


City of Alexandria, Virginia

MEMORANDUM

DATE: NOVEMBER 30, 2009

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

FROM: JAMES K. HARTMANN, CITY MANAGER 

SUBJECT: AUTHORIZATION FOR THE CITY TO ACQUIRE FIVE TROLLEYS FOR THE KING STREET ROUTE UTILIZING FEDERAL STIMULUS GRANT FUNDING

ISSUE: Utilizing Federal stimulus grant funding to procure five heavy-duty clean diesel trolley vehicles that will be used for the King Street Trolley service.

RECOMMENDATION: That City Council, utilizing federal grant funds, authorize the procurement of five heavy-duty clean diesel trolley vehicles to operate the King Street Trolley service.

BACKGROUND: Since its inception in April 2008, the King Street Trolley service has been a major success, attracting nearly 1 million passengers to date; operating with vehicles leased from the current trolley contractor, Gray Line D.C.'s Martz Group. Due to the success of the service, which has gained regional and national attention, an opportunity presented itself to the City to procure new trolley vehicles through Federal stimulus grant funding. Before pursuing the funding, the City did extensive research on trolleys which included reviewing written reports, interviewing operators of trolley vehicles, and getting feedback from trolley passengers. Based upon this information the City moved ahead and was able to acquire \$2.4 million in funding through the American Recovery and Reinvestment Act (ARRA) to procure five new heavy-duty clean diesel trolley vehicles.

The reasons why staff recommends the procurement of five heavy-duty clean diesel trolleys are the following:

- The procurement of five new trolley vehicles will allow the City to replace the leased vehicles with City owned vehicles using Federal grant funds, which will eliminate the City's need to pay direct capital cost as a part of the operating expenses. This can generate an annual ongoing overall cost savings to the City.
- These vehicles will vastly improve accessibility for persons with disabilities onto the vehicles and improve boarding and alighting for all passengers.
- These vehicles will offer better sightlines and safety features for the drivers of the vehicles.

- These heavy-duty vehicles are more mechanically reliable than the light-duty trolleys that Martz uses, which will lead to more reliable performance.
- These new heavy-duty clean diesel trolleys will meet all Federal and local air quality standards and far exceed the emissions reductions required by the United States Environmental Protection Agency (EPA). Pollutants such as hydrocarbons and carbon monoxide, major ingredients of ground-level ozone smog and air toxicity will be 95% to 98% lower in the new trolleys than in three out of the five trolley vehicles which the contractor used to operate the King Street Trolley service. Also the new trolley vehicles would produce 80% less nitrogen oxides, another major ingredient of ground-level ozone smog, as compared to three out of the five trolley vehicles currently in use. Under EPA rules, the warranties for emissions equipment for the new trolleys must last 450,000 miles. Minimizing emissions from trolley vehicles improves air quality and enhances the City's Eco-City initiative.

For two days during the week of November 9, 2009, a new heavy-duty trolley was parked on King Street in front of City Hall to obtain public input. During this time, the City asked the public for feedback and asked individuals that boarded the vehicle to complete a survey. Fourteen surveys were completed and the City received a total of 16 public comments on the vehicles. While this is not a large number of respondents overall, the vehicle received favorable reviews based on the comments received and survey results. However, there were a few concerns expressed. Some felt that the heavy-duty trolley looked like a bus; some were concerned with the design and opening of the windows; and some were concerned with the size of the vehicle. Even with these concerns, the vehicle's interior and exterior design along with its boarding and accessibility features received high ratings from the people surveyed.

Heavy duty low emission diesel trolleys are recommended as they represent striking a balance of acquiring reliable trolleys with low emissions at a price (up to \$480,000 per trolley) which will allow the City to purchase five trolleys within the \$2.4 million grant. This provides three trolleys needed for daily service and two spares. While one spare would be the minimum backup needed, having a second backup spare will provide better certainty of service delivery (which is important given the unique "brand" and look of the trolleys), as well as provide some room for potential service expansion in future years (such as returning to 15-minute headways or other service expansion) when budgetary circumstances allow.

Staff considered hybrid heavy duty trolleys, and while emissions on these trolleys are some 70% less than the low emission diesel trolleys (largely due to the fact that the trolley's speed on King Street will keep it mostly the electricity mode), because of the \$650,000 estimated cost of each hybrid trolley, there were insufficient funds to purchase five hybrid heavy duty trolleys at a cost of \$3.250 million, or \$0.850 million more than the grant funds available. Given the current very tight budget climate and the need to order the trolleys in the next few months (i.e., in FY 2010), the purchase of the lower cost low emission diesel trolleys is recommended by T&ES staff.

If Council was interested in buying the hybrid trolleys, it could consider authorizing a reallocation of \$0.850 million remaining in local funds remaining from the DASH facility construction budget where some \$1.8 million in contingent funds were not needed. These remaining CIP funds would ordinarily be reprogrammed as part of the FY2011 proposed CIP

budget for other projects (such as the purchase of DASH buses), \$0.850 million of the \$1.8 million could be reprogrammed in FY2010 to pay for the upgrade from low emission diesel to hybrid. Another option City Council might want to consider is to buy four hybrid trolleys, rather than five, for an additional cost to the City of \$200,000.

The trolleys would be City-owned and the City would contract with an operator to operate and maintain the trolleys. DASH is a likely operator candidate, but an evaluation and decision process looking at all options needs to occur between now and approximately July, 2011 when the trolleys should be delivered by the manufacturer.

FISCAL IMPACT: There is no requirement for local matching funds for this grant. The acquisition of new trolley vehicles should save a yet to be determined cost savings based upon a future review of operator options, as there will be no capital or depreciation charge for the trolleys, only operating costs.

ATTACHMENTS:

- Attachment I Computer Enhanced Images of Heavy-Duty Trolley
- Attachment II Heavy-Duty Trolley Demonstration Survey Results
- Attachment III Public Comments
- Attachment IV Medium-Duty Trolley vs. Heavy-Duty Trolley

STAFF:

- Mark Jinks, Deputy City Manager
- Richard J. Baier, P.E., LEED AP, Director, Transportation and Environmental Services
- Bob Garbacz, P.E., Acting Deputy Director, Transportation and Environmental Services
- Jim Maslanka, Division Chief of Transit, Transportation and Environmental Services

Computer Enhanced Images of Heavy-Duty Trolley with the King Street Trolley Script and Color Scheme



Heavy-Duty Trolley Demonstration Survey Results

Attachment II

Total Responses:

14

Comfort:

Smoothness of Ride:

- Excellent = 5 (36%)
- Very Good = 3 (21%)
- Good = 0
- Fair = 0
- Poor = 0
- N/A = 6 (43%)

Quietness of ride:

- Excellent = 6 (43%)
- Very Good = 1 (7%)
- Good = 2 (14%)
- Fair = 0
- Poor = 0
- N/A = 5 (36%)

Comfort of Seats:

- Excellent = 10 (71%)
- Good = 2 (14%)
- Good = 1 (7%)
- Fair = 0
- Poor = 0
- N/A = 1 (7%)

Accessibility:

Ease of entry and exit for all:

- Excellent = 11 (79%)
- Very Good = 3 (21%)
- Good = 0
- Fair = 0
- Poor = 0
- N/A = 0

ADA accessibility:

- Excellent = 12 (86%)
- Very Good = 2 (14%)
- Good = 0
- Fair = 0
- Poor = 0
- N/A = 0

Design:

Interior Design:

- Excellent = 8 (57%)
- Very Good = 4 (29%)
- Good = 1 (7%)
- Fair = 1 (7%)
- Poor = 0
- N/A = 0

Exterior Design:

- Excellent = 5 (36%)
- Very Good = 7 (50%)
- Good = 1 (7%)
- Fair = 0
- Poor = 0
- N/A = 1 (7%)

“Old Town” and “Alexandria” Feel:

- Excellent = 6 (43%)
- Very Good = 6 (43%)
- Good = 2 (14%)
- Fair = 0
- Poor = 0
- N/A = 0

Ranking of Features:

1 is most important and 7 is least important

ADA Accessibility = 2.833
Mechanical Reliability = 2.917
Comfort of Ride = 3.167
Exterior Design = 3.333
Ease of Entry & Exit = 3.417
Interior Design = 3.833
Safety Elements = 4.083

Respondent Information:

- Resident = 7 (50%)
- Visitor = 2 (14%)
- Staff / Agency = 5 (36%)

Public Comments

(Visitor) – Windows need to open

(Visitor) – It looks pretty

(Resident) – DASH should run the trolley, that way it will be friendly, safe, courteous, and reliable...unlike current trolley.

(Resident – D. Kaplan) – Definite improvement over current trolley. Consider adding 2nd door to vehicle and push button to supplement the cord for requesting a stop. 2nd door would be significant improvement for boarding / alighting also like look of vehicle with 2nd door in picture. The aisles are wide, which is great. Also like LED lights and low-floor.

(Resident – A. Dorman) – Looks very nice. Fits with what has been expected after National Harbor Collaborative recommendations.

(Resident – P. Miller) – Good, DASH should be in charge

(Staff/Agency – S. Brown) – Not crazy about the current look, but I'm sure it would be great. Feels bus like, but worth the tradeoff.

(Staff/Agency – K. Beeton) – I really like the interior features, especially the standing area because I have observed many times on the current trolleys when it is standing room only. I also like the exterior bicycle racks, and that the vehicles are manufactured in the US.

(Visitor – R. Amaya) – “I saw there was a bus looking trolley on king street at market square on Wednesday. Will that type of trolley replace the trolleys now I did not have a chance to fully look at it but it did not look like the trolleys you see around here and other cities and look like a new metro bus with a wrapping. I do not think it is a good imitation but what is the reason for changing the trolley. If you do change the trolley I have one request and this is a major request because I use the trolley daily to get to the metro station so please if you get another trolley get a bigger trolley with more seats so people will not have to stand from the Torpedo Factory to the metro station as it can be tiresome after working for 8 hours on my feet and not getting a seat because there are so many people on the trolley in the afternoon and evenings.”

(Resident - V. Papadopoulos) – “To whom it may concern I want to provide some feedback on the trolley which was staged on King Street today. Pros I like getting on without going up the steps and the electronic displays. Cons it looks too much like a regular city bus and the cupola is not visible from inside the trolley and inside wood material looks cheap and it does not have the ambiance of the regular trolley on King St. I and many like the regular trolley on King St why are you making this change? One reason I like the regular trolley is because it does not look like a bus and feel like I am on a city bus. I also like the open air through the trolley when you put the bars on the window it makes the trip even more enjoyable. Making this switch to the bus will hurt the ambiance of riding. It also seems to be smaller than the regular trolley and I hate getting on the regular trolley have stand and the one that was on King St today looks to be even smaller which is not a smart move. In all it is a bus and not a trolley and it feels like you are on a bus and not a regular trolley. If it is free I will continue to ride it but I will not use it as much as I use the regular trolley to entertain my friends as it is just a bus.”

(Unknown – J. Thomas) – “The new green trolley looks too much like a bus and the windows don't open which can be a negative when the weather is nice and one thing I like about the black and red trolleys.”

(Resident – Andrea) - stated that she did not want the City to "change the way the trolley looked" and she did not like the "outside" (exterior) and "inside" (interior) of the vehicle because it was not historic.

(Resident) - Really liked the vehicle as compared to the existing Martz vehicles but was only concerned with the size of the vehicle, standing, and the vehicle being "tourist friendly.”

(Staff/Agency – J. Smallwood, Martz Trolley Driver) - stated that he really liked the vehicle. He thought it was very "driver friendly" in terms of comfort and sightlines as compared to what he drives now, and he liked the fact that the engine was placed in the rear and not the front.

(Unknown) - thought the vehicle was quiet but was concerned that the windows could not come out during the spring, summer, and fall months. She also expressed concern in regards to the exterior appearance of the vehicle and the windows being too big.

(Unknown) - stated that he likes the ruggedness of the existing vehicles over the heavy-duty vehicle. He stated he likes being on a "different" vehicle than a bus. He also stated that he likes riding the Old Town trolley in DC and the King Street Trolley and mentioned he did not like the lighting inside the heavy-duty vehicle.

Medium-Duty Trolley vs. Heavy-Duty Trolley

	Avg. Useful Life	Engine Placement	Chassis	Accessibility for Persons with Disability	Access into and off of Vehicle	Climate Control
Medium-Duty Trolley	7 years	In the front for trolleys smaller than 32 Feet (increase noise and high temperatures for drivers)	Truck or Bus	Accessible via a lift at the rear of the vehicle (driver must alight from vehicle, and open door to operate the lift)	3 to 4 steps	Aftermarket A/C and Heating Units
Heavy-Duty Trolley	12 years	In the Rear of the Vehicle (reduces noise and high temperatures for drivers)	Bus	Accessible via a ramp at the front of the vehicle (does not require a driver to alight from the vehicle)	1 step	Included on Vehicle

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Attachment N

12-8-09

Letter to City Council asking for procurement of hybrid trolleys for King Street Trolley service

Honorable Mayor William Euille and Members of City Council
City of Alexandria
Suite 2300, City Hall
301 King Street
Alexandria, VA 22314

RE: Acquisition of Hybrid Trolleys for King Street Route Utilizing Federal Stimulus Grant Funding

On behalf of the Environmental Policy Commission (EPC), I am writing to urge the City to demonstrate its continued leadership on environmental sustainability by procuring hybrid trolleys for the King Street Trolley service, instead of low emission diesel trolleys.

EPC acknowledges that the City faces a difficult decision on this issue, and that hybrid buses cost significantly more than their diesel equivalents. As a result, the City must now decide whether to purchase five diesel trolleys, four hybrid trolleys, or move funds from reserves to allow the procurement of five hybrid trolleys. We understand that a reduced number of hybrid buses would raise questions about the wisdom of investing in the other aspects required to support hybrid technology (maintenance training, equipment retirement, etc.)

While much of a cost-benefit analysis depends on route characteristics, the evidence from a Department of Energy-sponsored research program, undertaken by the National Renewable Energy Lab (NREL) and published in December 2006, indicates a measurable boost in the performance of hybrid over diesel vehicles, such that the City should expect a minimum of 25% benefit in miles per gallon with hybrid trolleys over diesel trolleys. City staff indicate that emissions from the hybrid trolleys would be 70% lower than from the 'low emission' diesel trolleys. Purchase of hybrid trolleys will make the City less vulnerable to increased fuel costs, to expected costs associated with the emission of greenhouse gases, and will also provide a very significant reduction in noise during trolley operation. The lower costs due to reduced fuel use and avoided emissions could prove significant over lifetime of the trolleys.

Ultimately, though, these benefits to procuring hybrid trolleys may be outweighed by the public relations benefits of choosing climate-friendly technology. The King Street corridor is the prime tourist area in Alexandria. With climate change legislation, initiatives, and treaties being discussed at all levels of government—including through the City's upcoming climate change plan—the coming years will see strong public interest in reducing greenhouse gas emissions. Within a year or so, automakers are expected to unveil all-electric vehicles for sale to the public, as well as updated hybrid vehicles. Communities the world over are already moving toward use of hybrid buses and trolleys instead of diesel; in three years' time, diesel trolleys will look sorely outdated.

Alexandria rightly prides itself on its award-winning Eco-City initiative and the Environmental Action Plan-2030 (EAP). The Eco-City initiative will be all but meaningless, however, if the words on paper are not followed up by action and investment. The EAP's chapter on transportation calls for investment in hybrid and low-emission vehicles. In addition, Goal 4 of the EAP's chapter on implementation—entitled “City as Sustainability Leader”—calls for the development of a “green purchasing policy.” We believe procurement of hybrid trolleys is a textbook example of green purchasing.

In light of these considerations and likely benefits to the city, the EPC voted unanimously to recommend that hybrid trolleys be procured for the King Street Trolley program, instead of diesel trolleys. Thank you for your consideration, and for the opportunity to share our concerns.

Sincerely,
{signature}