February 6, 2009

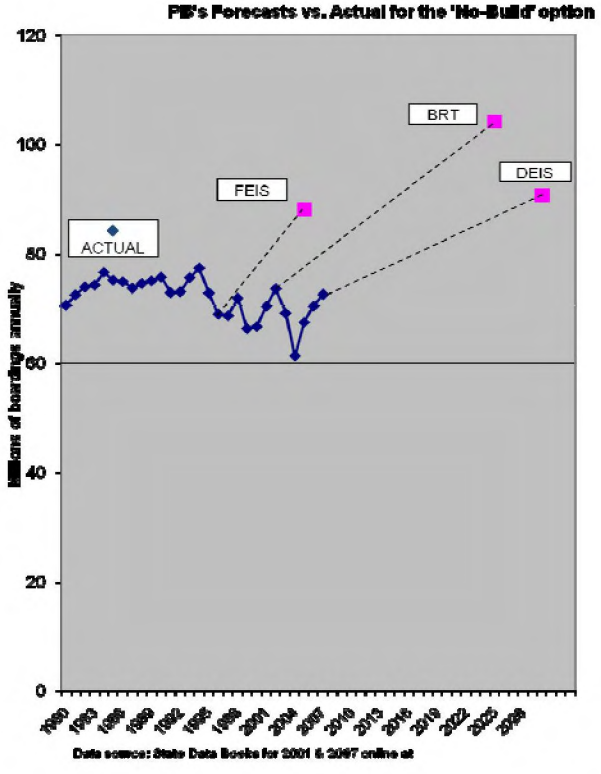
Part V — Unjustifiable forecasts:

1. Ridership forecasts

The No-Build forecast is irrational and it stems from the fact that proponents refuse to recognize that transit continues to lose market share to the automobile and has been doing so for as long as the Census has been collecting commuting data.

We can also measure the decline by using total urban transit boardings and divide it by urban populations — a number that used to be known as the *riding habit*.

Transit boardings per capita of urban population peaked in 1917 at 289 boardings annually. It declined slowly to 276 by 1926 then dropped precipitously during the Depression to 176 by 1940. It increased during World War II and then dropped back down to the earlier level at the end of the war and then declined steadily to 49 in 1970. Since then it has dropped to today's level of 42.



While the decline continues on it is at a much slower rate. And that is because of the subsidies.

In 1960 transit companies were, for the most part, profitable tax-paying privately-operated businesses. In the 1970's began the massive subsidies for transit from local, state and federal governments — some $260 billion just in the last ten years. It has slowed the decline in transit's market share but it has not stopped it.

Honolulu has followed the national trend. Our ridership is slowly declining over time as can be seen from the chart below using the City's ridership data.[1] But while the ridership is declining despite increased population and providing higher service levels to the public, the City and Parsons Brinckerhoff continue to forecast increases for the No-Build alternative, which is what happens if we do little more than we are doing now and have done for the last thirty years.

The chart shows the last three forecasts made by Parsons Brinckerhoff for the No-Build option for the 1992 rail project, the 2003 forecast of No-Build for the BRT program and now the No-Build forecast for this Draft EIS.

The importance of the No-Build forecast is that the rail transit forecast uses the same computer forecasting model. Thus, if the No-Build is optimistic, so are all the forecasts that use the same model, such as the rail transit forecast.

[1] http://hawaii.gov/dbedt/info/economic/databook/Data_Book_time_series/ Table 18.25

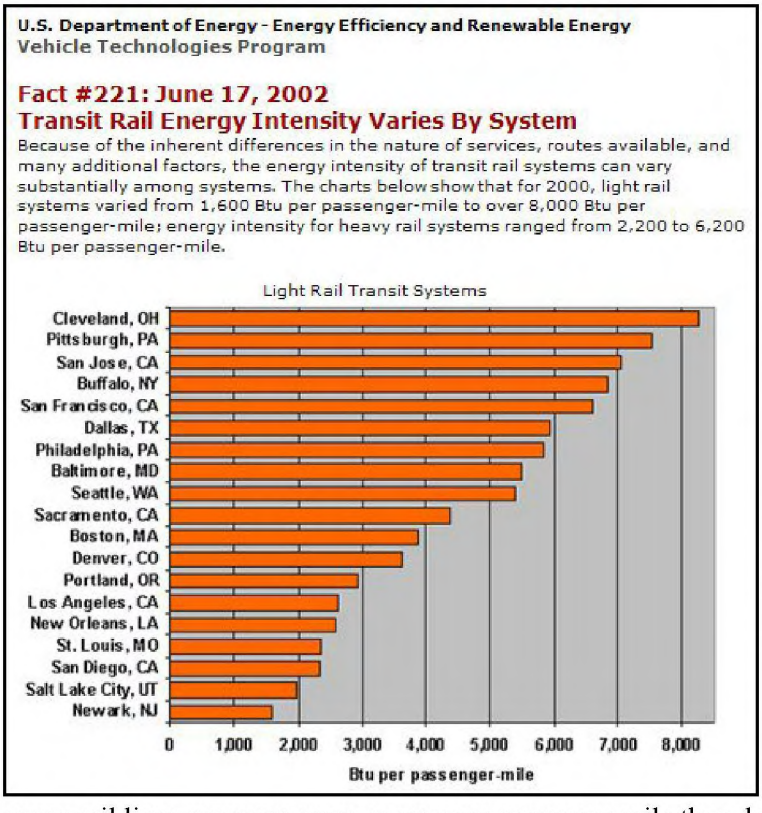
Take a hard look at the above chart. Remember that during this period Oahu has had two periods of incredible fuel cost spikes and declines. We have had periods of great prosperity in the 1980s and late 1990s to 2007 and economic hardship in the early 1990s. We have had population growth and a period of slight population decline. And while we had a general slight decline in bus ridership it was a considerable decline relative to population growth.

The historical data strongly suggests that we will get more of the same unless major changes were to occur.

Since the last two forecasting models have been drastically wrong on Honolulu ridership and since there have been dramatic shortfalls in ridership projections for virtually all new U.S. rail transit systems,[2] the public should be wary of the ridership forecasts for the Project and consider the impacts of lower (and higher) ridership on their future taxes.

The last rapid transit line to open in the U.S. was Puerto Rico's Tren Urbano line which only achieves 40 percent of its FTA approved ridership projections.

2. Projected energy savings have not been carefully examined.



The U.S. Dept. of Energy has measured the energy use of rail by system and finds the following:

"Because of the inherent differences in the nature of services, routes available, and many additional factors, the energy intensity of transit rail systems can vary substantially among systems. The charts [see here and Appendix C] show that for 2000, light rail systems varied from 1,600 Btu per passenger-mile to over 8,000 Btu per passenger-mile; energy intensity for heavy rail systems ranged from 2,200 to 6,200 Btu per passenger-mile."[3]

The average energy use of automobiles is 3,400 Btus per passenger mile according to the U.S. Dept. of Energy.[4] Thus, many rail lines consume more energy per passenger mile than does the average automobile with a typical 1.1 occupants.[5]

Undoubtedly, a full train uses less energy per passenger than a single-occupant vehicle; however, trains are rarely full in both directions except in extremely highly populated metropolitan cities.

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2 See page 5.

3 Fact #221: June 17, 2002 Transit Rail Energy Intensity Varies By System

4 Source: 2007 DOE Energy Data Book. Table 2.13. At: http://cta.ornl.gov/data/tedb27/Edition27_Chapter02.pdf

5 Load factor used was 1.1 occupants for automobiles and 1.72 occupants for light trucks and SUVs. Source: http://cta.ornl.gov/data/tedb27/Edition27_Appendix_A.pdf

Where the confusion arises is that rail proponents unjustly tout the *weighted* average of rail transit energy use. This average is dominated by the energy efficient New York subways, which carry 57 percent of the nation's rail transit traffic and masks the relative energy inefficiency of most other rail lines.

But Honolulu is not going to use the ultra heavy rail equipment, such as New York's, because it does not have the population size to support such equipment.

In addition, autos travel directly from their point of origin to their destination, and therefore, the total miles travelled are much less than by transit – and thus more energy efficient.

With the continued growth of hybrid cars and buses we may expect their energy efficiency to continue to significantly improve up to the horizon year of 2030 while rail transit projections are not forecasting savings.

Construction energy use:

Another form of energy use is that used for its construction. The following is an excerpt from the Congressional Budget Office testimony given by its Director, Alice Rivlin, before the Subcommittee on Transportation, Committee on the Environment and Public Works, United States Senate on October 5, 1977.

> *"In particular, new heavy rail systems appear much less energy-efficient than new bus services, when the energy needed to build roadways and track, the energy needed to manufacture and maintain vehicles, the energy used to heat and light stations, the energy required to drive to stations, and the directness of alternative modes of travel are taken into consideration. The principal reason for this is that the limited route mileage of rail systems necessitates a high degree of auto travel to and from stations, resulting in overall, door-to-door travel patterns that are less energy-efficient than rail travel by itself."*

In short, we believe it will be very difficult for the City to show scientifically and "in an accurate, clear, complete, and unbiased manner"[6] that the proposed rail line is more energy efficient than the average automobile.

The Draft EIS shows:

Daily operating energy for Airport Alternative:	1,224 million btu/day
Construction energyfor Airport Alternative:	7,480,000 million btu

This means construction energy would be 20 years worth of daily energy usage. If we allow a 50 year life for the train and spread the construction energy use over its life then we need to increase the daily usage by 40 percent to get a better picture of energy use.

The construction energy issue together with the shorter distance covered by the automobile makes it almost impossible for even a highly energy-efficient rail line to be more energy efficient than the regular automobile and this should be made clear to the public.

3. The Draft EIS financial plan is unduly optimistic

The City's recently released financial plan shows us that rail is to be funded primarily by the ½ percent General Excise Tax surcharge amounting to $4.1 billion and the federal government with $1.4 billion for a total of $5.5 billion.

The Airport Alternative capital plan shows federal New Starts funding of $1.4 billion and this is much higher than what has been discussed heretofore.

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[6] OMB Guidelines for ensuring the integrity of information. http://www.whitehouse.gov/omb/fedreg/reproducible2.pdf

What is not discussed is that the additional operating subsidy for rail is not accounted for in the cash flow plan but will be paid for with the General and Highway Funds, which is to say, by property taxes. This subsidy grows 34 percent over inflation through 2030 and the total operating subsidy amounts to $5.4 billion during this time.

In addition, even if this highly optimistic financial plan is met, not only would we have $5.4 billion to meet out of property taxes (either increases or foregone reductions) but we will also have over $500 million more in General Obligation bonds than at present.

The City plan shows the GE tax surcharge revenues growing at 5.4 percent compounded annually for 2008-2022 even though that is much faster than the 4.5 percent that it grew during 1992-2005.

The table below consists of the city's forecast taken directly from their Cash Flow Tables associated with the Draft EIS. Calculations of City collections of the ½% GE tax increase					
Fiscal year	Our calculation		City forecast		$ diff.
	Mills. $'s	% change	Mills. $'s	% change	Mills. $'s
2007	$48	Actual	$13	N/A	$35
2008	$169	Actual	$161	N/A	$8
2009	$173	2.5%	$188	16.8%	-$15
2010	$167	-3.5%	$198	5.3%	-$31
2011	$169	1.3%	$207	4.5%	-$38
2012	$174	3.0%	$214	3.4%	-$40
2013	$180	3.1%	$228	6.5%	-$48
2014	$190	5.9%	$242	6.1%	-$52
2015	$203	6.6%	$253	4.5%	-$50
2016	$215	5.7%	$265	4.7%	-$50
2017	$222	3.4%	$274	3.4%	-$52
2018	$231	4.0%	$285	4.0%	-$54
2019	$243	5.3%	$300	5.3%	-$57
2020	$250	3.0%	$309	3.0%	-$59
2021	$260	3.9%	$321	3.9%	-$61
2022	$273	5.0%	$337	5.0%	-$64
2023	$143	5.0%	$261	N/A	-$118
Total	$3,312		$4,056		-$744

Our calculation uses actual collections given by the City's Department of Budget and Fiscal Services for fiscal years 2007 and 2008[7], the projection of percentage increases and decreases in GE tax collections by the State Council on Revenues 2009-2015[8], and the City's projection of annual percentage increases in GE tax revenues for 2016 through 2023 as calculated from their Cash Flow Tables.[9]

The net result is a $744 million shortfall from what the City is projecting. It shows that the City is going currently into deficit and when the economy turns positive the City never catches up.

7 http://hawaii.gov/tax/monthly/2008fyr1.pdf The gross revenues are shown before the State takes its ten percent share.
8 ESTIMATES OF GENERAL FUND TAX REVENUE: FY 2009 to FY 2015 at http://www.state.hi.us/tax/cor/2009gf01_with0112_Rpt2Gov.pdf page 4 of 8.
9 http://www.honolulutraffic.com/Cash_Flow_Table.xls

4. Risk assessment understated

The risks that Honolulu taxpayers are taking that are possible, and more likely probable, from inaccurate forecasting are poorly and insufficiently addressed.

The federal government has published two formal studies comparing predicted with actual impacts of New Starts projects. In another omission these are not so much as mentioned or referenced in the Draft EIS.

The financial risk assessment is superficial in that it describes events that could affect the financial performance of the Project, but does not address the consequences. For example, the Draft EIS discusses factors that could affect Project capital costs and funding, and Project operating costs and revenues, but it does not elaborate (or even mention) the consequences of any shortfall in capital of operating cash flow.

A significant capital shortfall could result in stoppage of the Project at an intermediate stage, and/or delay in completion of any or all of the extensions or be made up by incurring further debt.

A significant shortfall in cash flow could result in deferral of other City projects or programs, or would have to be made up by City subsidies, which are primarily funding by property taxes.

At a minimum, the risk assessment should include such items as:

- How any additional borrowing will be paid for.
- A sensitivity analysis of Project negative cash flows (capital or operations) on property taxes.
- A detailed analysis of projects that would have to be delayed (including this one) based on insufficient capital.
- Identification of environmental projects that would be affected (sewage plant upgrades, collection system upgrades, sewer maintenance).
- Identification of quality-of-life issues (road maintenance and repairs, park maintenance and other city services).

The EIS needs to explain "in plain language" the financial risks taxpayers will be taking with the City's rail transit proposal.

This is particularly important for Honolulu since, on a per capita basis, the $4.5 billion in 2008 dollars (or $5.4 billion in year of expenditure dollars) projected cost would make it by far the most expensive rail lines on a per capita basis ever built in the U.S, even allowing for inflation and without cost overruns.

Rail transit costs per capita of population[10]

MSA	Cost in millions 2006$'s	Metro area population (thous.)	Cost per capita
Dallas	$1,067	5,222	$204
Denver	$358	2,582	$139
Portland	$1,643	2,265	$725
Sacramento	$307	1,797	$171
Salt Lake City	$376	1,334	$282
St. Louis	$464	2,604	$178
Pittsburgh	$1,051	2,571	$409
Honolulu	$4,200	920	$4,565

To make a sensible assessment of the financial risks of the project, policy makers need to review the experiences of other metro areas that have built rail lines with actual versus projected capital and operating costs and ridership. The use of comparable projects is widespread in business planning and certainly in real estate. It should be an FTA requirement that transit agencies include comparable data in their EISs.

[10] The data in the table is not completely reliable but does approximate the relative per capita costs.

Until recently the only official U.S. Department of Transportation (USDOT) comparisons of other metro areas capital cost projections and ridership versus actual outcomes, was the 1990 *Pickrell Report*[11] which focused "upon the accuracy of projections that were available to local decision-makers at the time the choice among alternative transit improvement projects was actually made" (original emphasis). This is usually the time when the Locally Preferred Alternative is selected.

This report showed cost overruns for the eight rail projects studied as averaging 42.8 percent. Importantly, they revealed a wide error range from the best, the original Pittsburgh light rail line, at 11 percent under projection, to the worst, at 83 percent over.

The second study, FTA's *Predicted and Actual Impacts of New Starts Projects*[12] was released last year and also compares projected costs at the Alternatives Analysis/Draft EIS and FEIS stages with actual costs. The average cost overrun in this study was 40.2 percent.

Many agencies use cost forecasts that were made much later in the process, some just before the opening of the line, long after the primary decisions had been made. These tend to show much higher projected costs and therefore show a greater likelihood of coming in "under budget."

Furthermore, in reviewing the two studies we find little consistency in the percentage overruns. While the averages are around 40 percent over, they vary from 28 percent under projection to 186 percent over so we can take little comfort from the averages.

The following table shows the range of errors and also the average error for both cost and ridership projections in each of the two reports.

More important than averages is the distribution of the various error rates. For example, if the resulting costs of the 21 projects were between ± 10 percent of the original projections it would be a reasonable indication to the public of the accuracy of the projections.

Projections versus Actual — Ridership and Costs				
	costs vs. projections		Ridership vs. Projection	
	Cost range	Average	Range	Average
Pickrell Report	-11% to +83%	+43%	-28% to -85%	-62%
FTA CPAR Report	0% to +186%	+40%	-84% to +39%	-39%

But when faced with actual results that range from on budget to nearly triple the projection, what is the public to make of it? Based on the wide range of uncertainty, what is the public to believe?

Even if we were to use just the average it would increase the Honolulu Project cost from $4.5 billion to $6.3 billion — a nearly $2 billion increase. And ridership would be 39 percent lower than projected,[13] which would mean fare revenues of $800 million less than the City is planning on through 2030.

The City Administration will undoubtedly paint this as ridiculously improbable and wildly pessimistic.

However, each of these recent 21 capital cost projections was thought at the time to be reasonable by both the transit agency and its consultant who produced them. Just as our City Transportation Department and its consultants, Parsons Brinckerhoff and InfraConsult, also believe their current cost projections are reasonable.

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[11] Pickrell, Don H. Urban Rail Transit Projects: Forecast Versus Actual Ridership and Costs. U.S. Dept. of Transportation. October 1990. Informally known as the Pickrell Report.

[12] Federal Transit Administration. *The Predicted and Actual Impacts of New Starts Projects — 2007: Capital Cost and Ridership.* April 2008. We used the Alternatives Analysis/Draft EIS forecasts for comparison as did the Pickrell Report.

[13] http://www.fta.dot.gov/documents/NSPA2007_Final(1).pdf Table 7.

In addition, the FTA's in-house analysts and outside consultants also examined each of these 21 capital cost projections in great detail and thought them all reasonable.

And so here we have innumerable transit planners, engineers and accountants, all well educated and experienced and all believing that, as a the result of their hard work, the cost projections are, dare we say it, reasonable. Yet each new project seems to ignore past experience, and in most cases, the project comes in significantly over budget.

The FTA believes that projects that are within ± 20 percent range are reliable.[14] On this basis, Honolulu's forecast could have nearly a billion dollar cost overrun and still be considered "reliable." But, in this latest FTA report, more than half of the projects exceeded the 20 percent deviation limit.

The public needs to understand the financial risk and implications of various levels of cost overruns, and then consider how, or even if, they, as taxpayers, can cope with the resulting financial impact. After all, Hawaii's senior Senator, Daniel Inouye, said that if the City had to spend one billion dollars fixing the sewage treatment facility, it would bankrupt us. The rail project could cost as much as $9 billion, before accounting for operating losses and bond interest. What would be the financial impact of that?

The Draft EIS shows us clearly that traffic congestion, with rail, is going to be far worse than it is today.[15] Is it reasonable to expect that Honolulu taxpayers to afford to risk this many billions of dollars on a project that will not reduce traffic congestion below today's unbearable levels?

The issue here is that the public needs to be provided in the EIS with sufficient quantified information about the financial risks and uncertainties in the project for them to understand what could be the impact on their future property taxes.

The Draft EIS states that transit operating subsidies will increase from the current less than 10 percent of the City Budget to 14 percent by 2030.[16] Since the subsidies will continue to be funded from the City's Highway and General Funds,[17] what will be the effect on property taxes given a range of errors for both capital costs and ridership?

5. Operating subsidies are understated:

The City projects operating subsidies to be 70 percent of operating costs, which has been a long-term City Council policy. Thus the higher the operating costs, the higher the subsidies.

Operating costs for the mid-priced Airport Alternative are projected to be $68 million[18] annually to carry unlinked trips (boardings) of 29.9 million[19], or $2.27 per unlinked trip.

However, nowhere in the Draft EIS is there any indication of what is being used as the basis for calculating operating costs.

Since we are planning to build an elevated steel-on-steel rapid transit system we should compare our projected operating costs with those of other U.S. cities with elevated rapid transit lines.

There are just two elevated lines that seem appropriate, the Miami Metrorail and San Juan's Tren Urbano. Their actual operating costs per trip in 2007 were $4.61[20] and $6.83[21] respectively. This would lead us to believe that Honolulu's projected $2.27 may be understated.

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14 CPAR p. 9.

15 Kalauao Screenline AM Peak Koko Head bound traffic volumes are forecast in the Draft EIS to increase by nearly 10 percent from today's levels with no additional highway capacity planned.

16 Draft EIS, pp. 6-7 & 8.

17 Draft EIS, Section 6.4.4.

18 Draft EIS, Table 6-3.

19 Draft EIS, Table 3-16 shows 95,000 average weekday boardings, which multiplied by 315 results in 29.9 million.

20 http://204.68.195.57/ntdprogram/pubs/profiles/2007/agency_profiles/4034.pdf

If we examine actual versus projected operating costs and ridership of other rail lines we can get a handle on the risks being taken in this cost category.

The FTA's latest assessment of ridership published last year showed average shortfalls from the projected ridership were 39 percent while the earlier *Pickrell Report* showed an average shortfall of 61 percent.

Another FTA Report released last year dealt with cost overruns for operating costs.[22] This showed an average cost overrun was 87 percent. This was remarkably close to the only other assessment of operating cost overruns, which was the *Pickrell Report* averaging 83 percent.

If we apply the 87 percent overrun to Honolulu's projected $68 million operating costs it results in $127 million. And if we reduce ridership by 39 percent to 58 million and then divide that into the $127 million it results in operating costs of $6.81 per unlinked trip, or three times the amount currently projected.

Since the aggregate operating costs for bus and rail combined through 2030 is currently projected at over $7 billion[23] the public should be made aware of the significant risk being taken in this area.

There is also a danger that we may have made insufficient allowance in the calculation for transit police, which is usually a major expense and transit agencies often omit it from their forecasts by accounting for it in other parts of their budgets.

Los Angeles pays in excess of $50 million annually for their Transit Police with about three times the rail ridership projected for Honolulu. We note that is no mention of such costs in the Draft EIS.

6. Replacement and Refurbishing

The city does not explicitly warn the public in the Draft EIS that virtually all of the rail cars, rail lines and other equipment will have to replaced, or rehabilitated, also known as R&R, within 35 years from the start of operations.

Other than to project that the City will expend $62 million[24] on R & R through 2030, the following two paragraphs is all that is said.

> *The estimates include ongoing costs for replacing, rehabilitating, and maintaining capital assets in a state of good repair throughout the forecast period (2007 to 2030). Rail rehabilitation and replacement costs are expected to begin 16 years after initial construction activities are completed. Draft EIS, 6-3.*
>
> *6.4.3 Ongoing Capital Expenditure Cash Flow: Systemwide ongoing capital expenditures include all necessary replacement, rehabilitation, and improvements to the existing system (TheBus and TheHandi-Van) as well as the Project. Funding sources used to pay for these capital expenses consist of discretionary and formula-based Federal funding programs (see Section 6.2.3, Funding Sources for Ongoing Capital Expenditures, for descriptions of these programs). Any resulting funding gap is assumed to be bridged on an annual basis with City General Obligation Bonds, as is currently the case with transit-related budgets. Therefore, the resulting ongoing capital sources and uses would balance in any given year. Draft EIS, 6-10.*

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21 http://204.68.195.57/ntdprogram/pubs/profiles/2007/agency_profiles/4094.pdf
22 http://www.fta.dot.gov/documents/CPAR_Final_Report_-_2007.pdf
23 Draft EIS Cash Flow Tables, Airport Alternative, total YOE$.
24 Draft EIS Cash Flow Tables. In 2008 dollars, or $116 million in YOE$.

Failing to provide for R&R results in this Washington DC headline that "Metro needs $11.3 billion" which goes on to explain that,

> *$7 billion alone is needed just to maintain service and keep the system running safely and reliably from 2010 to 2020. That includes repairs to leaking tunnels and crumbling platforms, as well as replacements for aging rail cars.*[25]

The following are some of the provisions made for R&R by other rail transit lines such as San Francisco's BART, the Chicago Transit Authority's rail transit, and Atlanta's MARTA, as follows:

Chicago Transit Authority capital expenditure plan spells out that:

> *"All rail cars rehabilitated at mid-life (12-13 years), overhauled at their quarter-life points (6 and 18 years), and either rehabilitated or replaced at the end of their useful life (25 years)."*[26]

Similarly, the Atlanta Transit Authority concurs:

> *"MARTA started work last year to rebuild and upgrade all 48 miles of track. It is an extensive project that will not be complete until mid-2007. Our trains have run every day for over 25 years – this work is necessary to keep the system strong for the next 25 years and beyond. The Track Renovation is part of a major capital program that also includes the overhaul of over 200 of MARTA's rail cars."*[27]

Los Angeles plans for R&R using the Peskin model:

> *"Projected rehabilitation and replacement costs are based on a methodology developed by Robert Peskin of KMPG Peat Marwick (commonly called Peskin Model). This methodology was developed based on actual costs experienced by the Washington Metropolitan Area Transit Authority (WMATA). Actual WMATA rehabilitation and replacement costs were compared to their original installation capital costs. The MTA rail rehabilitation and replacement costs were calculated in the same manner based on the Metro Blue, Red, Gold and Green Lines original installation capital costs. The rehabilitation and replacement costs are estimated to begin five years after a rail line begins revenue operations. Some limited repair is assumed in the forecasting model for the first few years as reflected in the five-year MTA Capital Improvement Program (CIP) and annual budget."*

Based on the MTA Office of Management and Budget near term forecast and Peskin Model in the later years the rail rehabilitation and replacement costs through 2025 are $4.7 billion.[28]

BART began its first major repair and rehabilitation plan in 1994 at a cost of $1.2 billion within only 20 years of opening. At the time, their balance sheet showed "Facilities, property and equipment" was $2.4 billion, net of $0.7 billion in depreciation.[29] Thus, the total invested in this category through 1994 had been $3.1 billion.

The Bay Area's Transportation and Land Use Coalition[30] tells us that the BART Planning Department reported to the Board of Directors meeting on November 9, 2000, that total repair and refurbishing requirements for BART during 2001 to 2030 would be $6.8 billion spread across the entire 30-year period.

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25 http://www.washingtontimes.com/news/2008/sep/23/metro-needs-113-billion/
26 http://www.transitchicago.com/business/capitalprogram.html
27 http://www.itsmarta.com/newsroom/latest_news/singletrack.htm
28 Short Range Transportation Plan for Los Angeles County, Technical Document 2003
29 Bay Area Rapid Transit, 1972 through 1994 Annual Reports.
30 http://www.transcoalition.org/reports/overext/overextended.html

The San Francisco Bay Area voters were unaware at the time of the BART decision that BART would need to refurbish or replace "facilities, property and equipment" in amounts far exceeding BART's original cost; they had been sold on the concept that once you have built rail it is there forever.[31]

Honolulu's rail line financial plan should make provision for potential refurbishing liabilities using the Peskin model (or similar) to provide decision-makers with the appropriate financial information detailing likely future financial obligations for replacement, refurbishing and system enhancement. The Peskin Model[32] is used by the Washington Metro and Los Angeles among other. A useful discussion of the subject is in the 2004 Status of the Nation's Highways, Bridges, and Transit, Chapter *7c*.

The Federal Transit Administration (FTA) requires that,

> *"Agencies planning major capital investments need to incorporate the [repair and refurbishing] (R&R) of those assets in the later years of the capital plan in addition to the ongoing R&R of the existing asset base."*[33]

It would be helpful to think in terms of the Aloha Stadium which has cost far more to maintain than it ever cost to build. As the Honolulu Advertiser explained last year,

> *The estimated $185 million renovation of Aloha Stadium is expected to transform the rusting, 33-year-old facility into a "new stadium," ... Since opening in 1975 at a cost of $32 million, the state's largest facility has been dogged by costly repairs and lawsuits. From 1985 to 1995, rust treatment cost $80 million..*[34]

The City needs to establish a detailed schedule of R&R obligations that the rail line is likely to face in future years so that the public is fully aware of what they are getting themselves into.

The impacts of forecasting errors

A major concern is that the City's Cost-Effectiveness Rating of "Medium" hovers near the "Medium-Low" rating, which would make the project ineligible for federal New Starts funds.

The FTA rating is calculated by dividing projected new riders into the total of projected annualized capital costs and projected annual operating costs. At present the FTA rates a new trip as cost-effective if it costs $22 or less. That amounts to a subsidy of over $10,000 per new rider annually.

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31 Excerpt from a speech by Todd Litman at the Mayor's Transit Symposium.

32 Peskin, Robert L. 1988. "Methodology for Projecting Rail Transit Rehabilitation and Replacement Capital Financing Needs." In: Transportation Research Record 1165. Washington, DC: Transportation Research Board, National Research Council.

33 Source: http://www.fta.dot.gov/printer_friendly/planning_environment_2423.html
8.3.1.1 Rehabilitation and Replacement. The rehabilitation and replacement (R&R) of capital resources is needed for several reasons. First, capital resources wear out. Stations, maintenance facilities, track-way, signal systems, propulsion systems, and vehicles all have distinct useful lives. These assets must be re-capitalized before deterioration leads to service disruptions. Second, technological obsolescence due to the availability of parts or technological advances may spur the replacement of various systems. Old rail cars may become increasingly difficult to maintain and require replacement or agencies may wish to implement communications based train control, automatic train stop, or passenger information systems to improve system reliability and safety. Third, changes in operating or safety policies may require new capital investment. One example is station or vehicle enhancements to assure compliance with the American's with Disabilities Act (ADA).
Prudent capital planning requires an inventory of the agency's assets and an evaluation of the expected useful life of each major component. An R&R cycle is assumed for each of the major assets and annual costs are projected at least 20 years into the future. Agencies planning major capital investments need to incorporate the R&R of those assets in the later years of the capital plan in addition to the ongoing R&R of the existing asset base.
In most cases, the capital costs for R&R will vary markedly from one year to the next due to different cycles and widely varying costs for the numerous components. Agencies typically establish reserve accounts, sometimes called sinking funds, to provide the funds for sudden increases in capital spending. Occasionally, agencies smooth out the R&R cost swings by using a multi-year rolling average as the annual cost estimate.

34 http://the.honoluluadvertiser.com/article/2008/Jun/27/ln/hawaii806270385.html

However, if the projections are not achieved and recent FTA assessments of cost overruns for capital costs, cost overruns for operating costs and shortfalls in ridership occur then the cost effectiveness calculation changes dramatically.

We are also concerned that the fact that at this late stage the Project does not yet have an FTA rating yet there is no explanation of why that should be, as is required by NEPA:

> ... *(Draft EISs) must present — for all alternatives — the information used by FTA to assign New or Small Starts ratings if that information has been vetted by FTA. If the information has not been vetted with FTA, then the absence of the information must be highlighted in the document.*
>
> *The intent of this policy is to comply with FTA requirements for AAs and the Council on Environmental Quality for DEISs by identifying information relevant and important to a decision on a locally preferred alternative. If this requirement cannot be met, publication of the AA or AA/DEIS would not be delayed; rather, the absence of the information and its relevance must be explained in the AA or AA/DEIS. (emphasis added)*[35]

Instead, in the Draft EIS, the City slides by the issue rather than highlighting and explaining why the Project is not rated. This is the City's explanation:

> *The cost-effectiveness indices for the Build Alternatives compared to the baseline fall within the "medium" range established by FTA for its New Starts ratings, which, along with other considerations, is currently required to qualify for New Starts funding. FTA is currently reviewing the estimates made for ridership and user benefits, operating and maintenance costs, and capital costs for the Build Alternatives. If these results hold up through subsequent phases of project development, along with other FTA considerations, the Project would be in the competitive range for funding consideration. Funding recommendations are made each year from among the projects that have completed the planning and project development process, including the National Environmental Policy Act process. These recommendations reflect the merits of the projects competing for available Federal funds at the time, as well as the availability of New Starts funding authorization. DEIS, p. 7-9.*

The fact that the Project is not yet rated is not made clear. It is certainly not highlighted since the subject is not even mentioned in the Executive Summary. This is important as without a rating the Project cannot enter Preliminary Engineering.

[35] http://edocket.access.gpo.gov/2007/pdf/07-2774.pdf p. 30913.

Appendix C

Energy Use per passenger mile of rail systems		
Light Rail Transit		
City, State	Btu per passenger-mile	Average
Cleveland, OH	8,250	
Pittsburgh, PA	7,526	
San Jose, CA	7,035	
Buffalo, NY	6,839	
San Francisco, CA	6,591	
Dallas, TX	5,935	
Philadelphia, PA	5,828	
Baltimore, MD	5,508	
Seattle, WA	5,383	
Sacramento, CA	4,368	
Boston, MA	3,878	
Denver, CO	3,612	
Portland, OR	2,927	
Los Angeles, CA	2,621	
New Orleans, LA	2,594	
St. Louis, MO	2,366	
San Diego, CA	2,337	
Salt Lake City, UT	1,970	
Newark, NJ	1,597	
Sub Total light rail	87,165	4,588
Heavy Rail Transit		
City, State	Btu per passenger-mile	
Cleveland, OH	6,173	
Lindenwold, NJ	5,027	
Miami, FL	4,928	
Boston, MA	4,464	
Chicago, IL	4,205	
Philadelphia, PA	4,001	
Baltimore, MD	3,845	
Washington, DC	3,761	
New York, NY	3,388	
Oakland, CA	2,745	
Brooklyn, NY	2,482	
Atlanta, GA	2,249	
Sub Total heavy rail	47,268	3,939
Grand Total all rail systems	134,433	4,337
U.S. Dept. of Energy, Transit System Energy Use.		
Average auto		3445
Average transit bus		4323
Source: U.S. Dept. of Energy Data Book, tables 2.12 & 2.13		