# CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813-3065

**BREENE HARIMOTO**
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Chair, Committee on Transportation & Transit Planning
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June 20, 2011

**Memorandum**

To: Clayton Wong
Council Administration

Fr: Frank Streed FAS
Senior Advisor to Councilmember Breene Harimoto

Re: Rail Transit Investigative Travel Report

Attached is a copy of my Rail Transit Investigative Travel Report, which includes findings and observations from my travel to San Francisco, California and Copenhagen, Denmark.

Also included in the report are Councilmember Martin's findings and observations from his Los Angles portion of the joint investigation.

# RAIL TRANSIT INVESTIGATIVE TRAVEL REPORT

Councilmembers Breene Harimoto & Ernie Martin
Senior Advisors Kimberly Ribellia & Frank Streed

## Background

On March 21, 2011 Mayor Carlisle announced the awarding of the Honolulu Rail Transit Project's "Core Systems" contract to Ansaldo-Honolulu. The core systems contract includes the production of 80 transit vehicles, the system's power, control and communications center, and a multi-year term of systems operations and maintenance.

Shortly thereafter, media reports raised concerns regarding Ansaldo's past performance in other jurisdictions in producing and delivering transit vehicles on time and per specifications.

In light of such concerns, it was determined that an investigation of other jurisdictions where Ansaldo has been involved in providing transit services and products would yield first-hand information on how those services and products were delivered, how they have performed, what difficulties, if any, were encountered by the procuring agencies, and how those difficulties could have been avoided. Such information will prove helpful in ensuring timely performance by Ansaldo-Honolulu should they be authorized to proceed.

Council Chair Garcia tasked this investigative responsibility to Councilmember Harimoto, Chair of the Council's Transportation and Transit Planning Committee and to Councilmember Martin, Chair of the Council's Budget Committee.

Locations visited included San Francisco and Los Angles, California, and Copenhagen Denmark.

## SAN FRANCISCO, CALIFORNIA

(April 25, 2011)
(Councilmembers: Harimoto and Martin, Senior Advisors: Ribellia and Streed)

### San Francisco Municipal Transportation Agency (SFMTA)

A meeting was held with the San Francisco Municipal Transportation Agency (SFMTA) Executive Director, Mr. Nathaniel Ford, and Deputy Executive Director, Mr. Carter Rohan.

The SFMTA has procured and currently uses Ansaldo-built vehicles in their intra-city light rail system. In addition, Mr. Ford was previously with the Atlanta transit authority, which also procured Ansaldo-built vehicles and propulsion equipment. Key points made by Mr. Ford and Mr. Rohan included:

- In Atlanta, they did have their ups and downs with Ansaldo, but all concerns were addressed satisfactorily. It was noted that timely communications were essential to resolving issues. The Atlanta agency held at least quarterly meetings with Ansaldo, and Ansaldo was very responsive whenever they were called. Since the vehicles procured were being produced in Italy, the Atlanta agency had two or three employees stationed in Italy to monitor and oversee the actual production of the vehicles.

- Mr. Ford noted that the most of manufacturing delays were not due to Ansaldo, but rather to the change orders submitted by their agency. He also noted that the more changes the client makes in the design and interior of the rail car, the longer it will take the manufacturer to produce the rail car.

- In Atlanta, the contractual delivery date was late, and liquidated damages were assessed.

- It was stressed that any owner initiated change orders will result in delays, so try to avoid this if at all possible. In addition, it is important that both the procuring agency and Ansaldo commit to be partners from the beginning. Timely communications and regular one-on-one meetings are essential to this partnership.

- In San Francisco, SFMTA operates both automatic and manually operated light rail vehicles manufactured by Ansaldo-Breda. In Mr. Ford's opinion these are "Rock Solid" vehicles -- not fancy but reliable.

- The basic shell of the vehicles used in San Francisco was manufactured in Italy, with final assembly completed in San Francisco. Obtaining insurance for possible damage during trans-shipment is recommended.

- While Ansaldo was behind the contract schedule for delivery of the vehicles, Ansaldo was very sensitive to the issue. In-fact, one of the causes of the delay was due to a sub-contractor working on the vehicle, but it was noted that that sub-contractor was picked by SFMTA and not by Ansaldo.

- SFMTA strongly encourages that our own on-site engineering inspectors be present when the vehicles are built and assembled to monitor the construction process, assure that all specifications are adhered to, and to facilitate timely communications.

- SFMTA stated that it would be in Honolulu's best interest to include a dispute resolution provision in the contract for problems that may occur during the manufacturing process. They also noted that preventative maintenance is very important to the success of the rail system.

- SFMTA strongly suggested that Honolulu have document control at the back end of the manufacturing process and insist that all documents be included in a digitized manual.

- SFMTA notes that the first five years of development and operations are the hardest, but that as the bugs are worked out of the system (and there are always bugs) things go much smoother.

- The two key elements for a successful client-operator relationship are:

    1) Constant interface at both the managerial and production levels, and

    2) Avoid having to make change orders.

## Ansaldo-Breda Vehicle Assembly and Maintenance Facility

Following the meeting with the San Francisco Municipal Transportation Agency, a site visit to Ansaldo Breda's vehicle assembly and maintenance facility in Pittsburg, California was scheduled. This is most likely the location where the Honolulu vehicles will be assembled prior to shipment to Hawaii.

Personnel from Ansaldo-Breda included:

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|---|---|
| Giancarlo Fantappie, | President |
| Mauro Melani, | Vice President |
| Dario Nicotra, | Chief Financial Officer |
| James Core, | Head of Human Resources |
| Cristiano Torresi, | Director, Project Management |
| Lain Lee, Jr., | Quality Manager |

The Pittsburg facility is an old but clean and recently modernized facility. At the time of our visit they were working on the final assembly of vehicles for Los Angles and also the repair and maintenance of several light rail vehicles for San Francisco.

Assembly production of vehicles for the Los Angles Metro System.

Councilmembers Martin and Harimoto at Ansaldo's vehicle production and maintenance facility In Pittsburg, California.

The plant has a full range of assembly and repair/maintenance capacities, and also includes a test track for performance and safety testing of vehicles prior to shipment.

It was noted that a majority of the engineering and maintenance personnel appeared to be local California residents.

The Pittsburg facility is relatively convenient to Honolulu which should enable Honolulu personnel to easily monitor the Honolulu vehicle production process should this be the location of assembly.

Interior of Ansaldo's vehicle assembly and repair/maintenance facility in Pittsburg, California.

**LOS ANGLES, CALIFORNIA**
(April 26, 2011)
(Councilmember Martin and Senior Advisor Ribellia)

**Los Angeles County Metropolitan Transportation Authority (Metro)**

A meeting was held at LA METRO Transportation Authority offices with Ms. Jane Matsumoto, Metro Card Project Manager; Mr. Terry Matsumoto, Chief Financial Services Officer; and Mr. Roger Moliere, Chief Real Property Development to discuss the success of Los Angeles' Metro line and its Transit-Oriented Development (TOD) best practices.

The Metro system line uses Ansaldo Breda heavy-rail subway cars and officials noted their satisfaction with the performance of the rail cars and stated that Metro currently has a contract with Ansaldo to repair and upgrade cars. (Rail cars similar to those shown in above pictures).

Metro officials highlighted several successful TOD projects in which the county partnered with private entities to maximize the use of the property and develop the surrounding area. Metro officials described the following best practices in developing a public/private partnership for TOD:

- Reduces automobile use and increases transit use
- Increases density, but must be consistent with the surrounding neighborhood character
- Provides a mix of uses linked to transit

- Private entity partners to complete the Metro facility
- Provides a strong neighborhood and inter-modal link
- Enhances transit patron experience
- Ensures sustainable development
- Metro provides a long-term ground lease

Metro officials emphasized the key reason why the County continues to be successful in developing TOD is that the County owns the property under and surrounding the transit stations. The ownership of the property allows the county to use it as a negotiation tool when partnering with private entities.

The County also enters into joint development agreements that allow the County to own the improvements made to the property, including the buildings and the station. In return, the County provides several incentives for developers including tax incentives and credits, density bonuses and deduction in the long-term ground rent from the cost of the improvements made to the property.

Mr. Roger Moliere, Chief Real Property Development, strongly encouraged Honolulu to have a division or group of individuals within the City solely responsible for development of TOD and stressed that they think "out of the box" when looking for development opportunities.

Mr. Moliere further explained that Metro issues a Request for Proposal (RFP) for properties identified for TOD use in order to get the best value and product for the County's property. One great example of this RFP model is the Hollywood and Vine Station.

Exterior of the Hollywood & Vine Metro Station with associated Transit Oriented Development

The development consists of a 300-room W hotel, 143 condominiums which include affordable housing units, 30,000 square feet of ground floor retail, improved public plaza and new subway portal canopy, subway elevator and bike room.

The development also includes a bay for Metro buses to ensure conductivity between the rail system and the county's bus system.

Bus layover facility co-located adjacent to the Wilshire/Vermont Metro station.

The Wilshire/Vermont – Apartments is another Metro/County TOD success story completed in 2007. The TOD station connects with the Metro Red and Purple Lines and is adjacent to a bus layover facility (1.02-acre facility). TOD is developed on 3.24-acres of Metro-owned property which contains 449 apartments, 35,000 square feet of ground floor retail space, an improved/enlivened public plaza and a new transit station.

Exterior of the Wilshire/Vermont Metro Station Transit Oriented Development with bus interface.

## COPENHAGEN, DENMARK

(April 27 - 30 2011)
(Councilmember Harimoto and Senior Advisor Streed)

The Copenhagen Metro, a fully automated and driverless transit system, was build by Ansaldo-Breda and Ansaldo SST, and is currently operated by Metro Service, a subsidiary of Ansaldo STS. This system is technically and operationally similar to that which is proposed to be constructed in Honolulu.

The system is owned by Metroselskabet, which is comprised of the municipalities of Copenhagen and Fredericksberg and the Danish Ministry of Transport. Construction began in 1996, with phase 1 opened for operations in 2002, phase 2 in 2003, and phase 3 in 2007. The system is approximately 12.7 miles long, has 22 stations (nine of which are underground), and carried about 52 million passengers in 2010.

The Copenhagen Metro has two lines which run from suburban Vanlose to Vestamager and Copenhagen Airport, both situated on the Island of Amager. The Metro runs 24 hours a day, every day of the week.

### Metroselskabet

As noted above, Metroselskabet is the owner of the Copenhagen Metro system, and was the procuring agency that selected Ansaldo-Breda and Ansaldo SST to construct and operate the system. To get this agency's perspective on Ansaldo product reliability and service operations, we met with Ms. Anne-Grethe Foss, the Vice-Director of Metroselskabet.

Metroselskabet Headquarters

Bicycle parking outside of Vestamager Station

In addition to information on current system operations, issues and opportunities, Ms. Foss provided a personal perspective on their procurement process and working relationship with Ansaldo. Key points emphasized by Ms. Foss included:

- From the beginning Metroselskabet wanted a Design/Build/Operate/Maintain (DBOM) contract for their system. This is similar to the approach used in Honolulu.

- Under this initial procurement, they weighted the supply portion of the contract (D/B) at 60% and the O/M portion at 40%. Ansaldo won that contract, which was for the supply of the vehicles and control system, as well as 5-years of O&M with an option for three additional years of O&M. In 2010, the O&M contract with Ansaldo was extended for another 5 years with an option for an additional 3 years.

  It should also be noted that Ansaldo was also the successful bidder for the new City Ring addition to the Copenhagen Metro system. When structuring that procurement, which was also a DBOM, Metroselskabet realized the importance of O&M and gave it a higher ranking in the procurement weighting.

- Ms. Foss noted that the Ansaldo representatives were tough negotiators, but that once the contract was finalized Ansaldo stood firmly behind the agreement. Again, it was stressed, similar to the San Francisco situation, that it was important to work in partnership with Ansaldo and to facilitate timely communications to address issues as they arose. She also added, however, it was important to "push a little" sometimes.

- From an operational standpoint, it was noted that in 2009 the system generated approximately DKK 669 million in revenue, with roughly DKK 604 million in expenses, for a positive operational net of about DKK 65 million.

- Metroselskabet works jointly with Ansaldo in the marketing of the system to publicize and increase ridership. Initially this effort simply focused on awareness of the system, but has since evolved into more information on destination options and possibilities. As part of the O&M contract, Ansaldo receives financial incentives for increasing passenger ridership.

- In terms of system performance, Ansaldo's 98.6% on-time platform performance (passenger service schedule or headway plan) has exceeded the contractual minimum of 98.0%, and to-date there have been no accidents associated with the driverless system.

- When asked about their role in Transit Oriented Development, Ms. Foss noted that a large portion of the line from the city center to the Vestamager Station, which is also the location of the system's automatic train control (ATC) center and maintenance facility, was essentially vacant when the system first began operations. Since then, considerable new residential and commercial development, essentially market driven, has occurred around the stations along that portion of the line.

- In summation, Ms. Foss described their relationship with Ansaldo as very positive, and noted that the Copenhagen Metro system has been designated as the World's Best Metro and/or the World's Best Driverless Metro in each of the past three years.

## Metro Service Automatic Train Control Center and Maintenance Facility

As noted above, the systems' automated train control (ATC) center and maintenance facility are co-located adjacent to the Vestamager Station. To get more detailed information on the day-to-day operations of the Copenhagen Metro we met with representatives of Ansaldo STS and Metro Service and were able of observe operations in the ATC center as well as tour the maintenance facility.

Personnel from Ansaldo STS and Metro Service included:

| | |
|---|---|
| Eugenio Dotta, | Senior VP Sales & Development, Ansaldo STS |
| Piero Marotta, | VP Operations & Maintenance, Ansaldo STS |
| Claudio Cassarino, | Managing Director, Metro Service |

Key points and observations regarding the ATC center and the operations and maintenance of the system and its vehicles include the following:

- The Automatic Train Control center is both the heart and brain of the entire system. All system operations, including vehicle scheduling, movement, monitoring, station oversight, passenger assistance and security are conducted from the ATC center. This operation is computerized and operated with proprietary software. As with all computer/software equipment, technology changes rapidly and it is important to keep the systems updated. In response to questioning regarding the security of the computerized system, it was stated that it is a closed system with multiple layers of protection to assure against "hacking" and/or failure.

  The operations center is a secure, "clean" room, and is manned by four or five individuals at a time.

- The initial contract for O&M was for 8 years, which in 2010 was extended for an additional 5 years with an added 3-year option.

- As noted above, Metro Service is contractually obligated to a 98% on-time platform performance requirement. Both bonuses and penalties apply, and this obligation is waived under conditions of extreme weather, police or emergency responder action, or loss of power.

Interior view of the vehicle maintenance center

Interior view of typical rail car

- Safety of the system is obviously of upmost concern, and it was noted that prior to initial operations, a three-month trial period of operations was conducted, a rigorous certification process was required and followed, and an independent third party was retained to review and check compliance with these certifications. In addition, extensive training of all employees, prior to initial mobilization was conducted.

- All underground stations are equipped with platform doors to ensure a safe separation of passengers from the rail tracks and moving vehicles. Due to climatic conditions in Copenhagen, station platform doors were not incorporated into the outdoor stations.

  In addition, the system employs both infra-red and laser "obstacle detection" equipment to provide advance notification of any possible debris or obstruction on the tracks.

- The current configuration of the system uses a 3-car articulated vehicle. There is a total of 34 vehicles, with 27 in operation during peak periods. There are "flex areas" within each vehicle which provide space for passengers with bikes, strollers or wheelchairs. These areas also have folding "pull down" seating. In total the vehicle can accommodate roughly 90 seated and 200 standing passengers.

- Throughout most of the day, vehicle headways are between 2 and 4 minutes apart. These headways are extended during evening hours. The system is operated 24-hours a day, 7 days a week.

- Metroservice has a staff of approximately 270 employees, with roughly 50% involved in "operations" including the system "stewards"; 30% in "maintenance", 5% in "management"; and 15% in "other" categories.

- The system stewards continually circulate throughout the vehicles and stations. Their responsibilities include passenger information and assistance, security, emergency response (including train operation in case of automatic failure), and the monitoring of the fare "honor system". If a passenger is caught without a valid fare ticket, the steward can issue that person a ticket with accompanying fine.

- When questioned about operational glitches, it was noted that there are occasional "overshoots" where the vehicle doors don't align perfectly with the station platform doors. If this happens, the vehicle can adjust up to a distance of 1-2 meters. However, if the variation is more than 2 meters, the vehicle skips that station and proceeds to the next.

- The protocol if there is a train failure while in operation is as follows: the passengers are immediately notified of the situation through the on-board 2-way communication equipment and told to stay on the vehicle. If the vehicle cannot be re-started from the ATC center, one of the stewards is sent to manually try to operate the vehicle to the next station. If that fails, the steward than performs an evacuation of the passengers.

- When queried about common maintenance issues, the number one concern is the ready availability of replacement parts, particularly from subcontractors. This is a particular concern with the older vehicles in the fleet as newer technology begins to be incorporated into the vehicles. Also of concern is the maintenance of the vehicle and station platform doors, as these parts involve the most motion and are crucial to operational performance.

- Vehicles are cleaned and washed daily at the maintenance center, and the interior of the vehicles is designed to facilitate easy cleaning and maintenance.

- Monitoring of the system's performance is undertaken in several ways. First, there is a "Metro Log Reporting System" that automatically logs in all departures and flags those that are late. This report is transmitted to both Metroselskabet (the owner) and Metro Service (the operator). If the number of late departures exceeds a contractual threshold, the operator is subject to financial penalties. In addition, the operator must provide the owner with both monthly and quarterly reports of performance.

- Customer satisfaction is a top priority of both the owner and the operator, and the operator has a contractual commitment to assure an 80% customer satisfaction rating. To gauge that rating, the owner hires an independent third party to conduct customer surveys. If the satisfaction rating falls below 80% the operator is penalized, if the rating is above, the operator receives a bonus.

- In an effort to support its contract obligations for customer satisfaction, the operator and the owner jointly engage in marketing efforts that promote the ease and use of the system. For example, passengers can purchase tickets via their mobile phones and have access to phone-based metro-related applications. Special events are publicized and added service provided to support such events. Commercial advertising in the stations was via projected images on the station walls.

- It should be noted that the Metro System is one part of a larger transportation network that conveniently interfaces and connects with other modes, including buses and both local and regional commuter trains. Service to the Copenhagen Airport is direct and very convenient, with a direct connection to the terminal itself. All stations have ample bicycle parking facilities, which are extensively used.

Typical vehicle "flex area" with pull down seating and space for bicycles, strollers, etc.

Typical outdoor center-platform station design with adjacent TOD development

- While the quality and reliability of the rail hardware and vehicles is clearly an important aspect of any system, it became evident that a successful system, in terms of operations, finances, and customer use and satisfaction also requires a well planned, effectively monitored, and adequately equipped and trained operations and maintenance component. In short, it's not only how well you build a system that counts, but how well you operate and maintain it.

## Additional Observations and Notes

While the primary focus of the Copenhagen segment of this investigation was on the city's Metro Rail System, we found that Copenhagen has a well integrated, multi-modal transit system with convenient interfaces and shared-fare ticketing. This integration contributes to the ease and frequency of use of the transit system, and enables transit access to destinations across the entire area.

Of particular interest was the tremendous amount of bicycle usage by the Copenhagen residents. It was clear that this was not just recreational biking, but that bicycling was a large component of daily commuting, and by residents of all ages. Contributing to this was the city's emphasis on bicycle facilities and dedicated bicycle lanes, even in the dense inner-city areas.

Covered bicycle parking at one of the Metro stations.

Free standing bike parking in open public squares.

With an emphasis on integrated transit systems and a healthy accommodation for bicycles, we found Copenhagen to have embraced the "Complete Streets" concept, which emphasizes multi-modal mobility, pedestrian safety, and clear well marked signage. Pedestrian walkways were separated from bikeways and roadways by physical barriers such as curbing, and crosswalks had both signage and clear pavement markings.

Pedestrian walkway separated by curb drop from the adjacent bikeway, which was also separated by a curb drop from the roadway.

Signage and pavement markings for both pedestrians and bicycles.

In most places bike lanes were also physically separated from the vehicular portions of the roadway and were well marked. It was obvious from observing the flow of traffic, bikes and pedestrians that everyone understood and abided by these integrated rules of the road.

A "lady bug" bus shelter set back from the pedestrian walkway.

***** end *****

# CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813-3065

**BREENE HARIMOTO**
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Chair, Transportation & Transit Planning Committee
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***Media Advisory - For Immediate Release***
March 22, 2011

**Transportation Committee Chair Applauds Rail Contract Progress**

Councilmember Breene Harimoto, Chair of the Council's Transportation & Transit Planning Committee today applauded the recent awarding of two additional contracts for development of the Honolulu Rail Transit Project.

"The awarding of the contract for the second phase of the guideway construction to Kiewit Infrastructure West, and the "Core Systems" contract to Ansaldo Honolulu, represent positive and significant milestones in the project's progress", said Councilmember Harimoto. "However, it is still vitally important that the City Council conduct its due diligence and thoroughly monitor the details and progress of these contracts."

Harimoto added, "I am aware of various concerns that other jurisdictions have had with contract performance by Ansaldo Honolulu's parent companies AnsaldoBreda and AnsaldoSTS, and it's important that the Council follow up with Ansaldo and those jurisdictions to assure that the types of concerns experienced elsewhere will not re-occur here in Honolulu." Harimoto further noted that Council Chair Garcia has tasked him and Budget Committee Chair Martin with the responsibility to meet with the affected parties to further investigate these concerns.

According to Harimoto, "I have every confidence that the City's selection of Ansaldo Honolulu was premised on providing us with the absolute best value, but I believe it is Council's responsibility to conduct our own due diligence to assure that this integral component of the rail project fully meets our expectations and that the contract can be fulfilled on time and within budget."

* * * end * * *

Form CCLTRVL03(06/07)

City Council
City and County of Honolulu

# CLAIM FOR TRAVEL REIMBURSEMENT

Date: June 8, 2011

Traveler: Frank Streed

Event: Transit Investigation

Location: Copenhagen, Denmark

Dates: From: April 24, 2011 To: May 1, 2011

| Description | Amount | Notes: |
|---|---|---|
| 1. Airfare | $2,683.58 | Advanced by traveler & already reimbursed; Ref. GAX-CCL-11007737 |
| 2. Registration Fee | $0.00 | |
| 3. Hotel | $1,385.54 | $247.16 (Burlingame) +$1,138.38 (Copenhagen) |
| 4. Meals | $202.86 | $49.70 (Burl.) + $52.73 (Burl.) + $20.43 (Burl.) + $33.68 (CPH) + $46.32 (CPH) |
| 5. Ground Transportation | $0.00 | |
| 6. Tips | $24.87 | $5.00 (Burlingame) + $19.87 (Copenhagen) |
| 7. Other - Seat Upgrade | $109.00 | Seat upgrade in economy class cabin for an 8 hr. 50 min. flight |
| 8. Foreign Transaction Fee | $34.15 | |
| Total: Additional Charges Claimed | *$1,756.42* | *Additional claim (Nos. 2 - 8) processed via this TRVL03 reimbursement form* |
| TOTAL COST OF THE TRIP | $4,440.00 * | $2,683.58 (Airfare) + $1,756.42 (Total: Additional Charges Claimed) |

* charged to Transit Funds appropriated under the Council's budget

This is to certify that the above data, based upon receipts submitted to Council Administrative Support Services is accurate. Further, I am claiming reimbursement for expenses associated with a trip in which City business was conducted and personal funds were used to advance payment:

Signature of Traveler

6/8/2011
Date