The Committee of 100 on the Federal City

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Subject: Benning Road & Bridges Transportation Improvements Draft Environmental Assessment and Section 106 Review

Gentlemen,

Attached are the comments of the Committee of 100 on the Federal City concerning the Environmental Assessment for this proposed project.

Sincerely

Nancy MacWood, Chair

cc: The Project Website info@benningproject.com

The Honorable Mary Cheh mcheh@dccouncil.us

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Comments Pertaining to the

Benning Road & Bridges Transportation Improvements

Draft Environmental Assessment and Section 106 Review

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June 2, 2016

The Committee of 100 submits the following comments on the Benning Road & Bridges Transportation Improvements Environmental Assessment and Section 106 Review. Our comments explain that the section of the draft EA concerning streetcars is outdated, biased and in some places, just plain wrong. Our comments concerning improvements to bridges and intersections agrees that improvements are needed, but questions the cost responsibility of CSX for the Viaduct Bridge replacement and questions whether the intersection redesigns adequately improve those intersections. Our comments are organized as follows

A. The need to address streetcar propulsion technology
B. The outdated information concerning streetcar propulsion
C. The description of off-wire technology, while limited, is biased
D. The description of the extent of use of wirefree propulsion is wrong.
E. Bridge and Intersection Improvements

A. The Need to Address Streetcar Propulsion Technology

The proposed Streetcar Extension is discussed in term **of** two alternatives systems: whether to locate the tracks at curbside or in the median of the roadway. Pages 2-38 through 2-41 of the draft EA contains mention of wireless and overhead wire propulsion systems. They are discussed not as alternative propulsion systems, but merely superficial descriptions are provided.

The draft EA does not address DC Code §9-1174 that requires:

> (a) Prior to the expansion or construction of aerial wire-powered streetcar transit beyond the H Street/Benning Road line [DDOT] shall develop a plan and submit the plan to the Council that evaluates the feasibility of using non-aerial power as a means of propulsion for the phase or extension.

No such analysis is included in the EA and apparently DDOT intends to submit that analysis to Council at some time after the EA process is completed. But DDOT is required to produce a comprehensive assessment report about non-overhead wire technology to Council by January, 2017 (DC Code §9-1174) and the Committee of 100 suggests that the EAs of the individual segments need to address non-overhead wire technology, be consistent with each other[1] and with the January 2017 comprehensive report. Having that information is critical in determining how the project will be accomplished, and that determines the environmental impacts of the project. For example, the EA explains that to install overhead wires would severely impact the residential section of Benning Road (east of 42nd Street) ted because all existing mature trees would be removed (page 4-68):

> "Both Build Alternatives would induce the most change to the Eastern Benning Road viewshed. Through much of this portion of the study area, the curb face to curb face width of Benning Road is approximately 42-feet. In order to install appropriate lane widths for the streetcar and city buses, the curbs would need to be reconstructed approximately three feet back from their current location, thereby necessitating the removal of all existing mature trees along this portion of Benning Road. As noted in **Section 3.6.3**, these trees currently help mask the existing overhead utilities along this section of the corridor. The loss of the tree canopy and the addition of new overhead utilities to provide streetcar propulsion would result in a change to the Eastern Benning Road viewshed until newly planted trees mature."

DDOT dismisses aesthetic affects of overhead wires. But there are issues of equity that DDOT should consider and DDOT's unsupportable position that any neighborhood that has overhead utility wires is fair game for more overhead wires from streetcars and for the destruction of the existing tree canopy, which provides numerous environmental benefits is clearly contrary to sound public policy.

[1] The EA for the Union Station to Georgetown streetcar extension proposes the use wireless propulsion in large part because overhead wires detract from aesthetics and visual quality in that part of the City. But in this EA, DDOT claims that overhead wires can be imposed on Anacostia.

In discussing the impact on utilities, the draft EA describes that to protect from stray currents (that will result because the track rail is used for the return electric path), utilities must be relocated by installing them 30 inches below the tracks and providing a utility-free buffer strip, three feet wide on each side of the tracks (page 4-72). There is no mention of the need to install electric insulation between the tracks and the concrete track slab (as they did on H Street) or the effect of the utility location restrictions on future utility repairs and customer connections in terms of costs and complexity.

B. The Information is Outdated

The draft EA contains pre-2014 information on technology and cost estimates.

Statements about technology based on outdated information are wrong because of advances in technology. The draft EA cites as its source document for off-wire technology the *Comprehensive Assessment on Streetcar Propulsion Technology* (DDOT, July, 2014). But that report is based on pre-2014 information about propulsion technology and is outdated.[2]

In addressing the impact of the streetcar extension on cultural resources, Spingarn School is listed as an historical resource (tables 4-19 and 4-20) that will suffer no adverse affects from the streetcar extension. No explanation is provided. The Committee of 100 does not disagree with that conclusion, but the absence of future adverse impact is because the serious impact on the Spingarn Campus has already resulted from the almost completed construction of the car maintenance barn where it blocks the view of the historic campus. But this is not mentioned in the EA. Is this because that part of the EA was prepared before the maintenance facility was under construction?

The O&M cost estimates contained in Appendix C are DDOT's 2009 cost per mile and 2010 cost per hour, escalated to 2014 values. [3] Why present 2014 costs in this 2016 report and why not use DDOT's actual cost experience, now that the streetcar is running on H Street?

C. The Description of Off-Wire Technology is Biased

While the discussion of off-wire- propulsion is limited, even that discussion is biased. The EA recognizes that overhead wires are unacceptable from a visual and aesthetic perspective, but limits this recognition to "limited distances in areas where OCS is

[2] The 2014 Report state at page ES-1: "Based on initial research completed in 2011 and additional research conducted in 2013-14, on behalf of DDOT, HDR has analyzed and consolidated the available off-wire technologies"

[3] Page C-5 shows the cost of the 3 streetcars at $15M but page C-6 states "a lump sum of $3 Million per vehicle in 2014 dollars was used." There are other inconsistencies that suggest the EA has been patched together from previous documents.

deemed unacceptable from the visual perspective or the OCS elements would physically interfere with other activities; the remaining segments of these systems would operate under wire."(page 2-40). But to recognize that overhead wires detract from the viewsheds in some parts of the City, but claim overhead wires might be imposed in other parts of the City is prejudice. We are one City.

The discussion identifies batteries and supercapacitors as the two primary technologies in that provide wireless propulsion. The report discuss the shortcoming the two energy storage systems separately (pages 2-38 through 2-41.):

> Supercapacitors have a fast charge/discharge rate, typically measured in seconds, which is compatible with the need to charge quickly at transit stops. Supercapacitors are used for wireless streetcar operation in specific sections of existing systems; the majority of these systems, however, operate under wire
>
> Batteries charge and discharge time can be long, typically measured in hours; however, batteries can store more energy per unit weight than other on-board storage devices such as super capacitors or flywheels. Propulsion with batteries alone, however, is characterized by lower vehicle acceleration and overall performance. The Benning Road corridor includes higher speed segments, grades and, potentially, streetcar operation in a shared lane.

The report fails to discuss how supercapacitors and batteries have been combined in systems that cancel out the shortcoming of the technologies used by themselves. The report states (page 2-41) "Supercapacitor and battery life are affected by the number of charging cycles, the frequency and degree of high performance operation, vehicle passenger loading, ancillary power consumption, and grades." But the report fails to go on and explain that supercapacitors are capable of millions of recharge cycles, but battery recharge cycles are in terms of thousands of cycles. The report states that "the range for wirefree operation of ESS technologies varies between 0.25 and 2.5 miles and is dependent on the on-board energy source and available capacity, based on research of existing systems" but fails to explains the factors that account for the differences or how those factors are relevant to the DC streetcar system (page 2-41).

Throughout the report the comparisons are between curbside versus median location of the tracks. The costs of the streetcar portion of the project for the two alternatives are almost identical at $56 million (page 2-42). There is no comparison of the cost of overhead wire versus a wireless system.

D. The Description of the Use of Wirefree Technology is Wrong

The report states at page 2-49 that "Completely wirefree systems have recently opened, are under construction, or in final design. However, no existing wired systems have been converted to wirefree." In fact, in 2010 supercapacitors were installed to power streetcars without overhead wires in the historic Cathedral district of Seville, Spain. Previously,

streetcar service was stopped and the overhead wires removed so as to not interfere with the traditional religious parades

In 2014 wire-free tram services opened in Nanjing, China. The services uses trams that collect power from overhead wires located over passenger stations and then travel in wire-free mode for the rest of the time.[4] Each tram is fitted with two Bombardier Primove high-power battery packs and Bombardier Mitrac supercapacitors and control equipment.[5] They travel over very demanding lines which features steep inclines that have been chosen to prove the suitability of frequently charged batteries as a practicable way of powering trams.
http://primove.bombardier.com/projects/asia-pacific/china-nanjing-primove-tram.html

In October 2015 a tram equipped with the Bombardier propulsion system created a new endurance record by travelling 41.6km (almost 26 miles) in Mannheim, Germany, powered solely by its Primove battery pack in combination with a Mitrac supercapacitor.
http://www.marketwired.com/press-release/bombardiers-battery-powered-tram-sets-range-record-tsx-bbd.b-2069828.htm

Siemens successfully participated with CSR Zhuzhou Electric Locomotive Co., Ltd. in supplying the first wire-free tram project in Guangzhou that became operational in 2015. Siemens, in cooperation with CSR won the Wuban tram line project where Siemens will supply key components for the 21 train sets, including propulsion, train control, braking and auxiliary systems. There will be 29 ground stations along the Wuhan tram line that extends a total length of 19.96 km. Commercial operation is scheduled at the end of 2016.
http://w1.siemens.com.cn/news_en/news_articles_en/2951.aspx

In 2014, CAF installed and began testing the world's first cable-free rail system in Taiwan, combining supercapacitors, wireless charging systems and regenerative braking that allows streetcars to travel without the overhead wires. The entire $540 million project is expected to be complete by 2017, serving Taiwan's second-largest city.
http://www.ibtimes.com/wireless-electric-rail-begins-testing-kaohsiung-taiwan-worlds-first-completely-cable-1722488

In 2015 Brookville, an American manufacturer, won the Technical Innovation Award at LRTA's 2015 Global Light Rail Awards for its Liberty streetcars that are powered by overhead wires on part of their routes and use lithium-ion batteries for the wireless portion of the routes. Brookville is supplying its Liberty streetcars to Dallas, Detroit, Milwaukee and Oklahoma City.

[4] This is the same type of wireless propulsion that DDOT has proposed at the scoping stage of the EA for the Union Station to Georgetown Streetcar Extension

[5] Bombardier, a Canadian company, supplied the rolling stock for Amtrak's Acela.

http://www.brookvillecorp.com/news-streetcar.asp

E. Bridge and Intersection Improvements

The Viaduct Bridge

Approximately two-thirds of the project cost is for roadway and intersection improvements, including upgrading or replacing the three bridge segments and improving the Benning Road/Minnesota Avenue intersection. The project proposes to demolish and reconstruct the Viaduct bridges over DC-295 and the CSX railroad tracks to meet current design and safety standards and to meet the minimum CSX vertical clearance requirements of 23 feet to allow double stacked freight cars. (EA page 2-16).

How much of the Viaduct replacement cost is due to the CSX need for higher clearances that will allow CSX to increase the capacity of their mainline corridor and how will that be reflected in the cost responsibility for reconstructing the bridge?

Intersection Improvements

Appendix E contains the Transportation Technical Memorandum that presents information about the Level of Service (LOS) of the 11 signalized intersections and 4 unsignalized intersections that are located within this project (page E-6).

The worst intersection is Benning Road and East Capitol Street, with a current LOS of E for the intersection (page E-17). Table 4 also shows the intersection has a LOS of E, but the northbound and eastbound traffic experiences a LOS of F (page E-15).

By 2018, if nothing is done (the No-Build Option), that intersection will experience a LOS of F (page E-23). But whether the curb-running or median-running alignment of streetcars is built, that intersection will still experience a LOS of F in 2018 (Page E-30 and E-31). By 2040, under either streetcar alignment, that intersection will continue to experience a LOS of F (pages E-46 and E-47).

Similar zero or small improvements of LOS are depicted for other intersections. While all of the analyses assume the streetcar is running, there is no translation of streetcar ridership into reduced vehicular traffic that would improve the Level Of Service at these intersections.

Why spend the money to reconfigure intersections with little or no improvement in the Level Of Service? Does the EA present the best design to reconstruct these intersections to improve Level Of Service?

Conclusion

The Streetcar portion of the draft Environmental Assessment should be withdrawn and redone to reflect a technically competent and accurate evaluation of wireless streetcar propulsion and an objective comparison of wireless versus overhead wire propulsion for this extension of the streetcar system. The redesign of intersections needs to be evaluated to determine whether they adequately improve those intersections**.**

We welcome the opportunity to meet with DDOT and FHWA to discuss further the comments in this submission

Respectfully Submitted,

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Transportation Subcommittee of
The Committee of 100 on the Federal City