

42 Alternatives Analysis, pp. 3-7/8 and 3-10, at: http://www.honolulutraffic.com/AAD.pdf

43 U.S. Dept. of Energy Data Book, table 2.12, at: http://cta.ornl.gov/data/tedb27/Edition27_Chapter02.pdf

The Task Force Report, Appendix 3,[44] contains the following statement,

> *In its discussion of travel time benefits of the Managed Lane options, the Alternatives Analysis projects that traffic congestion at both the H-l Freeway access to the Managed Lane facility and at the Nimitz Highway exit at Pacific Street will negate travel time benefits gained from travel on the Managed Lane facility itself. The Analysis should explore how traffic congestion at these points could be alleviated (at least for mass transit vehicles) in order to enhance the overall performance of this Alternative as a transit guideway.*

Parsons Brinckerhoff made no discernible effort to apply its engineering competence and ingenuity to the question of ingress and egress for the Managed Lane Alternative in the Alternatives Analysis.

In his letter to the City, copied to the Federal Transit Administration (FTA), Dr. Panos Prevedouros, Professor of Traffic Engineering at the University of Hawaii, Chair of the Transportation Research Board's Highway Micro-simulations Committee and himself a member of the Task Force, commented,

> *"... the most egregious violation of FTA's rules on alternative specification and analysis was the deliberate under-engineering of the Managed Lanes Alternative to a degree that brings ridicule to prevailing planning and engineering principles."*[45]

Dr. Prevedouros in his micro-simulation studies of differently designed entry and exit ramps for the Managed Lane Alternative shows that with properly designed ramps[46] traffic congestion can be reduced and excessive traffic congestion would not occur even during peak-hour traffic.

f) The City's lack of due diligence

The Task Force consisted of seven individuals to advise it on the Alternatives Analysis. Kazu Hayashida, a former Director of the Hawaii Department of Transportation (HDOT), was appointed Chairman.

In turn, the Chairman appointed two members to be a Technical Review Subcommittee to review construction costs. One had been a long time senior employee of the Hawaii State Department of Transportation (HDOT) and the other was the recently retired Director of Honolulu's City Department of Transportation Services and a former HDOT Director. Neither one had the expertise to judge construction costs in detail especially for a project of this magnitude and complexity.

After the Subcommittee's first report to the Task Force that they believed the projected Managed Lane Alternative costs in the Alternatives Analysis to be reasonable, we asked the subcommittee members for a list of the companies they had contacted. We believed there needed to be a detailed reconciliation between the Tampa Expressway cost (less the design error) of $320 million and the Parsons Brinckerhoff estimate of $2.6 billion for the Managed Lane Alternative. They told us they had only talked to the local office of Parsons Brinckerhoff, which had produced the projections, and had been assured that the cost estimates were reasonable.

They talked subsequently to engineers at the Hawaii Department of Transportation who told them that the 36-foot wide Managed Lane Alternative would need eight-foot supporting piers, totally ignoring the fact that the 59-foot wide Tampa Expressway has only six-foot piers. They mention that most agencies on the Mainland use $100 to $200 per square foot to price elevated highways but since they had not talked to Figg Bridge they would not know that they quote slightly less

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44 Attached as Appendix B.

45 www.honolulutraffic.com/NEPAScopingReport.pdf p. A-180

46 http://www.honolulutraffic.com/UHCS_Report41.pdf p. 39.

than $100. Meanwhile they say that the State DOT uses $400-$500 per square foot but gives no sensible explanation of why that should be.

A project involving billions of dollars should be expected to receive reasonable due diligence on the part of the City Council's Task Force. To the contrary, there was little, if any, performed.

Accordingly, we suggested a consultation with the Tampa Expressway Authority and with PCL Construction Services, Inc., which had built both the Tampa Expressway and the Hawaii Convention Center, and maintained offices in both Tampa and Honolulu and would be familiar with the costs and construction difficulties in both cities.

We also suggested they contact the Figg Bridge Company who had designed the Tampa Expressway incorporating its new low-cost construction methodology. One of the subcommittee members made a single, short phone call to the Tampa Expressway Authority; no one contacted PCL or Figg Bridge.

Dr. Martin Stone, AICP, Director of Planning, Tampa-Hillsborough Expressway Authority, whose project won the International Bridge, Tunnel and Turnpike Association's 2007 Award for the Best Toll Operations Project in the World, told them that the City's cost estimate was too high but they obviously did not follow up with that.

When one considers that Parsons Brinckerhoff maintains its national bridge practice in Tampa and actually designed a part of the Tampa Reversible Express Lanes project one would think that they should have been contacted also but it is our understanding that they were not. The Subcommittee report was made part of the Task Force Final Report.[47]

The Task Force Final Report makes it clear that there was inadequate study of the Managed Lane Alternative.

> *"... the Alternatives Analysis should have presented variations on the Managed Lane Alternative that could make this alternative more attractive. Appendix 3 contains suggestions for fleshing out possible variants of the Managed Lane Alternative."*[48]

The Report's Appendix 3, "*Suggestions for further development of the Managed Lane Alternative*," written by the former Chief Counsel of the USDOT's Volpe Center, David Glater, acting as the Transportation Analyst for the Task Force, concurs in finding an under-engineering of the Managed Lane Alternative by producing the list of suggested modifications attached as our Appendix B.[49] From this it is obvious that Mr. Glater anticipated these modifications to be adopted in the Draft EIS process.

The City and Parsons Brinckerhoff ignored these and all other the recommendations of the Task Force regarding the Managed Lane Alternative and omitted from the Draft EIS any mention of the Task Force, or its Final Report, or the highly relevant questions it posed..

We believe this cavalier attitude on the part of the City regarding due diligence violates the rule that,

> *The Council on Environmental Quality (CEQ) requires the data and analyses in an EIS are commensurate with the importance of the impact.*[50]

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47 www.honolulutraffic.com/TaskForceReport.pdf
48 Task Force Final Report. p. 4/7
49 www.honolulutraffic.com/TaskForceReport.pdf pp. A-32 to A-33. Appendix 3 also attached as our Appendix B
50 40CFR1502.15

Subsequent to the Alternatives Analysis process, a micro-simulation study undertaken by Dr. Prevedouros and his students concluded that,

> *[The Managed Lane Alternative] would reduce H-1 congestion by 35%, reducing drive times from 4 to 22 minutes. An express bus commuter would make the same trip in 12.7 minutes. The greatest benefit of HOT lanes would accrue to those who never use them; they would pay no added taxes or tolls yet would experience dramatically reduced congestion.* [51]

g) Summary of the case for reinstating the Managed Lane Alternative in the EIS:

> *Methodology and scientific accuracy. Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix. (40CFR1502.24)*[52]

The Draft EIS and its accompanying technical memoranda offer no evidence that the City and Parsons Brinckerhoff ever undertook to "*rigorously explore and objectively evaluate*"[53] the Managed Lane Alternative as required by NEPA.

> *Environmental impact statements shall be concise, clear, and to the point, and shall be supported by evidence that agencies have made the necessary environmental analyses.* [54] *(emphasis added)*

We ask that the FTA require the City re-assess the Managed Lane Alternative in a Supplementary Draft EIS using a less "client focused" and more independent consultant. Such an independent re-evaluation should perform the following:

1. The requisite due diligence a project of this magnitude warrants.
2. Have qualified cost estimators reconcile and document in detail the difference between the City's Managed Lane Alternative cost projections and the actual costs of similar facilities in Florida and determine the reasons for the differences between them.
3. Project the outcome of using three-lanes rather than two for all or part of the facility.
4. Project the outcome of distributing Koko-Head bound traffic by way of egress ramps in a manner similar to that shown in Professor Prevedouros' UHCS study.
5. Project the outcome of following the suggestions made in Appendix 3 of the Task Force Report.

If this is done the EIS will meet the requirements of this particular directive:

> *During the draft EIS stage all reasonable alternatives, or the reasonable range of alternatives, should be considered and discussed at a comparable level of detail to avoid any indication of a bias towards a particular alternative(s).*[55]

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51 *Transportation Alternatives Analysis for Mitigating Traffic Congestion between Leeward Oahu and Honolulu: A Detailed Microsimulation Study.* (UHCS Study) Directed by Professor Panos D. Prevedouros with the Participation of Undergraduate and Graduate Students Specializing in Transportation Studies. University of Hawaii. 2008.

52 http://edocket.access.gpo.gov/cfr_2008/julqtr/pdf/40cfr1502.24.pdf

53 40CFR1502.14

54 40CFR1500.2(b)

55 http://www.environment.fhwa.dot.gov/projdev/tdmalts.asp

In addition the U.S. Secretary of Transportation has responsibilities under 49USC5309(d)(3),

> *... for a major capital investment grant, the Secretary shall analyze, evaluate, and consider*
>
> *(A) the results of the alternatives analysis and preliminary engineering for the proposed project;*
>
> *(B) the reliability of the forecasting methods used to estimate costs and utilization made by the recipient and the contractors to the recipient;*

The Alternatives Analysis was legally insufficient and without a reinstatement of the Managed Lanes Alternative and a more rigorous and scientific assessment of its benefits in a Supplementary Draft EIS, how can the Secretary possibly make a reasoned judgment?

The importance to the people of Honolulu of thoroughly evaluating all reasonable alternatives as required by NEPA is that one or more of the alternatives may offer an opportunity at reasonable cost to provide mobility without needing to construct an elevated rail line along the Honolulu waterfront and through the center of town.

> *(e) Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.*[56]

Virtually all of Hawaii's environmental organizations are opposed to elevated rail running through the core of the city of Honolulu with all the concomitant visual blight and noise disturbances that it brings. We need to avoid such an environmental disaster if at all possible.

2. Use of the 2003 BRT Project

With some fairly minor modifications the 2003 Bus/Rapid Transit Project, as fully described in the July 2003 Final Environmental Impact Statement,[57] is a "reasonable alternative" that should have been considered in the current Draft EIS since with its projection of 313,000 daily linked trips, it was forecasting higher ridership than the current rail project for less than $1 billion in capital costs.[58]

The State's objection at that time to the Regional segment of the Project appears to have evaporated since they have been recently considering changes to H-1 similar to those contemplated in the 2003 FEIS.

Objections to the In-Town segment could easily be mitigated by adoption of the King/Beretania transit couplet described in Dr. Prevedouros' UHCS study. The In-town segment's time savings for the Downtown to Waikiki trip projected in the 2003 FEIS were inconsequential and should not affect the project's overall cost-effectiveness.

3. The EZway Plan

The basic goals of the EZWay plan are to provide:

a) Substantial congestion relief largely caused at the H-1/H-2 and H-1/Moanalua freeway merges by adding critical high occupancy capacity,
b) Express bus mass transit primarily in the west Oahu to downtown corridor.
c) Traffic relief at other major congestion spots in Honolulu; and,
d) Express transit connections to the University of Hawaii at Manoa.

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[56] http://www.nepa.gov/nepa/regs/ceq/1500.htm §1500.2(e)
[57] http://www.honolulutraffic.com/feis_all_files.pdf
[58] http://www.honolulutraffic.com/feis_all_files.pdf p. 34.

The EZWay plan extends the transit service requirement of rail by providing a wider coverage, combines strong elements of managed lanes without the use of tolls, and takes advantage of the extensive experience of running bus public transit on Oahu and the Regional BRT plan of 2001-2003. The basic elements of the plan are outlined below and discussed in brief.

The EZWay consists of:

1. three elevated reversible lanes from the H-1/H-2 merge to Iwilei, with a priority BRT from downtown to the UH,
2. express buses having exclusive use of freeway shoulders in order to travel at near free flow speeds from/to the EZWay,
3. a downtown underpass for efficient downtown traffic distribution, and
4. a new Auahi Street transit center for west Oahu bus passenger distribution to Kakaako, Ala Moana and Waikiki.

(1) The EZWay structure is a fully managed expressway facility that can be described as three reversible elevated zipper lanes starting at the H-1/H-2 merge and terminating at Pier 16 with off-ramps at Aloha Stadium/Pearl Harbor, Lagoon Drive and Waiakamilo Street. The right lane is an exclusive bus lane throughout the length of the facility. At Iwilei, one elevated lane goes to Hotel St. to connect with King/Beretania BRT (University spur BRT). University BRT runs on priority lanes and with priority signaling along King and Beretania Streets.

The EZWay will open with a minimum occupancy requirement of three people per vehicle. This requirement may be increased in the future to avoid congestion. No tolls will be collected. Automated steep fines applied to low occupancy violators. No trucks allowed at any time. Open to all emergency vehicles at all times. Open to green vehicles with greater than 35 mpg EPA highway fuel consumption. This threshold is also subject to change in order to maintain at least 50 mph speeds in peak periods. Therefore, usage on the EZWay is controlled macroscopically, by occupancy and fuel efficiency requirement, rather than microscopically by electronically incrementing tolls.

(2) Kapolei and Ewa Beach Bus Rapid Transit (BRT) connectors to Waipahu: Hybrid or fuel cell buses will be allowed to use shoulders on on-ramps and a few elevated passages or priority lanes at intersections (queue jumpers) which allow them to get by chronically congested spots. Includes a Waipahu (Farrington Hwy.) on-ramp to/from the EZWay.

Express buses from Waianae and Makakilo may use upgraded H-1 freeway shoulders to get to the EZWay quicker. The same priority treatment applies to express buses from Mililani and Wahiawa.

(3) Ala Moana Blvd. Downtown Underpass (mini-tunnel) starting east of River Street and ending both at Alakea Street and Halekauwila Street. Same tunnel reverses in the PM period from Halekauwila Street and Bishop Street to Nimitz Hwy. contraflow lane onto the elevated zipper lanes. The underpass may continue to large new parking lot(s) east of Punchbowl Street. As a result, a large portion of vehicular traffic may "disappear" from downtown by going from the EZWay, through the mini-tunnel directly into a parking structure, one block east of Punchbowl Street.

(4) New Ward Centers bus terminal on Auahi Street. Express buses that arrive from the EZWay stop at this terminal and either return to origin, or continue as regular bus to Ala Moana Center. Contracted tour buses may be deployed at this terminal for direct worker distribution to Waikiki hotels.

Appendix A

Ours and the City's projected costs for the Managed Lanes Alternative versus the Tampa Expressway and the H-3 Freeway — in millions of dollars.

Tampa Expressway			
	Cost index		
2001	144.8	$320.0	original cost
2006	221.3	$489.1	inflated using construction cost index
+32%		$645.6	to allow for Florida/Hawaii cost change
	length	14.0	Miles
		$46.1	Cost per mile
	Lanes	2.4	
		$19.2	Cost per lane/mile based on 2 lanes

H-3 Freeway			
Year	Cost Index	Real cost	
1991	107.5	$1,300	Original Cost
2006	221.3	$2,676	Allowing for Construction inflation
	Length	16.1	Miles
		$166	Cost per mile
	Lanes	4	
		$42	Cost per lane mile

City's Managed Lane Alternative projected cost			
Year		Real cost	
2006		$2,572	
	Length	16	miles
		$161	Cost per mile
	Lanes	2	
		$80	Cost per lane mile

Honolulutraffic.com Managed Lane Alternative projected cost			
Year		Real cost	
2006		$900	
	Length	12	miles
		$75	Cost per mile
	Lanes	2	
		$38	Cost per lane mile

Adjusted cost per lane-mile	
Facility	$millions
Tampa Expressway	$19.2
H-3 Freeway	$42.0
Our MLA estimate	$38.0
City's MLA	$80.0

All construction cost inflation is corrected using the PRICE TRENDS FOR FEDERAL-AID HIGHWAY CONSTRUCTION available at:

Appendix B

TRANSIT ADVISORY TASK FORCE

c/o Honolulu City Council
530 5. King Street, Room 202
Honolulu, HI 96819
Phone: (808)523-4139

Appendix 3

Suggestions for further development of the Managed Lane Alternative.

- The Alternatives Analysis' description of the characteristics of the Managed Lane Alternative should provide more complete information as to mass transit operations utilizing this facility. The Alternatives Analysis States that new express and other bus transit routes would be developed for operation on the Managed Lane facility. (p. 2-4) A fuller development and presentation of the transit services that would accompany the Managed Lane Alternative would be helpful (e.g., routes, new/existing stations). There is no description in the Alternatives Analysis of any proposed supportive operational practices off of the Managed Lane facility that would complement the facility's use as a transit guideway, e.g., transit stations connected to park-and-ride facilities, reserved lanes for transit vehicles on existing streets, traffic signal priority for transit vehicles.

- In its discussion of travel time benefits of the Managed Lane options, the Alternatives Analysis projects that traffic congestion at both the H-l Freeway access to the Managed Lane facility and at the Nimitz Highway exit at Pacific Street will negate travel time benefits gained from travel on the Managed Lane facility itself. The Analysis should explore how traffic congestion at these points could be alleviated (at least for mass transit vehicles) in order to enhance the overall performance of this Alternative as a transit guideway.

- The description of the Managed Lane Alternative in Chapter 2 of the Alternatives Analysis states "The H-1 zipper lane would be maintained in the Two-direction Option but discontinued in the Reversible Option." (p. 2-4). However, no explanation is provided as to why the zipper lane would not be continued in the Reversible Option. The Managed Lane Reversible Option's addition of two Koko Head-bound elevated lanes for the morning commute appears to result in a net increase of only one lane if the inbound zipper lane were removed.

- The foldout photographic plans presenting the Managed Lane Alternative (Alternatives Analysis, Figures 2 -1 and 2 -2) do not clearly depict the ramp lanes necessary to access the Managed Lane facility from Interstate Highways H-l and

H-2 in both the Two-direction Option and the Reversible Option, or the ramp lanes necessary to exit from the facility to these Interstate Highways.

- These plans show an approximately one-mile long "facility" in the vicinity of Kaonohi Street (Figure 2-1), and another in the vicinity of Radford Drive (Figure 2-2), however no description of these facilities is provided. In discussions with DTS Administration staff, these facilities have been identified as transit stations with attendant deceleration and acceleration lanes. Assuming this to be the case, it would be helpful to see the proposed location(s) of park-and-ride facilities planned near these stations, comparable to the information presented in Table 3-5, with respect to the Fixed Guideway Alternative. It is not apparent whether the stations would operate in both the Two-direction Option and the Reversible Option. What are the cost implications of adding access/exit ramps for transit vehicles instead of building elevated transit stations?

- Figure 2-2 shows a small section of the Managed Lane facility approximately 2000 feet Koko Head of the end of the facility at Nimitz Highway/Pacific Street. This component of the Managed Lane facility is not explained. Is it an elevated structure or at-grade? Which Managed Lane users would be allowed to access it?

- Figure 2-1 shows two ramps in the vicinity of Aloha Stadium. It is not clear whether these ramps would be available in both the Two-direction Option and the Reversible Option, or whether these ramps would be available to other than transit vehicles (e.g., to vans, three-person and two-person automobiles, and/or single-occupant automobiles paying tolls).

See also Financing Committee's report discussing changes in permitted access to the Managed Lane facility that might make the facility eligible for New Starts and/or GET ½% surcharge funds.